Untis
GRUBER & PETTERS

Untis

www.untis.at

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1 Foreword

In the interests of equal linguistic treatment of all genders, we at Untis try to adhere to the basic principles of gender-equitable formulation. However, as reference is also made to the program interface in many places in this manual, where not all genders are always mentioned for reasons of available space and translatability, it should be expressly pointed out at this point that the words student, pupil, teacher, planner etc. refer equally to all genders without exception.

2 Master data

2.1 Introduction

In the course of its more than fifty years of development, Untis has grown into an extremely powerful tool. The wealth of functions and setting options - and not least the scope of this manual - can therefore be daunting for program newcomers.

For this reason, we recommend that you first study the much more compact short introduction carefully. The short introduction guides you through all stages of timetable creation with Untis using easy-to-understand examples: from installing the program to entering the school data to the master data of your school - and then on to entering the lessons to the actual creation of the timetable by means of optimization, diagnosis of the calculated timetable and any manual changes through to printing the finished timetables of teachers, classes and rooms.

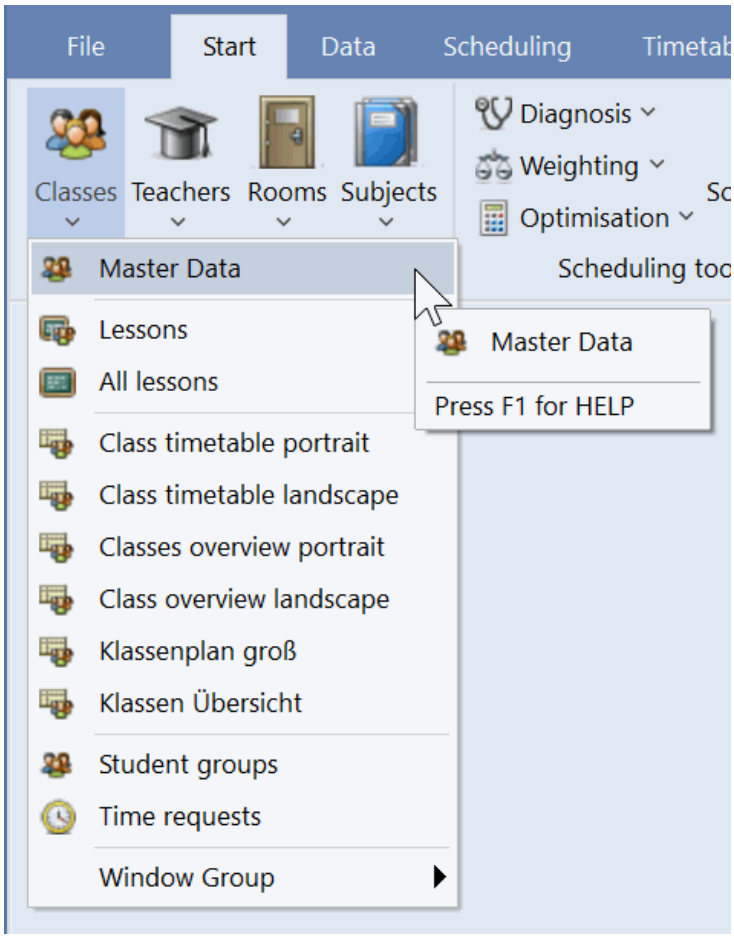
The structure of this manual is also based on this natural structure. However, it is intended more as a reference and reference work than as a concise guide.

You should therefore use this manualif you encounter situations when creating your timetable that are not coveredin the *short introduction*, or to familiarize yourself with the advanced functions of Untis at your leisure and thus use Untis more effectively.

2.2 Master data

This chapter deals with the entry and maintenance of master data and its properties.

The master data is the basic data required for planning the timetable at a school. This includes teachers, classes, rooms and subjects from which lessons are formed, as well as other important details such as departments or corridors. You can access the master data on the "Data entry" tab, but the most important elements can also be called up on the "Start" tab.



Classes, teachers, rooms and subjects are of particular importance among the master data because, as mentioned above, they define the lessons. We will therefore also use the generic term *elements* for these master data types.

All master data is managed in so-called formats. The formats are windows in which you can enter new master data and maintain (i.e. change) existing master data. All master data formats can basically be used in the same way, so the following section will first describe these similarities.

2.3 The master data formats

Each master data element (classes, teachers, rooms, subjects, students) is managed in its own window.

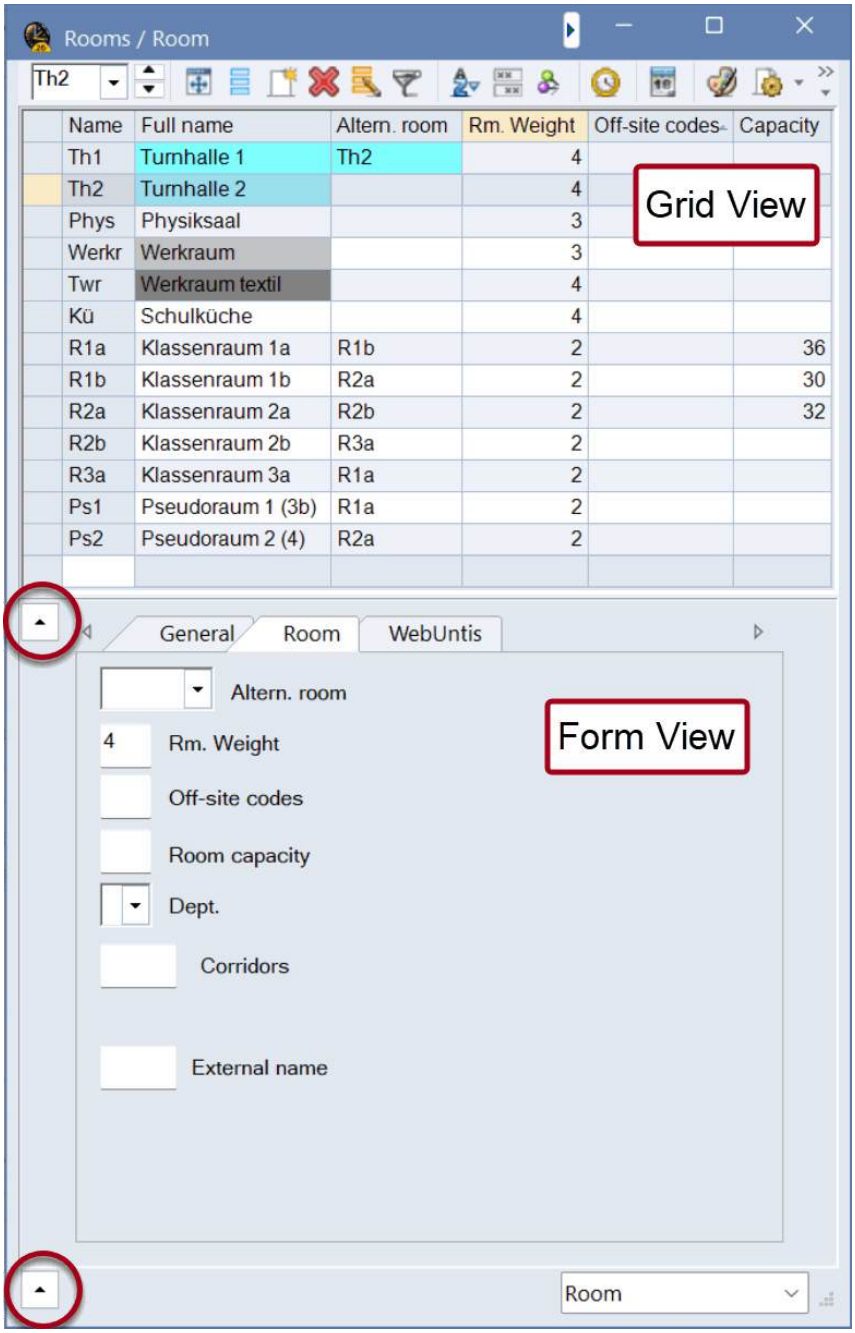
All master data windows consist of three parts: toolbar, grid view and form view.

Grid view
The grid view is line-oriented. One element is displayed per line. All attributes that have been activated (by the user) in the relevant format are displayed for this element. In the example, these are the fields Name, Long name, Alternative room, Room weight, Displacement indicator and Capacity.

Form view
The form view is element-oriented. In the form view, one element and all attributes belonging to this element are displayed, in the example the alternative room (if available), the room weighting, its capacity, etc. are visible.

Tip:

You can show and hide the form view using the button at the bottom left of the window.

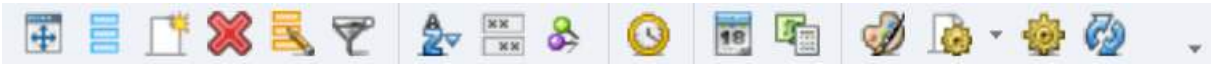


The following topics are also covered:

Toolbar
Data entry
Editing formats
Managing formats
Printing

2.3.1 The functions of the toolbar

You will find the following buttons in many Untis windows:



Show normal form
This function adjusts the size of the outer window frame to the size of the table.

Field dialog (view fields)
The functions of the fields dialog are discussed in detail in the chapter Show/hide columns.

New
This button opens a new element. You can find more details in the Data entry chapter.

Delete
This function deletes the active element. You can also select several elements by highlighting them and then deleting them using this button.

Change series
You can use this function to change the contents of a field in all rows of the grid view at once. This function is described in detail in the Series change chapter.

Filter
This button displays a filter line in which you can filter according to the currently selected element. You can find more information on filtering in the Filter chapter.

Sort
This is automatic, permanent sorting, which is explained in the Sorting chapter.

Fields with content
This extremely useful function temporarily activates all columns in the grid view in which at least one entry can be found. Another click on this button restores the original state of the window.

Fixed view
If this function is activated (button pressed), the view in question remains unaffected by processes in other windows. Automatic synchronization is switched off.

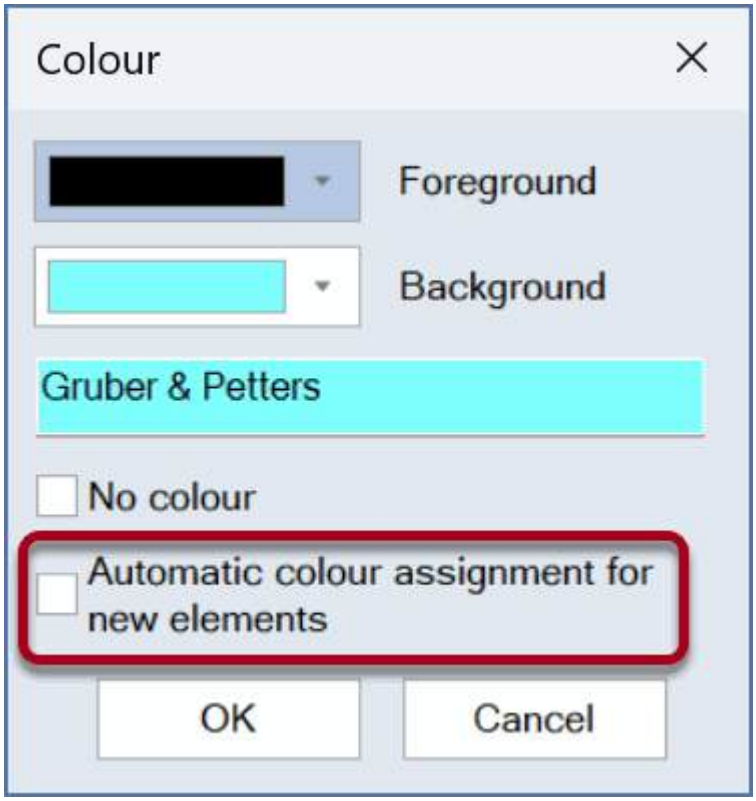
Time requests
This function is used to enter time requests. The gradation of these time requests for elements ranges from "-3" (absolute blocking) to "+3", which corresponds to a very strong desire for activity. As time requests are of central importance for all elements and also for lessons, the Time requests chapter in the Application notes section is dedicated to them.

School year calendar
You can use this button to call up the date display using the school year calendar.

Color
You can use this button to assign any foreground and background color to each element (or lesson). These colors are used in the screen display, in the standard printout of the timetable and in the displays of the planning tools(planning dialog, planning timetable). In other Untis modules, such as the substitution planning module, the elements are also displayed in color in the appropriate places.

Tip: Coloring several elements
You can also give several elements the same color coding at the same time by selecting them (by crossing them out) and only then clicking the <Color> button.

In the "Colour" dialog, you can also define that new elements are automatically assigned a color.



Page layout
Here you can make settings for printing and view the result at the same time. You can find more information on this in the Printing chapter.

Settings
You can use the <Settings> button to change the font, font size and similar settings.

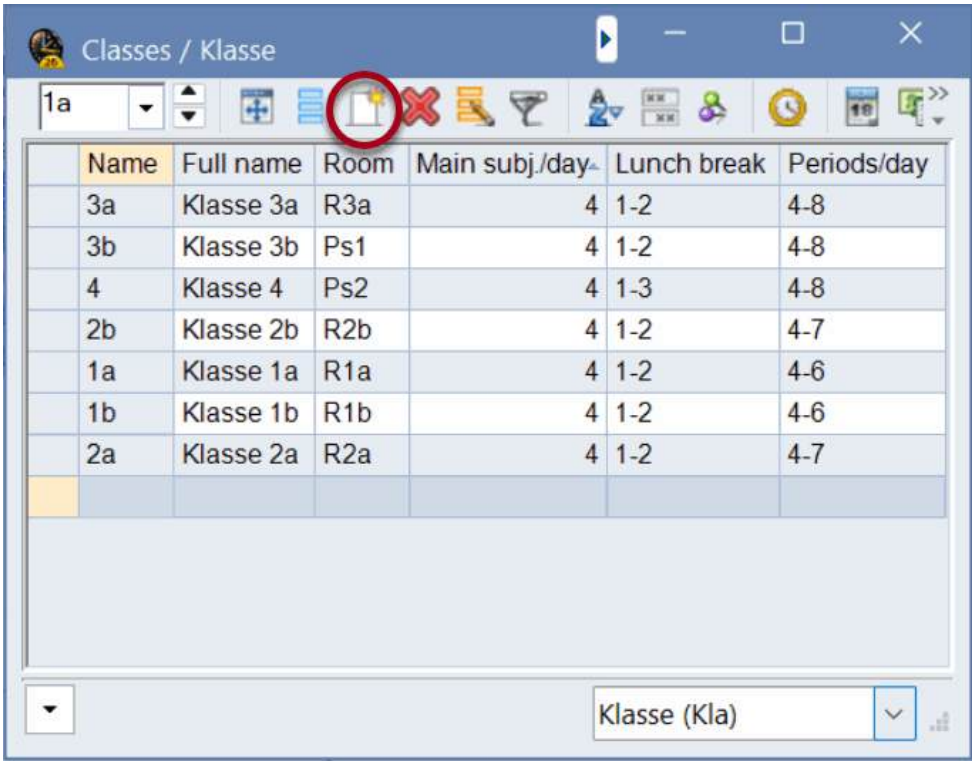
Refresh
The format is updated. Alternatively, you can also press the F5 key.

2.3.2 Data input

New elements in the master data formats are always entered in the last line of the grid view.

Alternatively, you can also activate the <New> button in the toolbar of the window - the cursor is then automatically placed in the last line of the grid view.

Attention: Confirming the entry
Always confirm your entries with <Return> or <TAB>, otherwise the last entry may not be saved.



To make further entries, move the cursor to the relevant field using the mouse or the cursor keys and enter the corresponding data.

Tip: Change short name
You can change the short name of an element by double-clicking in the "Name" field of the corresponding element.

2.3.3 Edit formats

There are many different columns in each master data window. However, there is no school that requires all columns. You can therefore decide for yourself which columns should be displayed and which should not.

You also have the option of sorting the rows and columns.

2.3.3.1 Show / hide columns

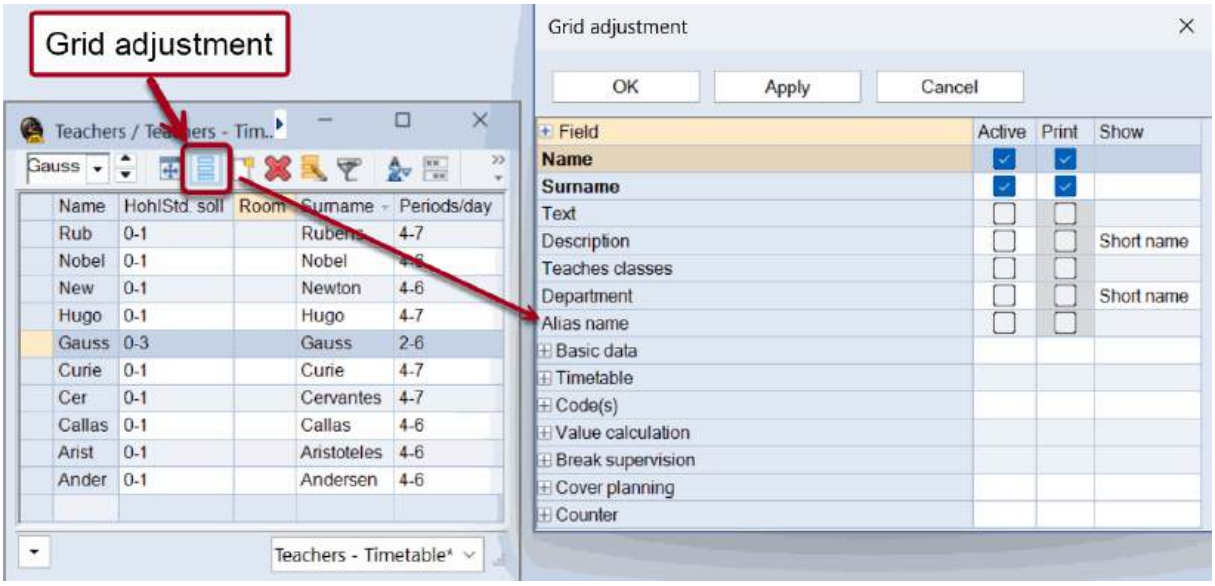
You basically have two different options for changing the display of the columns: via <View fields> or via the form view.

Tip: Fields with content
If you click the <Fields with content> button , all columns containing at least one entry are displayed. This function is ideal for detecting any input errors.

Fields in the view

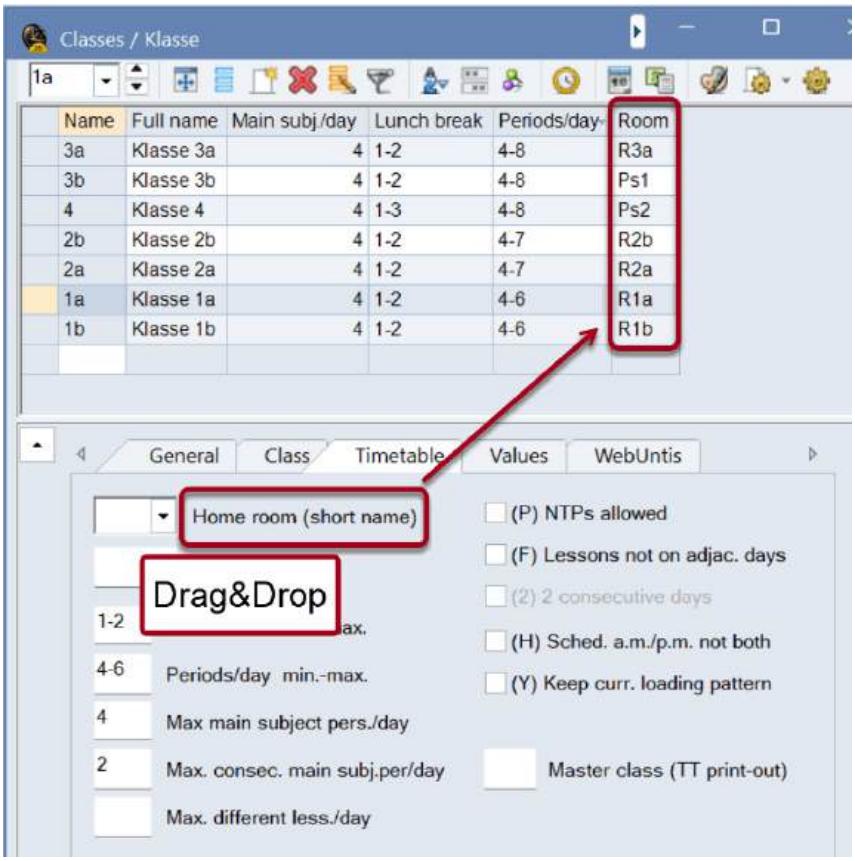
Click the <View fields> button and check the "Active" column for the columns you want to display.

Tip: Further options
You can also use <View fields> to decide whether a column should be included in the printout and whether the short or long name of the corresponding element should be used.



From the form view

Move the mouse cursor to the desired point in the form view until a quadruple arrow appears. You can now drag and drop this point upwards into the grid view, where the column is then displayed.



To hide a column, hold down the <CTRL> key and drag it from the upper, tabular view to the lower area (form view).

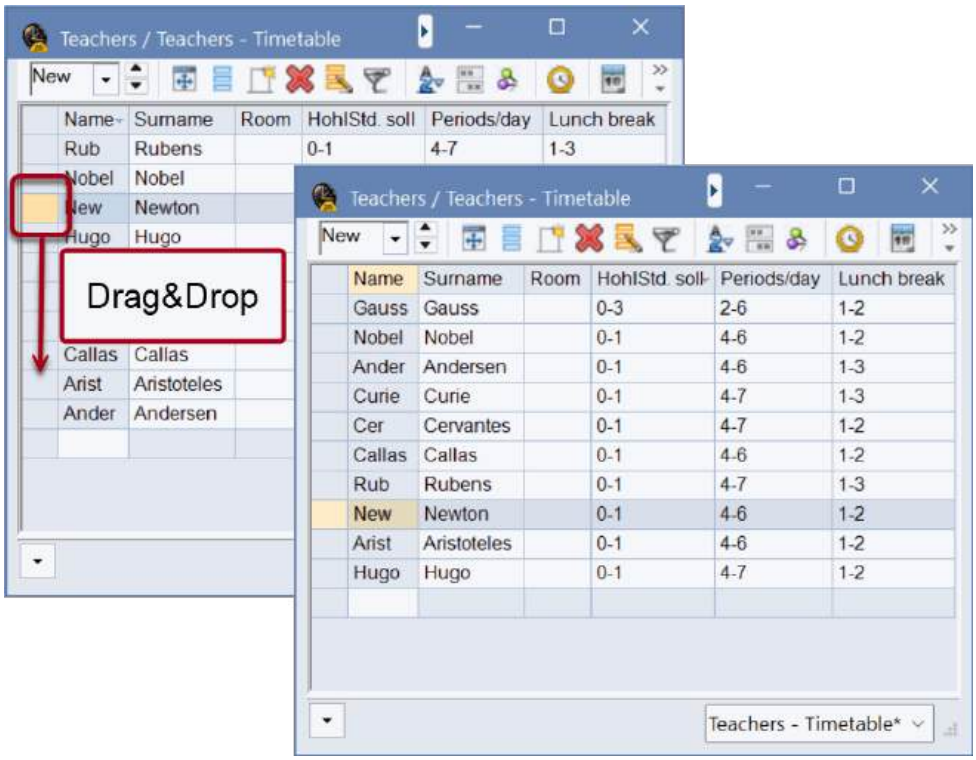
2.3.3.2 Sort

Three different sorting options are available to you.

Manual sorting with drag & drop

If you want to reorder an element, click in the first (blue) column of the element you want to reorder and hold down the left mouse button. Now drag the element to the desired position in the list.

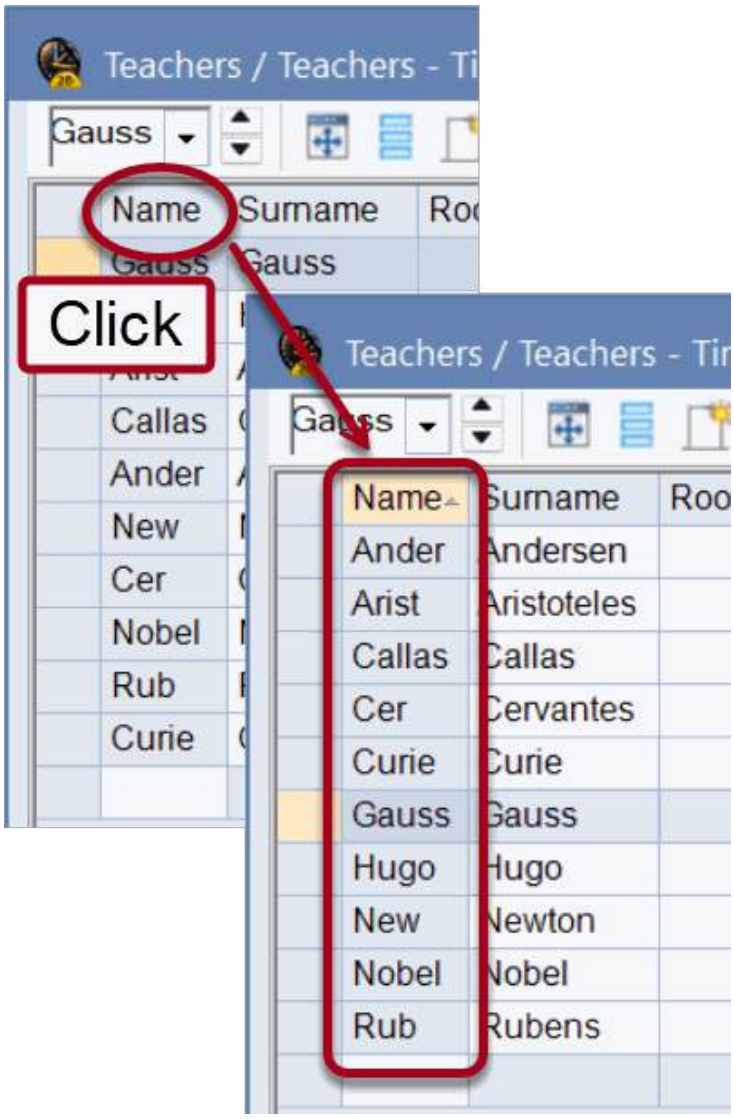
The order of the columns can also be changed using drag & drop.



Automatic temporary sorting

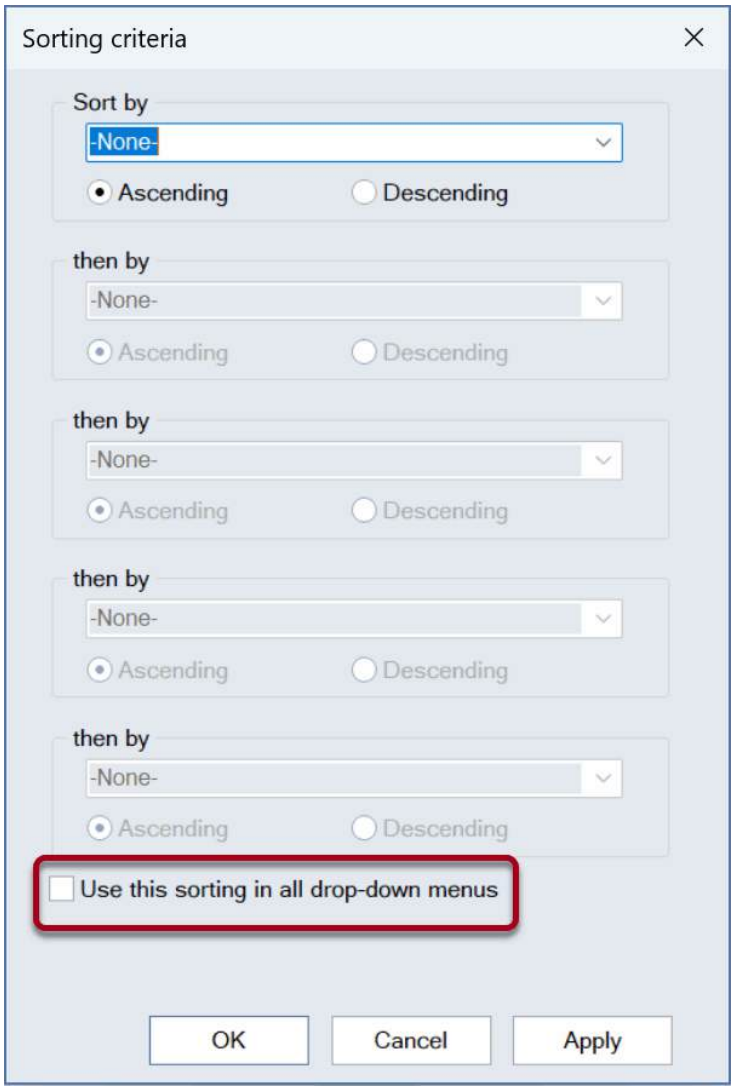
By clicking in the heading column, the table is temporarily sorted in ascending order according to its content. A further click sorts the data in descending order.

Attention: Temporary
After closing and reopening the window, the original order is restored.



Automatic permanent sorting

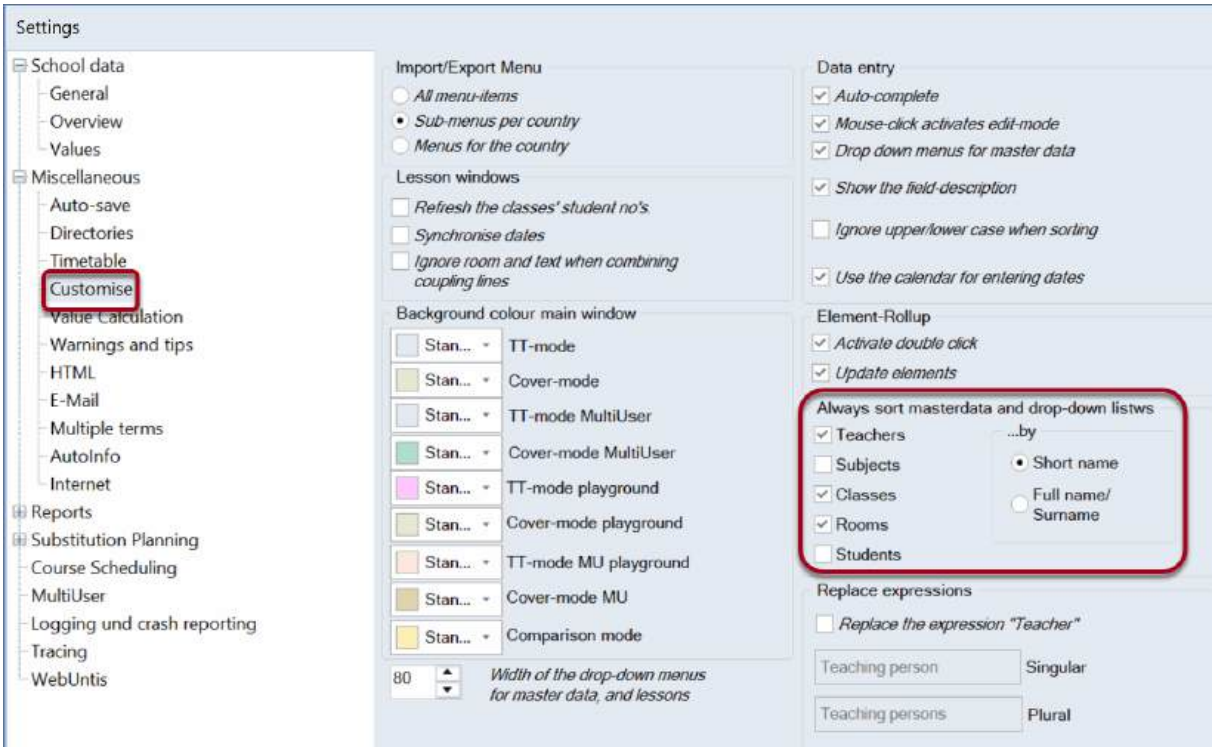
Click on the <Sort> button to open another window in which you can define up to five different sorting criteria in hierarchical order.



Select the fields according to which the format should be sorted here. If "Also save sorting for selection lists" is checked, this sorting is also applied to all places in the program where these elements are listed.

Permanent sorting via the settings

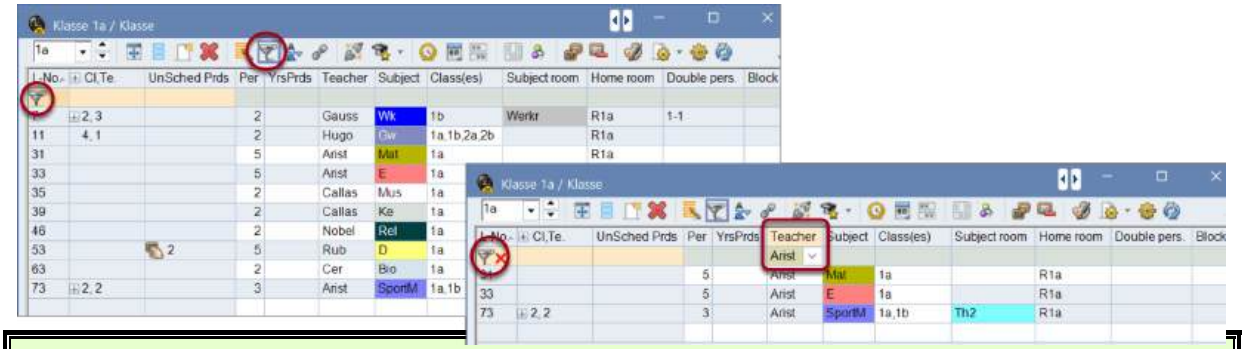
You can also permanently activate the sorting of master data under <Settings> | Miscellaneous | Customize | "Always sort master data/selection lists".



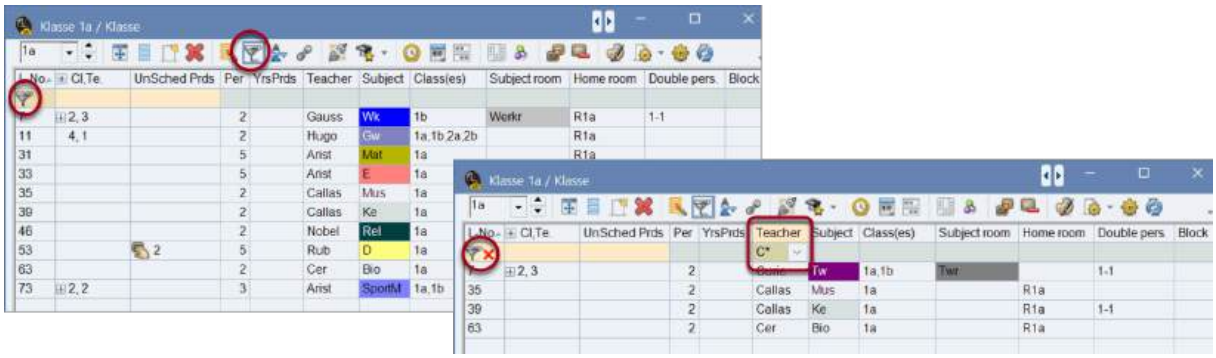
2.3.3.3 Filter

If you want to filter a specific format according to one or more criteria, you can do this quickly and easily using the filter function.

Click on the <Filter> button and a line with the filter symbol will appear between the headings and the table content. In this line, enter the filter criterion by which you want to filter in the corresponding column.
You can also filter according to several criteria at the same time (mathematical AND link).

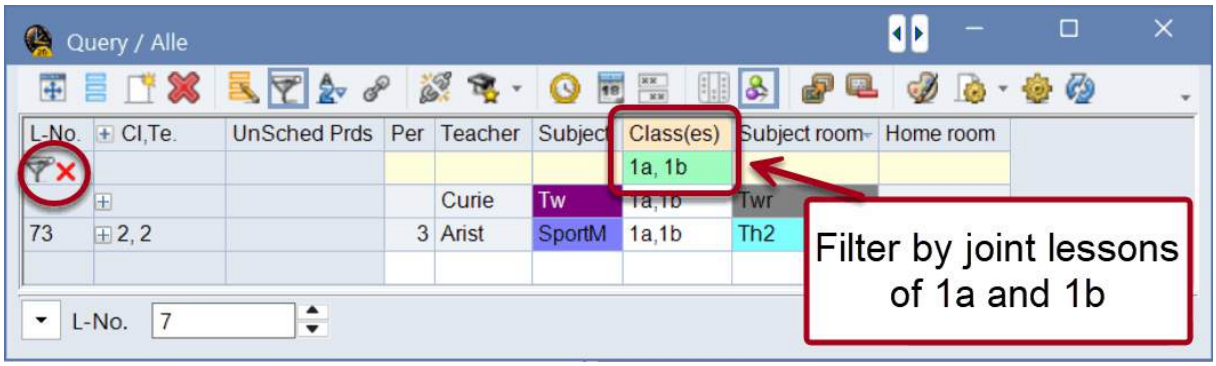


Tip: Wildcards
Please note that you can also use the placeholders "?" and "*" when filtering, which stand for any character or any number of characters.

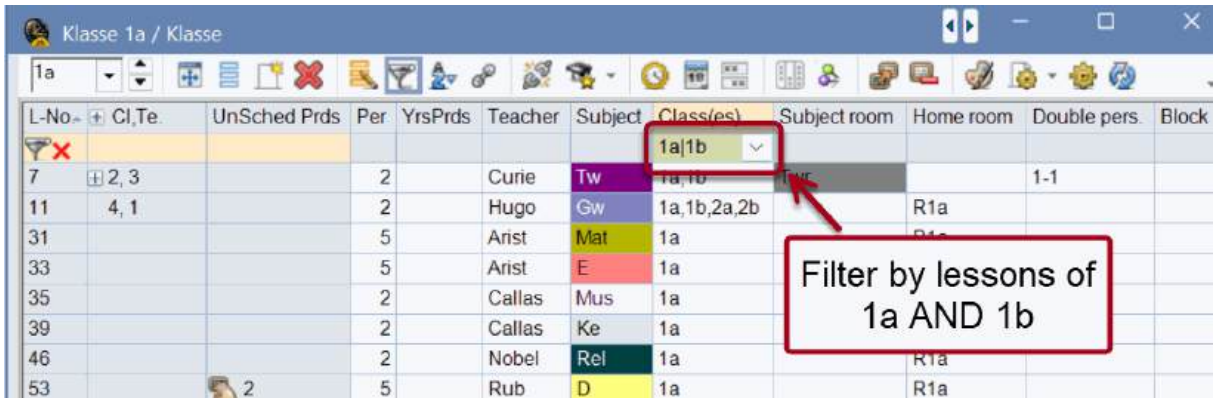


Data filter: AND-OR condition

On the one hand, you have the option of introducing an AND condition when filtering within a field. For example, to filter for the common lessons of 1a and 1b in the "All lessons" window, click on these two classes in the combo box while holding down the <CTRL> key and then press <ENTER>. You can see the result in the following graphic.



On the other hand, you can also filter with an AND/OR condition by entering "1a|1b" in the combo box to display all lessons - separate as well as common - of the two classes, as shown in the following screenshot.

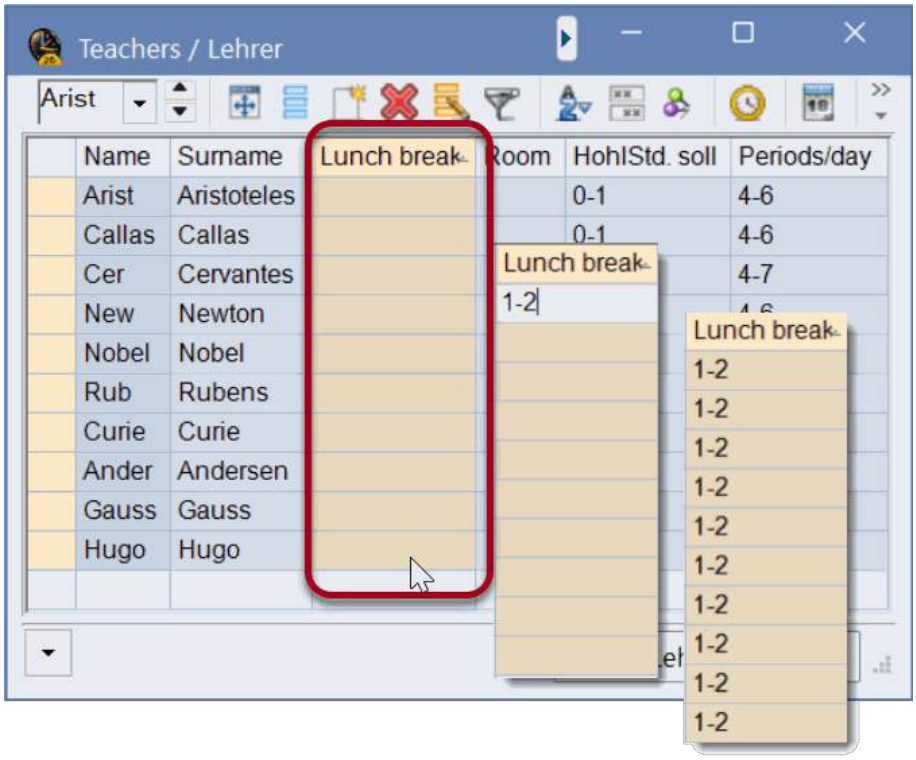


2.3.3.4 Series change

In Untis you will find **two options** for making series changes:

By crossing out

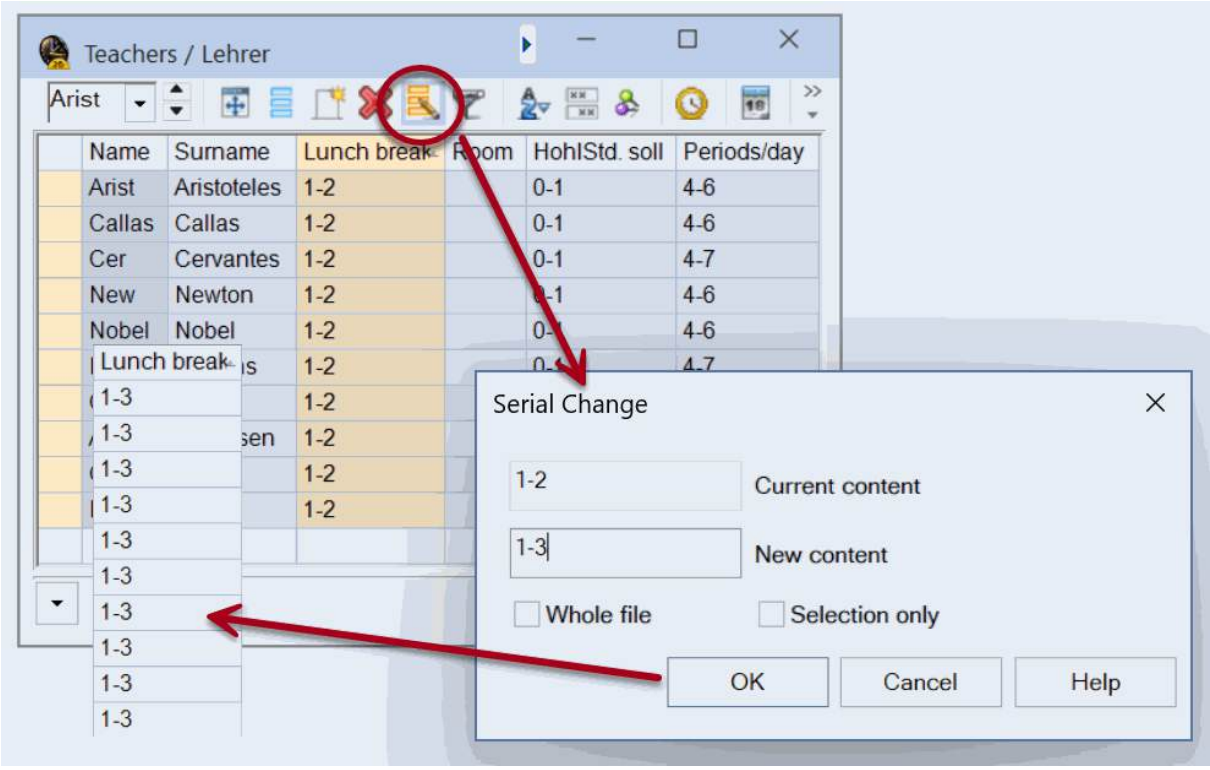
Cross over (mark) the desired area with the mouse so that the fields are colored yellow. Now enter the desired value without clicking again - this will now appear in every marked field.



Tip: Select
You can also select fields using the keyboard: <Shift> + <Down arrow> or <Shift> + <Up arrow>. It is also possible to select cells that are not immediately consecutive by holding down the <CTRL> key.

Using the Series change function

In the toolbar of the window, you will find the <Series change> button . If you click on this button, you can enter the value to be changed in the "Old value" field and the new (desired) value in the "New value" field in the series change dialog.



In principle, the change is only made for elements that are displayed in this window. If you want to enable the change for all elements of this type, check the "Entire file" option.

If you have marked elements with the "Marked (m)" indicator, you can restrict the change to these elements.

Tip: Set or remove check marks
It is also possible to set or remove check marks. The value "x" stands for a checkmark - if no checkmark is to be set, leave the field empty.

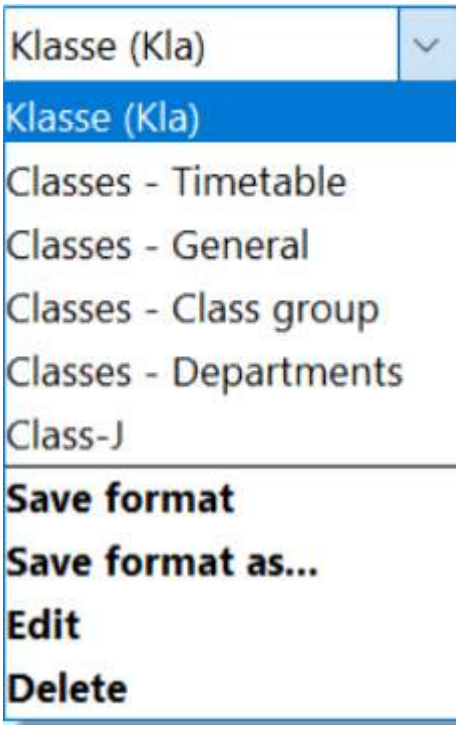
2.3.4 Manage views

You can change, delete and create new formats. It is also possible to define certain formats as standard formats and to add selected formats to the master data menu.

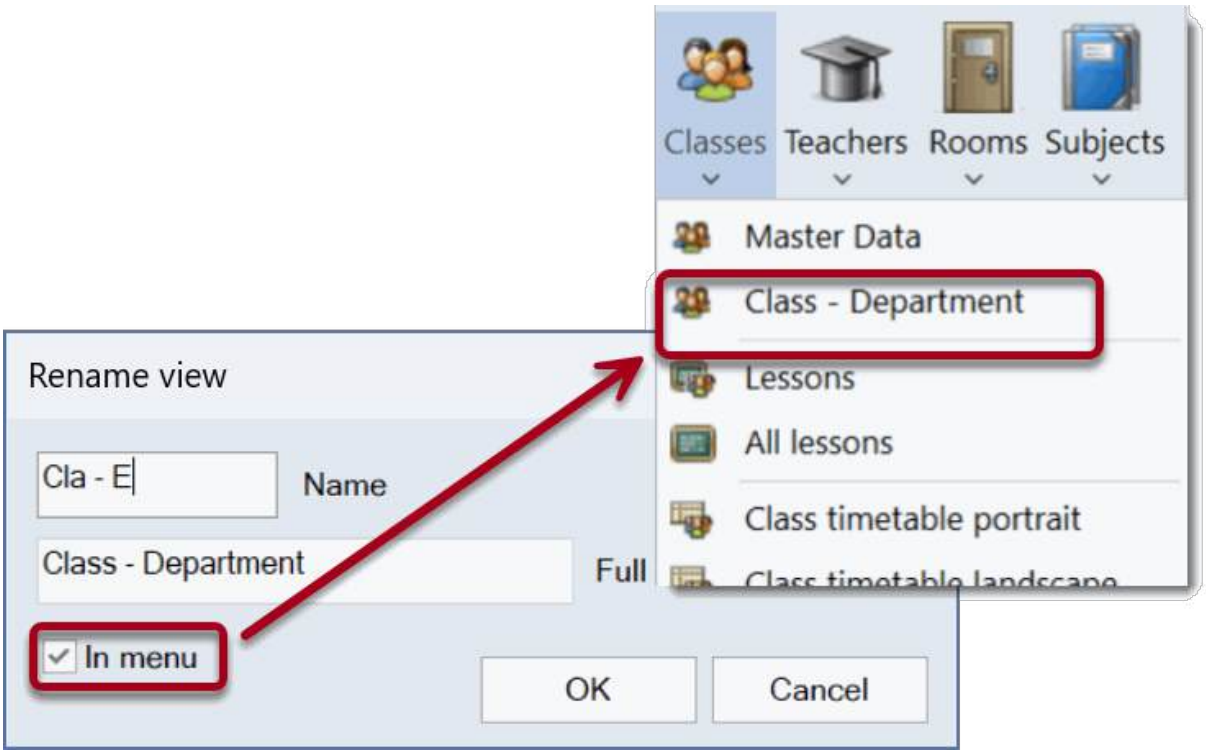
The control elements for format management can be found in the drop-down list at the bottom right of the respective window and via the menu item "Formats | Master data formats" on the "Data entry" tab.

Drop-down list

You can use the drop-down list at the bottom right of the window to switch between the existing formats in this window and to save, rename or delete changed formats.
The "Save as..." option creates a new format, which then appears at the top of the list.



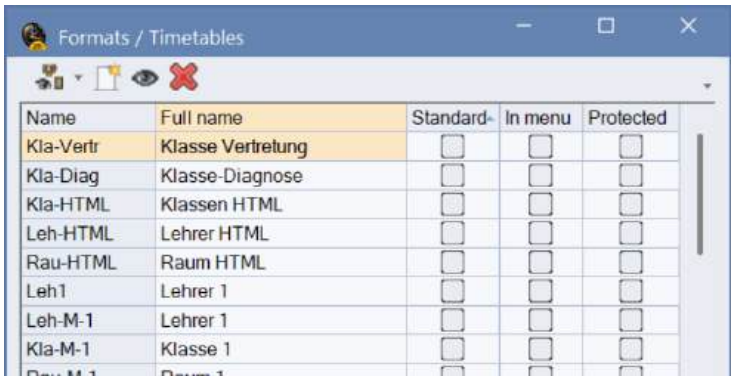
You also have the option of adding a format to the menu via the "Edit" item.



Tip: Changed format
As soon as you have changed a format, a "*" appears next to the name of the format in the bottom right-hand corner of the window. You can now save this format or create a new format via "Save as...".

Master data formats / lesson formats

On the "Data entry" tab via the menu item "Formats | Master data formats" ("Timetable | Timetable formats" or "Lessons | Lesson formats") you will see a complete list of all master data formats.



In the "Standard" column, you can select which format should be opened as the standard format.

If you want to add further formats to the master data menu, simply tick the relevant format in the "In menu" column.

You can use the buttons on the toolbar of this window to create a new format (the format activated in the table serves as a template), open a format or delete a format.

2.3.5 Print

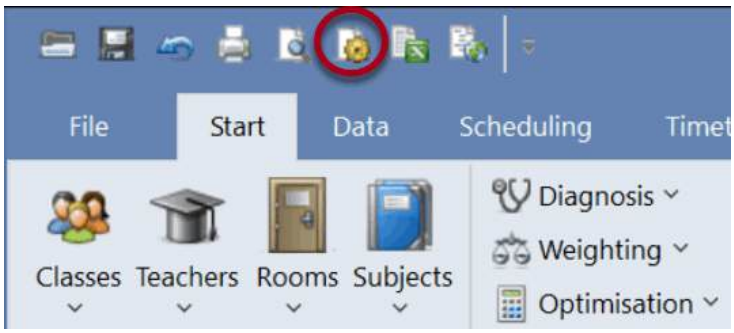
There are two central places where you can make settings for printing:

1. Page layout: In every master data and lesson window, you will find the <page layout> button . Here you can make settings for printing and view the result at the same time.
2. Print selection dialog: If a format has the focus (it has been clicked) then you can open the print selection dialog via the <Print> or <Page view> buttons in the quick launch bar.

Tip: Copying via the clipboard
You can select parts of the table or the entire table and copy it to word processing or spreadsheet programs using <Ctrl+C> and <Ctrl+V>.

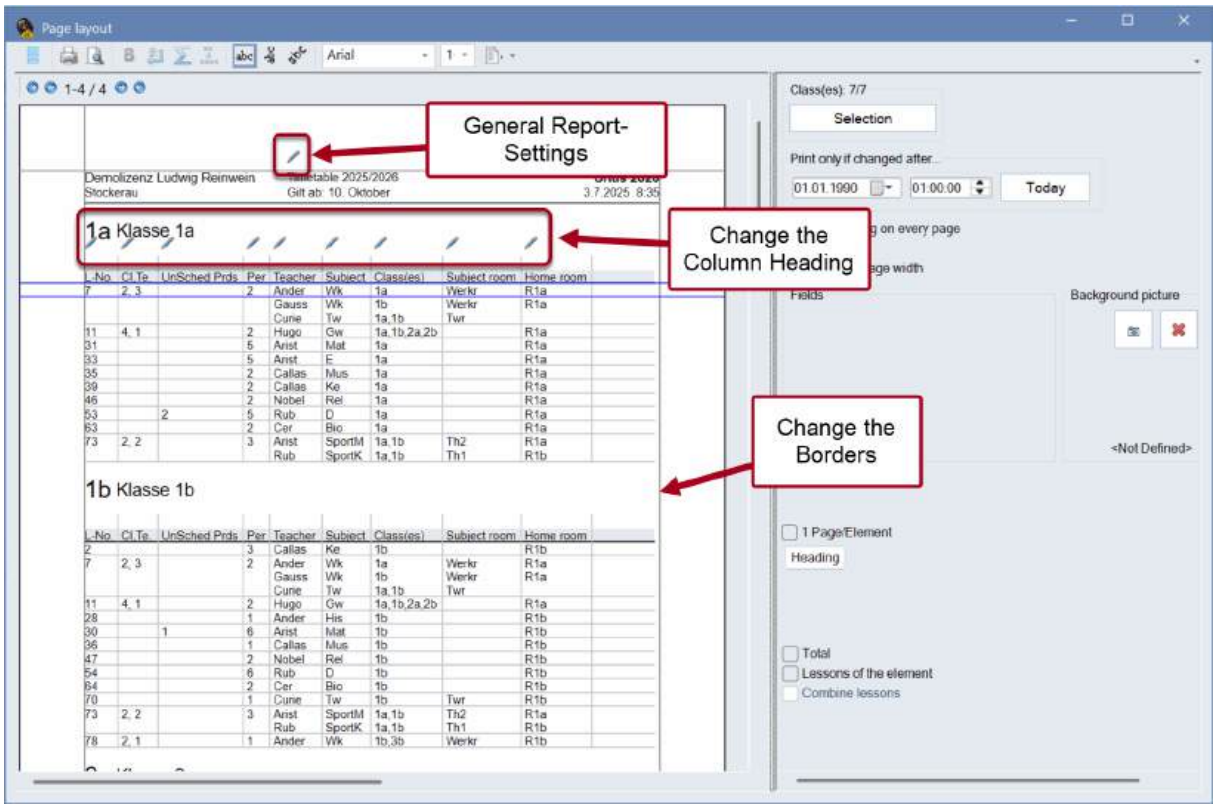
2.3.5.1 Page layout

For all formats (master data, lessons, substitution planning), you can use the <Page layout> button to prepare the respective list for printing. This button can be found in the toolbar of the corresponding window and in the quick launch bar.

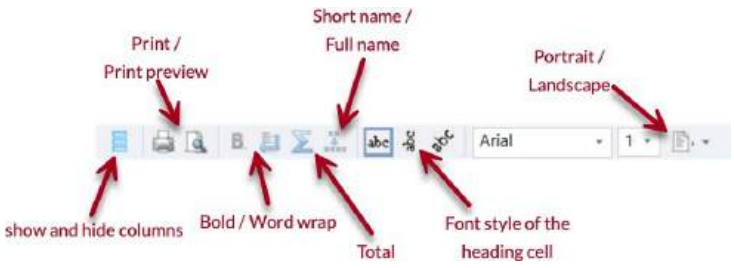


The graphic shows a list with the lessons of 1a. All settings relevant for printing can now be made in the toolbar and with the selection fields on the right-hand side of the page layout.

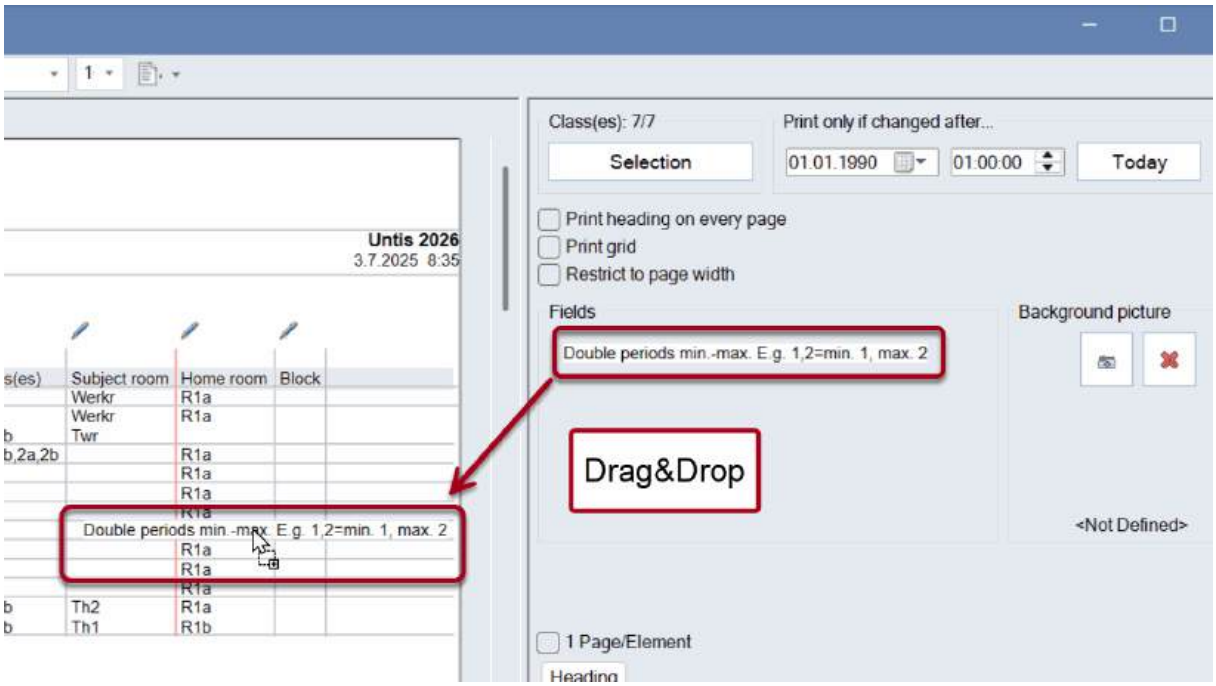
For example, click on a column and press the <B> button. This will print the column in bold. There are also numerous other options for changing the print image



The meaning of the individual buttons is explained below:



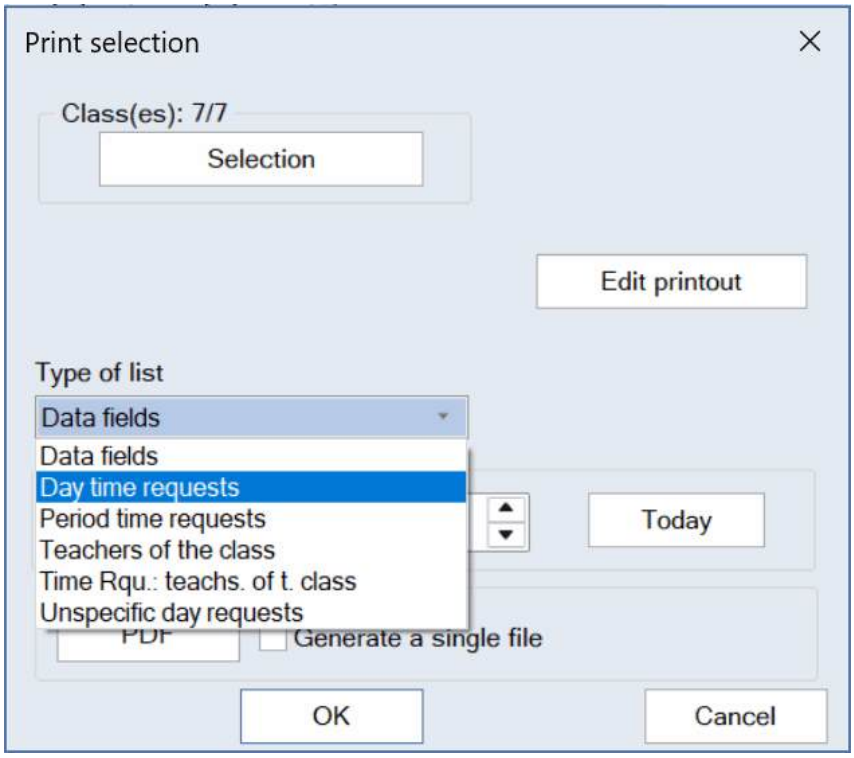
You can also easily show and hide columns using drag & drop.



2.3.5.2 Print selection dialog

This dialog appears when you click on the <Page view> or <Print> button.

Please note that further print functions are available to you via the selection list, depending on the type of format.



These print functions are described in detail in the relevant chapter.

2.4 Master data properties

To automatically create a timetable, it is basically sufficient tofill inthe *Name* field in the master data.The basic rule when entering data should always be that it is better to leave a field with an unclear meaning blank at first than to restrict the optimization algorithm by making unnecessary entries right from the start.

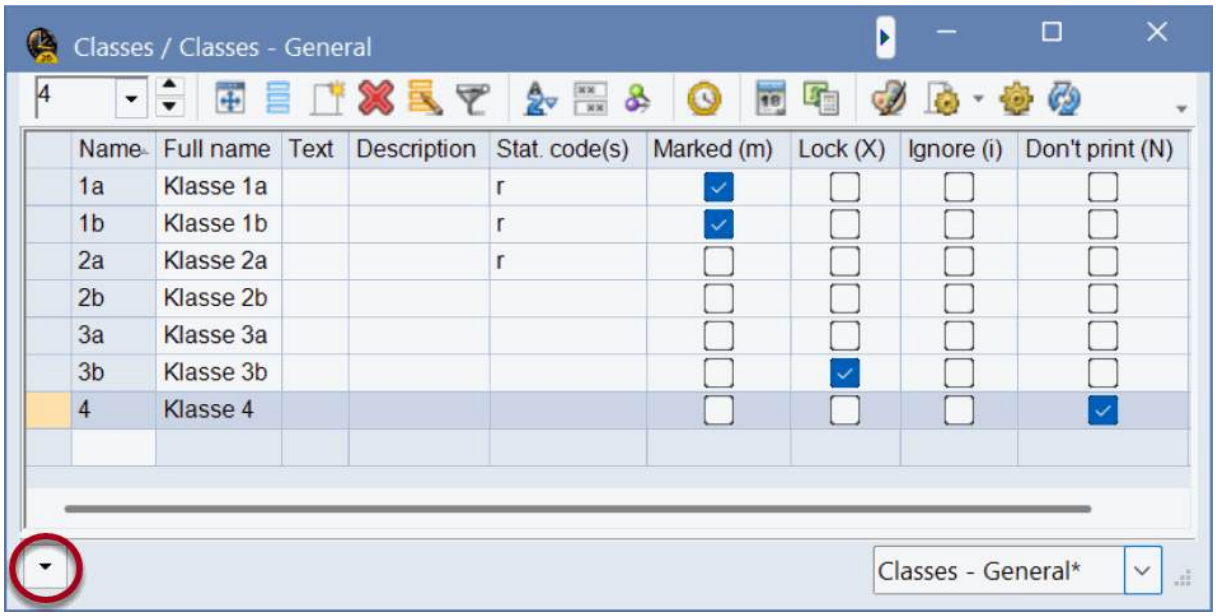
Tip: Enter little at the beginning
When entering master data, we therefore recommend that program newcomers initially only fill in the fields that are shown by default in the grid view. You should only use the other input options at a later stage (after the first optimization results).

On the one hand, we find properties that can be found in all master data (element-independent properties) and, on the other hand, properties that are specific to the type of element. Information on this is described in the corresponding chapters:

Rooms
Classes
Teachers
Subjects

2.4.1 Input fields for all master data

The following fields can be found in all master data. These can be shown or hidden via the form view (bottom left).



Name

This is a unique (short) name. The name is used to identify the relevant element within the program. It is mandatory to enter a name for each element.

Attention: No identical names
In principle, it is possible to give two elements of different types the same name, e.g. *1a* for class 1a and for the room of 1a. The names are also case-sensitive. It is therefore possible to name one class *1a* and another class *1A*. These two procedures are strongly discouraged.

Long name

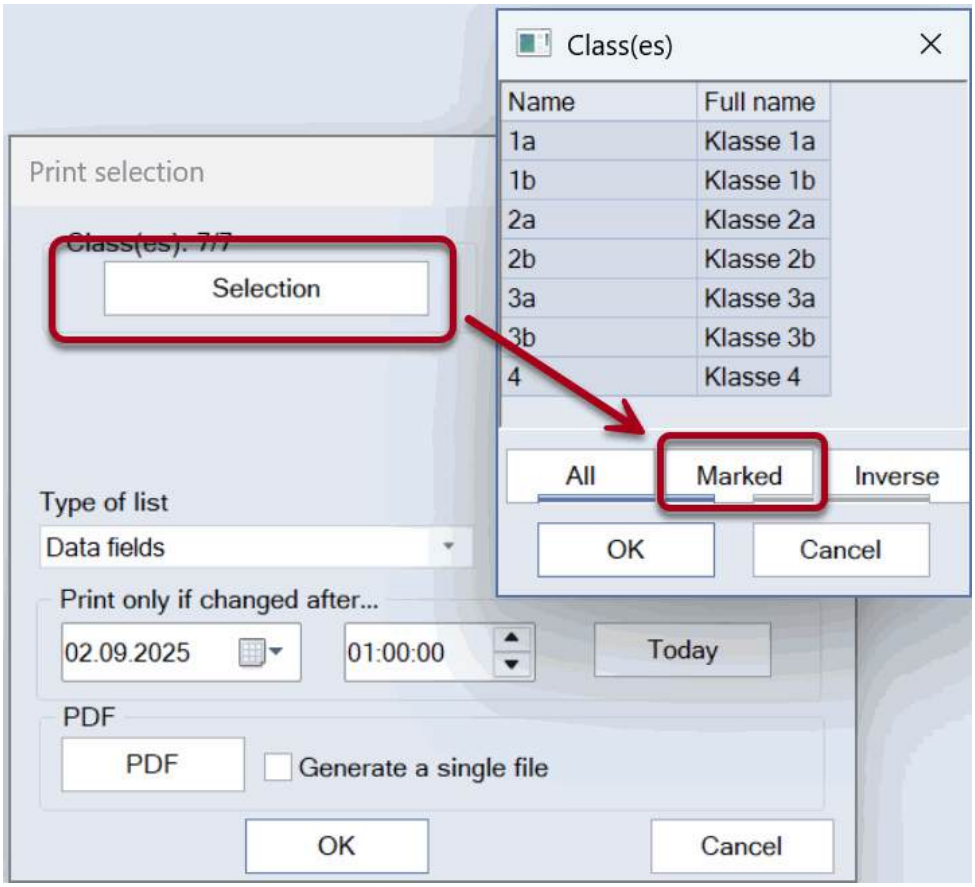
Here you can enter a (longer) informative name that will also appear on your printouts. This entry is optional, but recommended.

Text
An explanatory text can be entered for each element.

Description
Descriptions are separate master data with short and long names. They are useful if descriptions apply to several elements. In printouts and formats of elements, you can then see either the short or long name of the associated description.

Statistics indicator
You can enter any number of statistics indicators (separated by commas) for each element. You can use these statistics indicators to create defined subsets of your elements for printouts, for example. Read the Filter chapter for more information.

Marked (m)
The Marked (m) indicator can be set for each element. For certain functions, such as printing (timetables or master data) or series changes, you can specify whether only the marked elements should be selectively processed.



Fix (X)
Lessons that contain an element that is fixed are "frozen" in the timetable. The lessons are no longer moved during subsequent optimization.

Ignore (I)

Lessons that contain an element for which the "Ignore" indicator is set are ignored in the timetable, i.e. they are neither planned nor displayed. However, the (lesson) value of the lesson is included in the calculation of the total value of teachers and classes.

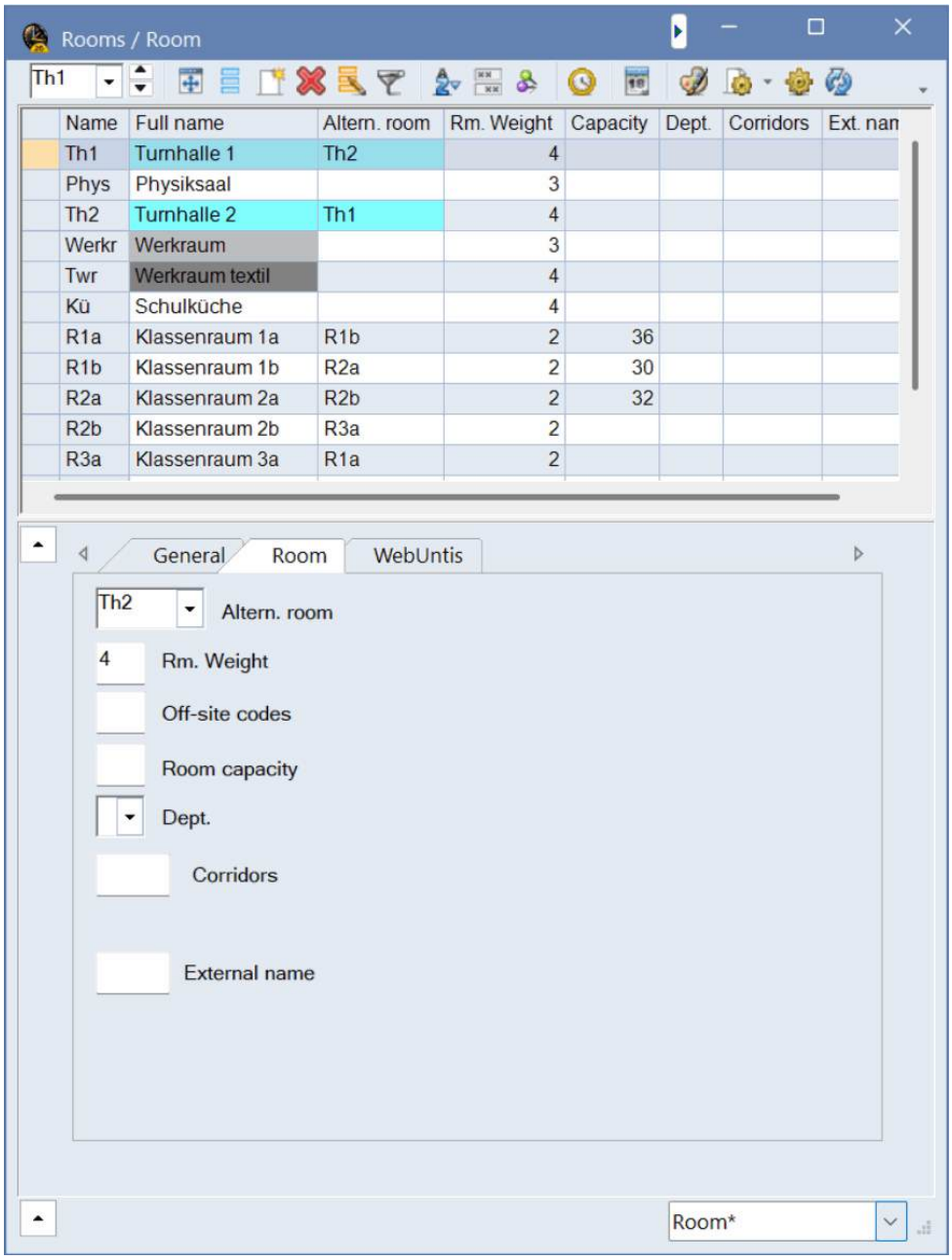
Furthermore, for some interfaces, those elements for which the ignore indicator is set are not exported.

N.Print (N)
Do not print - if this indicator is set, no timetables or lesson overviews are printed for the respective element.

Time requests (Z)
This field cannot be edited. The check mark appears automatically as soon as time requests have been entered for an element.

2.4.2 Rooms

The following input fields relate exclusively to the master data of the rooms.



Alternative room

An alternative room is a room that is functionally equivalent to the originally requested room and that Untis may use to plan lessons if the requested room is already occupied. A detailed description of the alternative room rule can be found in the Room logic chapter.

Room weight

The room weight indicates how important a room is for the lessons taking place in it.

- Room weight 4: a lesson may only be scheduled if the desired classroom or one of its alternative rooms is free (e.g. sports lessons).

- Room weight 0: Untis may schedule lessons even if neither the desired room nor an alternative room is available (useful for all lessons that do not require any special stationary teaching aids).
- Room weight 1-3: appropriate gradations.
- If no room weight is entered for a room, this corresponds approximately to room weight 2.

Tip: Optimizing the room allocation
Please note that, in addition to the room weight, the weighting control "Optimization of room occupancy" has a decisive influence when planning rooms. Please be sure to read the Room logic chapter.

Dislocation
Dislocation - Untis defines dislocated rooms as subject rooms and classrooms that are not located in the main building but in an external location and cannot be reached during a regular break. Allowed entries in this field are the values 1 to 9 for dislocations with time staggering and the values A to E for dislocations without time staggering. For more detailed information on the scheduling logic, please read the chapter on scheduled rooms.

Capacity
Here you can enter the maximum number of pupils the room can hold.

If you want to take the room capacity into account when allocating classrooms, please read the chapter Room capacity.

Dept.
Department - Rooms can also be clearly assigned to a department. This is mainly for information purposes and allows you to print out timetables and/or room lists by department.

Corridors
Here you can enter up to two aisles (corridors) along which the room is located. Entries in this field are only useful when using the additional module Break Supervisors.

External name
The external name is only used if several schools with cross-school resources have been created in a MultiUser database. Please read the chapter Cross-school resources in the MultiUser manual.

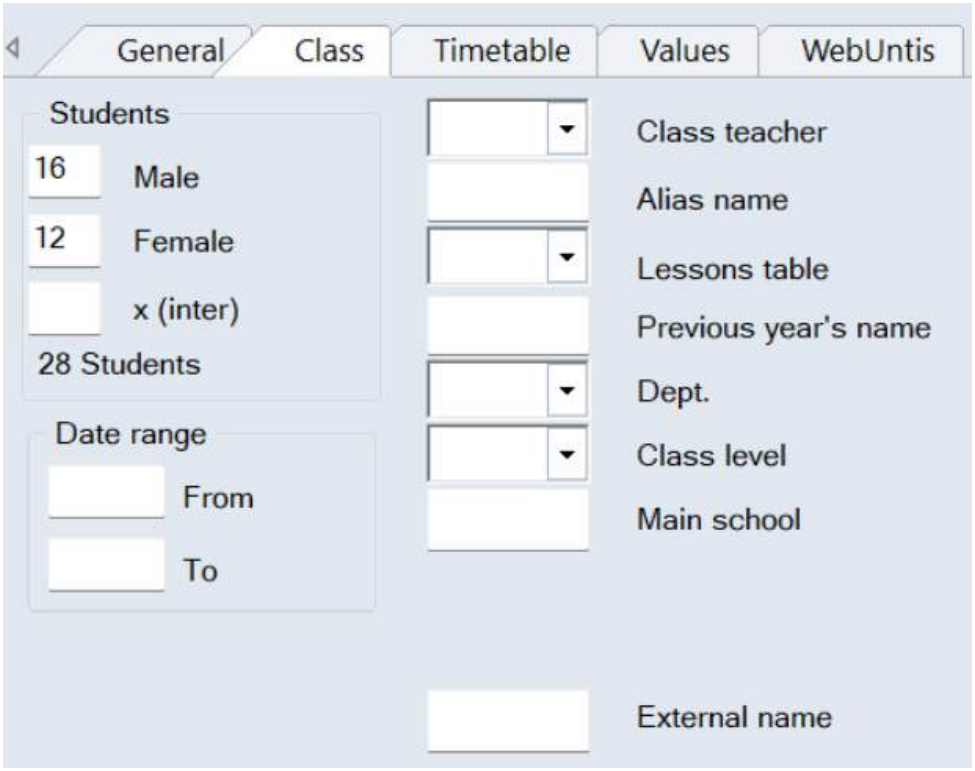
2.4.3 Classes

In the classes, the input fields are organizedby tabs in the form view. The number of different index cards that you see for your master data elements may differ from the illustrations in this manual, depending on the additional modules you use.

- Class index card
- Timetable index card
- Indicator
- Class time grid

2.4.3.1 "Class" index card

The following input fields can be found on the "Class" tab.



Male / Female / x (Inter)

In these input fields, you can enter the number of inter, female and male students (pupils) attending the respective class. The sum of the three numbers is shown directly below the input fields.

These entries are only relevant in connection with the room capacity check. If you want to take room capacity into account when allocating classrooms, be sure to read the Room capacitychapter .

Date range / Time range

The entries for the time range only appear if you also havea license for the multi-week timetablemodule and are also described in the corresponding manual.

Final class

This selection option is also only displayedif you are using the multi-week timetablemodule .

Class teacher (head of class)

Several class teachers can be entered per class. This field is used in connection with the class teacherweighting point at least once a day, when printing timetables (in the heading line) and lists and in substitution planning.

Alias (second) name

For some purposes, it is useful to use (standardized) names instead of the (standard school) names. Examples of this are printouts for authorities or data exports to databases.
Alias names are entered either in the respective element or on the "Data entry" tab via the"Other data | Alias (second name) "menu.

Tip: A name for a group of classes
For classes, you can also assign your own names for a group of classes in the "Alias (secondary) names" window, e.g. "3abc" for all 3rd classes ("3a+3b+3c").

Timetable

The timetableentry is used to check the distribution of subjects when using the lesson planning and value calculation module and has no meaning without this module.

Previous year's name

The previous year's name of the class is required when using the < Previous year's teacher > function . You can enter the previous year's name of the class here to accompany the teacher's promotion. This function is only available if you have a valid license for the lesson planning and value calculation module.

Dept.

Department - Classes can also be clearly assigned to a department. This is mainly for information purposes and allows you to print timetables and/or class lists by department. This assignment is important when using the Department timetablemodule .

Year level

It only makes senseto enter a year level when using the modules Lesson planning and value calculation, Student timetable or Course planning.

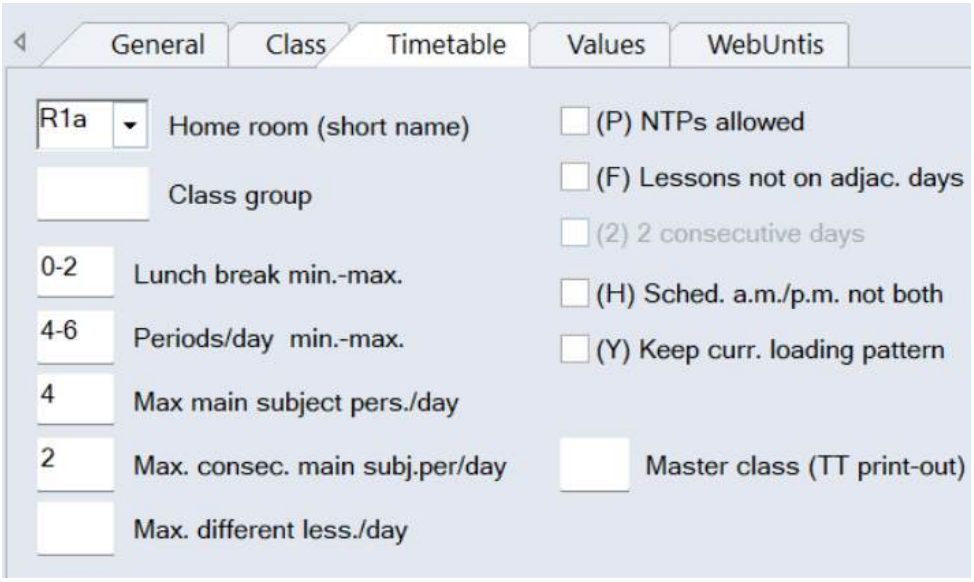
Main school

This field is used by some import/export interfaces.

External name
The external name is only used if several schools with cross-school resources have been created in a multi-user database. Please read the chapter Cross-school resources in the MultiUser manual .

2.4.3.2 "Timetable" index card

You can enter parameters and set indicators on this tab.



Main room
Here you can enter the name of the classroom of the class. This makes it easier to enter the lessons. If certain classes do not have a classroom, please read the chapter Alternative rooms in the Application notes section.

Class group
This input field is only used for some school types, e.g. Austrian teacher training colleges, English secondary schools, Belgian grammar schools and German Realschulen. Pupils select major and minor subject areas (core and differentiated lessons) or several subject areas of equal rank.

Please note:
Please leave this field blank under all circumstances if you are not clear about the exact meaning of an entry here. A detailed explanation of the class groups can be found in the section Application notes / Class groups.

Lunch break min-max
Here you enter the minimum (min) and maximum (max) duration of the lunch break for the individual class.

If the lunch break should last exactly one hour, enter "1-1". If, on the other hand, you leave it to Untis to schedule either no lunch break or a lunch break of up to two hours, the corresponding entry would be "0-2".

Hours per day min-max
Here you specify the minimum number of hours per day that the class in question should be taught (min) and the maximum number of teaching units per day (max).

If you want the class in question to have at least 4 but no more than 6 lessons per day, you must enter "4-6" in this field.

Max. main subjects/day
You can activate the Main subject property for any subject. Use this input field to specify the maximum number of main subject lessons per day.

Max. main subject sequence
The entry in this field determines how many lessons with main subjects may be in immediate succession.

max. different lessons/day
In some countries, the authorities require (especially for all-day school types) that the number of different subjects taught per class per day does not exceed a certain maximum value.

In this input field, you can specify the maximum number of different lessons per day on a class-by-class basis.

Main class
In the case of type-separated class sections, enter the main class here if you want to print the timetables of the individual class sections in a common plan. Please also read the chapters Application notes / Separate class sections and Timetable design / Several classes in one timetable.

2.4.3.3 Identifier

(P) Hollow lessons permitted
As a rule, it is important to scrupulously avoid hollow class periods. In pseudo-classes or class sections, however, they should be permitted.

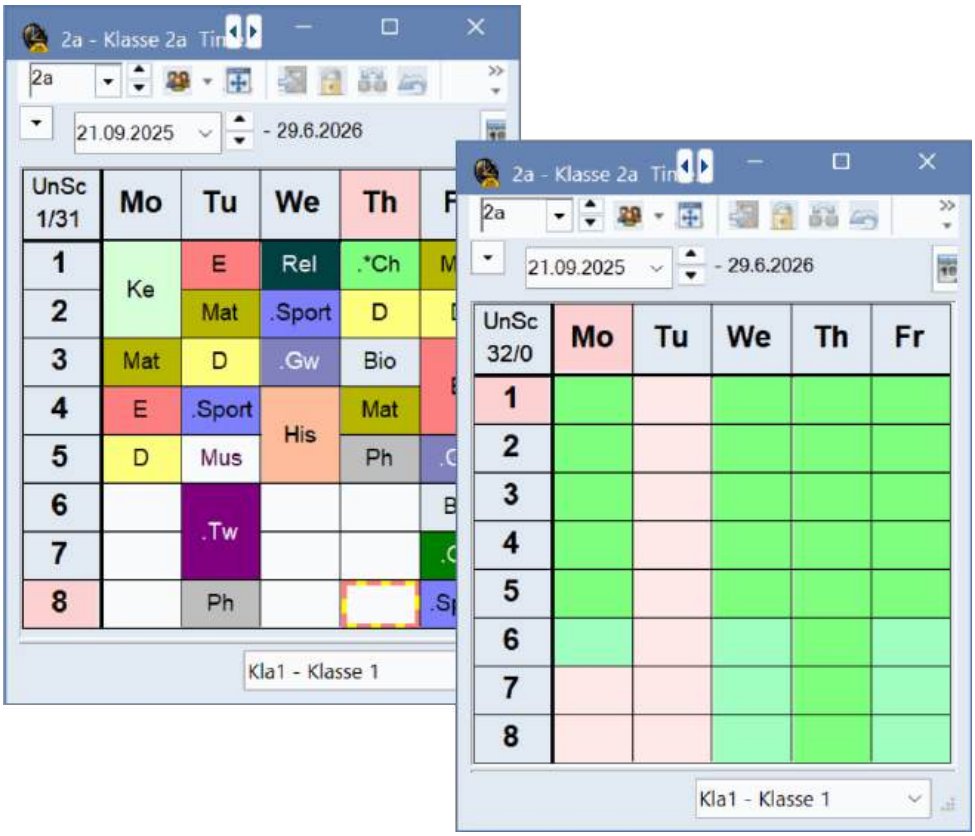
(F) Lower days not in succession
In part-time classes that do not have lessons on all days of the week, it is sometimes undesirable to schedule lessons on consecutive days. In this case, select this indicator.

(2) 2 days in a row
At vocational schools, there are often classes that only have lessons on two days of the week. The choice of weekdays does not matter, but they must be consecutive so that the students only have to travel once. This condition is fulfilled with this tick.

Tip:
This field can only be checked if you have previously selected an absolute block (-3) for "3 days" for the respective "undefined time requests".

(H) Book 1 half day/day
Only occupy one half-day per day: If you activate this indicator, Untis may not schedule lessons in the morning AND afternoon of the same day.

(Y) Keep booking
If you set this indicator, the class in question is blocked before the first and after the last lesson of the half-day that is already occupied (for subsequent optimization).



Permitted class time grid for a subsequent optimization with indicator Y. (The morning-afternoon limit is between 5th and 6th period).

In a subsequent optimization, lessons or hollow lessons that have already been taken may be taken again. Typically, this indicator is activated if you want to ensure that the non-teaching times for teachers and class do not change when the timetable is changed. Extracurricular activities are then not affected by the new timetable.

Attention:
This indicator severely restricts the subsequent optimization and should not be switched on lightly.

2.4.3.4 Class time grid

The <Class time grid> button can only be found in the toolbar of "Master data | Classes" (for none of the other elements).

In the class time grid you can
- Provide certain lesson areas for the planning of double lessons
- provide certain lesson areas for the planning of single lessons and
- prevent the class from ending for the day after certain lessons.

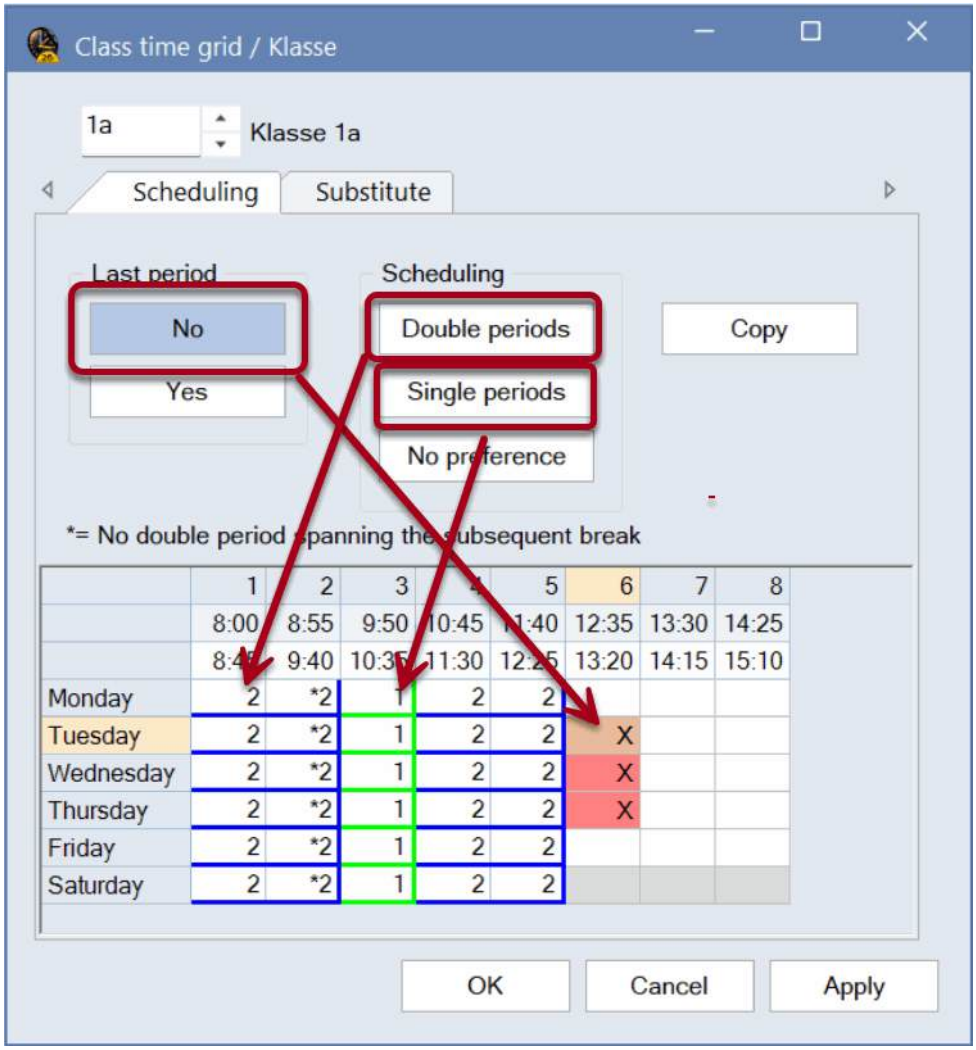
1. for example, to preferably schedule double lessons in the first two lessons of the day (on all days of the week), as shown in the illustration, select the desired area and press the <double lessons> button in the "Scheduling" input block.

2. use the <Single lessons> button to schedule day ranges with single lessons.

Attention: Enough double lessons
Please note that for this setting to work correctly, it is essential that you enable a suitable number of double lessons in the Double lessons min, max field in the lesson window of the relevant classes.

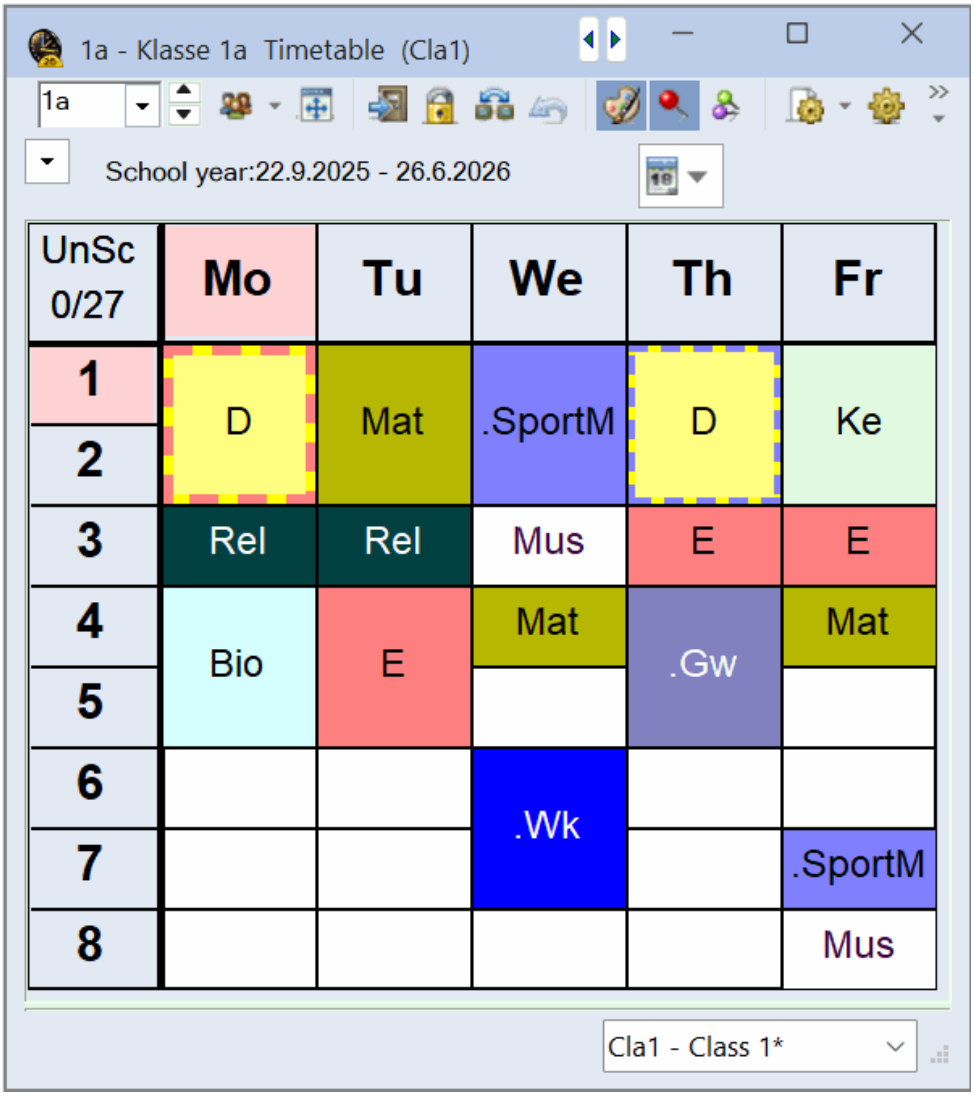
3. you can also use the <No> button in the "Last lesson" input block to mark those lessons after which teaching in this class may not end for the day. This is important if you have to take the timetables of public transport (school buses) into account when creating the timetable.

Tip: Copy
You can use the <Copy> button to transfer the settings you have made to other classes.



	1	2	3	4	5	6	7	8
	8:00	8:55	9:50	10:45	11:40	12:35	13:30	14:25
	8:45	9:40	10:35	11:30	12:25	13:20	14:15	15:10
Monday	2	*2	1	2	2			
Tuesday	2	*2	1	2	2	X		
Wednesday	2	*2	1	2	2	X		
Thursday	2	*2	1	2	2	X		
Friday	2	*2	1	2	2			
Saturday	2	*2	1	2	2			

The timetable shown corresponds to the settings made in the illustration above.



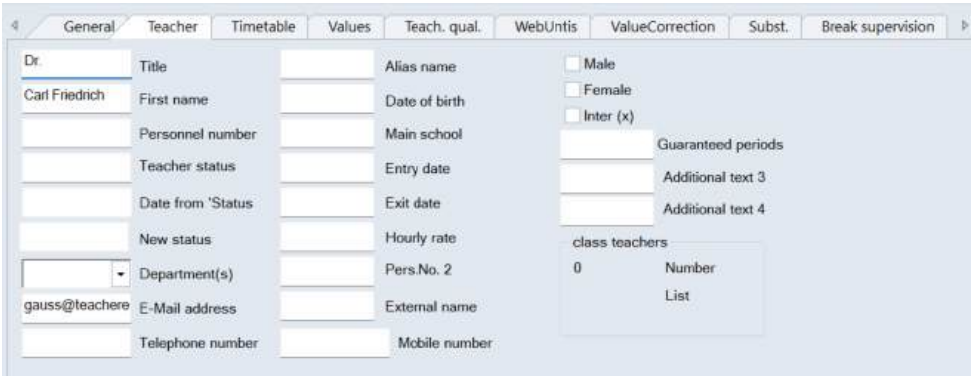
2.4.4 Teacher

The number of index cards for teachers also depends on the modules. The following is described in detail here:

- "Teacher" index card
- "Timetable" index card
- Indicator

2.4.4.1 "Teacher" index card

You can make the following entries on the "Teacher" tab.



Title
An entry in this field is for information purposes only and only affects printouts and exports.

First name
You can enter the teacher's first name here. Untis only uses the value entered here for various printouts.

Personnel number
Entering a personnel number is only important if you need it for printouts or transfer files (for the authorities).

Status / Date from Status new / New status
This field can be used for special designations (e.g. head teacher, library director, etc.). If the status changes within the school year, this can be mapped using the "Date from status new" or "New status" fields.

Department
You can assign each teacher to any number of departments. This is particularly important when using the Department timetable module. However, you can also print the timetables by department, for example.

E-mail address
This field is used to enter the teachers' e-mail addresses.
Within the program, it is only used in combination with the Info timetable module. You can use this module to send timetables and substitution messages by e-mail to teachers for whom an e-mail address has been entered.

Telephone number
The telephone number field is purely administrative and is not currently used within the program.

Alias (second) name
For some purposes, it is useful to use (standardized) names instead of the (usual school) names. Examples of this are printouts for authorities or data exports to databases. Alias names are entered either in the respective element or under Master data | Special data | Alias (second name).

Date of birth
This field is purely informative and only affects printouts and exports.

Home school
This field is for information purposes only and only affects printouts and exports.

Entry date / Exit date
You can use these fields to record when a teacher joined or left the school.

Please note:
The dates have a time limiting effect on the lessons of the teacher concerned.

Hourly rate
This field is currently only required in the German federal state of North Rhine-Westphalia.

PM-SAP number (Ö) or pers. no. 2 (D)
In some countries, teachers have two different personnel numbers. In these countries, this personnel number 2 is also exported for relevant exports.

External name
The external name is only used if several schools with cross-school resources have been created in a multi-user database. Please read the chapter Cross-school resources in the MultiUser manual.

Cell phone
This field is used to enter cell phone numbers.

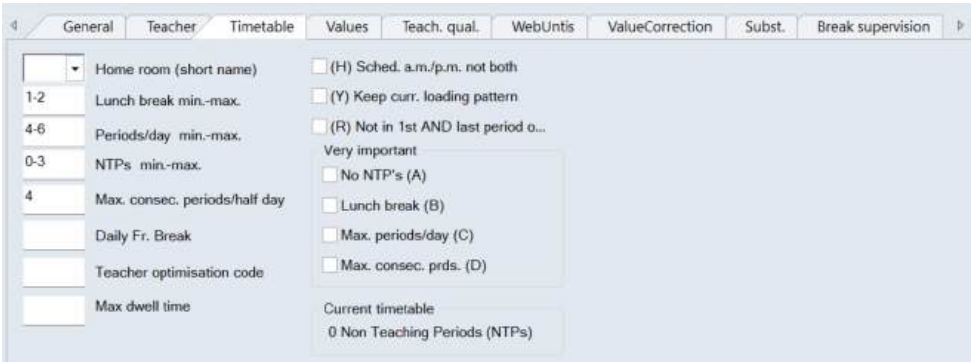
Gender
Apart from its informative character, this field has an effect in connection with the break supervisors module. Here you can specify that certain supervision areas are only supervised by female, male or inter-teaching staff.

Additional texts
These fields can be used for further individual information.

Class teachers
Here you can see in how many and in which classes the teacher is registered as a class teacher (head of class).

2.4.4.2 "Timetable" index card

You can make the following entries on the "Timetable" tab.



Main room (short name)
Here you can enter a fixed home room for each teacher. This makes it easier to enter lessons.

Lunch break min-max
Here you can enter the minimum (min) and maximum (max) length of the lunch break for each teacher.

Hours per day min-max

By making an entry in this field, you specify the minimum (min) and maximum (max) number of hours a teacher should teach per day. If a teacher wants to teach between 2 and 6 hours a day, you must enter "2-6". If you leave this field blank, you leave it to Untis to schedule the teacher as required.

Hollow hours min-max
Use this field to specify the number of hours a particular teacher can be expected to teach per week.

Maximum number of hours in a row
Here you can specify the maximum number of lessons after which the teacher wishes to have a break.

Break at the end of the day
At schools where lessons extend into the evening, it is often desirable that there is sufficient recovery time between the last lesson of the evening and the first lesson of the following morning.

For example, a school's timetable allows for 11 lessons. Teacher X teaches up to and including the 9th lesson on Monday. A daily break of "4" means that Untis plans, according to the weighting you have assigned, to keep the 1st and 2nd lessons, i.e. the total of 4 lessons, free for teacher X on Tuesday.

Teacher optimization code
The teacher optimization indicator is important for optimization with variable teacher assignment.

Permitted entries are the numbers 1 to 9 on the one hand and the letters A-Z on the other.

Entering a number means that when optimizing with variable teacher assignment, the lessons of the teacher in question can only be swapped with lessons of a teacher for whom the same optimization indicator is entered.

Entering a letter, on the other hand, means that swaps can only be considered with lessons taught by teachers for whom a different (or no) optimization indicator has been entered.

Max. Length of stay
Some school systems prescribe a maximum length of stay for teachers per school day at the school. This length of stay includes scheduled hours, as well as off-peak hours and lunch breaks. This length of stay is defined in this field.

Current timetable
Here the teacher's non-standard hours in the current timetable are displayed.

2.4.4.3 Identifier

(H) Occupy 1 half day/day
Only occupy one half-day per day: If this indicator is activated, then lessons may not be scheduled in the morning AND in the afternoon on the same day.
Kennzeichen

(Y) Keep booking
If you set this indicator, the teacher in question is blocked before the first and after the last lesson of the half-day that has already been taken. This means that the teacher may not be assigned to a subsequent optimization outside this area. An example of the correct analogous use of this field can be found in the chapter Master data properties / Classes.

(R) Not in 1st AND last lesson
You can use this indicator to prevent a teacher from being scheduled in the first and last lesson of a day (Weighting | Time requests | Time requests for teachers).

particularly important

In the "particularly important" input block, you can specify for each teacher individually which criteria have priority for their timetable:

- **no hollow hours (A)**
  If this field is selected, special emphasis is placed on avoiding hollow hours for this teacher during optimization.
- **Lunch break (B)**
  If this field is ticked, Untis pays particular attention to the lunch break when creating the timetable.
- **Max. Hours per day (C)**
  If this condition is activated, the condition "Hours per day min-max" is adhered to very carefully when creating the timetable.
- **Max. Hour sequence (D)**
  If you select this condition, special emphasis is placed on adhering to the maximum number of hours in a row.

Tip: Do not set for all teachers
Please only set the A-D indicators for individual teachers. If, for example, you attach great importance to all teachers to avoid hollow hours, you can regulate this via the weighting.

2.4.5 Subjects

Subjects are entered in the same way as the master data described above. Each subject can be provided with additional planning-relevant attributes, such as main subject or off-peak hours.

"Subject" tab
Timetable" tab
Indicator

2.4.5.1 Index card "Subject"

Subject group

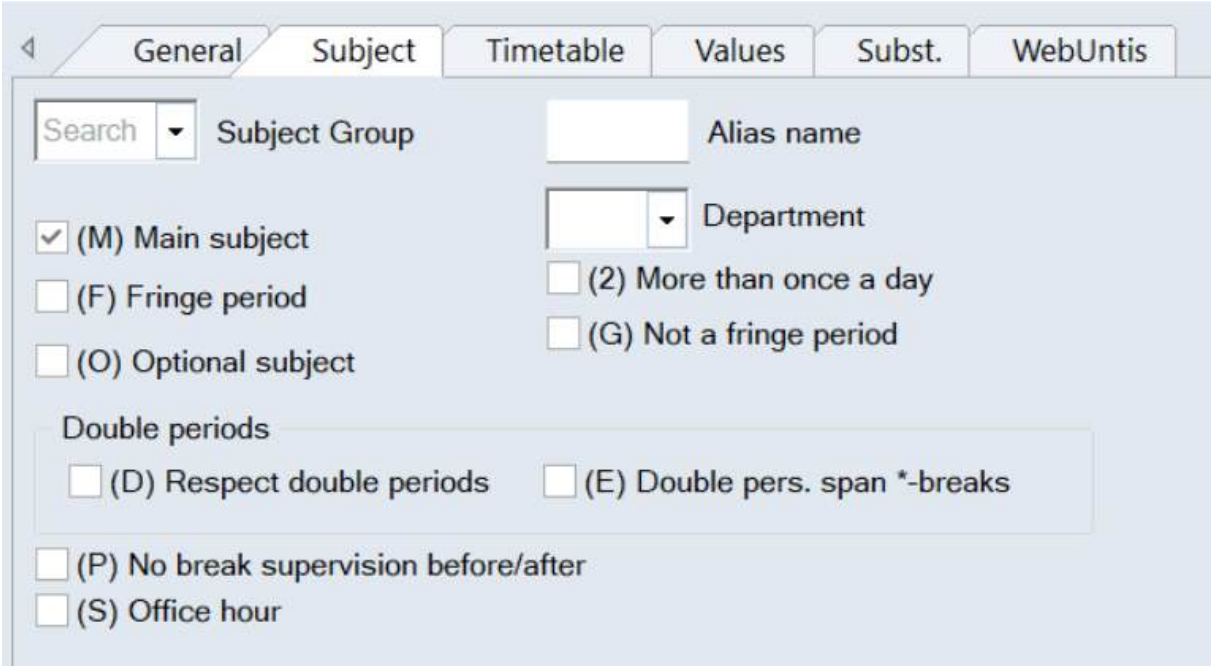
Subject groups are separate master data and can be created under <Subjects> | Subject groups. For the teaching qualification of teachers, you can select the subject group of the subject as an alternative to the subject. The field is therefore only relevantwhen using the Lesson planning and value calculationmodule.

Alias (second) name

For some purposes (e.g. data export), it is useful to use (standardized) names instead of the (standard school) names. Alias names are entered either in the respective element or on the "Data entry" tab under the "Other data | Alias (second name)" menu.

Main school

This field is purely informative and only affects printouts and exports.



2.4.5.2 Identifier

(H) Main compartment

You can use this indicator to designate a compartment as a main compartment. Please read the chapter Application notes - Main subjects.

(R) Marginal hours (subject)

You can use this indicator to characterize the subject as a marginal subject. The attribute means that a lesson in which this subject is involved is preferably scheduled at the beginning or end of a school day or half-day (according to the time grid). Please also read the chapter Application notes / Optional subjects and off-peak hours.

(F) Free subject

You can use this indicator to specify that a subject is taught as a free subject. This characteristic means that a lesson in which this subject is involved is preferably scheduled at the beginning or end of a school day or half-day (according to the time grid). Please also read the chapter Application notes / Free subjects and off-periods.

(2) also several times a day

This indicator should only be used in special cases. If it is active, the optimization algorithm may schedule the subject completely irregularly, i.e. several times in one day. This overrides the weighting settings for subject not more than once on the same day and avoid double lesson errors.

(G) not in off-peak hours

If this indicator is set, the lessons in which this subject is involved are preferably scheduled in the middle hours of the half-day. Scheduling in off-peak hours is avoided.

Type

The type of lesson (e.g. language skills, remedial course...) can be selected for Austrian schools and is used for statistical purposes.

(D) Keep to double lessons

Attention: Use sparingly

Use this indicator very sparingly (if in doubt, do not use it at all). It severely restricts optimization - especially for subjects with many lessons. Therefore, before using it, increase the corresponding weighting parameter(avoid double lesson errors) to 5 if necessary.

- Please also note that an entry in the Double lessons (min,max) field is essential for the correct handling of double lessons.
- The set indicator (D) excludes the use of indicators (2) and (G).

(E) Double lesson via *-breaks

Breaks marked with * in the time grid influence the distribution of double periods, as they may not be spanned by them. If this restriction does not make sense for a particular subject, you can control this with this switch.

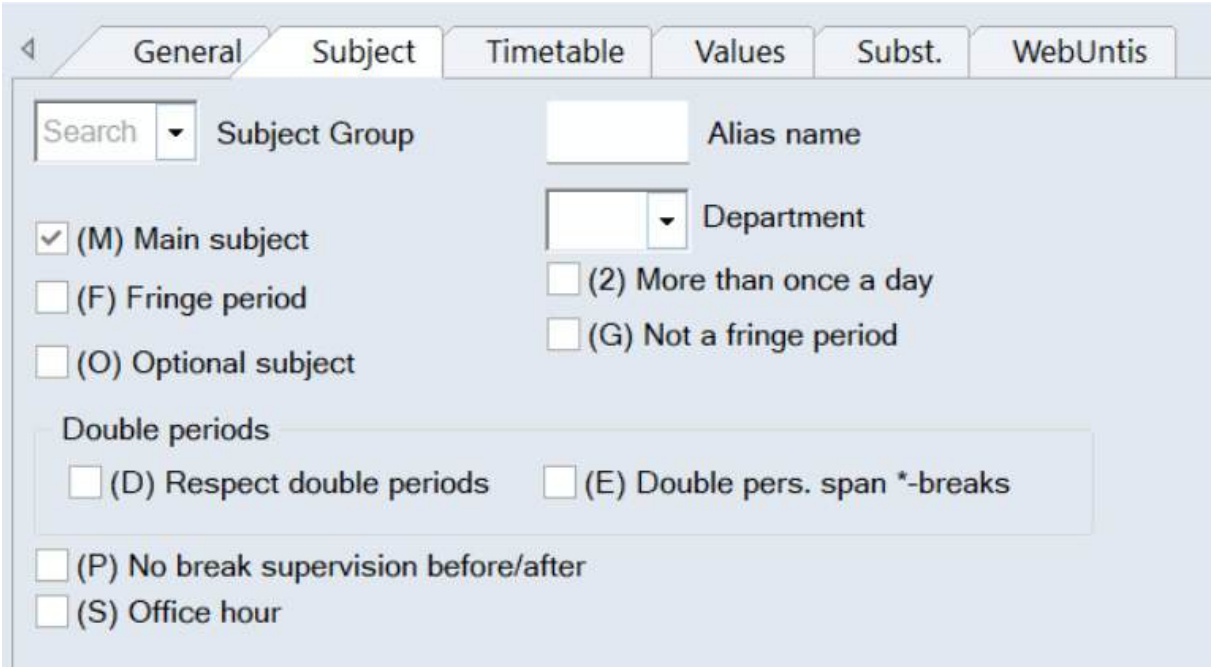
(P) No breaks before/after

This indicator is only relevant in connection with the break supervision module.

Some subjects, such as gymnastics, require a certain amount of preparation or follow-up work. You can use this indicator to prevent a teacher who teaches this subject from being assigned to supervise breaks before or after the lesson.

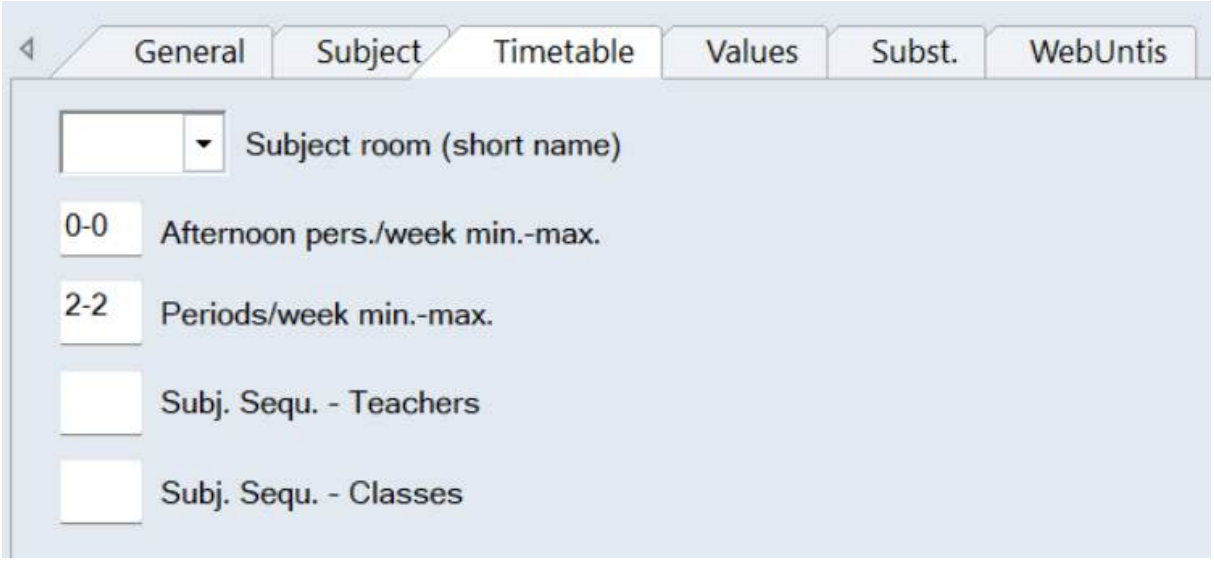
(S) Consultation hour

This indicator is only relevant in connection with WebUntis. You use it to mark a subject as an office hour subject, which activates the WebUntis-specific options such as online booking of office hours.



2.4.5.3 "Timetable" index card

You can make the following entries on the "Timetable" tab.



Subject room (short name)
If a subject has its own subject room, you can enter its name here. This makes it easier to enter the lessons. Please also read the Room logic chapter in the Application notes section.

Afternoon lessons (min-max)
Minimum and maximum number of afternoon lessons for the subject - in this field you can specify how many weekly lessons of a subject per class must be scheduled in the afternoon (min) and how many may be scheduled at most (max).

Hours per week (min-max)
Minimum and maximum number of weekly lessons in the subject - when using the lesson planning module, you can enter the minimum and maximum number of weekly lessons taught in this subject here for checking purposes.

Teacher subject sequence
The indicators 1-9 ensure that subjects with the same indicator (number) in the teacher timetable are scheduled in consecutive lessons. The indicators A-F prevent scheduling in subsequent lessons. Please also read the chapter Subject sequence in the Application notes section.

Subject sequence classes
The indicators 1-9 ensure that subjects with the same indicator (number) in the class timetable are scheduled in consecutive lessons. Indicators A-F prevent subjects from being scheduled in consecutive lessons. Please also read the chapter Subject sequence in the Application notes section.

2.4.6 Students

When using the Student timetable module, there is an additional master data element, the students. If you do not use this module, this menu item remains inactive.

Tip: Modules for course selection
In some school systems and school levels, it is not the class that determines the lessons, but the students can choose courses according to their inclinations. This means that each student has an individual timetable, depending on their choice of course. Untis offers you two modules to deal with this planning situation: the student timetable and the course planning module. It makes sense to use the student timetable if the majority of lessons take place in class and a smaller part (up to about 25%) is chosen individually. The *course planning* module is used when there is no longer a classic class group and the students choose their courses (almost) completely freely.

2.4.7 Further master data

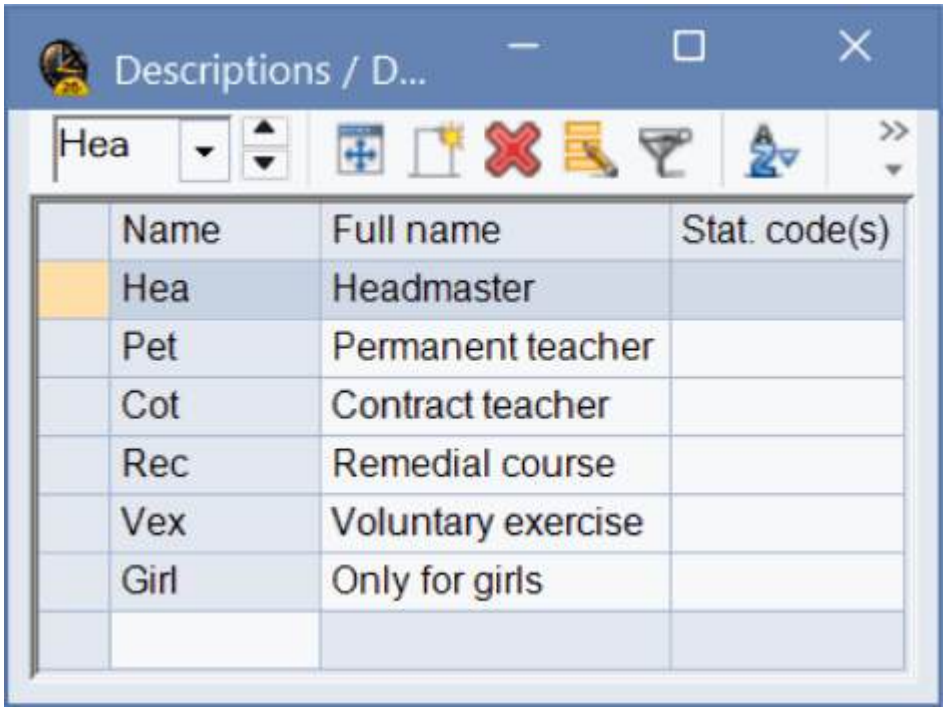
You will find the following master data on the "Data entry" tab:

Student groups ("Students" menu)
The student groups help with the student assignment in WebUntis. They are not relevant for lesson planning.

Departments
You can assign each master data element to one (teachers and rooms: any number) department(s). This only has further consequences if you use the Department timetable module. If you do not use this module, the entry of the department name is mainly informative and can be printed out on the timetables, for example. However, various printouts can also be made by department.

Descriptions ("Other data" menu)
Descriptions are separate master data with short and long names. They are useful if descriptions apply to several elements.

For example, you can enter a slightly longer text in the long name of a description. In the other master data, it is then sufficient to enter the short name of the description in order to have either the short or long name of the associated description available in printouts and formats.



Alias (second name) ("Other data" menu)
For some purposes, it is necessary to use names other than those entered in the master data (for elements), e.g:
- Standardized specialist names for printouts for authorities
- Standardized names for authority database connections
- Timetable printout

If you want to use the second names entered here in the timetable printout, you must first select the "Timetable" field and then set the corresponding indicator in the relevant timetable formats. Please read the Alias chapter in the Timetable section.

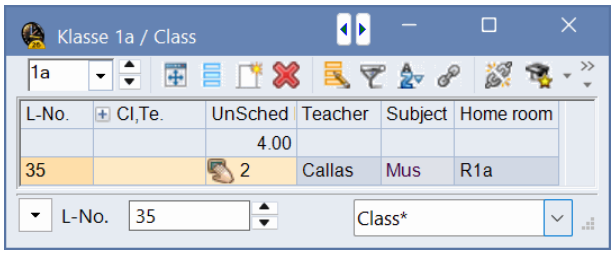
3 Lessons

3.1 Lessons

A lesson is the combination of the elements class, teacher, subject and room with a certain number of hours and any other parameters. We distinguish between **planned** and **unplanned** lessons.

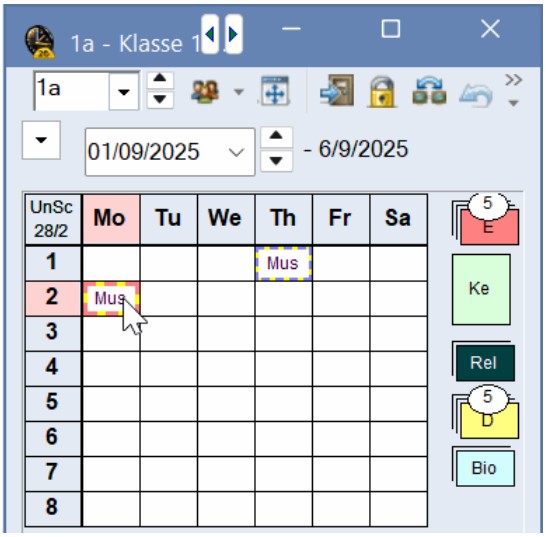
Planned lessons

A planned lesson would be, for example: Teacher Callas is to teach two hours of music in class 1a in room R1a. Under "Nvpl. hrs." in the view, you can see that the 2 weekly lessons have not yet been planned.



Scheduled lessons

The scheduled lessons also contain the position in the timetable, e.g.: The lessons take place Mon-2 and Thu-1.



3.2 Lesson window

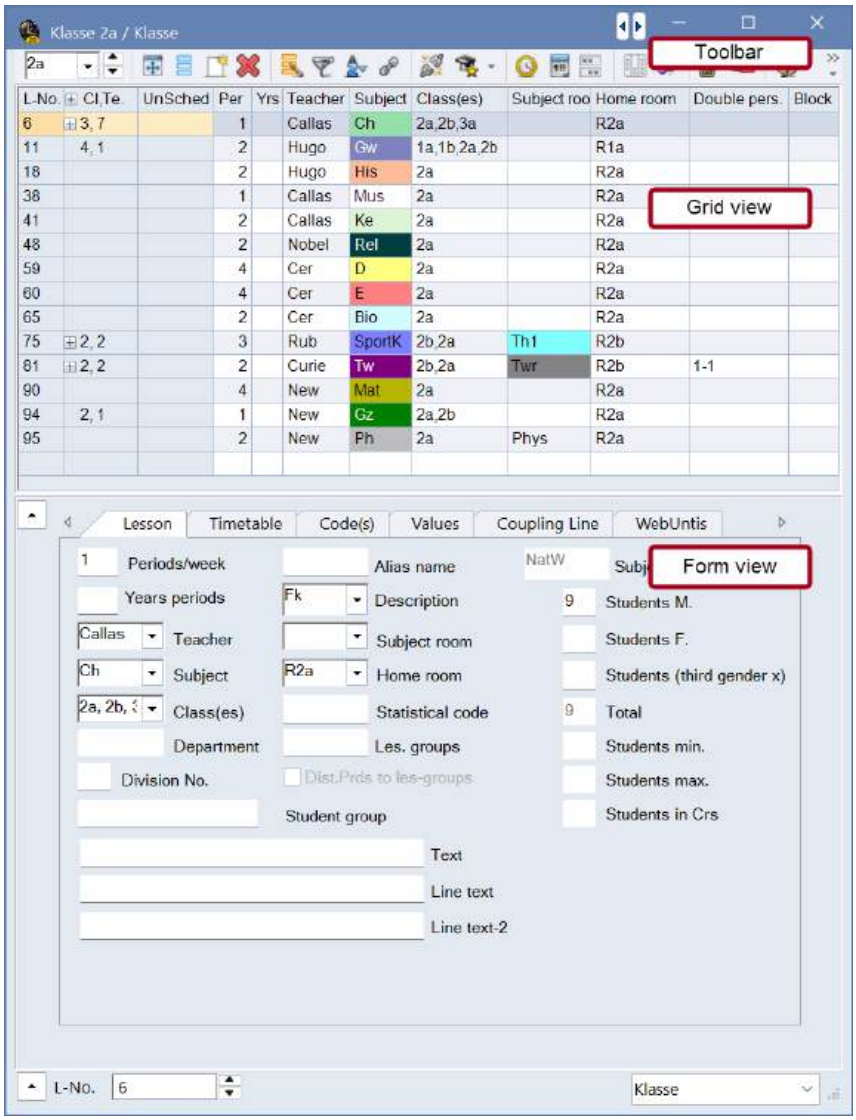
Like the master data windows, the window basically has three parts: The toolbar, the grid view and the form view.

The form and grid views function in the same way as the master data windows. In the form view, one lesson is shown with all the attributes associated with this lesson; in the grid view, you can see all the lessons in tabular form. Each lesson is given an automatically assigned lesson number (which you cannot influence) for internal program identification.

Tip: Views

The lesson window is also a view. This means that the information given in the chapter on master data views about the basic window operation(Edit views and Manage views) also applies to lesson windows.

You can open the standard views of the lessons sorted by classes (or teachers) via the "Classes" or "Teachers" menu items on the "Start" tab.



Attention: Couplings
In the case of couplings (lessons taking place at the same time), you will find a **+** in the *Class,Le* column. If you click on this, all coupling rows of the relevant lesson will be displayed.

3.3 Lesson entry

Lessons can be entered both in the formview and in the grid view. As there are different types of lessons, these are described separately here.

A linkage consists of lessons with several elements of one type, which must take place at the same time. In a class linkage, several classes or parts of classes are taught by one teacher and in a teacher linkage, several teachers teach one or more classes at the same time.

- Simple lessons

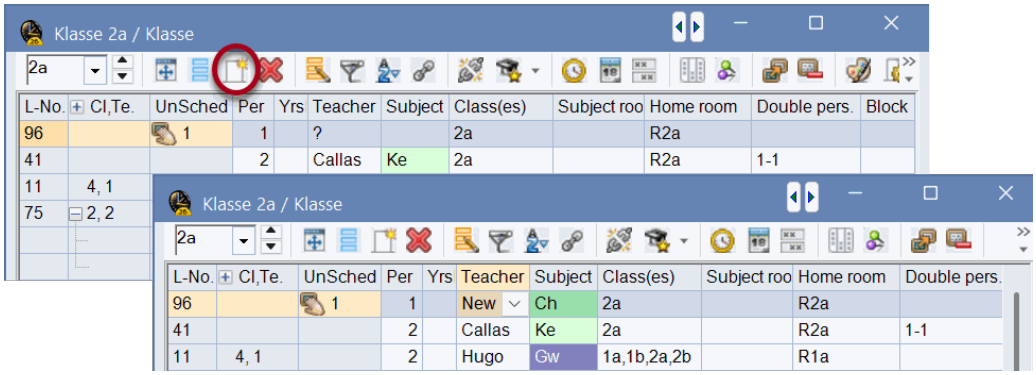
- Double lesson - block
- Couplings

Tip: "Kl,Le" field
The entry in the field *Kl,Le* shows how many classes and how many teachers are involved in this lesson. A simple lesson with only one class and one teacher has no entry at all.

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
41			2		Callas	Ke	2a		R2a	1-1	
11	4, 1		2		Hugo	Gw	1a,1b,2a,2b		R1a		
75	2, 2		3		Rub	SportK	2b,2a	Th1	R2b		
					Arist	SportM	2b,2a	Th2	R2a		

3.3.1 Single lesson

Open a lesson window and click on the <New> button. This creates a new lesson with a weekly lesson. Alternatively, you can also create a new lesson in the last line of the lesson view.
Now enter all the elements involved in this lesson (class, teacher, subject, room) and change the number of hours per week if necessary.

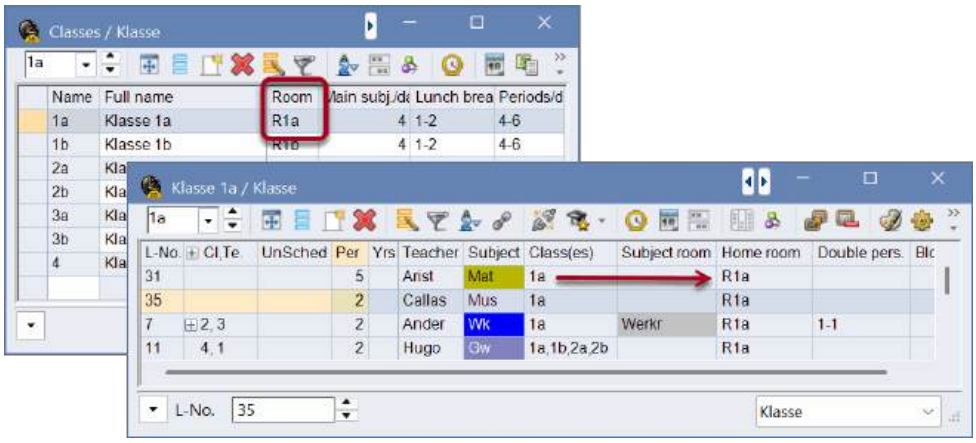


Class / Teacher

Depending on whether you are working in the lesson window for classes or teachers, the active class or the active teacher is automatically entered for a new lesson.

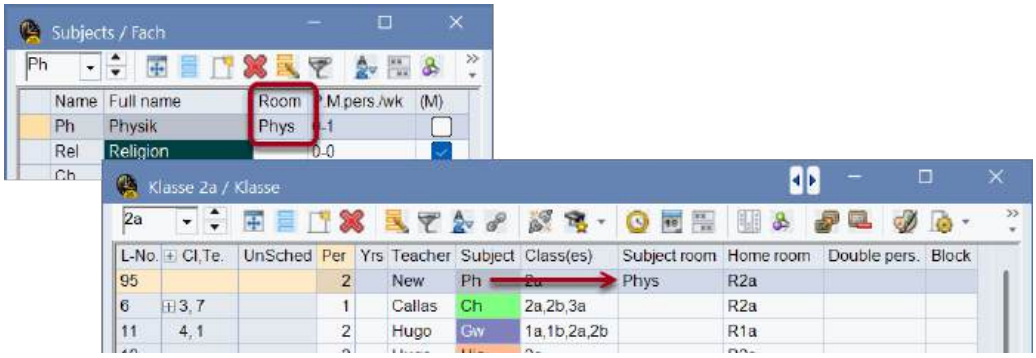
Master room

If you have assigned a room to each class in the class master data, this room is automatically entered in the master room field as soon as you enter the class. Alternatively, a master room can be defined for each teacher, in which case it works in the same way.



Subject room

You can also assign rooms in the subject master data, but in this case subject rooms, e.g. a physics room to the *physics* subject . When you enter a subject with a subject room, it automatically appears in the *Subject room* field.



Tip: Subject room + main room
Both the subject room and the main room can be entered for a lesson. In this case, the optimization first tries to schedule the lesson in the subject room. If this is not possible, the lesson can also be scheduled in the main room. Further information can be found in the Room logic chapter.

3.3.2 Double lesson - Block

Double lesson

Unless otherwise requested, all lessons are scheduled as single lessons. If double lessons are desired or permitted,enterthis in the *Double lessons* column for the respective lesson. In this field, enter the distribution of double and single lessons:

The entry 1-1 means that the distribution is from 1 to 1, i.e. the lesson should be scheduled in exactly one double lesson.

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
43	2, 2		2		Callas	Ke	3a,3b		R3a	1-1	

The entry 0-1 means that the two-hour lesson can be held in a double lesson, but does not have to be (minimum 0, maximum 1 double lesson).

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
3	1, 2		2		Gauss	Gz	3a		R3a	0-1	

The entry 1-2 means that the 4 lessons can be held in one double lesson & two single lessons or in two double lessons. The timetable algorithm should decide which variant is more suitable from the overall perspective of the timetable.

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
60			4		Cer	E	2a		R2a	1-2	

Tip: Double lesson condition
If a variability of double lessons is possible for individual lessons (e.g. 0-1 or 1-2 etc.), give the algorithm this freedom. This can lead to a much better overall result.

Block

If lessons lasting several hours are to be held consecutively, this is referred to as a block of lessons. Several blocks of lessons can be entered separated by commas in the "Block" column.

For example, enter "3" for a 3-hour block in the "Block" column.

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
2			3		Callas	Ke	1b		R1b		3

If a 6-hour lesson is to be held in two 3-hour blocks, enter "3.3".

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
54			6		Rub	D	1b		R1b	0-1	3,3

3.3.3 Couplings

In the Untis nomenclature, a lesson is coupled if either more than one teacher and/or more than one class is involved in this lesson and the lessons of these coupling parts are held simultaneously.

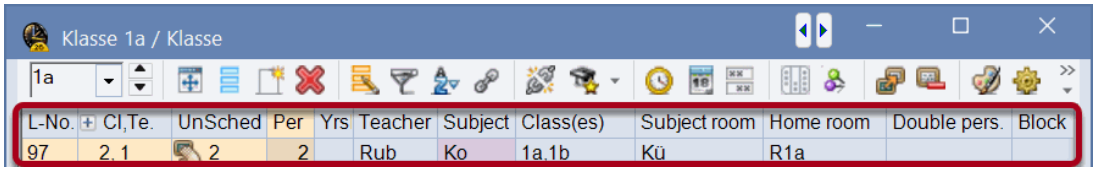
Attention: Note for linkages
Several classes are entered separated by commas; if there is more than one teacher, each teacher is entered in a separate linkage line.

Coupled lessons (several classes)

Teacher Rubens is to teach classes 1a and 1b cooking in the kitchen for two lessons per week.

Wst	Teacher	Subject	Class	Room
2	Rub	Co	1a,1b	Kü

Proceed as for simple lessons, but enter classes 1a and 1b in the Class(es) column, separated by a comma. The room is not entered automatically this time, as no room is assigned to the subject "Cooking". Therefore, enter it in the "Subject room" column.



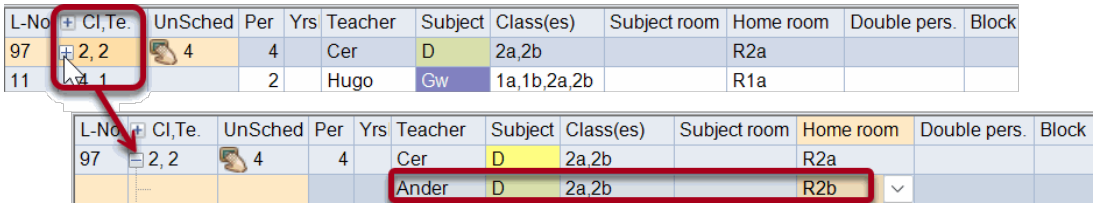
Switch to class 1b. You will see that this lesson automatically appears in this class.

Combined lessons (several classes and teachers)

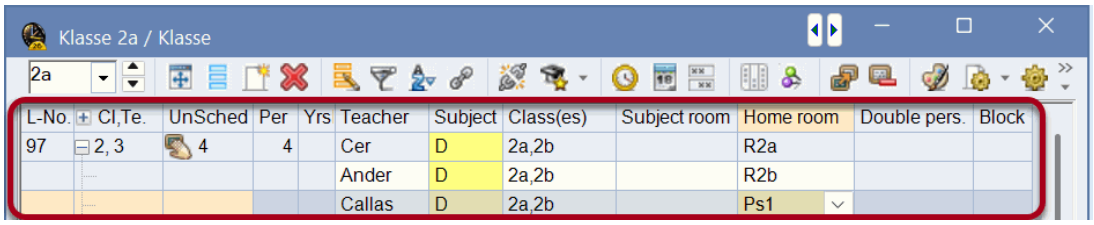
The subject German is to be taught in the second classes for four hours with differentiated performance. This means that the pupils in 2a and 2b are taught in three groups by three teachers (Cer, Ander, Callas) in three different rooms.

Wst	Teacher	Subject	Class	Room
4	Cer	D	2a,2b	R2a
4	Other	D	2a,2b	R2b
4	Callas	D	2a,2b	Ps1

1. Set the lesson window to class 2a.
2. Enter "4" in the "Wst" column and confirm with the <TAB> key.
3. Type in the short name "Cer" and confirm again with <TAB>. It makes no difference which of the three teachers you start with.
4. Type "D" for the subject.
5. In the "Class(es)" column, enter classes 2a and 2b separated by a comma.
6. The main room of class 2a - R2a - is entered automatically.
7. Move the mouse over the "Kl,Le" column of the class you have just entered and click on the "+". The keyboard shortcut for this is <CTRL> + R. Enter the next teacher "Ander", again with classes 2a and 2b, in the empty line with a gray background.
8. Now change room R2a to R2b, as Cervantes is already teaching his group in room R2a.



9. Enter the same for teacher Callas with another room in the third linking line.



The "+" symbol now appears permanently in the "Cl,Le" column. Next to the + symbol, the number of participating classes and teachers is shown in the format "Kl (number of classes), Le (number of teachers)". Click on it to see the complete information about the class. Decide for yourself whether you always want to display only the first line of the lessons or always all coupling lines.

Tip: Folding out all coupling lines
By clicking on the <+> in the column header of "Kl,Le", you can show or hide all coupling rows at once. The keyboard shortcut for this is <CTRL> + <SHIFT> + R.

You can find further information on handling linkages in the chapters Linking lessons and Unlinking lessons.

Multiple rooms

Sometimes two or more rooms are required for a lesson (or a linking line).
You can enter these rooms - as with classes - separated by commas.

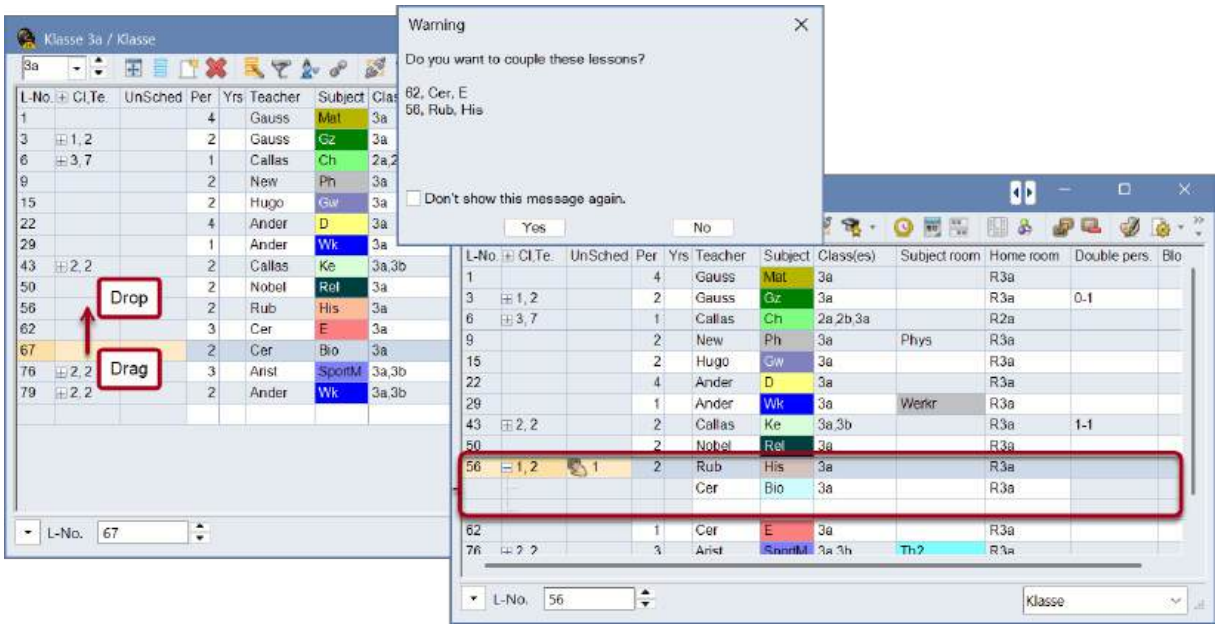
In the example below, both room MZ and room R2a are required for music lessons with teacher Callas.

L-No.	Cl,Te.	UnSched	Per	Yrs	Teacher	Subject	Class(es)	Subject room	Home room	Double pers.	Block
38			1		Callas	Mus	2a		MZ,R2a		

3.3.4 Couple lessons

Linking via drag & drop

If you want to link two existing lessons, grab one of the two lessons in the "Kl,Le" column and drag and drop it over the lesson you want to link it to. As soon as you drop it and confirm the warning dialog that appears with <Yes>, the two lessons are linked.

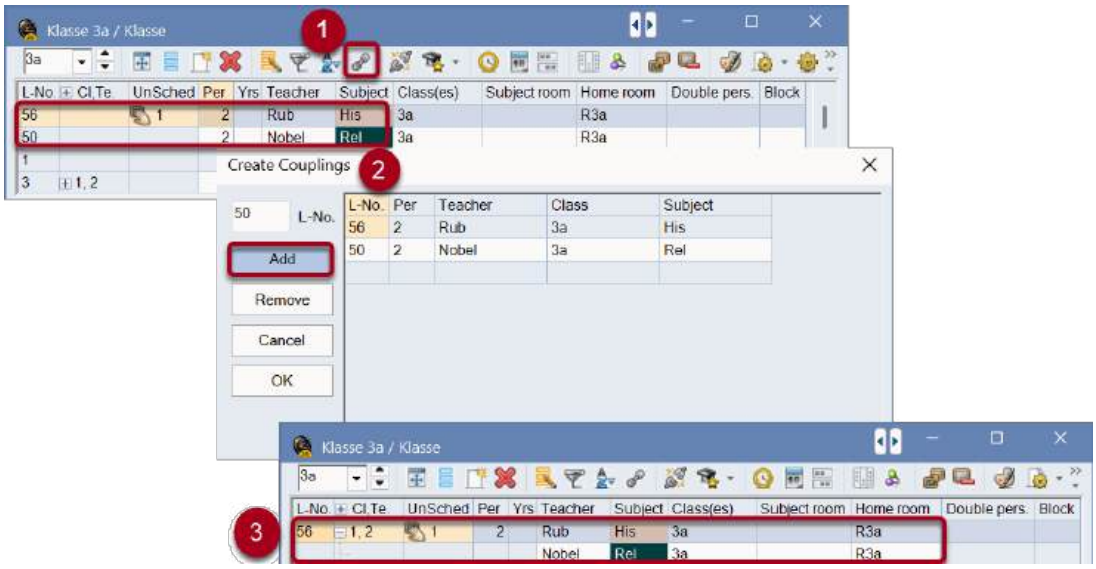


It is just as easy to unlink linked lessons again. Drag and drop the linking row that you want to remove from the link via the "Kl,Le" column and drop it. The lessons are now unlinked.

Linking via button

If you want to link two existing lessons, activate one of the lessons to be linked and click on the <link> button in the toolbar. Another dialog appears in which the activated lesson is already entered. You have three options for adding further lessons:

- Double-click on the desired lesson in the lesson window.
- Activate the new lesson in the lesson window and then click on <Add>.
- Enter the lesson number and then click on <Add>.



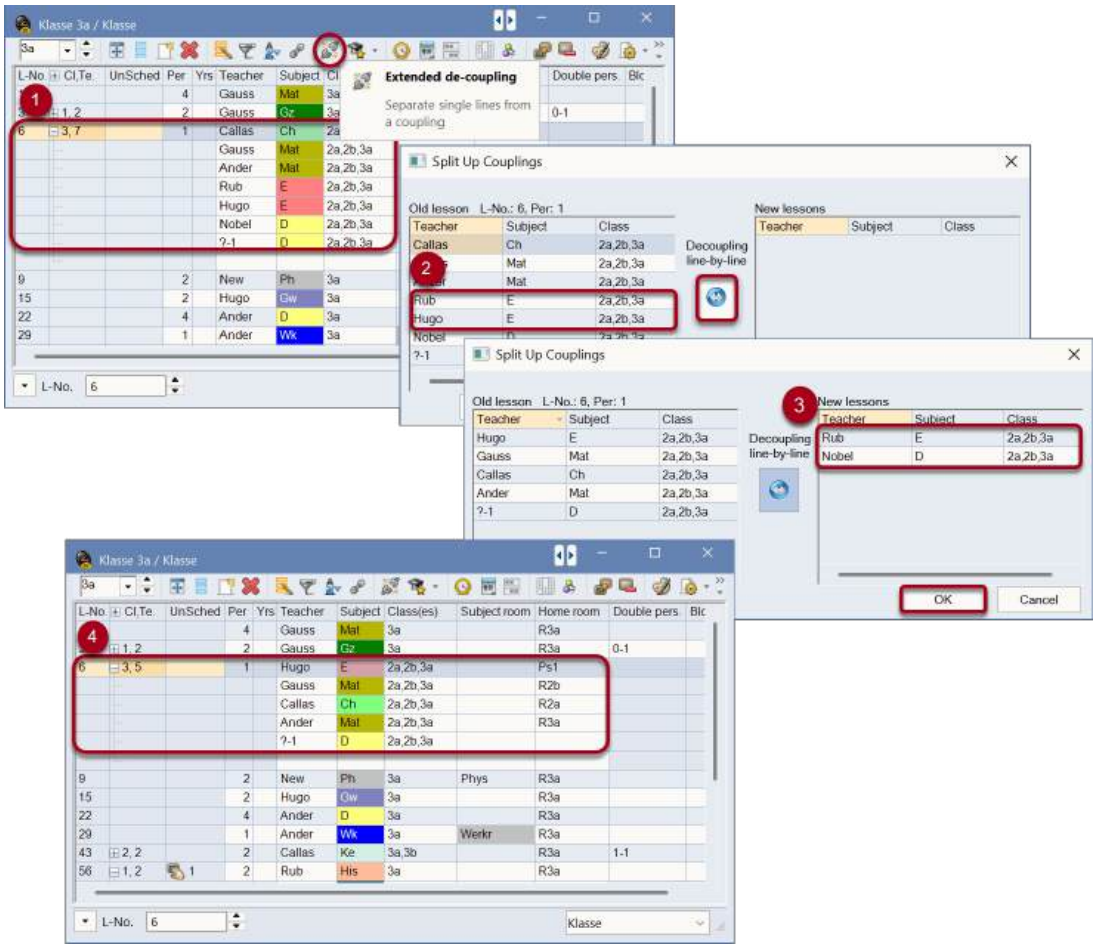
3.3.5 Decouple lessons

The chapter "Linking lessons" has already described how you can unlink lessons using drag & drop.

Unlinking via button

You can use this function to turnthe individual linking rows of a linked lesson into independent lessons (with their own lesson numbers).

Activate a linkage and click on the <Advanced decoupling> button. A window opens in which you can select which linkage rows are to be removed from the linkage.

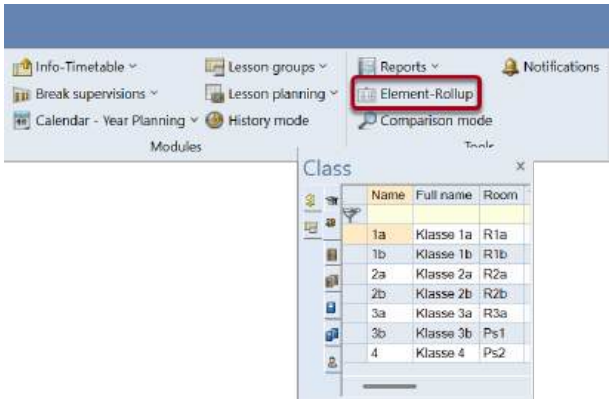


Attention: Unlink all
If you click on the <Unlink all> button, all class links will also be removed. This can have a drastic effect on the distribution of teaching assignments.

So if you only want to break a linkage into all linkage lines, but want to keep the class linkages, select all lines in the left-hand field and click on the double arrow in the middle.

3.3.6 Lesson entry via Drag & Drop

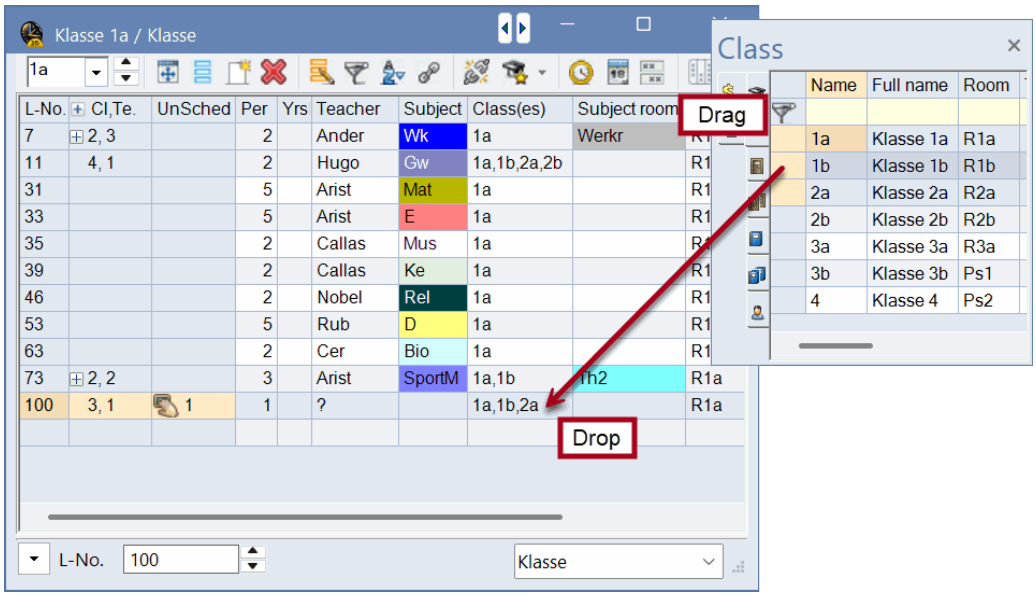
You can also enter lessons using the element rollup via drag & drop. You can open the element rollup via "Start | Element rollup" or "Data entry | Element rollup".



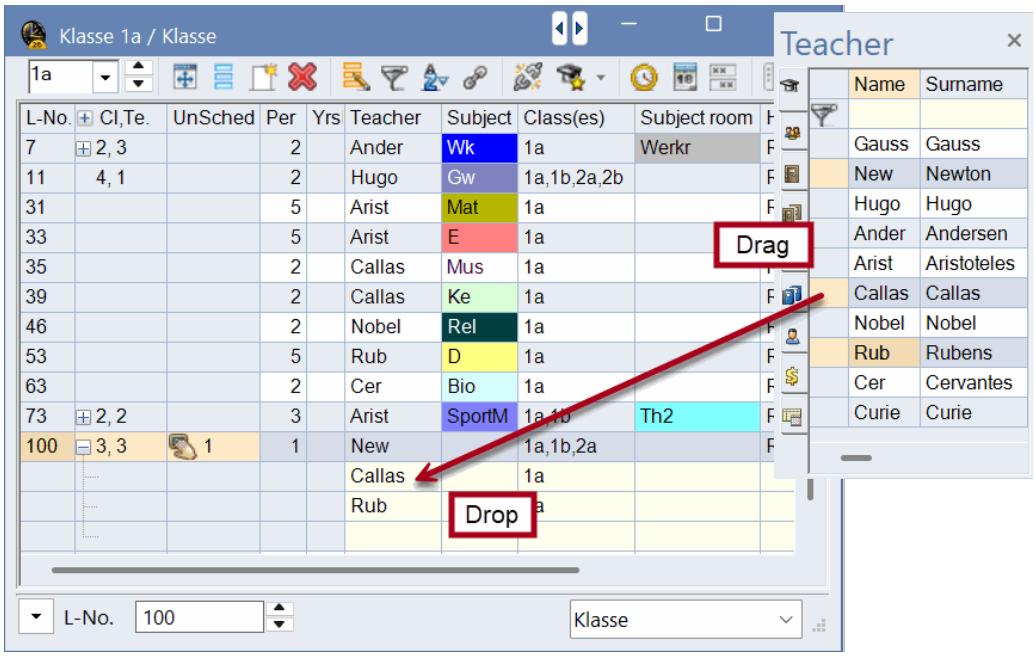
In this element rollup, you can choose between the master data and drag individual or multiple elements into the lesson window.

You can also use a filter in the element rollup.

Tip: Multiple elements
By holding down the Ctrl key, you can select several elements and then drag them into the lesson window.



If you drag several classes into the lesson window, they are all entered in a linking line. However, if you drag several teachers into an existing lesson, a separate linking line is created for each teacher.

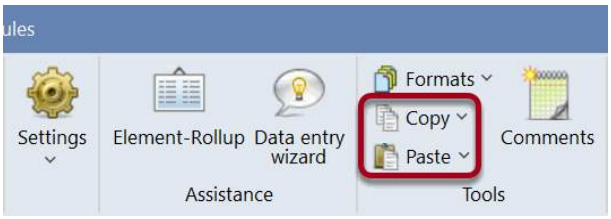


Tip: Double-click
Instead of using the drag & drop technique, you can also use the element window by double-clicking.

3.3.7 The Clipboard

You can copy selected lessons (marked by crossing them out) to the clipboard and paste them elsewhere. These functions can either be accessed via the "Copy" and "Paste" menu items on the "Data entry" tab, or you can work with the following keyboard shortcuts:

Ctrl + X = Cut
Ctrl + C = Copy
Ctrl + V = Paste



Use within the program

You can copy individual or multiple lessons from one class to another or (with the multi-week timetable module) from one period to another.

For example, if you want to copy all lessons from 1a to 1b, then

- cross out all lessons or press Ctrl + A to select everything,
- click on "Copy" in the "Data entry" tab,
- switch to class 1b,
- click on "Paste" in the "Data entry" tab.

When inserting the lessons into class 1b, the master room of 1b is copied.

Attention: Edit mode
If you are in edit mode in a field, only the entry in this field is copied and not the entire lesson line. You can exit edit mode by pressing the Escape key.

Advanced pasting

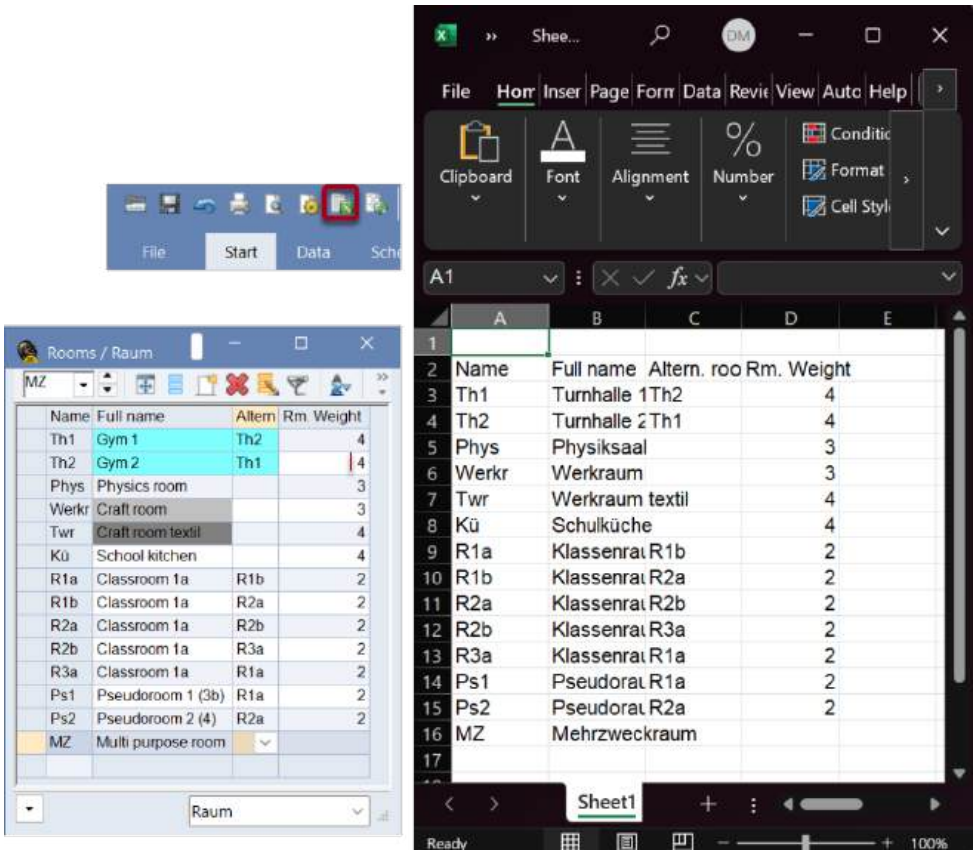
Tip: Copy timetable
The "Advanced paste" function allows you to copy timetables.

In addition to the usual paste function, the "Extended paste" function is also available in the "Paste" menu. This function inserts the timetable of the copied lesson in addition to the lesson, i.e. the timetable of the original class is also copied.

Copying data to other programs

You can also use the clipboard to export lessons (or other data) to other programs, e.g. spreadsheet or word processing programs.

You can also export many views directly to Microsoft Excel using the <Excel print> button.



3.4 Teaching characteristics

In addition to the basic data of a lesson, you can also define many other properties of a lesson. Apart from the time preferences, these properties can be entered either in the grid view or in the form view. The index cards described below can all be found in the form view.

- Time requests
- "Lessons" tab
- "Timetable" tab
- "Indicator 1" tab
- "Indicator 2" index card
- "Values" and "Linking lines" index cards

3.4.1 Time requests for lessons

You can choose from three different options when displaying time requests:

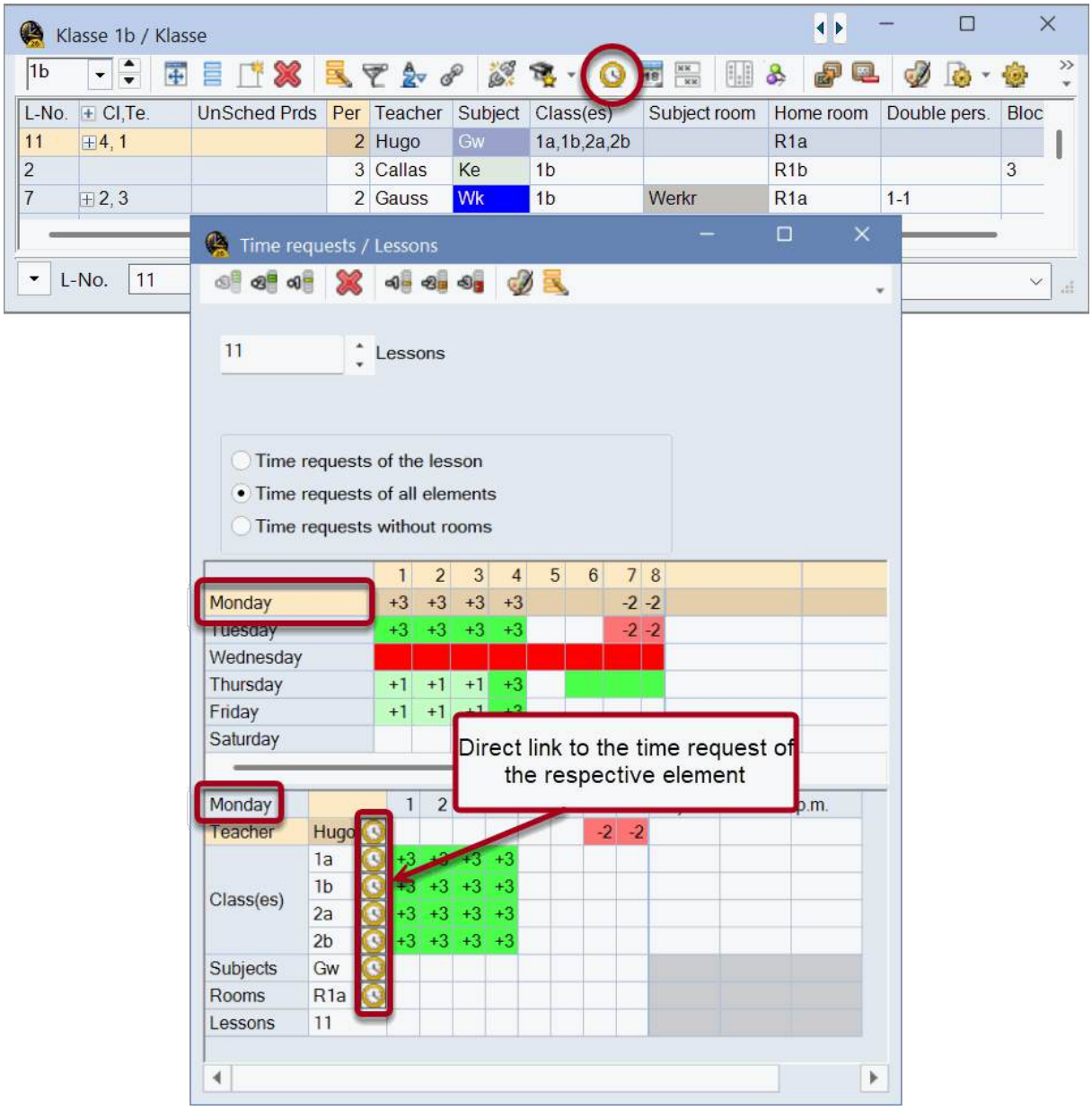
Time requests for lessons

A special time request can be assigned to each individual lesson. The general function of the time requests is describedin the Time requestschapter , Application notes section. However, a time request for a lesson cannot be assigned +3 - in this case, the lesson should be planned and fixed manually.

Time requests for all elements

The time requests of the master datainvolved are inherited byeach lesson. If, for example, teacher Hugo has his day off on Tuesday, no lessons in which Hugo is involved can take place on Tuesday.

The option <Time requests of all elements> shows you a summary of the time requests of all elements involved in this lesson in the middle area. In this area, you can click on a day of the week and in the lower part you can then see exactly which of the elements involved is responsible for this time request. You can use the <Time requests> button in the "Time requests | Lessons" window to switch directly to the time request window for the element in question.

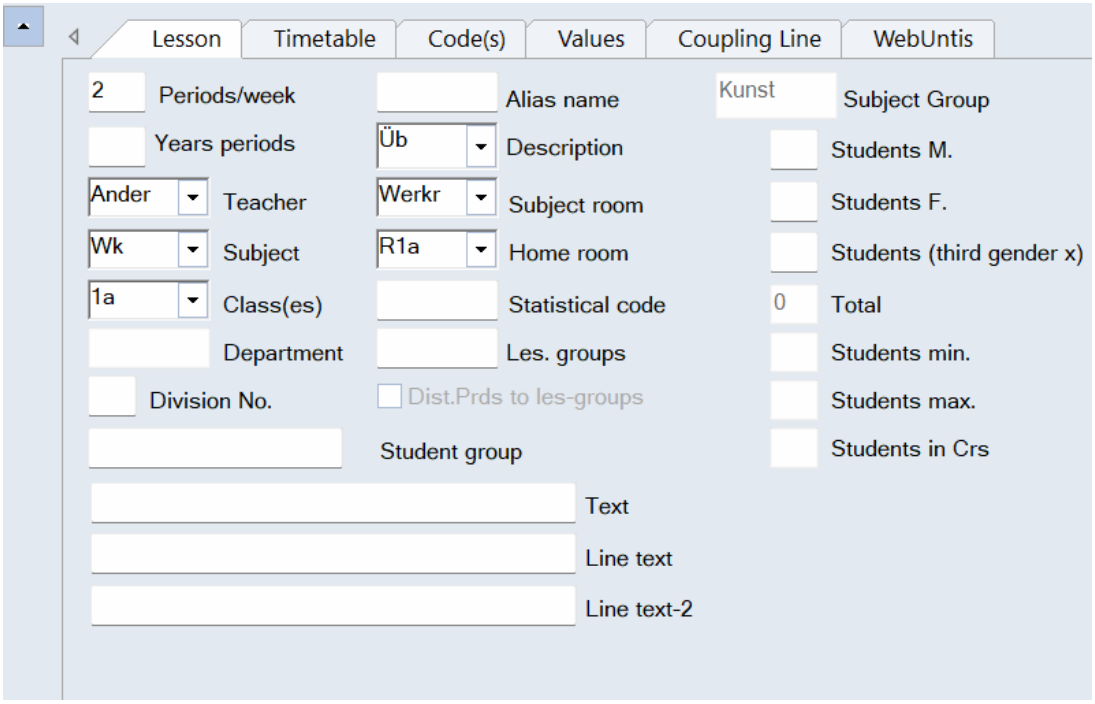


Time requests of all elements without rooms

As the room assignment can still be changed during optimization, the time requests of the rooms are often not as mandatory as those of the other elements. For this reason, they can also be hidden using the option below.

3.4.2 Index card 'Lesson'

You can define the following parameters on the "Lesson" tab:



Weekly periods / annual periods, teacher, subject, class(es), room

The master data involved in the lesson and the number of hours are the most important lesson parameters. The input has already been dealt with in the section on entering lessons.

Department

If a class is assigned to a department, this department is entered here.

Division number

The division number is used so that the number of lessons in a class is also calculated correctly in the case of divisions. A division exists if, for example, English is taught in 2 groups, but these lessons are not linked, i.e. they do not take place at the same time. There are then 2 lesson lines with 4 lessons each, but they only contribute a total of 4 lessons to the number of class lessons.

If both lesson lines (numbers) are assigned the same division number (permitted value range: 0 to 255), the value units used are calculated as described above. A lesson with the division number 0 does not contribute to the class hours total.

You can also assign the same division number to more than 2 lesson lines in the class. The largest number of hours of these division elements is then added to the class total.

Student group

An entry in the Student group field is very important when using WebUntis for split lessons. You can find detailed information in the WebUntis manual.

Alias (second) name

Similar to the master data elements, you can also assign alias names to lessons. A description of this function can be found in the chapter " Master data - Class tab".

Subject room

Here you can enter the desired (subject) room for the lesson. If a subject room is noted for the subject, this subject room is automatically adopted when the subject is entered.

Main room

If the data is entered via the "Classes | Lessons" view, the main room of the class is entered here; if the data is entered via "Teacher | Lessons", the teacher's room is entered here.

Statistics indicator
Functions in the same way as the master data. You can assign any number of statistics indicators to each lesson. These indicators are very useful if you want to filter according to certain criteria.

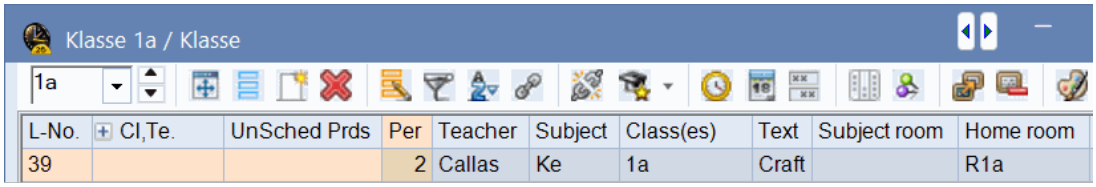
Les-groups
If you are using the *multi-week timetable* module, you can enter the lesson group here. You can find more details in the Lesson groups chapter in the Multi-week timetable section.

Subject group
If the subject is assigned to a subject group, this is displayed here. The use of subject groups is particularly useful in connection with teaching qualifications and timetables (lesson planning module).

Students/Total
Here you can enter the number of students taking part in active lessons. The sum of the two entries is displayed in the "Total" field. These entries affect the room allocation during optimization and room optimization.

Text

You can use this field to assign any text to each lesson. This text is also displayed in the "Special text" column in the timetable magnifying glass and can also be displayed in the actual timetable window.



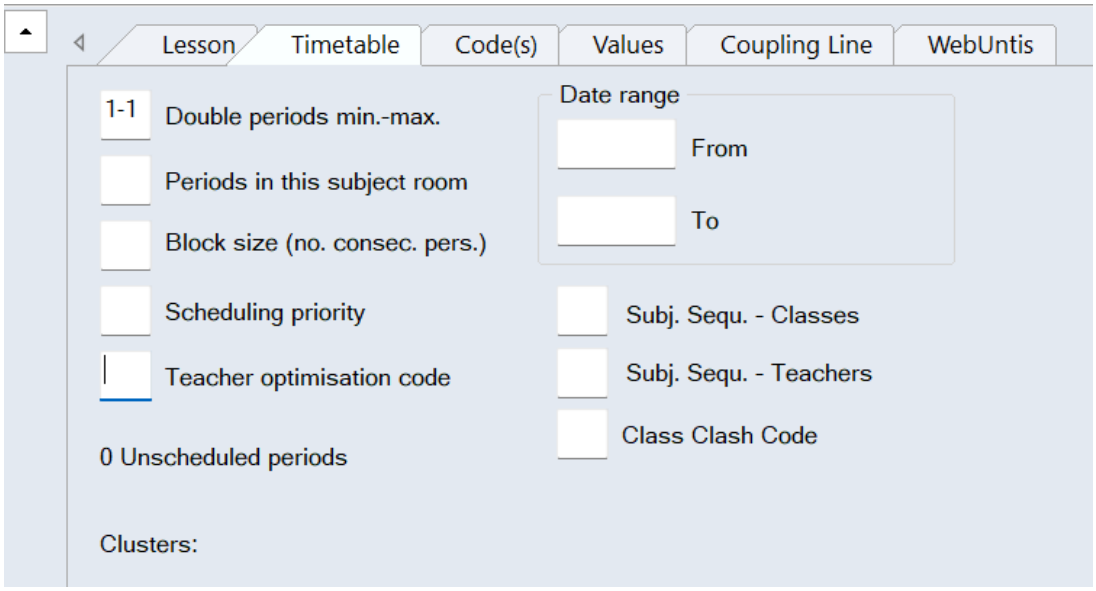
UnSc 5/27	Mo	Tu	We	Th	Fr	Sa
8:00	.SportM		.Gw	Rel	E	D
8:55	Mus	Mat	Mus	Bio	D	Mat
9:50	D	Rel	D	E	Mat	Bio
10:45	E	E	.SportM	Mat		E
11:40						.Gw
12:35						
13:30				Ke Craft	.Wk	
14:25						

Line text/line text-2

You can also use these two fields to assign a text to the individual linking lines of a lesson.

3.4.3 Index card 'Timetable

You can define the following parameters on the "Timetable" tab:



Double periods min-max - Block size

The entry of double lessons and blocks has already been dealt with in the chapter Double lesson - Block.

Periods in the room

If a subject room is specified for a lesson, the optimization attempts to schedule all lessons in this subject room. This is sometimes undesirable if there is a shortage of space and rooms are overcrowded. For example, if only two out of three physics lessons are to take place in the physics room, enter "2" here. As a rule, no entry is required in this field.

Scheduling priority
This field is in Untis for compatibility reasons. Please do not enter anything here.

Teacher optimisation code
With the teacher optimization indicator, the lesson planning module offers a possibility to influence the teacher assignment during optimization. Details can be found in the chapter " Teacher optimization indicator", section " Optimization".

Unscheduled lessons
This shows how many lessons of the active class are not yet scheduled in the timetable.

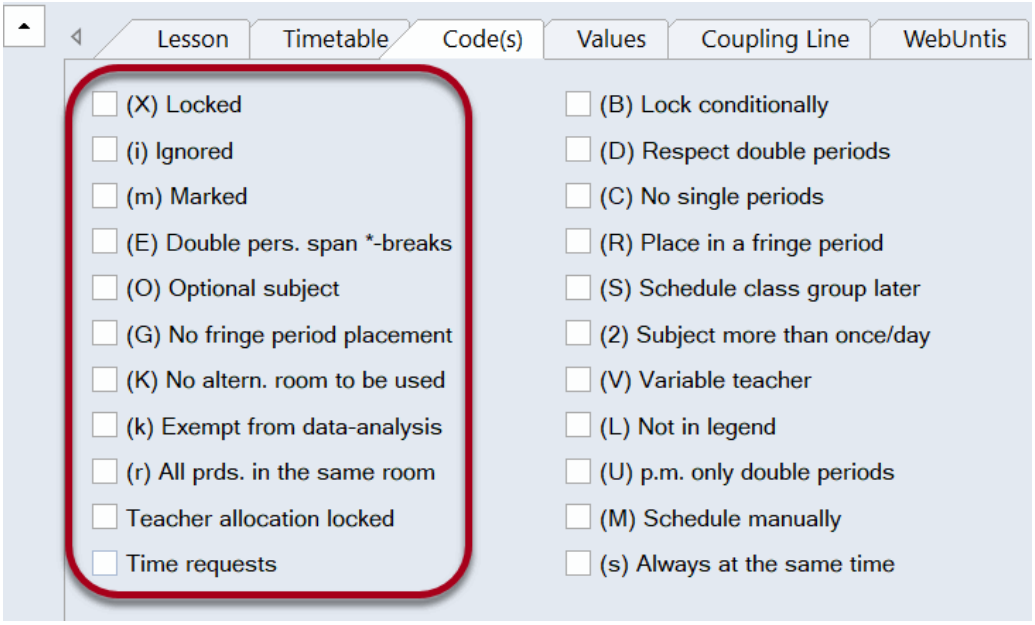
Date range / time range
With the multi-week timetable module, you have the option of scheduling lessons for a limited period of time.

Subject sequence classes/subject sequence teachers
As with the master data, there is also the "Subject sequence" field for lessons. Allowed entries are 1 - 9 for the positive subject sequence, A - E for the negative subject sequence. Please also read the " Subject sequence " chapter in the " Application notes" section.

Class Clash Code
This indicator makes it possible to schedule two lessons at the same time, even though the same class is taking part in both lessons. The valid entries are 1 - 9, if a collision with the same Class Clash Code is permitted, and A - H, if collisions with other non-numerical Class Clash Codes are permitted. Please also read the chapter "Class collision indicators" in the section " Application notes".

3.4.4 Index card 'Code(s)' Part 1

You can use a variety of indicators to define the lesson even more precisely.



(X) Fixed, (i) Ignore, (m) Marked

The functions of these indicators have already been explained in the chapter "Input fields for all master data".

In the lesson views, ignored lessons are marked with an (i) next to the lesson number.

L-No.	Cl,Te.	UnSched Prds	Per	Teacher	Subject	Class(es)
7	2, 3 (i)		2	Ander	Wk	1a
11	4, 1		2	Hugo	Gw	1a,1b,2a,2b
31	(i)		5	Arist	Mat	1a
33			5	Arist	E	1a

(E) Double periods via *-breaks
Breaks that are marked with an "*" in the time grid may not be spanned by double periods and blocks. This restriction can be specifically switched off for certain lessons using the (E) indicator.

(O) Optional subject
A lesson for which this indicator is activated is treated by the optimization as if a free subject were involved. Please read the chapter "Application notes - Free subjects and off-peak lessons".

(G) Not in marginal lesson
You can use this indicator to ensure that a lesson is not scheduled in off-peak hours if possible. Please read the chapter " Application notes - free subjects and off-peak lessons".

(K) No alternative room
If this indicator is set, the lesson in question may only be scheduled in the specified room. Scheduling in alternative rooms is then not permitted.

(k) No data analysis
With this indicator you can exclude a lesson from the automatic data analysis of the diagnosis.

Caution:
Only activate this indicator after you have made sure that the lesson in question does not hinder optimization.

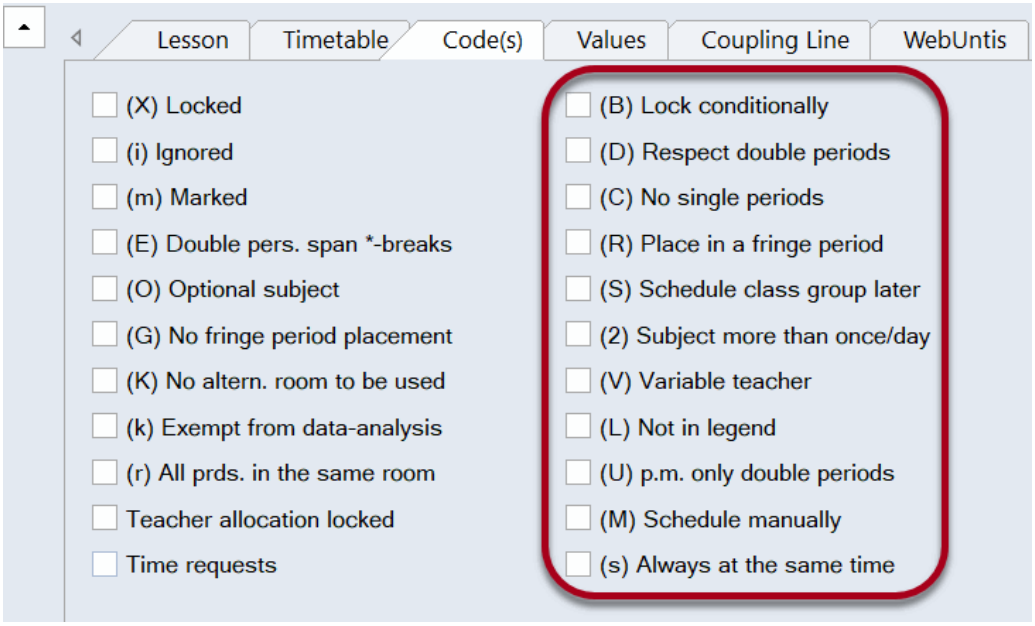
(r) Periods in the same room
All lessons in a class for which this indicator is set are scheduled in the same room. This indicator has a major influence on room optimization. A lesson marked with the (r) indicator can also displace a class from its own main room. For a better understanding, be sure to read the chapter " Application notes - Room logic".

Fixed teacher assignment
The teacher assignment can be fixed separately for each coupling line so that it is not changed by the automatic teacher assignment (only possible with the lesson planning and value calculation module) (see also the "Optimization" section).

Time requests available
If time requests are entered for lessons, a check mark is automatically placed in this field.

3.4.5 Index card 'Code(s)' Part 2

Here you will find the explanations for the indicators in the second column.



(B) Lock conditionally

If this indicator is set, the relevant lesson is treated as a fixed lesson in the first part of the optimization (setting run), but this temporary fixing is automatically removed again in the subsequent optimization run (swap optimization) (see also the " Optimization" chapter).

(D) Respect double periods

If this indicator is activated for a lesson (or subject), the number of permitted (desired) double periods for this lesson must be adhered to during optimization. This also applies if you generally prohibit double periods for a lesson ("0-0" in the "Double periods min-max" field). The optimization errors "double lesson break", "unauthorized double lesson" and "subject also twice a day" are thus avoided particularly carefully for this lesson.

Caution: Use sparingly
Use this indicator extremely sparingly (if in doubt, do not use it at all). It severely restricts optimization - especially for subjects with many lessons. Therefore, before using it, increase the corresponding weighting parameter(avoid double hour errors) to 5 if necessary.

- Please also note that an entry in the "Double lessons min-max" field is essential for the correct handling of double lessons.
- The set indicator (D) excludes the use of indicators (2) and (C).

(C) No single periods

If this indicator is set, block scheduling of the relevant lesson is given top priority. The scheduling of individual lessons is prevented as far as possible.

- In a 5-day week, this indicator only makes sense for lessons with more than 6 lessons per week.
- The indicators (D), (2) and (C) are mutually exclusive.

(R) Place in a rringe period

You can use this indicator to specify - in the same way as for fringe subjects - that the lesson is to be held during a fringe period. The attribute means that lessons marked in this way are preferably scheduled at the beginning or end of a school day or half-day (according to the time grid). Please also read the chapter Application notes / Free subjects and off-periods.

(S) Schedule class group later

When using class groups, you can change the scheduling priority for the selected lessons. This indicator means that the lesson is scheduled later during the optimization process, i.e. when other classes in the same class group are already scheduled.
- Only use this indicator if you are familiar with class groups.

(2) Subject more than once a day
The Untis optimization algorithm assumes that a subject in a class may only be scheduled once a day (except in the case of desired block or double lessons). You can override this - highly weighted - condition with this indicator. Untis can then schedule the subject as often as you like on one day.
- The indicators (2), (C) and (D) are mutually exclusive.

(V) Variable teacher
If this indicator is set, Untis may replace the teacher(s) involved in the lesson with suitable teachers if bottlenecks occur during optimization. You can find more information in the Optimization chapter.

(L) Not in legend
For lessons for which this indicator is set, no legend is output when the timetable is printed.

(U) Only double periods in the afternoon
This indicator means that automatic optimization only schedules double lessons (and no single lessons) in the afternoon. This indicator is only useful if
- double lessons are permitted for the lesson and
- it is entered for the subject that lessons may take place in the afternoon.

(M) Schedule manually
If the (M) indicator is activated for a lesson, it is not included in the optimization. The lesson must be planned manually.

(s) Always at the same time
The lesson is always scheduled at the same time (e.g. always in the 3rd lesson).

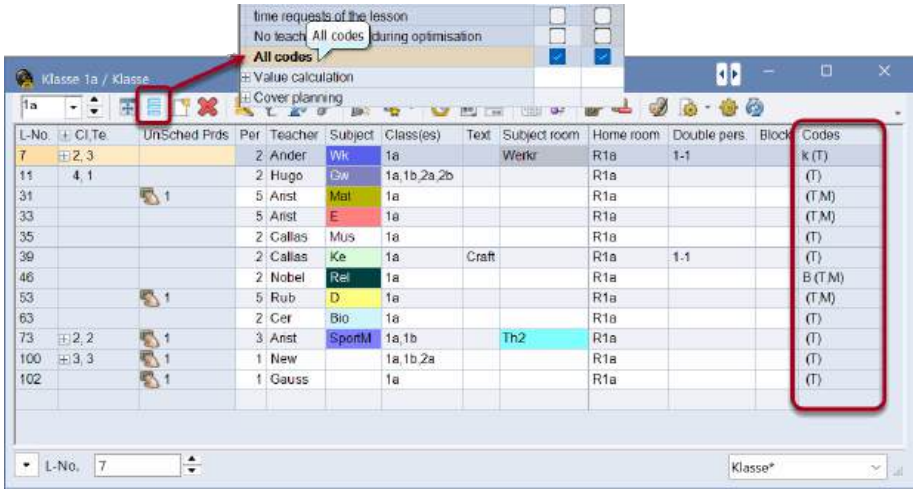
3.4.6 Index cards Values and Coupling Row

Values" index card
This tab is only displayed in connection with the lesson planning and value calculationmodule. For details on the fields, please refer to the Values chapter in the Value calculation section .

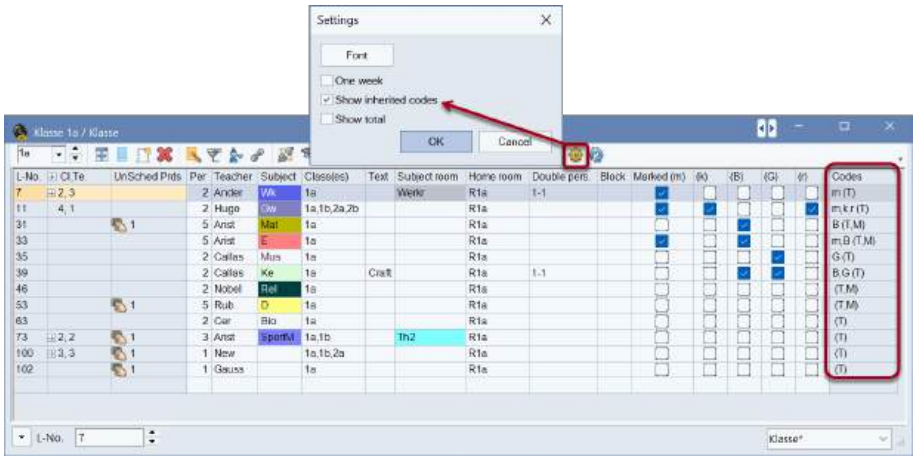
"Coupling line" tab
On this tab you will find fields that are only relevant for a linkage line, but not for the entire linkage. Most of the fields can also be found on the "Lessons" tab and are also described there.
The fields "Fixed teacher assignment" and "(Teacher)" are described in the chapter Automatic teacher assignment during optimization, section Lesson planning.

3.4.7 Show Codes

This field, which can only be activated in the grid view via the <View fields> button, provides an excellent overview of the timetable-relevant settings for a lesson. In this column, all the codes set for a lesson are listed clearly next to each other.

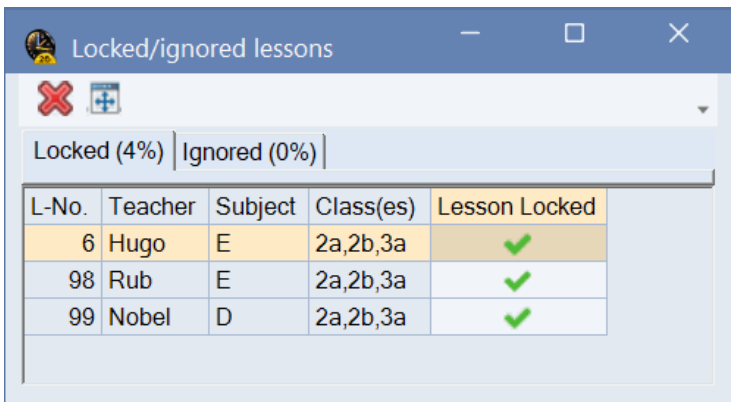


If you have ticked the corresponding button under the <Settings> of this lesson window, the inherited codes, i.e. the indicators that were entered for the master data elements involved in this lesson, are also displayed in brackets.



3.4.8 Locked / Ignored lesson

You can use the "Planning | Fixed/ignored lessons" button to open a window in which all fixed or ignored lessons in the file are listed. The level at which the lesson has been fixed or ignored is also displayed.



You can also delete the fixed lessons in this window by clicking on the relevant cell and clicking on the <Delete> icon in the toolbar.

Tip:
It is not enough to select the relevant row - you must click on the cell in the relevant row that is responsible for the fixation. Read more about fixations in the Fixations chapter, Application notes section.

3.5 The functions of the toolbar

The general functions are explainedin the Master data / Toolbar functionschapter.

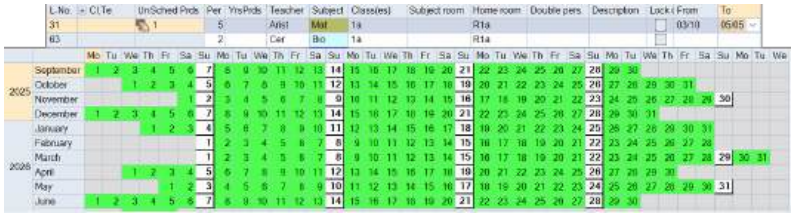
The special functions that you will only find in the lesson window are as follows:

Pairing
See chapter Coupling lessons.

Extended decoupling
See chapter Unlinking lessons.

Teacher suggestion
See chapter Teacher suggestion, section Lesson planning.

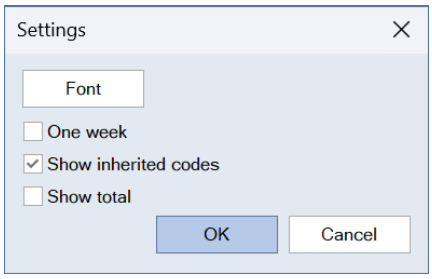
School year calendar
You can use the multi-week timetable module to set time limits for master data elements and lessons, as well as to define lesson groups (time periods). The school year calendar shows you the period in which the selected lesson can take place in green.



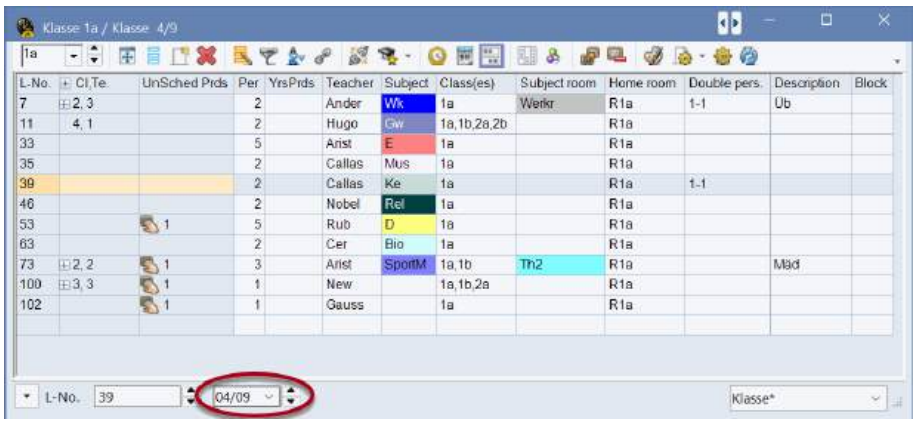
Lesson comparison
You can use this function to compare lessons in several periods.

Adopting lessons as a course
See chapter Defining courses, section Course planning.

Settings
You can use the <Settings> to customize the grid view of the lesson window to your personal requirements.

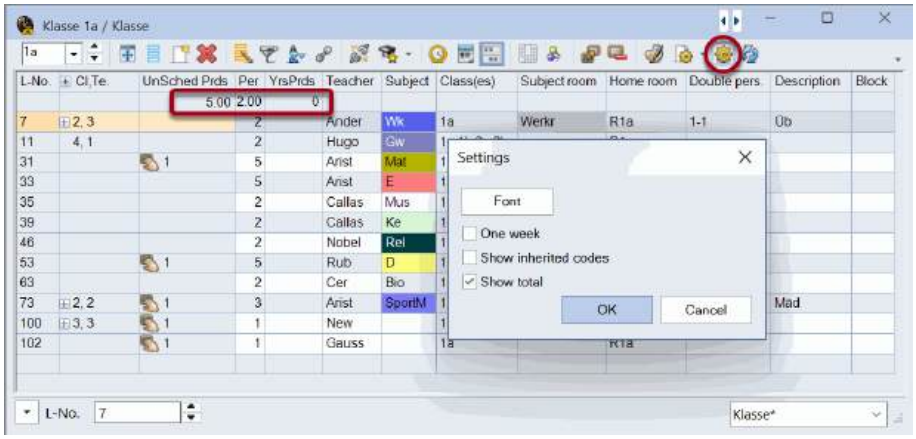


- **One week** - This selection field is only active when using the Multi-week timetable module. Only the lessons that take place in a specific week are displayed.



- **Show inherited codes -** This option affects the "Code(s)" field. The exact description of the field can be found in the chapter Display indicators.

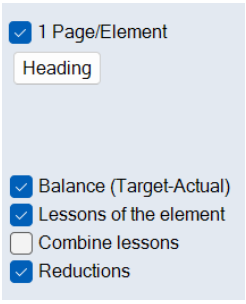
- **Show totals row -** You can use this setting to display a totals row under the heading row of the grid view. In the case of numerical fields, the value of the individual fields is added up.



Tip: Context menu
Alternatively, you can also show the totals line by right-clicking on the heading.

3.6 Print

The same applies to printing the lesson views as to printing the master data views.
You can use the <Edit printout> button in the print selection to open the page layout and define further setting options that are only relevant for lessons.



1 page / element

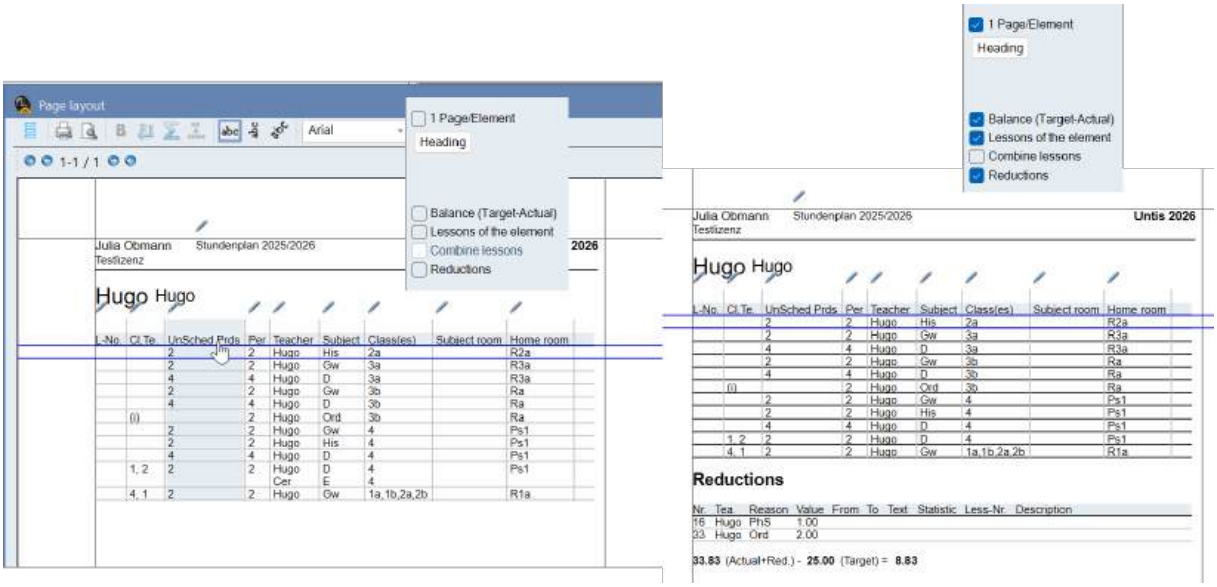
With this option, the lessons of the different elements(teachers or classes) are printed on different pages.

Balance (actual/target)

With this option, a balance line is also printed. This function is only possible with the lesson planning and value calculation module.

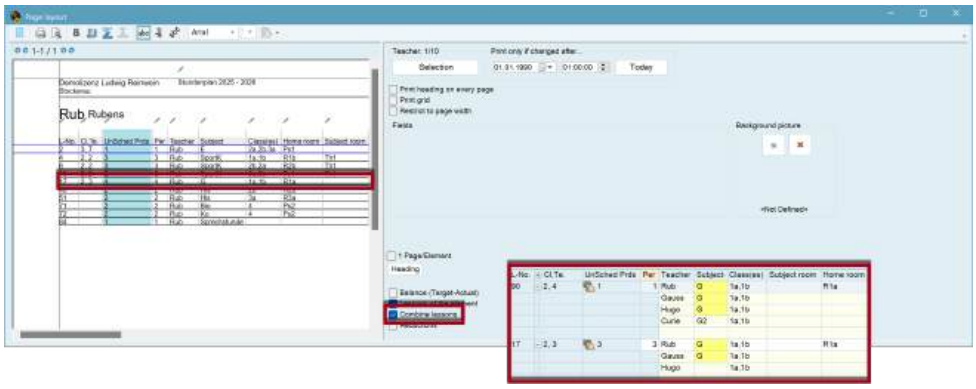
Lessons of the element

This option suppresses the printing of lines that are not relevant for the active element .



Combine lessons

This function combine split lessons. In the example, the "G" lessons of classes 1a, 1b were separated (U no. 17 and 90), as there is an additional support teacher in one lesson. For the teacher "Rub", it is shown as one lesson again.

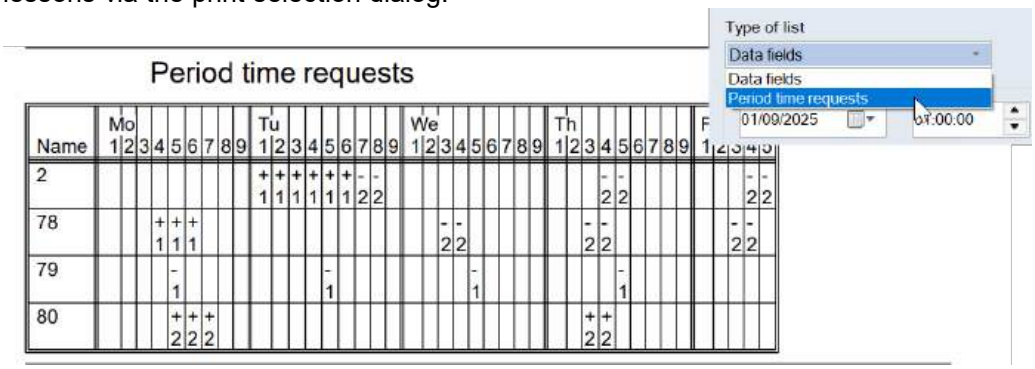


Reductions

The reductions option is only relevant with the lesson planning module.

Period time requests

You also have the option of printing out the period time requests (time requests) for the individual lessons via the print selection dialog.



3.7 Lesson sequences

With lesson sequences, accessible via the "Scheduling" tab, you can influence the planning of lessons. There are four different types of lesson sequences:

- Fixed subject sequence
- Concurrent lessons
- Weekly sequence

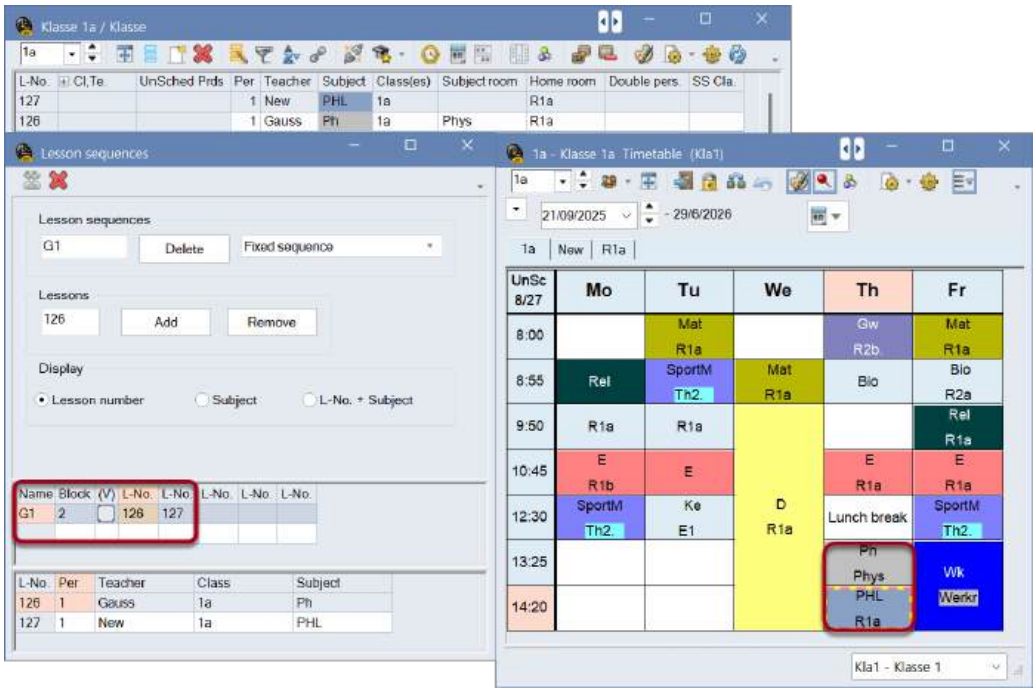
3.7.1 Fixed subject sequence

You can use the fixed subject sequence to specify which lessons must be taught in immediate succession.

Open the Lesson sequenceswindow on the "Planning" tab, select *Fixed subject sequence* in the drop-down list at the top righthand enter the lessons that are to follow each other.

Example

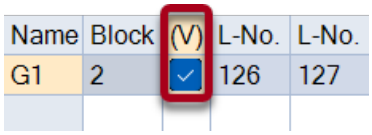
In class 1a, physics theory, lesson 126, should take place immediately before physics laboratory, lesson 127. If the subject sequence is defined, Untis now schedules the lessons immediately one after the other.



Tip: Double-click to enter
You can also enter lesson numbers for lesson sequences by double-clicking on the relevant lesson number (in the 1st column of a lesson view).

Variable fixed subject sequence

With a variable fixed subject sequence, the sequence of lessons is fixed, but the order is variable. In the example above, Untis could choose during optimization whether theory or laboratory should be scheduled first.



Attention: All lessons of the class
With fixed subject sequences, all lessons of a lesson are always scheduled as a block. So if you schedule a two-hour lesson and a three-hour lesson in a fixed subject sequence, a five-hour block is created without having to make an entry in the "Block" column for the lesson.

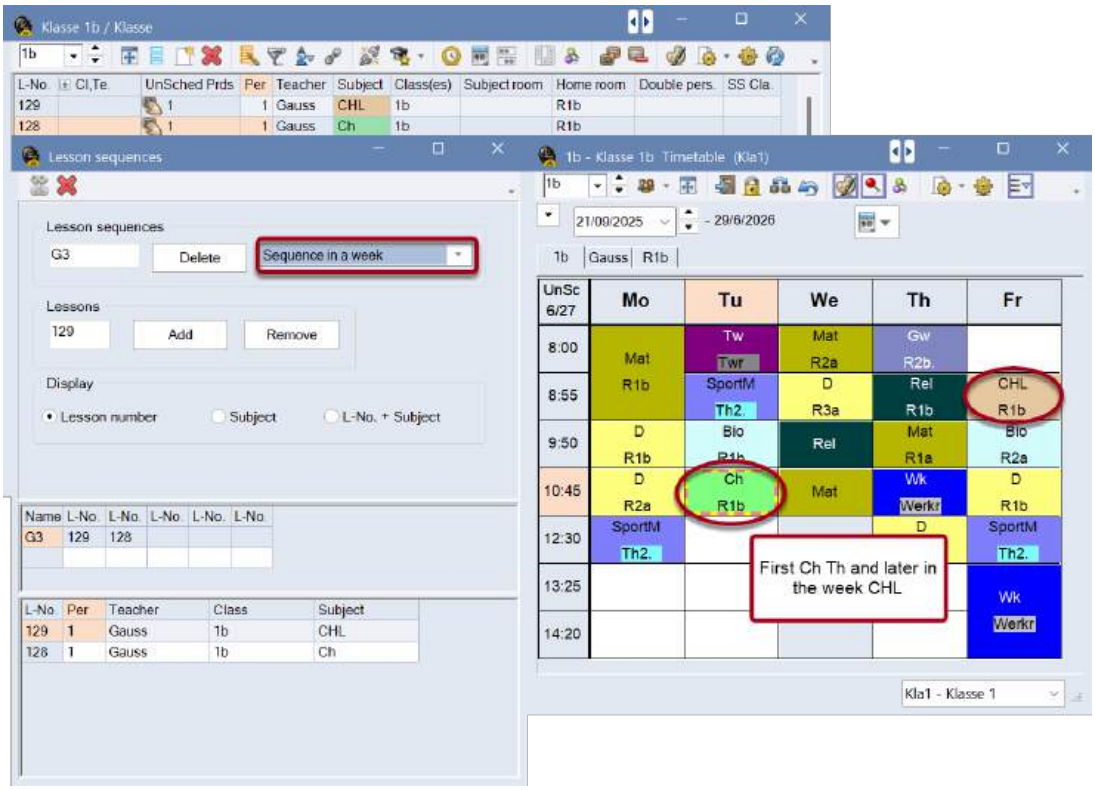
3.7.2 Weekly sequence

You can use the weekly sequence to determine which courses in a class should come before others in the weekly schedule. It is intended for one- or two-hour courses.
Open the Teaching sequencewindow on the "Planning" tab, select *Weekly sequence* in the drop-down list at the top rightand enter the lessons that should follow each other.

Example

In class 1b, chemistry theory is to be scheduled first and chemistry lab sometime later in the week.

If a weekly sequence is entered as shown in the illustration, Untis will schedule lesson no. 128 before lesson no. 129.



A maximum of 3 lesson numbers are possible in the weekly sequence.

3.7.3 Simultaneity

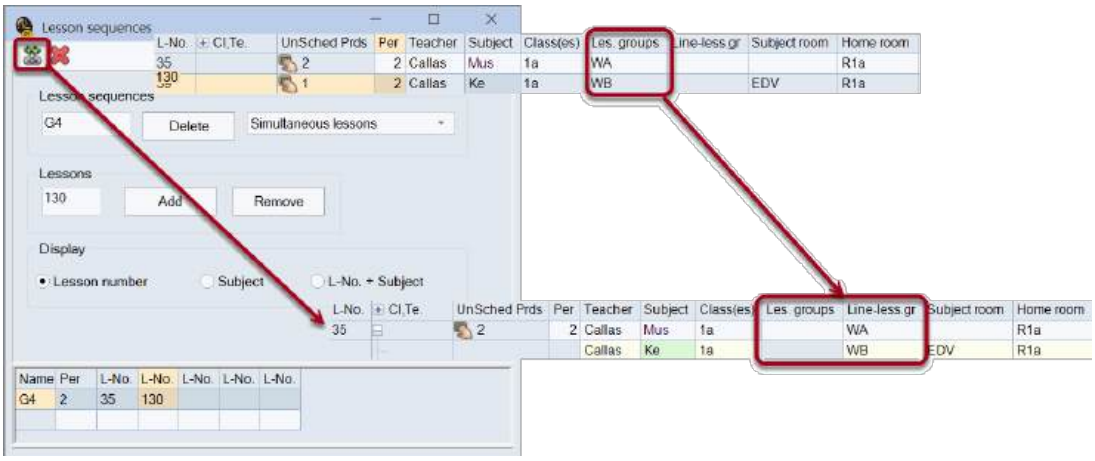
Under certain circumstances, e.g. in connection with the *course planning* module or in the case of fortnightly lessons, it is desirable, but not mandatory, for different lessons to take place at the same time. You can enter this condition here.

Open the Lesson sequences window on the "Scheduling" tab, select *Simultaneous lessons in* the drop-down list at the top rightand enter the lessons that should take place at the same time.

The difference to a coupling is that concurrency groups can be dissolved by the optimization. Couplings, on the other hand, always remain untouched.

Converting lesson sequences into couplings

In the "Lesson sequences" window, you can now convert those sequences that are marked as "concurrent lessons" into couplings with a single click. If lesson groups are assigned to these lessons, these are transferred to the "Line lesson group" field



4 Optimization

4.1 Timetable optimization

The following chapter deals with the optimization of timetables, but it also covers several diagnostic tools that are used before and after the optimization.
The program starts with an empty time grid and automatically inserts lessons into it. Of course, this alone would not produce a good timetable, so the plans created in this way are then improved by swapping lessons. You decide what makes a "good" timetable with the help of the weighting settings.

4.2 Weighting

The weighting forms the basis for the automatic optimization of timetables. With Untis, you can determine in six gradations from "unimportant" (value 0) to "extremely important" (value 5) which points are given high and which are given low priority at your school.

Tip:
Some weighting points only become effective once you have made certain entries in the master data or for lessons (see also the "Data entry" chapter), while others influence every optimization independently of this.

A dependent weighting would be, for example, the point "Observe maximum or minimum number of hours per day for teachers". If you have entered somethingin the "Teachers | Master data" window on the "Timetable" tab in the "Hours per day min-max"field , e.g. "2-4", then this weight determines how important it is to adhere to this specification. If you leave this field blank, the weight plays no role in the optimization.

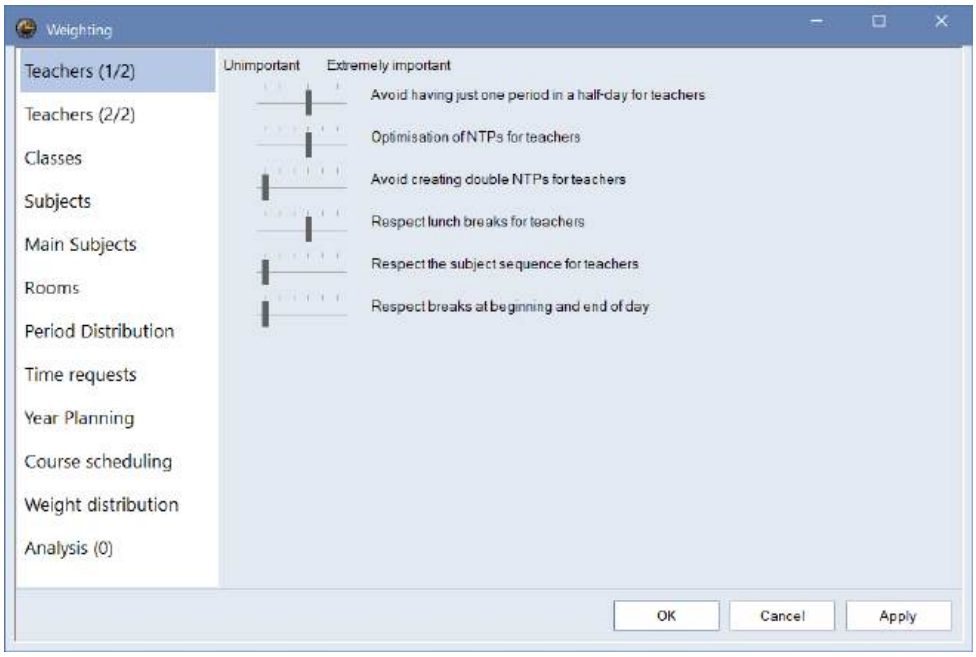
The items "Avoid individual lessons on a half-day for teachers" or "Avoid hollow lessons in class" are independent weights, for example, as both individual lessons and hollow lessons do not require any further specification in the master data or in the lesson.

You can accessthe weighting settings via the <Weighting> button on the "Start" tab.

In the weighting dialog that then appears, the various weighting parametersare grouped by subject. The weights are defined using sliders whose position reflects the importance of the respective points. From left to right, they can be interpreted as follows:

- Position 0 - unimportant
- Position 1 - not very important

- Position 2 - worthy of consideration
- Position 3 - important
- Position 4 - very important
- Position 5 - extremely important



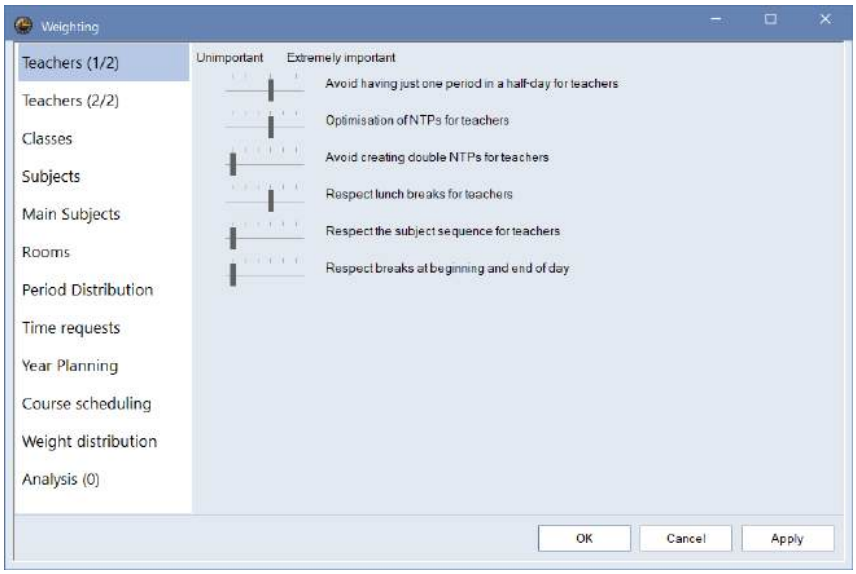
Each individual parameter is briefly presented in the following section, with reference to the entries in the master data or in the lessons for the dependent weights.

4.2.1 The weighting parameters

The weightings can be made in different sections depending on the topic.

- Teacher (1)
- Teachers (2)
- Classes
- Subjects
- Main subjects
- Rooms
- Time allocation
- Time preferences
- Weighting distribution
- Analysis

4.2.1.1 Teachers section (1)



Avoid having just one period in a half-day for teachers

If a teacher has lessons on a half-day, a high weighting for this point means that it should be more than just one lesson.

Optimization of NTPs for teachers

In the "Teachers | Master data" window, you have entered values for the minimum and maximum number of hollow hours. Compliance with these values is controlled here.

Avoid creating double NTPs for teachers

In addition to controlling the individual hollow hours, additional bad points can be assigned here for any double hollow hours.

Respect lunch breaks for teachers

Acts in conjunction with the minimum/maximum lunch break entered in the "Teachers | Master data" window.

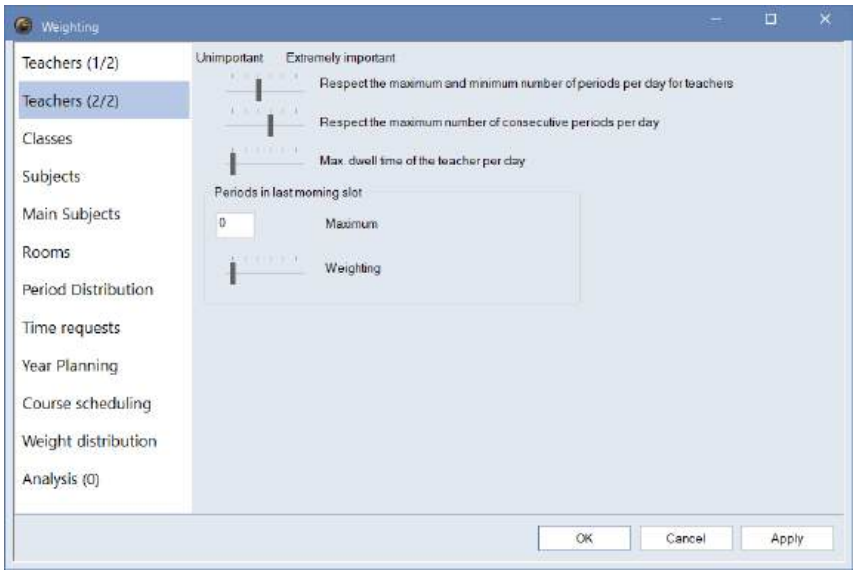
Respect the subject sequence for teachers

Controls the consideration of the subject sequence that you have entered for lessons or in the "Subjects | Master data" window. You can find more detailed explanations on the topic "Subject sequence" in the chapter "Application notes on subject sequence".

Respect breaks at the beginning and end of day

Controls the consideration of breaks at the end of the day that you have entered on the "Timetable" tab in the "Teachers | Master data" window. You can find more detailed explanations on the subject of "Daily break" in the chapter "Master data properties".

4.2.1.2 Teachers section (2)



Respect the maximum and minimum number of periods per day for teachers

Controls the consideration of the minimum or maximum number of teaching hours for teachers that you have entered in the "Teachers | Master data" window.

Respect the maximum number of consecutive periods per day

Controls the maximum number of periods in a row that you have entered in the "Teacher | Master data" window.

Max. dewll time of the teacher per day

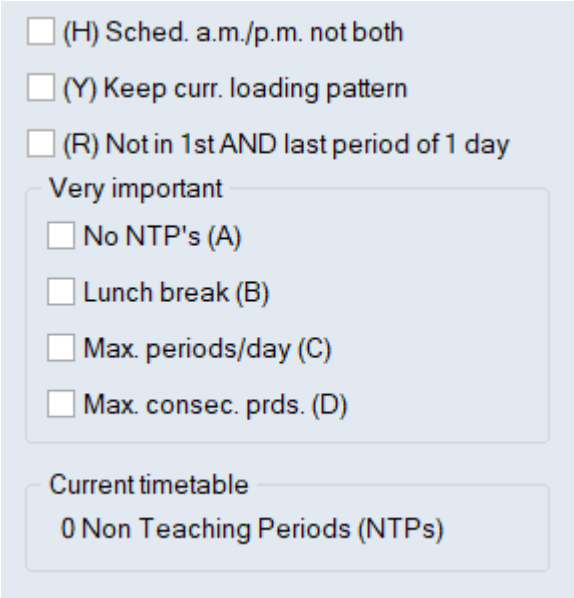
Controls the maximum number of hours that the teacher may spend at the school per day. This length of stay is defined in the field of the same name in the "Teacher | Master data" window.

Periods in last morning slot

- **Maximum**
  Teachers who teach too often in the last lesson of the morning are at a disadvantage. You can therefore specify the maximum number of last morning lessons each teacher should teach.

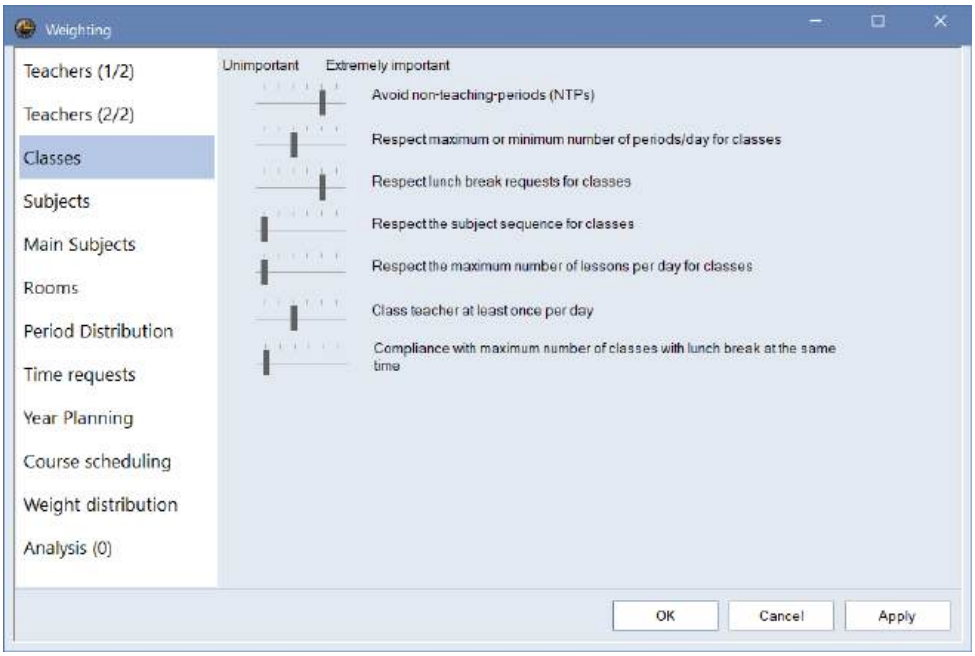
- **Weighting**
  This indicates how important it is for you to comply with this requirement.

The weightings for hollow hours, lunch break, maximum number of hours per day and maximum sequence of hours can be individually increased for individual teachers in the "Teachers | Master data" window on the "Timetable" tab.



Tip:
These individual settings should be used sparingly or not at all, as they severely restrict the optimization algorithm.

4.2.1.3 Classes section



Avoid non-teaching-periods (NTPs)
Controls the avoidance of hollow lessons (window lessons, skip lessons) for classes.

Tip:
Hollow lessons are generally avoided by Untis. The slider can be used to specify how important the avoidance is in comparison with other weighting criteria.

Respect maximum or minimum number of periods per day for classes
Controls compliance with the values entered in the "Classes | Master data" window.

Respect lunch break requests for classes

Controls the observance of the minimum to maximum length of a lunch break that you have defined in the "Classes | Master data" window.

Respect the subject sequence for classes

Controls the consideration of the subject sequence indicators that you have entered for the lessons or in the "Subjects | Master data" window.

Respect the maximum number of lessons per day for classes

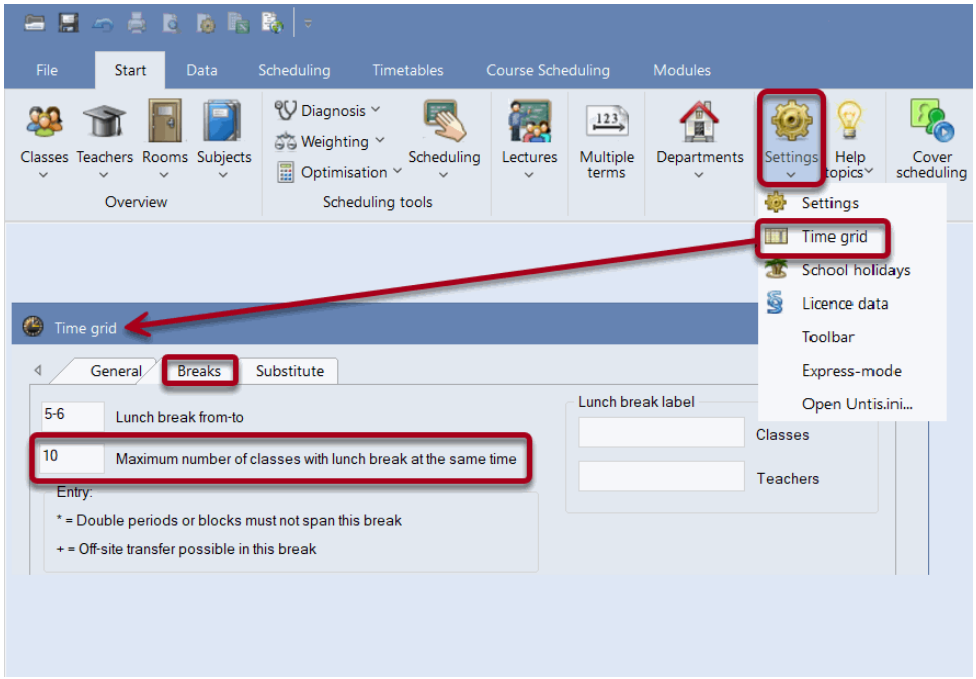
Controls the meaning of the entry of the maximum number of different lessons each class may be taught. You can make the corresponding definition in the master data of the classes in the field of the same name.

Class teacher at least once a day

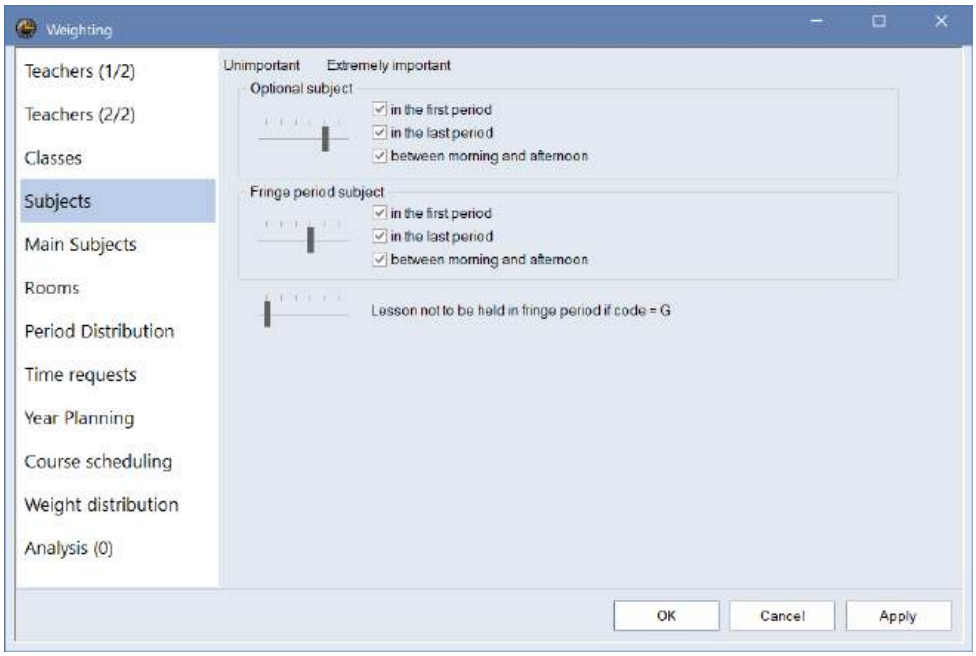
If class teachers are assigned to individual classes in the class master data, the optimization attempts to schedule each class teacher at least once per day in their class. This weighting controls the importance of this.

Compliance with maximum number of classes with lunch break at the same time

In the time grid (in the "Settings | Time grid | Breaks" window), you can specify the maximum number of classes that should have a lunch break at the same time. This framework condition can be weighted here.



4.2.1.4 Subjects section



Optional subject and fringe period subject

With these settings, you determine how the free subjects and fringe subjects are to be weighted (indicators (F) and (R) in the master data of the subjects or in the lessons). These subjects are often subjects that are not attended by all students in a class. They should therefore be scheduled at the end of a half-day in order to avoid missing lessons for the rest of the students.

You can use three checkboxes to assign the following rules for the free subjects or off-period subjects:

- "In first lesson" if the first lesson of the day is permitted for scheduling.
- "In last lesson" if the last lesson of the day is permitted for scheduling.
- "Between morning and afternoon" if the boundary between morning and afternoon is permitted for scheduling.

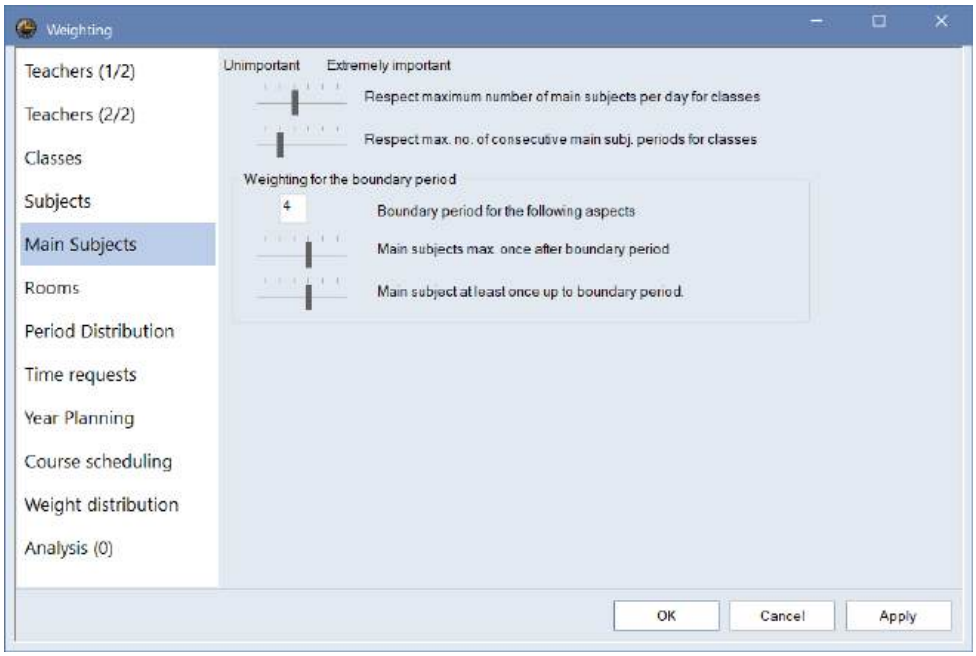
The only difference between free and off-period subjects lies in the weightings you set.

Tip:
Of course, you can also schedule off-peak and on-peak subjects using only the time requests, but these weighting settings allow the optimization to work more flexibly.

Lesson not be held in fringe period if code = G

A subject or lesson for which this code is set should not be scheduled in the off-peak hours, but in the "middle" of the day. This weighting point regulates the meaning of this check mark.

4.2.1.5 Main subjects section



Main subjects are defined as such in the "Subjects | Master data" window.

Respect maximum number of main subjects per day for classes

Controls compliance with the maximum number of main subjects per day that you have specified in the "Classes | Master data" window.

Respect maximum number of consecutive main subject periods for classes

In the "Classes | Master data" window, you can specify how many consecutive main subjects may take place in this class. This allows you to control the importance of this specification.

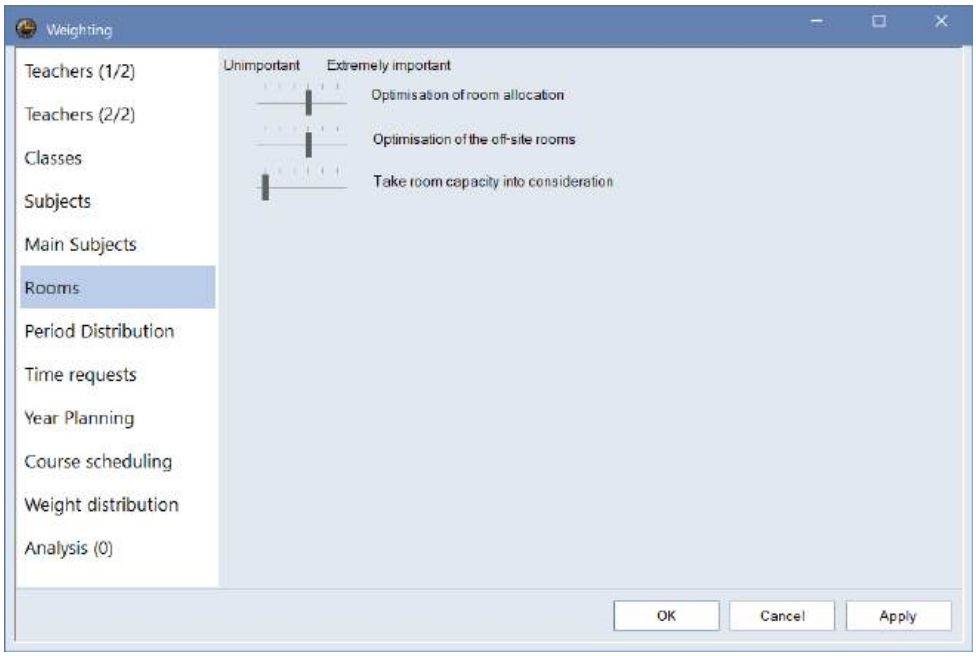
Weighting for the boundary period

- **Boundary period for the following aspects**
  In this input field, you can specify any limit lesson.

- **Main subjects max. once time after boundary period**
  Here you control the priority with which a main subject is to be scheduled a maximum of once a week after the boundary period.

- **Main subject at least once time up to boundary period**
  Here you can control the priority with which a main subject is to be scheduled at least once a week before or during the boundary period.

4.2.1.6 Rooms section



Optimization of room allocation

Use the "Room weight" field in the room master data to control how important a room is for teaching. A classroom without special equipment can easily be replaced by another room (entry 0), while a sports class only makes sense if the sports hall is free at the time in question (entry 4).

Use the weighting point "Optimization of room occupancy" to control the significance of the room weight entered.

Attention: Unplanned hours with high weighting
If the slider for this weight is now at position 5 ("extremely important") or at position 4 ("very important"), and the room weight of the subject room is also 4, a lesson will not be scheduled if no suitable subject room can be found.

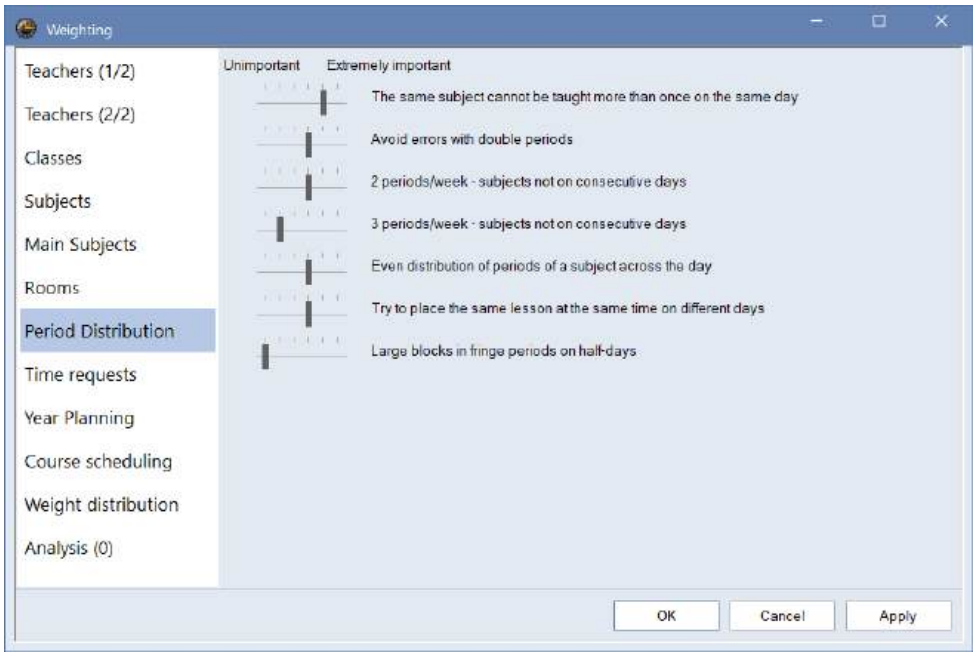
Optimization of the off-site rooms

Controls the consideration of travel times between remote (dislocated) buildings, e.g. branch offices. Please also read the chapter "Application notes | Dislocated rooms".

Take room capacity into consideration

Optimization and room optimization attempt to allocate a room with a capacity that corresponds to the number of students in the class. If this is not possible, a room is sought that is only slightly larger than necessary. In extreme cases, a room that is slightly too small can also be allocated.

4.2.1.7 Period distribution section



The same subject cannot be taught more than once on the same day

A subject may only be scheduled once per day in a class (even if it occurs in different lessons).

Avoid errors with double periods

- In Untis, there are two types of double lesson errors: on the one hand, the tearing up of intended double lessons and, on the other hand, the "accidental" occurrence of unintended double lessons when the same subject is scheduled in consecutive lessons. The preservation of intentional double periods is considered more important by the optimization.
- This weighting is related to the indicators "(2) also several times a day" and "(D) keep double periods", which you can find in the master data, but also in the lessons. The two indicators are mutually exclusive.
- The "2" indicator sets the weighting for "Avoid double lesson errors" to 0 ("unimportant"), while the "D" indicator reinforces it. This reinforcement goes so far that a lesson may not be scheduled if the double lesson condition cannot be met.
- If you set the weighting point "Avoid double lesson errors" to "extremely important" (position 5), the double lesson condition for all lessons is already given a high weighting at the start of the optimization and this weighting is increased even further during the course of the optimization, so that at the end of the optimization all lessons are automatically treated as if the "(D) Observe double lessons" indicator had been set.

Attention: D indicator
Therefore, do not activate the "(D)" indicator or only activate it in exceptional cases. Excessive use worsens the optimization results.

2 periods/week - subjects not on consecutive days

This weight refers to lessons with 2 hour blocks (single or double lessons, or blocks) and is intended to ensure even distribution over the week. A high weighting prevents lessons from taking place on consecutive days. It also prevents one block being scheduled on the last day of the week and the other on the first.

3 periods/week - subjects not on consecutive days

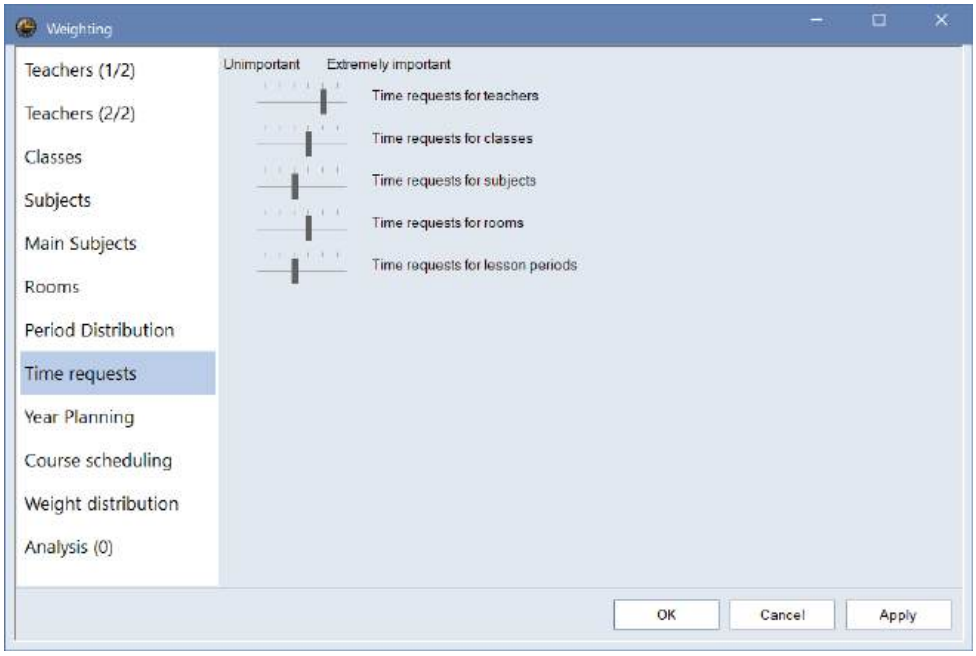
This weight has the same effect as the previous one for lessons with 3-hour blocks.

Even distribution of periods of a subject across the day
If, for example, a subject is in the 3rd period on Monday in a class, the 3rd period should be avoided for this subject on other days. This weighting point determines the significance of this rule.

Try to place the same lesson at the same time on different days
If, for example, a subject is taught in the 3rd period on Monday in a class, this subject should also be taught in the 3rd period on other days. This weighting point controls the importance of this rule.

Large blocks in fringe periods on half-days
For various reasons, it may be desirable to schedule blocks of lessons in fringe periods on the half-day. If, for example, the half-day consists of 6 lessons, two 3-hour blocks can be accommodated on one half-day in this way. Alternatively, if the block of lessons is slightly shorter than the sum of the individual lessons (possibly because there are no breaks), students can leave school earlier or come to school later.

4.2.1.8 Time requests section



Time requests are entered in the master data or in lessons by clicking on the corresponding button. For more information on the topic of time requests, please refer to the chapter "Application notes | Time requests".

Time requests for teachers
Controls compliance with the time requests that you have entered in the "Teachers | Master data" window.

Time requests for classes
Controls compliance with the time requests you have specified in the "Classes | Master data" window.

Time requests for subjects
Controls compliance with the time requests you have specified in the "Subjects | Master data" window.

Time requests for rooms
Controls compliance with the time requests you have specified in the "Rooms | Master data" window.

Time requests for periods

Controls compliance with the time requests you have specified for periods.

4.2.1.9 Weight distribution section

We recommend the following procedurefor program newcomers when setting the weighting parameters:

First get an overview of all weighting parameters and their meaning.

Move the slidersall the way to the left (position 0; "unimportant")for all points that **do not** apply to your school **under any circumstances** . This may apply to the item "Optimization of dislocated rooms", for example, if there are no dislocated rooms at your school.

Tip:
If you are in doubt about an item, it is better to set the slider to position 1 ("not very important").

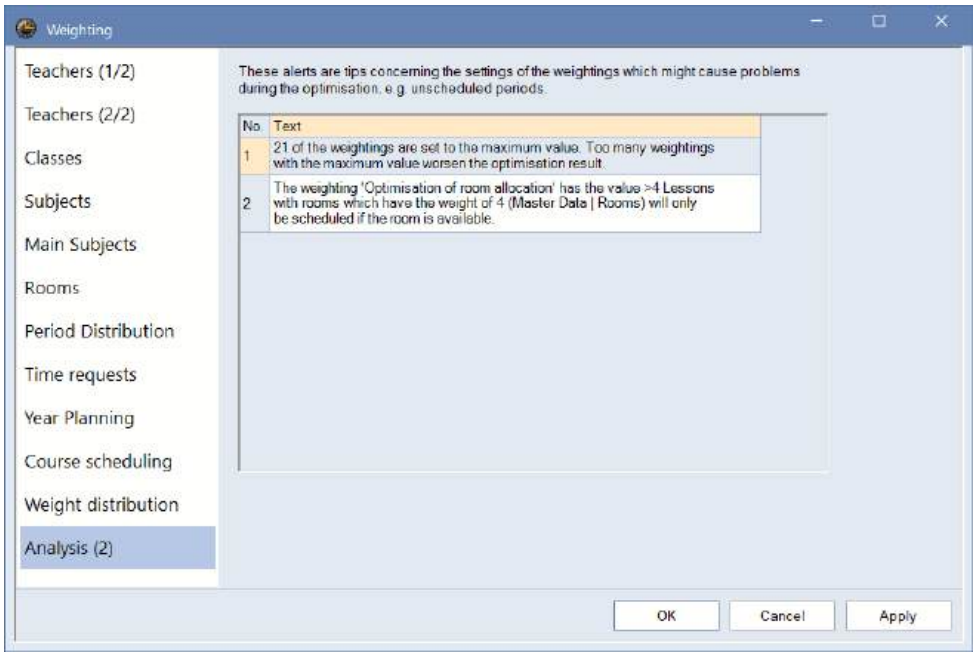
Now assign higher weights from "unimportant" to "extremely important" as the importance increases.

Keep an eye on the frequency of the weights assigned. We recommend decreasing the frequency of assignment according to the graph as the weight increases.

Under no circumstances should you arrive at distributions in which you have set the majority of the weights to "unimportant (or "less important") or "extremely important". An allocation frequency that increases with increasing weight is also bad.

Attention:
The difference between importance 4 and 5 is much greater than between 3 and 4, for example, so if a weighting of "extremely important" is selected for too many points, optimization is restricted to such an extent that often only a fraction of the hours can be scheduled. Therefore, only set the importance to 5 for those parameters where it is absolutely necessary!

4.2.1.10 Analysis section



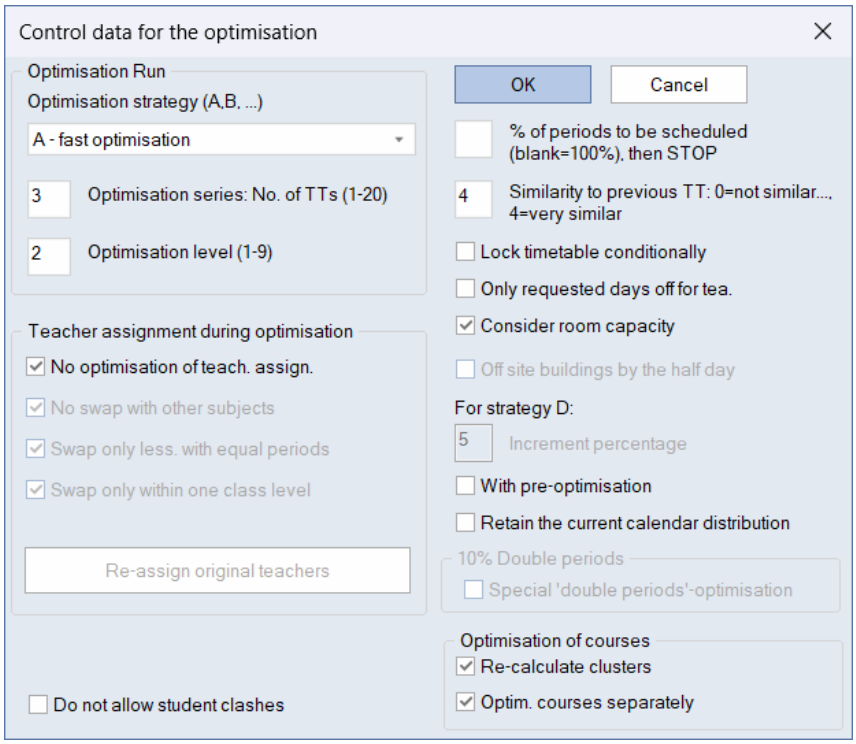
In the "Analysis" section, you will be informed of any problems with the current distribution of the weighting parameters.

4.3 The optimization

The timetable optimization algorithm processes all the framework conditions you enter (lessons, time preferences, double lessons, room logic, weighting, etc.) and creates the best possible timetable taking these conditions into account.

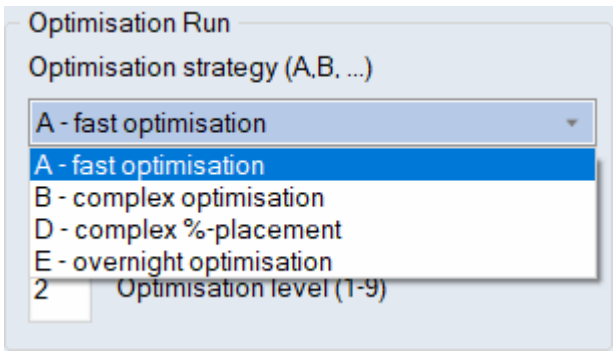
4.3.1 Tax data for optimisation

The <Optimization> button on the "Start" tab takes you to the optimization dialog. The individual input fields are discussed below.



4.3.1.1 Optimisation strategy (A, B, D, E)

Untis offers you four different strategies for creating your timetable. These strategies vary in complexity, with strategy A being the simplest and strategy E the most complex. As a rule of thumb, the more complex the optimization strategy, the better the result, but the longer the computer has to calculate. The specifics of the individual strategies will be discussed in detail a little later.

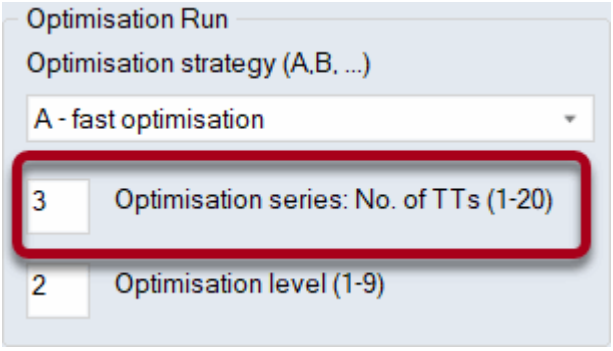


- Strategy A - Fast optimization
- Strategy B - Complex optimization

- Strategy D - Complex percentage planning
- Strategy E - Overnight optimization

4.3.1.2 Optimisation series (1-20)

Here you can specify how many different timetables are to be calculated per series. The more timetables are calculated, the more variants are offered.



If "save the results of optimisation in work files" is checked in the settings in the "Miscellaneous" section under "Save", each timetable is saved in a separate file (*workx*.untis, where *x* is the number of the result) in the active directory of Untis. It is advisable to enter a separate path for these work files under "File storage". This allows you to open each calculated plan separately (even retrospectively).

Depending on the selected optimization strategy, these plans are processed further by the program.

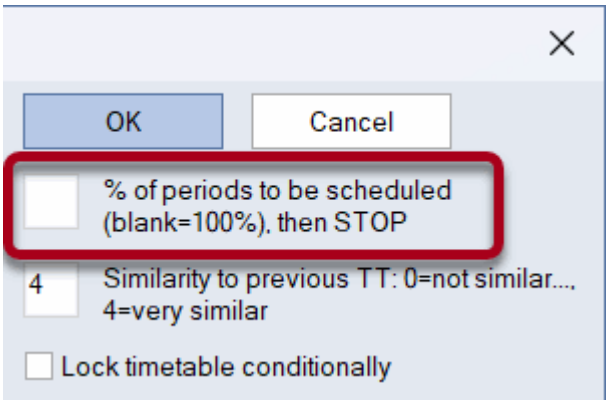
4.3.1.3 Optimisation level (1-9)

Here you can specify how great the "depth of foresight" should be for each optimization run. Similar to a chess program, Untis assesses before each "move" (before lessons are set) to what extent this move will change the overall situation. The longer the computer works, the better the result will usually be.

Tip:
At the beginning of the work, however, long optimizations are usually not useful, as the first runs often show that changes are still necessary in the input.

4.3.1.4 % of periods to be scheduled

Here you can specify what percentage of the periods at your school should be scheduled. If you leave this field empty, the optimization will attempt to schedule all lessons.



Tip:
The percentage refers to the entire school, e.g. if you enter 10%, the most difficult 100 lessons will be selected from a total of 1000 lessons to be planned. This allows you to quickly find out which lessons the algorithm considers to be particularly difficult to schedule.

4.3.1.5 Similarity to previous timetable

Use this field to specify whether or to what extent the next timetable should be similar to the last one calculated. The input options range from 0 (no similarity) to 4 (very similar). If you make changesin the planning dialog between optimizations , these will be taken into account. If you leave this field blank, the value "0" is automatically assumed.

4.3.1.6 Lock timetable conditionally

If a plan that has already been calculated is conditionally locked, the setting run is not required for a new optimization. Only a swap optimization is carried out, whereby a new plan will be very similar to the previous timetable. This is an increase on the highest level of the previous input field ("4" - very similar).

If you have activated the "Lock timetable conditionally" checkbox and at the same time increase the number in the "% of class periods to be planned" field, the preliminary plan is first fixed, then periods not yet taken into account are set and finally a swap optimization is carried out with all periods.

4.3.1.7 Only requested day off for teachers

Activating this checkbox means that only the days explicitly specified in the time requests (and no additional days) are kept free for teachers.

Tip:
Think carefully about whether you use this field. By ticking this box, you prevent the best plan for everyone involved, which is created when a teacher "accidentally" gets a day off. This means that this teacher's schedule will be subjectively worse, but of course so will all other schedules, for example from a pedagogical point of view, but also those of other colleagues.

4.3.1.8 Consider room capacity

This selection causes the optimization to compare and take into accountthe capacityentered for the rooms with the number of students entered for the classes or lessons.

4.3.1.9 Off-site buildings by the half day

This code is only active if dislocation codes have been entered in the master data of the rooms in the file. If it is activated, the algorithm tries to avoid switching between two buildings for teachers and classes during a half-day.

4.3.1.10 Increment percentage

This input field is only relevantfor strategy D and is discussed in the corresponding chapters.

4.3.1.11 With pre-optimisation

This setting was specially developed for smaller schools with a tight time frame. It means that significantly more different variants are examined when setting the hours - although this has a positive effect on the overall result, it also significantly increases the calculation time.

4.3.1.12 Special "double periods"- optimisation

If at least 70% of the lessons you have entered (78% for "courses" in the sense of course planning) areto be planned asdouble lessons, you can check the box "Optimize double lessons in particular". In a subsequent optimization, special emphasis is placed on the scheduling of double lessons.

Internally, this procedure halves the time grid and the number of lessons so that only single and half lessons need to be scheduled during the calculation process.

Caution:
Make sure that the number of defined morning lessons in the time grid is even. So if the time grid comprises 10 hours, not 5 but 4 or 6 hours should be declared as mornings.

4.3.1.13 Teacher assignment during optimization

If bottlenecks are identified during optimization (see also section "CCC analysis"), these can often be avoided by replacing a teacher. If Untis finds teachers during optimization who can improve the quality of a timetable, the program carries out this teacher replacement.

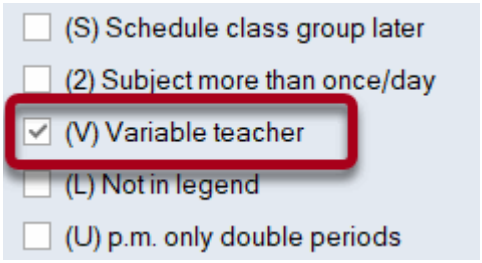
*The lesson planning and value calculation*module provides you with an extended version of this function.

Teachers can only be assigned automatically if at least one of the following two conditions is met:

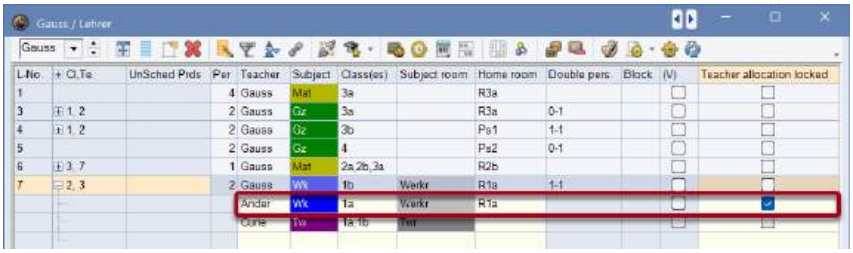
- There are lessons for which the "(V) Variable teacher"indicator is set
- There are lessons to which the "? teacher" is assigned (with the *lesson planning and value calculation* module)

4.3.1.13.1 (V) Variable teacher

Whether a teacher can be swapped depends on the "(V) Variable teacher" indicator. This indicator can be found in the teaching window for teachers on the "Indicators"tab . A teacher who causes bottlenecks during optimization and for whom this indicator is set may be replaced by another teacher.

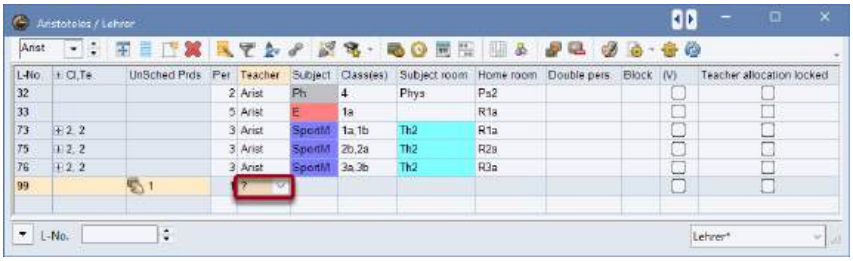


The indicator V generally refers to *all* teachers in a class. However, if you do not want individual teachers of such a lesson to be replaced under any circumstances, check the box "Teacher allocation locked" in the corresponding linkage line. This deactivates the "V" indicator for this one teacher in this linkage (see illustration).



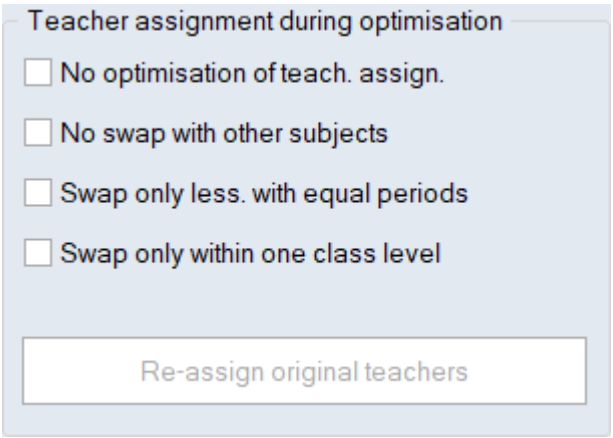
4.3.1.13.2 ? - Teacher

If you have the *lesson planning* module ,a teacher who is qualified for this lesson will be sought for all lessons in which the 'teacher' is assigned.



4.3.1.13.3 Settings

The automatic teacher swap is controlled via the optimization dialog; the following settings are available:



No optimization of teaching assignment
By checking this box, you switch off the teacher swap. All set indicators "(V) Variable teacher" are ignored.

The following two input elements are only available with the *lesson planning* module.

No swap with other subjects
Teachers are only swapped between periods with the same subject.

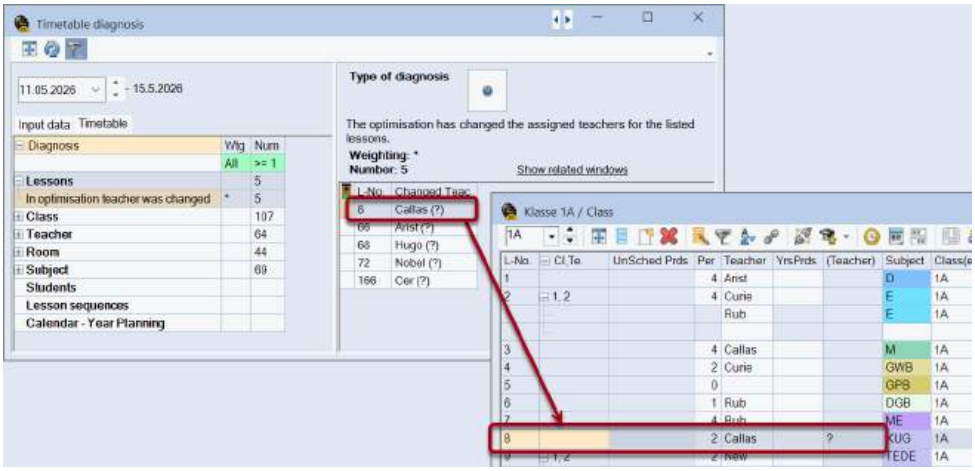
Swap only lessons with equal periods
Teachers can only be swapped between lessons with the same number of periods.

Swap only within one class level
If this checkbox is activated, lessons are only swapped between variable teachers if the classes involved in the lessons belong to the same year group.

4.3.1.13.4 Re-assign original teachers

Clicking this button deletes all teacher swaps made in previous optimizations. This means that each subject will again be taught by the teacher who was entered under "Teacher | Teaching".

After a teacher swap has taken place, both the swapped and the original teachersare displayed in the diagnosis function (<Diagnosis> button on the "Start" tab). The next illustration shows a case in which "?" in lesson 35 has been replaced by the teacher "Callas".



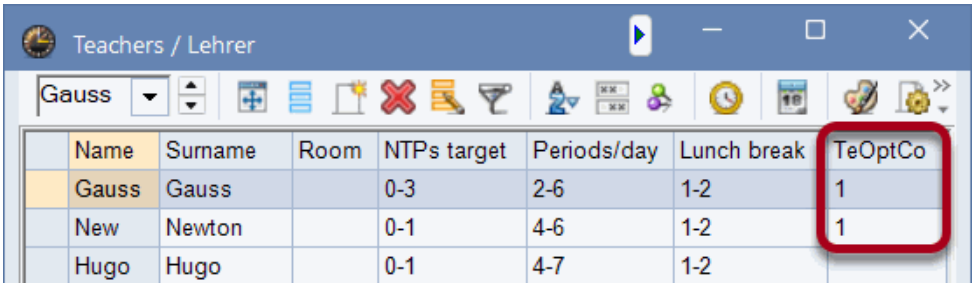
4.3.1.13.5 Teacher optimization indicator

The *lesson planning* module also offers an additional option for restricting swaps between variable teachers with the teacher optimization indicators.

You will find these codes in the "Teachers | Master data" and in the lesson windows, whereby the indicators in these two window types do not affect each other.

The codes are used to select lessons (or teachers) for a shared swap pool. Identical codes mean that the teachers of these lessons can be swapped with each other.

In principle, you can assign the optimization indicators 1-9 and A-Z. The codes only ever have an additional restrictive effect. For example, if you have activated the option "Swap only within a year group" and entered the common code 1 for teachers Gauss and Newton, only lessons by teacher Gauss that take place within the same year group will be considered for periods by Newton.



	Name	Surname	Room	NTPs target	Periods/day	Lunch break	TeOptCo
	Gauss	Gauss		0-3	2-6	1-2	1
	New	Newton		0-1	4-6	1-2	1
	Hugo	Hugo		0-1	4-7	1-2	

4.3.2 Strategies

Four different optimisation strategies are available for the automatic scheduling of lessons:

- Strategy A - fast optimisation
- Strategy B - complex optimisation
- Strategy D - complex %placement
- Strategy E - overnight optimisation

4.3.2.1 Strategy A - Fast optimisation

This is the fastest of all optimisation variants. Although it does not produce the best results, it is ideal for finding errors in the input data. You should therefore use this strategy at the start of your work until the major errors in the master data or lessons have been corrected.

Tip: Check data entry
Errors in the data input prevent a good optimization result. To find such errors, work with strategy A and the "Input data" section in the diagnosis.

4.3.2.2 Strategy B - Complex optimisation

This strategy already delivers very good results and does not take too long. Run this strategy after variant A and take a look at the results. If necessary, adjust the weighting sliders if the plans do not meet your expectations.

Tip: Work out the weighting parameters
There is a (very) big difference between weighting 4 and 5. If a weighting slider is set to 5 although a 4 would be sufficient, the result will deteriorate. Therefore, first set the weighting sliders to a maximum of 4 and only if the timetables do not meet your expectations, gradually increase the points to 5.

4.3.2.3 Strategy D - Complex % placement

Depending on the school, strategy D or B delivers better results. However, as strategy D takes considerably longer, you should only call it up after you have already worked out the weighting parameters with strategy B. With this variant, the algorithm proceeds step by step, i.e. it does not process 100% of all lessons straight away. For this reason, you also specify the start and increase percentage in the optimization dialog for this variant.

Tip: Start and increase percentage
We recommend a start percentage of 30% and an increase percentage of 20%.

4.3.2.4 Strategy E - Overnight optimisation

As the name suggests, this strategy can take a very long time, but in most cases it also delivers the best results.

Use it at the very end, i.e. only after using the other strategies. The duration of the optimisation run depends heavily on the size of the school, but also on the number of plans to be calculated, the optimisation steps per plan and the performance of the computer, and may well take overnight.

4.3.3 The companion window

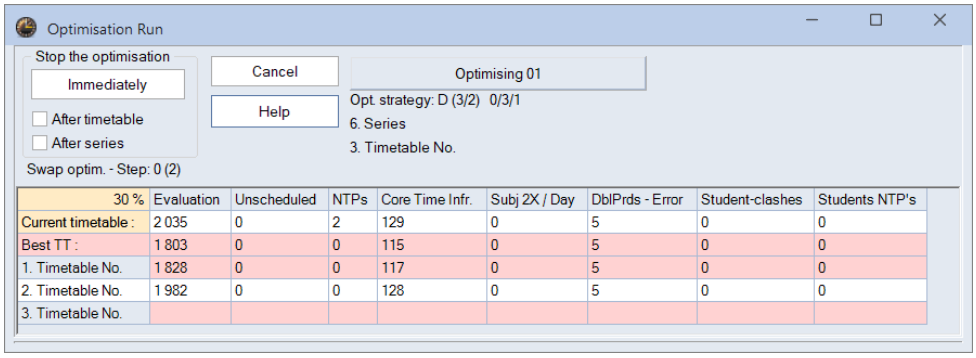
Start the optimization by opening the optimisation dialogue ("<Optimisation> button on the "Start" tab) as described above, making the desired settings and confirming with <Ok>.

If the window with the data analysis appears, go through the displayed notes or errors again and then press the <Ok> button here too.

The top part of the "Optimisation Run" window that then appears is the info window. Here you can intervene in the optimisation process (stop, cancel, etc.).

In addition, important key data of the current optimisation is continuously displayed here: the evaluation (bad points) of the current plan as well as the number of unplanned hours, hollow hours (for classes) and core time violations (the latter are hours with a time request +3, but which cannot be occupied by the optimization for some reason). In addition, you can also see how often double lesson conditions have been violated or how often a subject has been scheduled twice on the same day from a class perspective. When using the *course planning* module, you can also see the number of collisions in the student schedules as well as the total number of their void lessons.

This data already provides you with an initial rough overview of the quality of your timetables. The tools for a precise diagnosis are described inthe chapter "Diagnostic tools".



30 %	Evaluation	Unscheduled	NTPs	Core Time Infr.	Subj 2X / Day	DblPrds - Error	Student-clashes	Students NTP's
Current timetable :	2 035	0	2	129	0	5	0	0
Best TT :	1 803	0	0	115	0	5	0	0
1. Timetable No.	1 828	0	0	117	0	5	0	0
2. Timetable No.	1 982	0	0	128	0	5	0	0
3. Timetable No.								

As soon as a yellow-blue <OK> button appears on the screen, the optimization is complete.

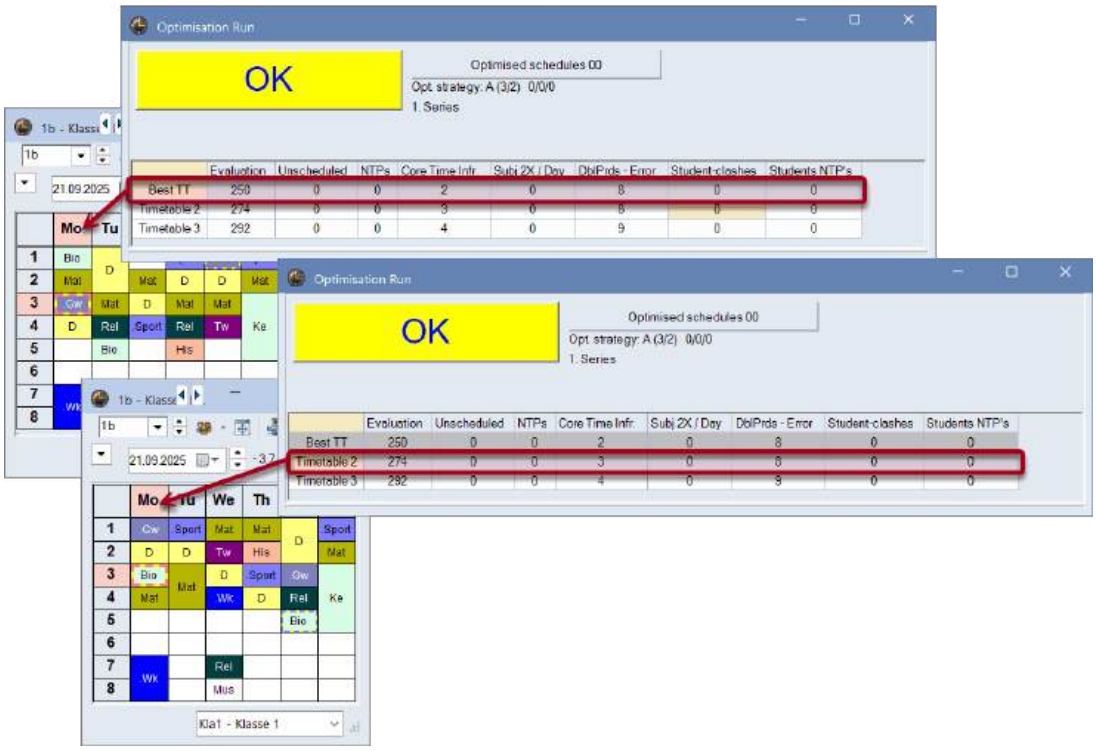
Tip:
Each plan is rated ("Rating" column). The fewer points a plan has, the better it is. The number of points depends on the amount of data and the weighting settings. It therefore makes no sense to compare your school's score with that of the neighboring school, for example

4.3.4 View optimisation results

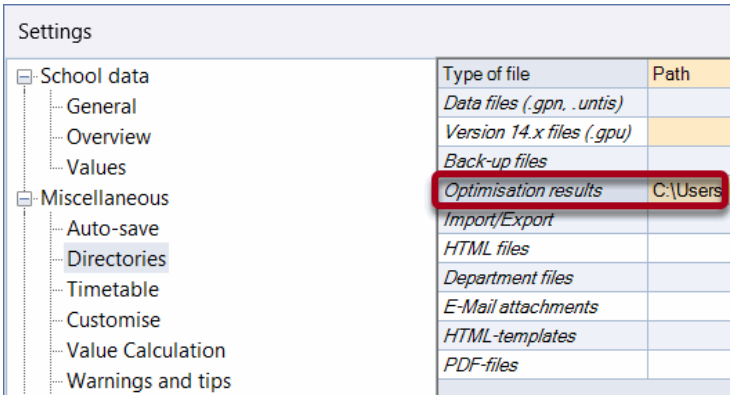
Once the optimisation is complete, the best result is loaded. You can also view the other calculated plans via the optimisation dialogue by clicking on the corresponding line at the top of the window.

If you activate the option "Save optimised plans additionally in work files" in the tab under the <Settings> button in the "Miscellaneous | Save" section, each plan is also saved in a separate file (work1.untis to work *n* .untis) in the Untis working directory and can be viewed at any time.

After confirmation by clicking on the yellow-blue <OK> button, the individual results can be loaded either via the work.untis files or on the "Start" tab via the "Optimisation | Optimised plans" menu. The latter option is only available in the Untis session in which the optimisation was started, i.e. if the program was closed in the meantime, the menu item is greyed out.



Tip:
You can change the storage location of these work.untis files by defining a path via the <Settings> button on the "Start" tab in the "Miscellaneous" section under "File storage" in the "Work files" field.



4.4 Diagnostic tools

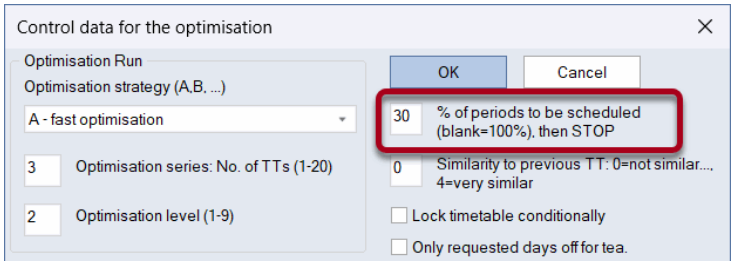
Your school's master data and teaching data contain a vast amount of information that cannot always be viewed immediately. It is therefore only natural that inaccuracies, errors or mistakes occur when entering data. Searching for these is a tedious but necessary task for which Untis offers you various aids.

However, this chapter not only deals with errors, but also with so-called "input weaknesses". This refers to data that is not incorrect, but which can lead to poorer or unexpected results.

- Percentage planning
- Diagnosis
- Total diagnosis

4.4.1 Percentage planning

When you have finished entering your data, it makes sense to start with a percentage planning of the lessons (e.g. 30%). As a result, you will mainly find lessons that Untis classifies as "difficult". In principle, the program starts by scheduling such lessons in order to place them in the timetable as early as possible so that further scheduling is no longer hindered.



Tip:
The "difficulty" of a lesson is higher the less available its elements are, the more elements are linked and the larger the block to be scheduled is.

If Untis already has problems with scheduling in the first 30% of the lessons and unscheduled lessons appear in the optimization windowduring this very first optimization run, you should first increase the number of calculated plans and the number of optimization steps. If this does not bring any improvement, the input data should be checked for errors.

4.4.1.1 Example

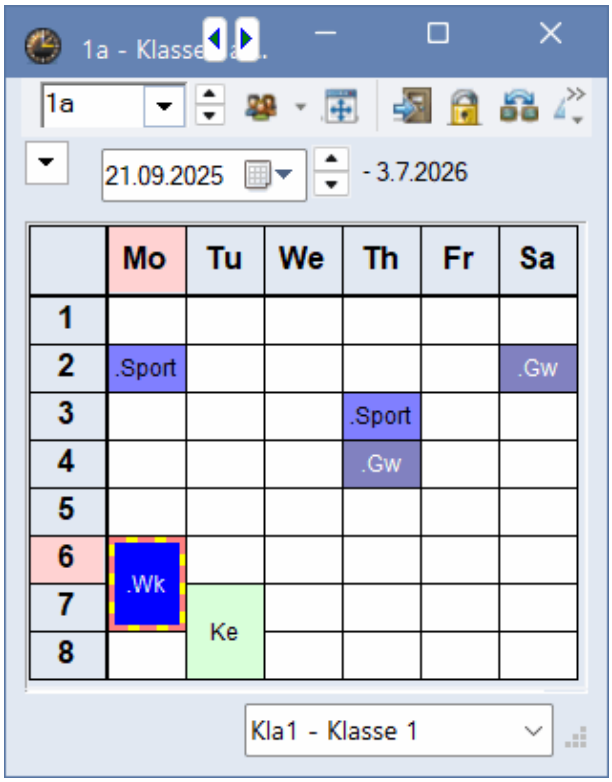
Before some examples of errors and input weaknesses are described, the use of percentage scheduling is briefly described using an example.

1. Open the demo.untis file.
2. Delete all timetables via the menu "Schedule | Unschedule all lessons" on the "Start" tab
3. Confirm the message window that appears by clicking on the <Ok> button.
4. Carry out a timetable optimization (<Optimization> button on the "Start" tab), entering the value 30 in the "% of class hours to be scheduled" field.
5. Display the timetable for class 1a ("Classes | Class timetable " menu on the "Start" tab).

The timetable you have received should look something like the one in the illustration. Depending on the version of Untis you are using, there may also be deviations!

Please note once again that your percentage figure refers to the entire school and not to individual classes. In this example, less than 30% of the lessons were planned for class 1a, but correspondingly more for the other classes. This is an indication that this class has fewer difficult lessons than the others.

6. Click on the work lessons.



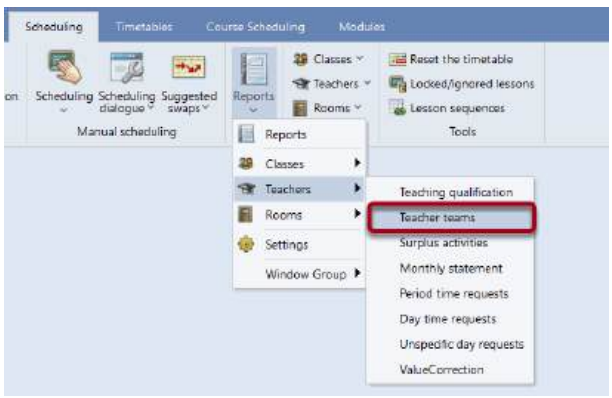
Using the magnifying glass, you can see that it is difficult to plan the handicraft lessons because three teachers are involved (Andersen, Gauss and Curie), two rooms are required (workroom and textile workroom) and, in addition to 1a, 1b also takes part in the lessons. If these lessons were only scheduled at the end, it would be much more difficult to find a time when teachers, rooms and classes are available.

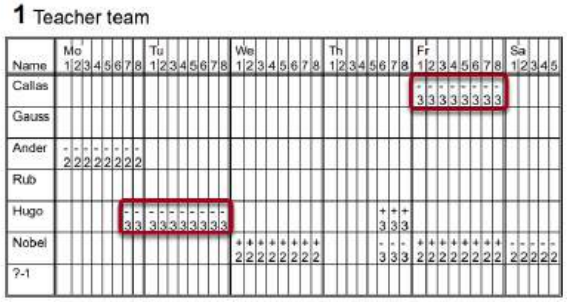
As already mentioned at the beginning, you can assume that there have been errors or inaccuracies when entering the data if unplanned lessons appear in a percentage planning.

4.4.2 Time requests

Time requests are a common reason that prevent a good timetable. You can use a number of ready-made lists to detect errors and input weaknesses in connection with the time requests. All lists relevant for optimization can be found on the "Planning" tab in the "Reports" menu.

Conflicting time requests of a team of teachers should serve as an example. In the illustration, you can see that only Wednesday is not blocked for any of the teachers involved.





A lesson consisting of three individual lessons could not be held by this team of teachers without violating a block (which the optimization does not do anyway) or the condition that the lessons should be individual lessons (whether this is violated depends on your weighting settings, e.g. "Avoid double lesson errors").

Further information on teacher teams can be found in the chapter "Application notes | Teacher teams".

4.4.3 Options

Another important point is the distinction between "must" and "can".

Entering "2-2" in the "Double lesson" field for a 4-hour lesson **forces** Untis to schedule two double lessons. An entry of "1-2" for two of the four lessons allows the algorithm to decide whether to schedule single or double lessons. The more freedom the optimization has, the better the calculation result!

4.4.4 Fixed hours

Furthermore, you should not restrict optimization too much by scheduling manually. If you have fixed individual hours manually (see the "Manual planning" section), consider whether this is really necessary.

4.4.5 Weighting

If many hours are not planned, it also makes sense to call upthe weighting dialog again and consider whether this setting is actually appropriate for those points that are "extremely important" (5). It is often sufficient to move one or two sliders back one level to "very important" to solve the problem.

Gradually increase the percentage of hours to be scheduled until you are sure that you have eliminated all input weaknesses.

Onlyuse the more complex optimization strategies once you are sure that all inputs are correct.

An important tool for detecting input errors, but also violations of your specifications, are the diagnosis and the total diagnosis, which are described next.

4.4.6 Diagnosis

You can use the diagnosis to analyze the data entered **before** the timetable is created and the result of the optimisation **after** it has been created.

Tip:
Invest sufficient time to analyse the messages in the Input data tab and correct any weaknesses in the input. data The quality of the calculated timetable depends directly on the quality of the data entered. If framework conditions have been entered incorrectly, inconsistently or simply not at all, even the best algorithm cannot produce a good timetable.

You can access the diagnosis via the <Diagnosis> button on the "Start" tab. The diagnostics window opens, which is divided into two areas: the selection window on the left and the detail window on the right .

4.4.6.1 The selection window

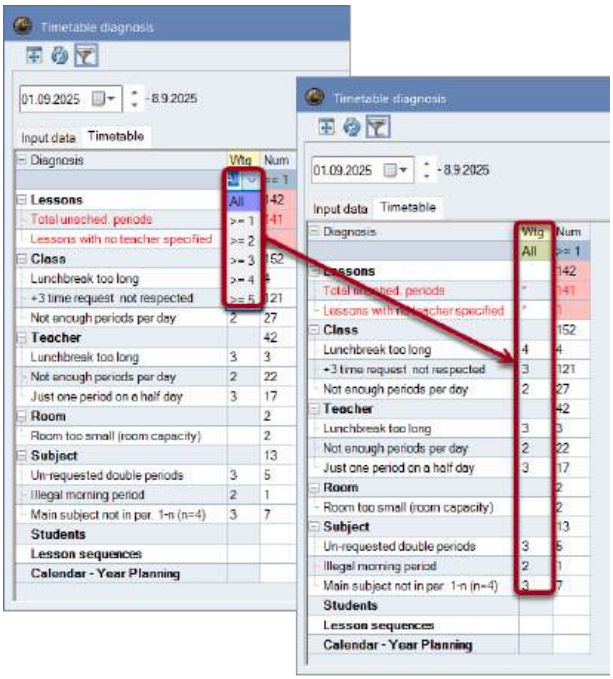
The selection window is divided into two areas:

- Possible problems with the input data
- Violations in the timetable

You can switch between these two areas using the two tabs at the top of the window. Both areas are divided into sections that divide the individual diagnostic points into different subject areas. To the right of the categories, the total number of violations that fall into the respective subject area is displayed. If the number is highlighted in red, this means that there is at least one serious (highly weighted) problem. The individual areas can either be expanded individually as in Windows Explorer or by clicking on the "+" symbol.

The weighting of individual diagnostic points is shown in the "Wtg." column. In the graphic, for example, the diagnostic point "Lessons with no teacher specified" has been given a weighting of 5. The weightings themselves are regulated in the Weighting dialog. Those diagnostic points that have the entry * in the "Wtg." column cannot be weighted. The "Num." column shows how many violations there are for the corresponding diagnostic point.

By default, only those diagnostic points are displayed for which there are also violations. This is visualized by holding down the <Filter> button in the toolbar of the diagnostics window and by the filter fields highlighted in green (entry >=1 in the "Num." column).
The graphic shows how the display of diagnostic points can be restricted, for example, to those violations with a weighting of 4 or higher.



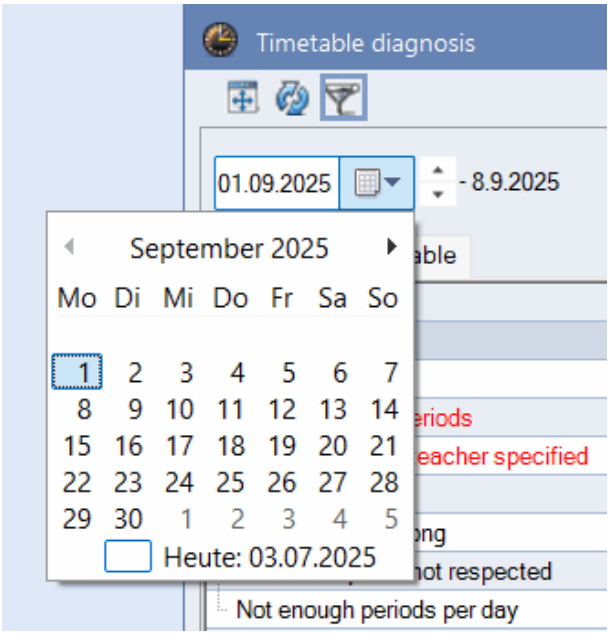
Show normal form

This button is used to set the diagnostics window to the optimum size.

Recalculate

Click this button to run the diagnosis again. It is also recalculated if you close the diagnostics window and call it up again via the <Diagnosis> button on the "Start" tab.

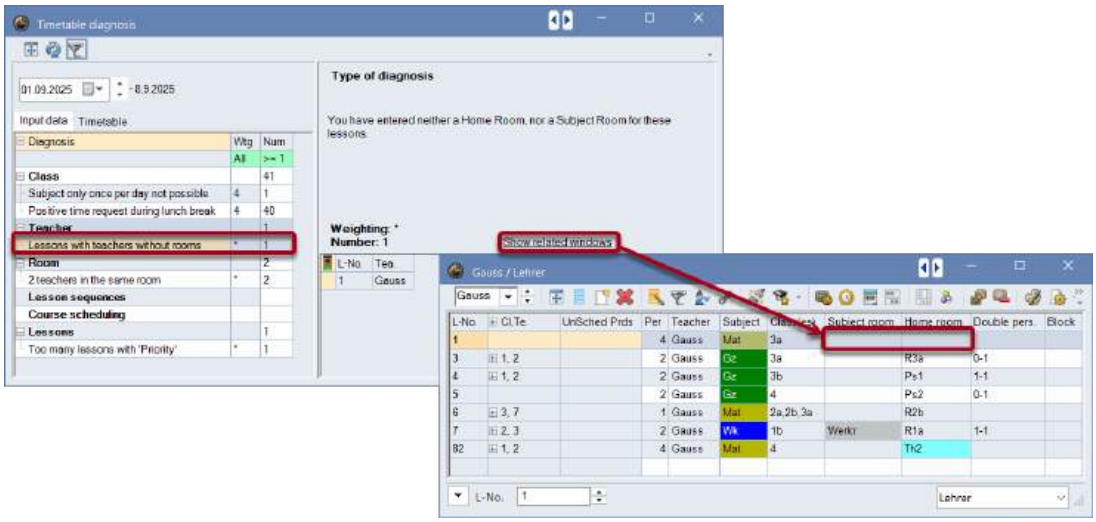
Caution:
Please note that the diagnosis always refers to one week. This is necessary because completely different timetables can be valid in consecutive weeks when using the Multi-week timetable module - e.g. due to non-whole-year classes. If you are analyzing such a timetable, you can use the date setting (below the control elements just described) to specify which week you want to analyze.



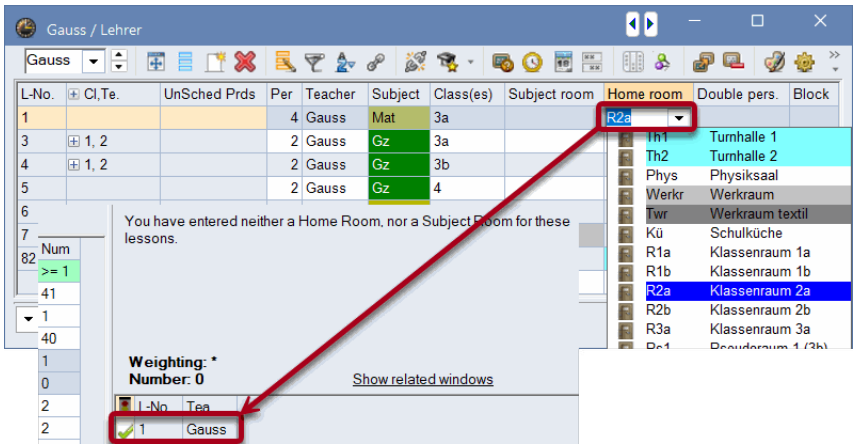
4.4.6.2 The detail window

In the detail window on the right-hand side of the diagnostics window, you can obtain more detailed information on individual points by selecting them in the selection window.

Clicking on the "Show related windows" link opens the dialogs that are relevant to the diagnosed problem. The graphic shows, for example, that no room has been defined for teacher Gauss in L-No.1.

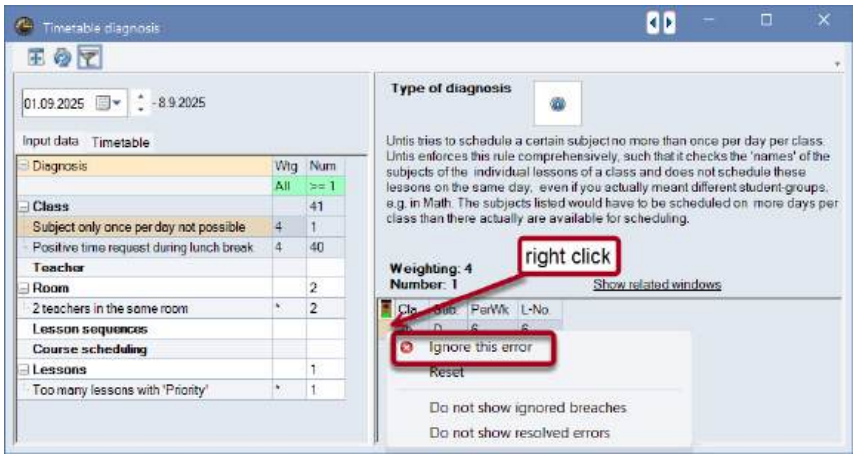


As soon as the problem has been solved, this is noted with a tick in the Status column (traffic light symbol) of the diagnosis. As soon as the diagnosis is recalculated, this point no longer appears.



The diagnosis indicates possible problems in the data or in the timetable. However, it may be that you have deliberately defined a lesson without a room, for example. In such cases, you can either simply ignore the entry in the diagnosis or mark it as ignored by clicking the right mouse button and selecting "Ignore violation".

If you no longer want to see these items in the list, select "Ignore this error" via the context menu of the right mouse button.

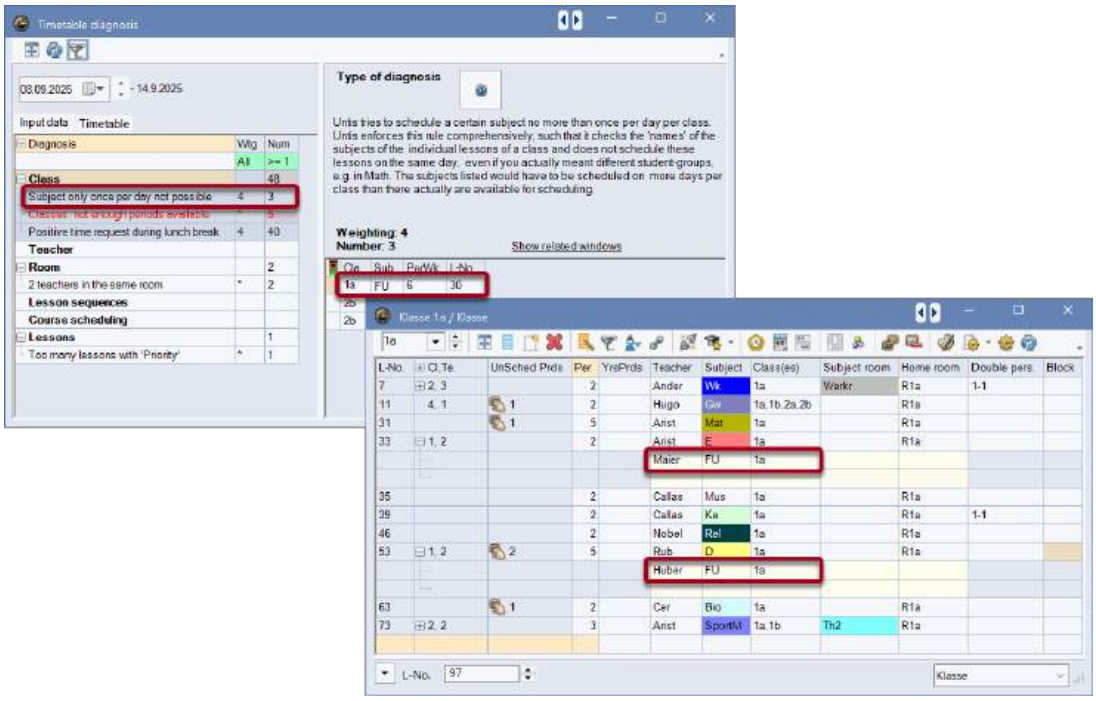


Tip:
The "Ignore this error" item, which is offered in the context menu of the diagnosis, is only used for clarity within the diagnosis. It has no effect on any subsequent timetable optimisation

4.4.6.3 Subject only once per day not possible

An explanatory text is displayed for each diagnostic point in the detailed window of the diagnosis, but the point "Subject only once per day not possible" in the "Input data | Class" section deserves special attention. By default, the timetable algorithm tries to schedule a subject only once a day. If this is not possible because too many lessons have to be spread over the days, the corresponding subjects are listed in the diagnosis.

In the following diagram, a support teacher with the subject FU is planned for the 5-hour subject German and the 2-hour subject English in 1a. For 1a, 7 lessons per week are therefore defined for the subject FU across all lessons. Untis would now try to schedule this subject only once a day. However, since 7 individual lessons cannot be accommodated in a 5-day week, this case is listed.



Possible solutions for this specific example:

- Setting up double lesson or block conditions
- Tick "(2) also several times a day" for the subject FU in the master data of the subjects
- Change the subject name in one of the two lessons (e.g. "FU_D" for remedial teaching in German)

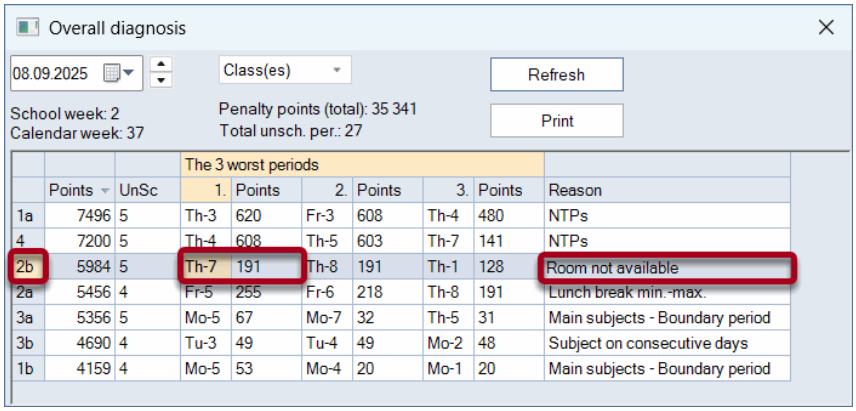
4.4.7 Overall diagnosis

The overall diagnosis gives you an overview of which classes or which teachers have the worst timetables based on your specifications. It is accessed via the "Scheduling" tab with the "Diagnosis | Overall diagnosis" menu.

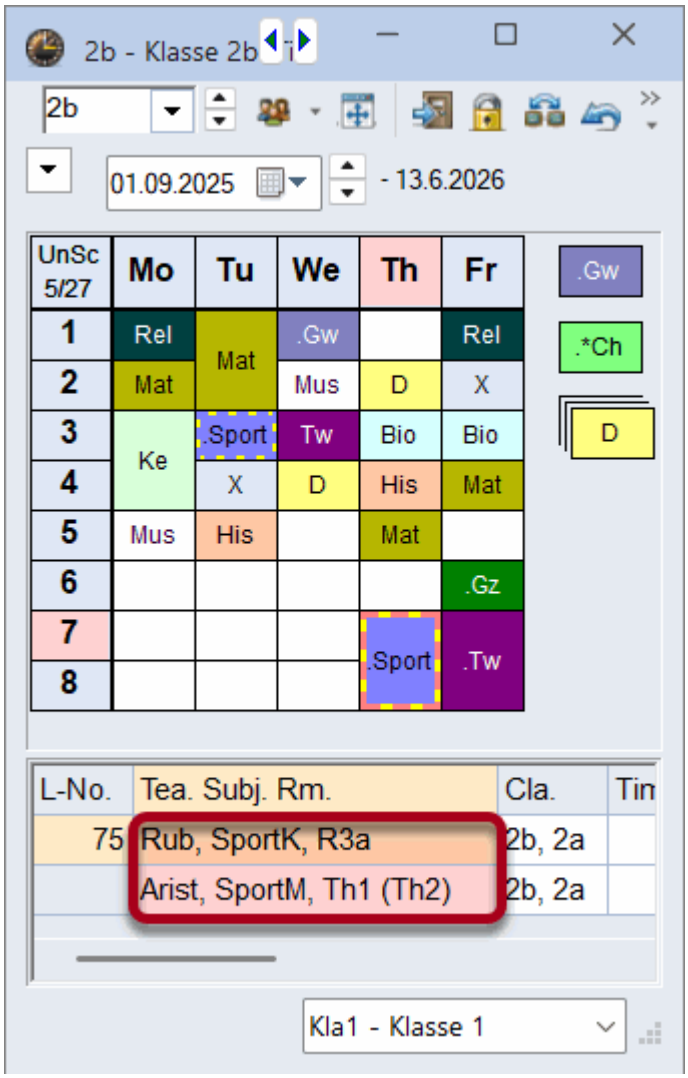
Like the diagnosis, the overall diagnosis is only ever output for a specific week.

Depending on the setting (class or teacher), the window lists all the elements of your school line by line. The elements are sorted according to the "Points" column; these points indicate how high the quality of the timetable for the element in question is rated. The more points an element has, the worse the timetable is.

The three worst-rated lessons per element are shown in the other columns. In the graphic, the worst lesson in class 2b is Thursday, lesson 8, for example. If you click on the score, the "Reason" column shows why this lesson is rated poorly. In addition, an accompanying timetable automatically synchronizes to this lesson. In the example, the reason is given as "Room not available"; a better score could be achieved by scheduling a room.



			The 3 worst periods						
	Points	UnSc	1.	Points	2.	Points	3.	Points	Reason
1a	7496	5	Th-3	620	Fr-3	608	Th-4	480	NTPs
4	7200	5	Th-4	608	Th-5	603	Th-7	141	NTPs
2b	5984	5	Th-7	191	Th-8	191	Th-1	128	Room not available
2a	5456	4	Fr-5	255	Fr-6	218	Th-8	191	Lunch break min.-max.
3a	5356	5	Mo-5	67	Mo-7	32	Th-5	31	Main subjects - Boundary period
3b	4690	4	Tu-3	49	Tu-4	49	Mo-2	48	Subject on consecutive days
1b	4159	4	Mo-5	53	Mo-4	20	Mo-1	20	Main subjects - Boundary period



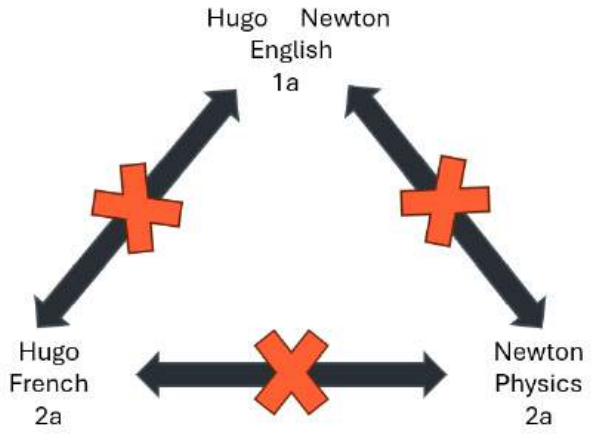
If there is no entry in the "Reason" column, the overall timetable for this class or this teacher is already rated very well. Although the displayed lesson is among the three worst for the element in question, it is still very good overall. It is therefore not necessary to make any subsequent manual changes.

While the diagnosis provides an overview of the entire timetable, you can use the total diagnosis to specifically improve the school's worst plans and immediately see the reasons for the poor rating.

4.4.8 CCC-Analysis

In order to achieve a good timetable, it is important to identify potential bottlenecks when scheduling lessons and to prevent them before optimisation.

Bottlenecks can occur in the form of Critical Conflict Chains (CCCs). This refers to groups of lessons that cannot be scheduled at the same time, as this is prevented by the classes or linking teachers involved.



Tip:
The sum of the total weekly hours of the lessons involved in a chain is a measure of how difficult a chain is to schedule. If it is greater than the number of hours available in the time grid, it is basically impossible to plan this chain completely.

The CCC analysis is called up on the "Scheduling" tab with the "Diagnosis | CCC-Analysis" menu and finds the longest of these chains. For large schools, the analysis of all couplings can take several minutes.

4.4.8.1 Information during the analysis

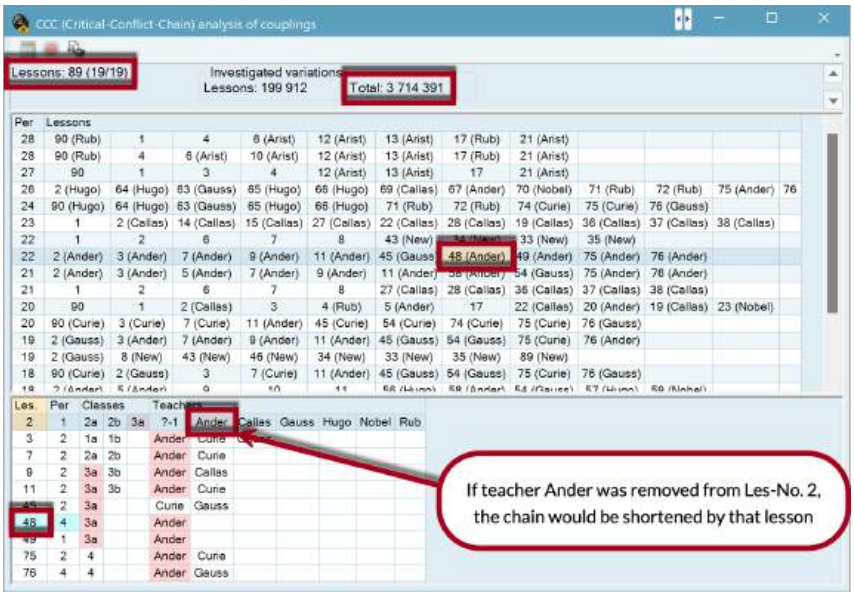
During the analysis, the number of the lesson that is currently being processed is displayed in the top section of the window (to the right of the word "Lesson"). In brackets next to it is the total number of linkages to be analysed or the number of linkages already analysed.

You can use the <Cancel> or <Start analysis> buttons in the toolbar of the dialog to cancel a running analysis or start a new run.

4.4.8.2 The CCC-Window

In the example shown, you can see that there are 82 lessons and 18 couplings. This results in over 3 million combinations that need to be examined.

Middle section of the window
The CCCs are displayed line by line in the middle section of the window. In the first column, the total number of hours per week of the individual chains are entered, to the right of which are the lesson numbers of the lessons involved in the chains. Next to some elements of the individual chains are the short names of teachers in brackets - this will be discussed in more detail later.



The CCC magnifying glass
If you click on an entry in the middle section of the window, the magnifying glass is updated. In the example, lesson 48 (Ander) has been clicked on. In the magnifying glass, the field with the lesson number 48 and the field with the number of weekly lessons are now highlighted in light blue. At the same time, some other fields turn red.

The entries in the magnifying glass now read as follows: Classes 3a as well as the teachers Ander is involved in lessons with the lesson number 48 with 4 lessons per week.

Several classes or teachers are involved in some lessons (e.g. no. 2, 3 classes, 6 teachers). In these cases, all the elements involved are listed next to each other in the "Classes" or "Teachers" column.

The red markings in the other entries indicate the reason why the corresponding lesson cannot be scheduled at the same time as the lesson you have clicked on in the middle section of the window. Lesson 48, for example, cannot be scheduled with lesson 9 because both lessons are attended by class 3a. Lesson 3, on the other hand, concerns a different class, but it is not possible to schedule it at the same time as lessons 7, 11, 75 and 49, as these are held by teacher Ander.

4.4.8.3 Shortening the CCC

The longest chain - the first line in the middle section of the window - has 28 lessons that cannot be scheduled at the same time. Of course, time requests or other secondary conditions can now be defined for each teacher, each class and for each lesson.

Tip:
A large number of chains with many lessons therefore very quickly restricts the scheduling options.

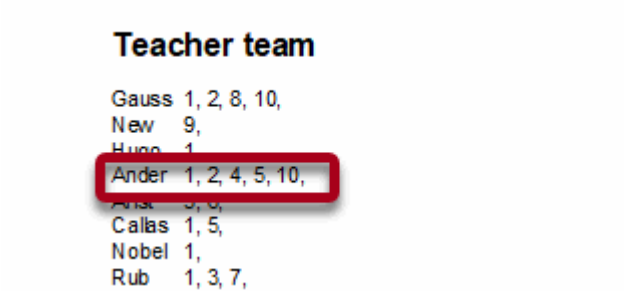
It is now possible to shorten the chain by entering a different teacher for individual lessons.

The teacher for whom a swap would shorten the chain by the most hours is designated as critical. The CCC analysis gives you the teacher's short name in the middle section of the window in brackets next to the lesson number.

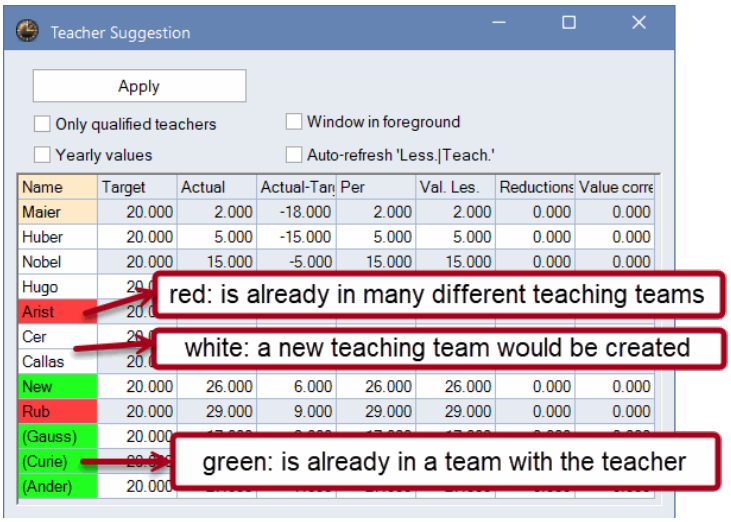
If no critical element is indicated, no improvement is to be expected from a swap, for example due to a high number of classes involved.

4.4.8.3.1 Teacher Suggestion

Using the buttons <Displays the teacher teams> or <Print preview> in the CCC window, you can get a good overview of the composition of the teaching teams.
At the end of the list, the teachers and the teaching teams (couplings) in which they are involved are displayed. The higher the number of teacher teams, the more difficult it is to schedule the teacher's lessons from this perspective. In the example, it is teacher Ander who is scheduled in five different teaching teams.



Conversely, this means that the smaller the number of different teaching teams, the easier it is to create a timetable. If, for example, Ander has already been scheduled once with Gauss in a linkage, it is good from a lesson planning perspective if this team is also linked in other lessons. The *Lesson Planning and Value Calculation* module offers assistance here, for example via a color code in the teacher suggestion. You can find more detailed information on this in the corresponding module handbook.



5 Manual Scheduling

5.1 Manual scheduling

Untis offers several options for manual scheduling - setting unscheduled periods and moving and deleting scheduled periods: manual scheduling in the timetable, the scheduling timetable and the scheduling dialog.

The most important scheduling activities are possible with all three tools, e.g. setting, moving, swapping, locking and deleting periods or manual room allocation. The scheduling timetable and the scheduling dialog offer special functions and additional information.

5.2 Scheduling in the timetable

The easiest way to plan manually, which does not require you to learn any new windows, is to plan in the timetable. In the class or teacher timetable, you can

- set unplanned periods,
- lock periods,
- swap periods that have already been planned ,
- display swap suggestions,
- uncouple periods directly in the timetable,
- unschedule periods and
- assign rooms manually.

5.2.1 Schedule periods

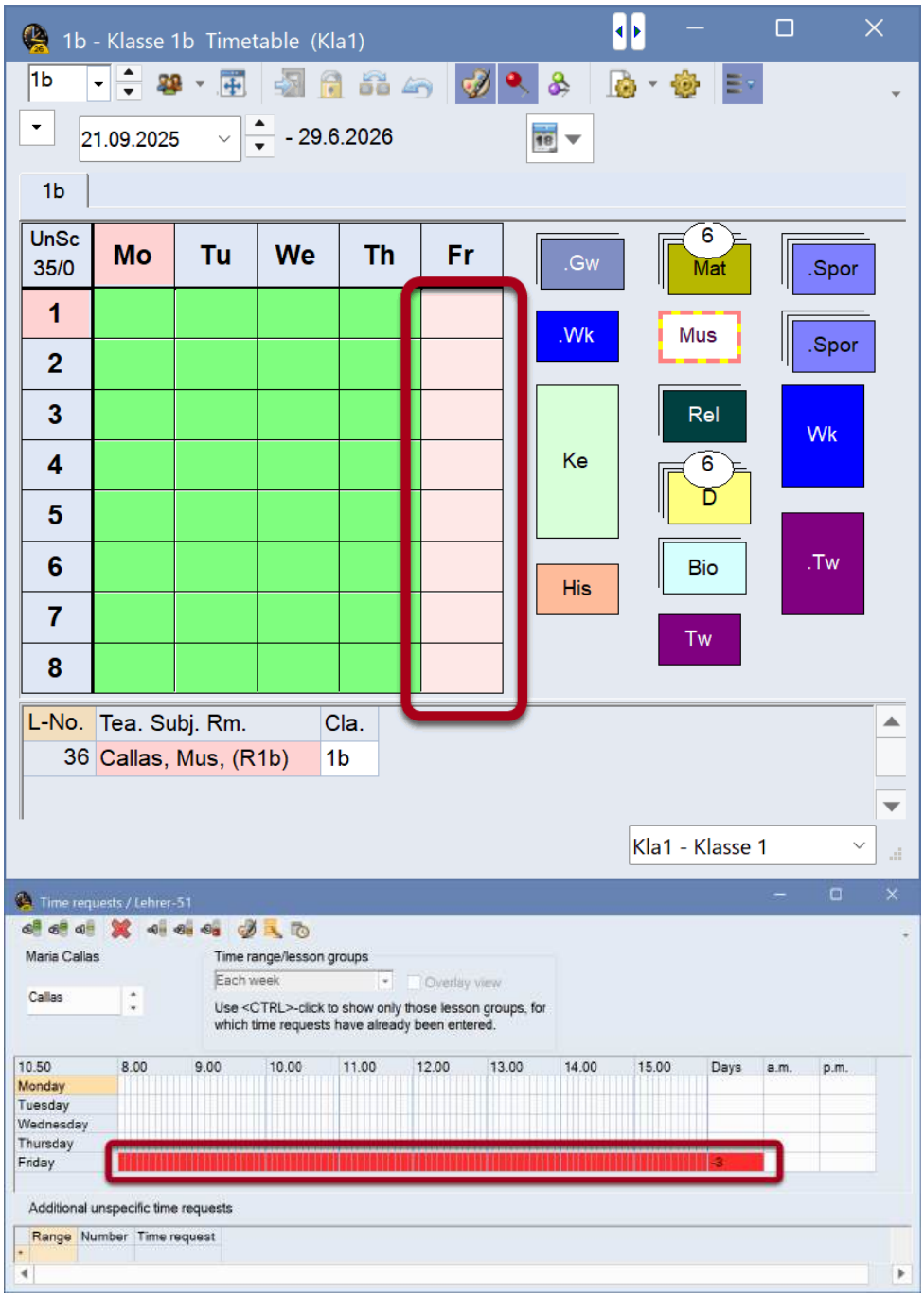
The aim of the first example is to place periods in an empty timetable and to lock these periods so that they can no longer be moved by the automatic scheduling.

1. Open the demo.untis file and delete the current timetable via "scheduling | Unschedule all periods".
2. The unscheduled periods are now next to the timetable and can be dragged and dropped into the timetable.

By clicking on the period to be planned, the possible positions are displayed in the timetable.

Fields with a green background indicate that collision-free scheduling is possible at these positions.

The entries you have made are also taken into account. For example, when scheduling the "Mus" period from 1a, Friday is not displayed as a possible day for this period. This is because teacher "Callas" is supposed to have her day off on Friday ("Teacher | Time requests").



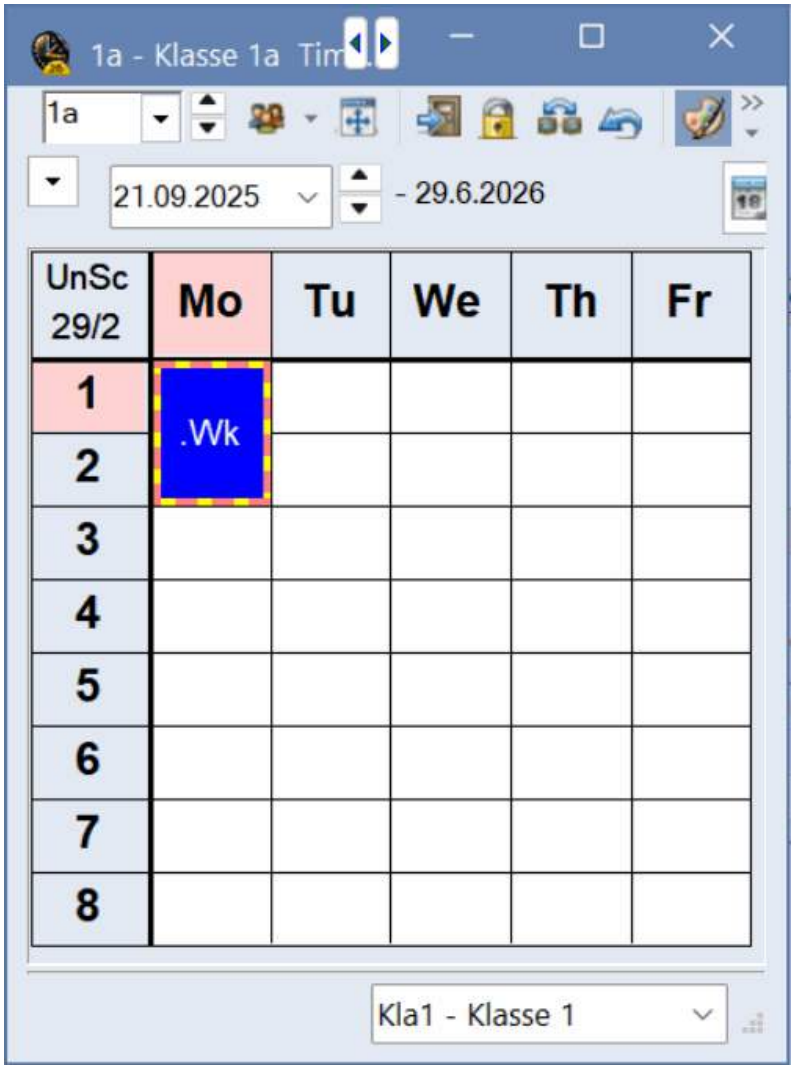
Tip:
In the "Time requests" window, you can use the <Color of element> button to specify the color shades in which the time requests should be displayed. This is necessary if, for example, you have difficulty distinguishing between red and green.
If you click on the <Schedule settings> button on the "Layout 2" tab and check "DragDrop: Colors according to time requests", these settings are also applied to manual scheduling in the timetable.

A purplefield when scheduling in the timetable means that the scheduling of a period is possible without collision from the point of view of the classes and teachers, but the room occupancy (neither the room assigned in the period nor one of its alternative rooms is free) prevents the scheduling of a period.

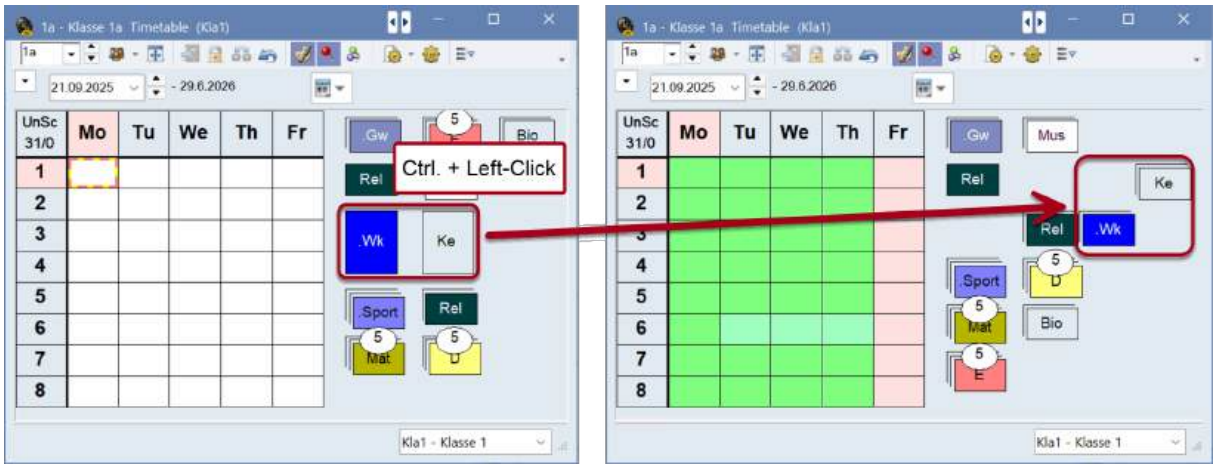
If you drop a period on a purple field, a dialog opens with the following options:

- Displace obstructing period from room: The room is removed from the other period that is obstructing your current scheduling. This period will then no longer have a room
- Create collision: The room is occupied by both periods, creating a room collision
- Do not schedule room: The room is not scheduled in the current period. You can then select another room using the "Room assignment dialog". You can find more information on this in the "Assign room" chapter .

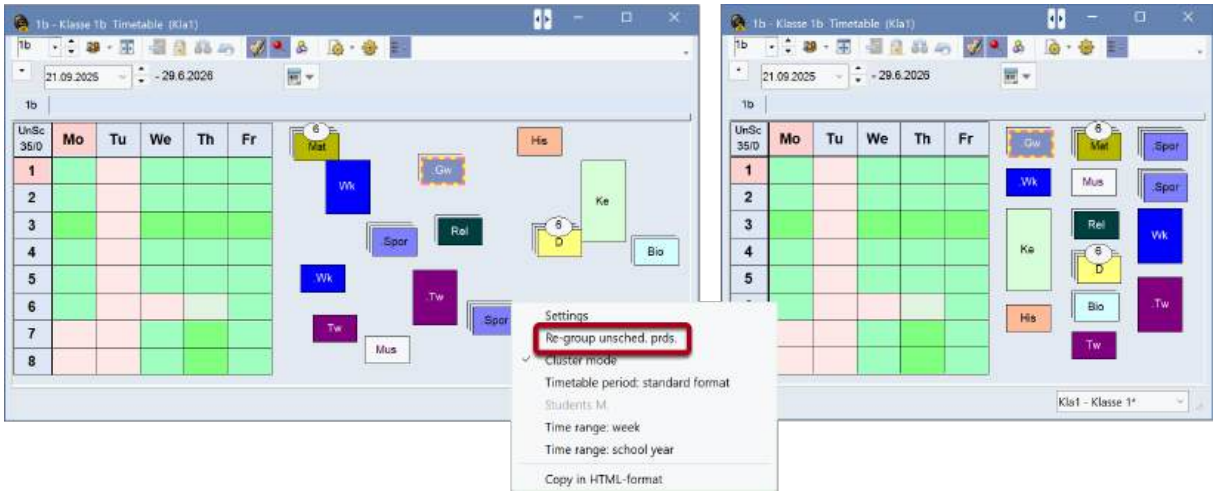
The periods are automatically shown as single or double periods (or blocks) according to the entry for the double periods in the period and scheduled accordingly.



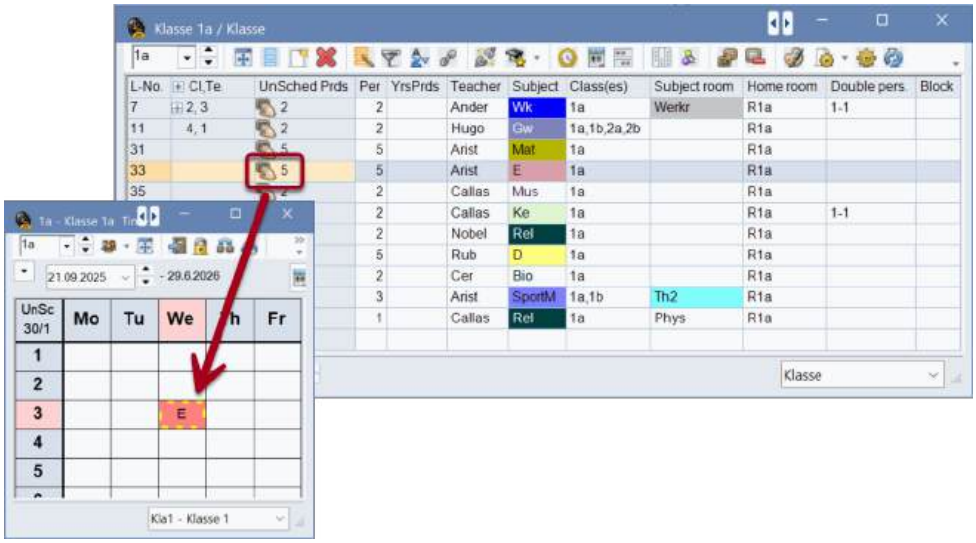
In the case of unscheduled periods lasting more than one hour, the individual periods are displayed stacked. If there are more than three periods, the number of unscheduled periods is also displayed as information. If you would like to split a double period in order to schedule it as a single period, you can do this by clicking with the left mouse button while holding down the Ctrl key in the area of the unscheduled periods.



If you schedule periods, the unscheduled periods are immediately regrouped so that you always have the periods still to be scheduled as close as possible to the timetable. If you would like to arrange the unscheduled periods differently than specified by Untis, deactivate the "Always sort unscheduled periods" function under "Settings | Miscellaneous | Timetable".
You can then place the periods anywhere next to or below the timetable. If you then want to re-sort the periods, right-click in the area next to the timetable and select "Re-group unscheduled periods" and the stacks will be automatically rearranged.

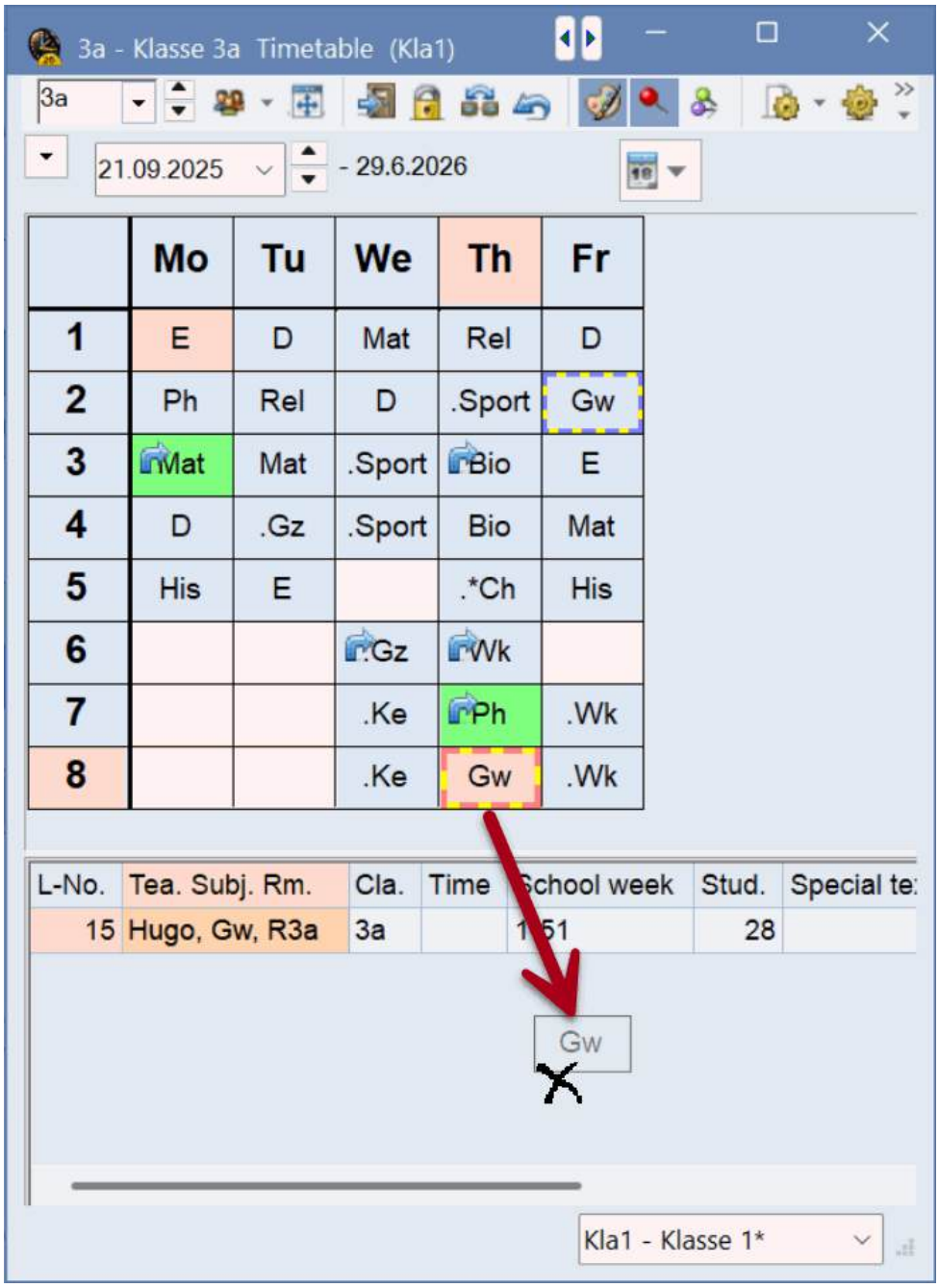


Alternatively, you can also schedule periods from the period window. To do this, click on the period in the "UnSched Prds." column and drag and drop it into the timetable.



5.2.2 Unschedule periods

You can unschedule periods by dragging them into the unscheduled periods area or into the timetable magnifying glass and dropping them there. When de-scheduling via the magnifying glass, a black X appears instead of the mouse pointer to indicate that the period is now being de-scheduled.



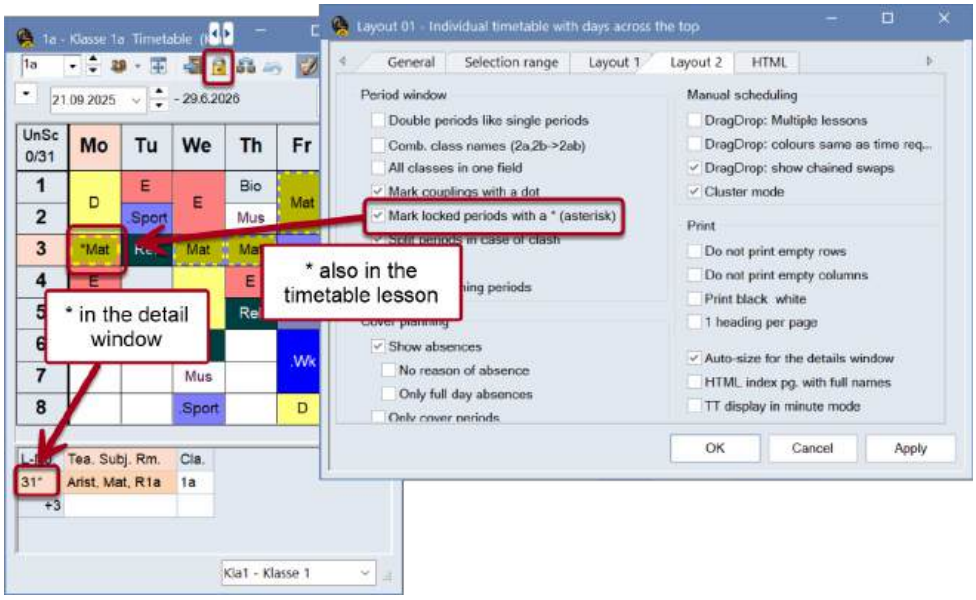
Alternatively, an active period can be unscheduled using the <DEL> button.

To unschedule all previously scheduled periods at once, use the "Reset the timetable" function in the "scheduling" menu.

5.2.3 Lock periods

If you want to lock scheduled periods - i.e. the scheduling of this period will no longer be changed by the automatic scheduling - click on the button  <lock period> in the toolbar of the timetable. Alternatively, you can lock the selected period by pressing the F7 function key and then unlock it again. If you want to lock several periods at once, first select them in the timetable by holding down the Ctrl key and then click on the <lock period> button.

An * appears next to the period number in the period magnifier to indicate that a period has been locked. You can also show the star in the timetable period; this setting can be found in the <Timetable settings> on the "Layout 2" tab.



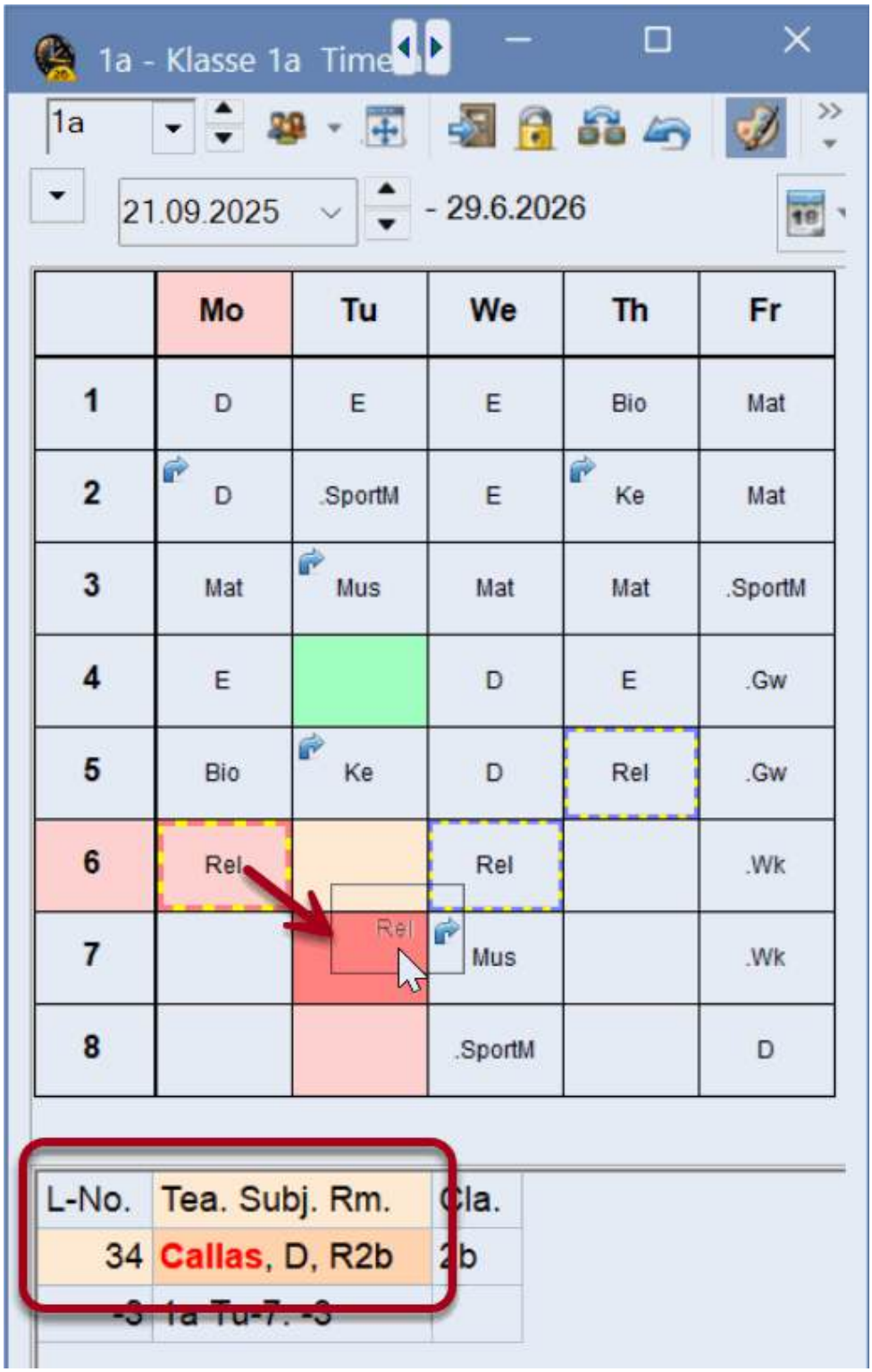
Tip:
You can see all locked periods in the "periods | locked periods" window. In this window, you can also unlock periods at the various levels. You can find more information on this in the chapter "periods | locked / Ignored periods"

5.2.4 Move periods

Periods can easily be moved in the timetable using drag & drop.

Empty green fields mean that it is possible to move to this period without collision. The different shades of green indicate which periods are more suitable for scheduling the selected period: the darker the better. The evaluation is based on the conditions you have entered (time preferences, double period, weighting, etc.).

Red fields indicate that scheduling would be possible without collisions, but that scheduling would either break a block (time request -3) or the schedule would be significantly worse as a result of this change. White fields mean that collision-free scheduling is not possible here. In the magnifying glass of the timetable you can see for which element a collision would occur.

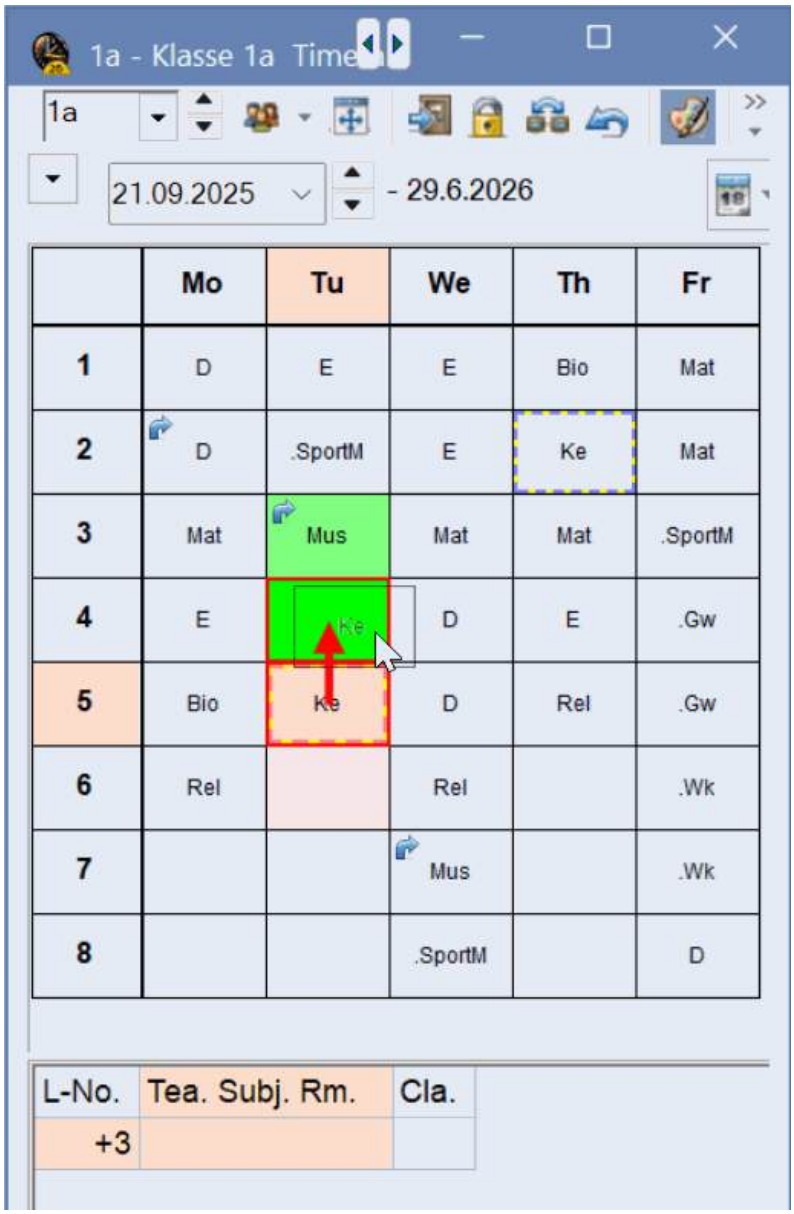


If fields with a purple background appear, this means that the room entered in the period is already occupied.

When moving double periods or blocks, these are also offered for moving as double periods or blocks. If you only want to move a single period, press the Ctrl key and click in the timetable in the same way as when scheduling. Double periods and blocks are now displayed as individual periods and can be moved accordingly. This setting can also be made permanent by going to the timetable settings and setting the option "Double periods as single periods" on the "Layout 2" tab.

5.2.5 Swap periods

If you select a period in the timetable and move it by holding down the left mouse button, periods that have already been scheduled can have various characteristics:

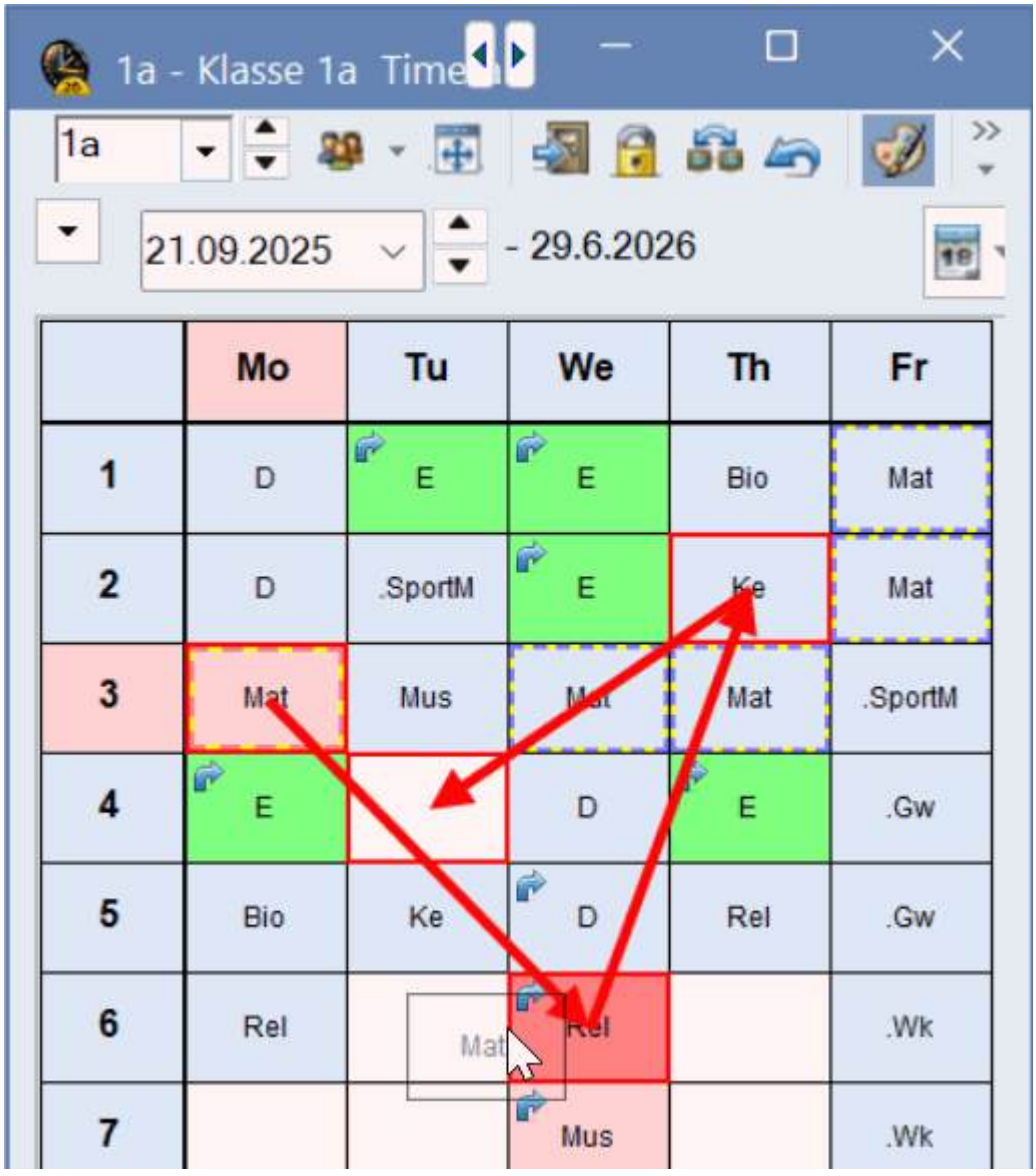


a) No marking of the period

When dragging and dropping Ke-5 in class 1a, the first period on Tuesday, for example, is not marked. This means that this period is not suitable for a swap, as a collision would occur in the event of a transfer. If the period is nevertheless moved to Tue-1, Untis asks whether the period should be moved there anyway - either by displacing (unscheduling) the period there or by creating a collision.

b) Blue arrow

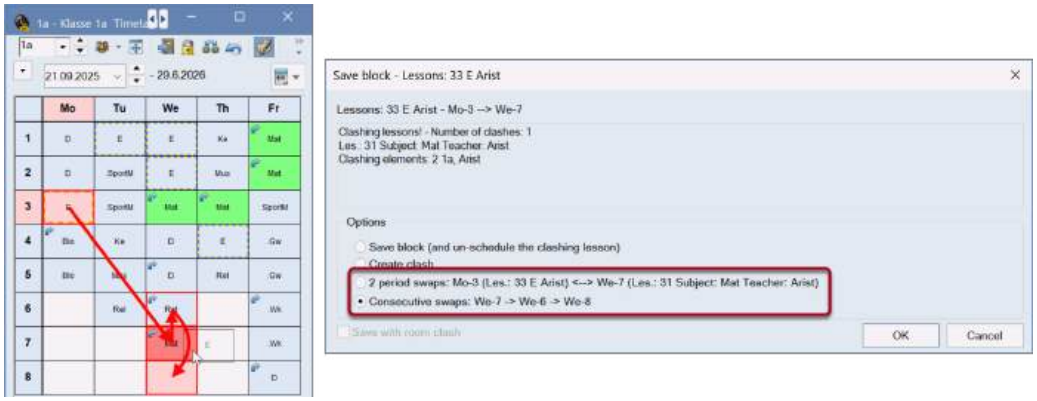
If a scheduled period has a blue arrow in the top left-hand corner, then a swap chain is possible with this period. In the timetable, the possible swap chain is symbolized with red arrows.



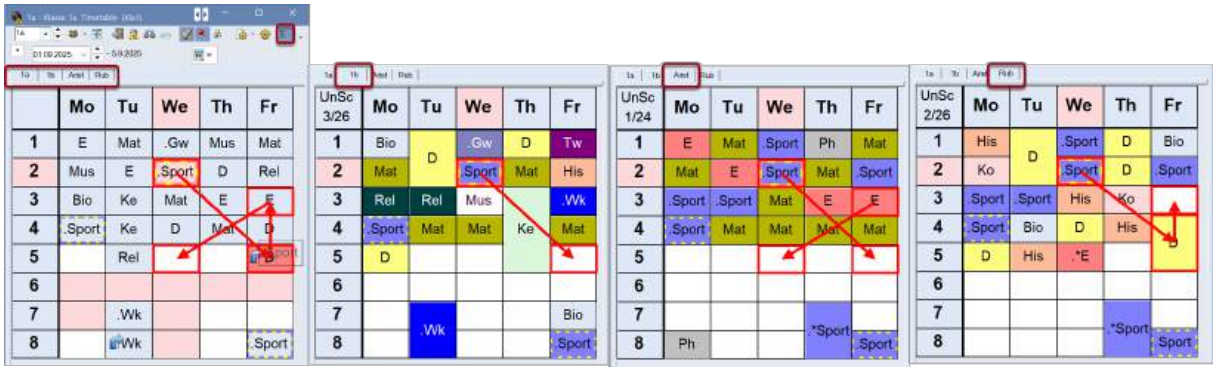
If you "drop" the period, the swap is carried out after confirming the selected action.

c) Blue arrow and green background

Hours with a green background are also suitable for 2-way swaps in addition to swap chains. If you drop an hour on such a position, you can decide in the dialog that appears whether you want to carry out the 2-way swap or the offered swap chain.



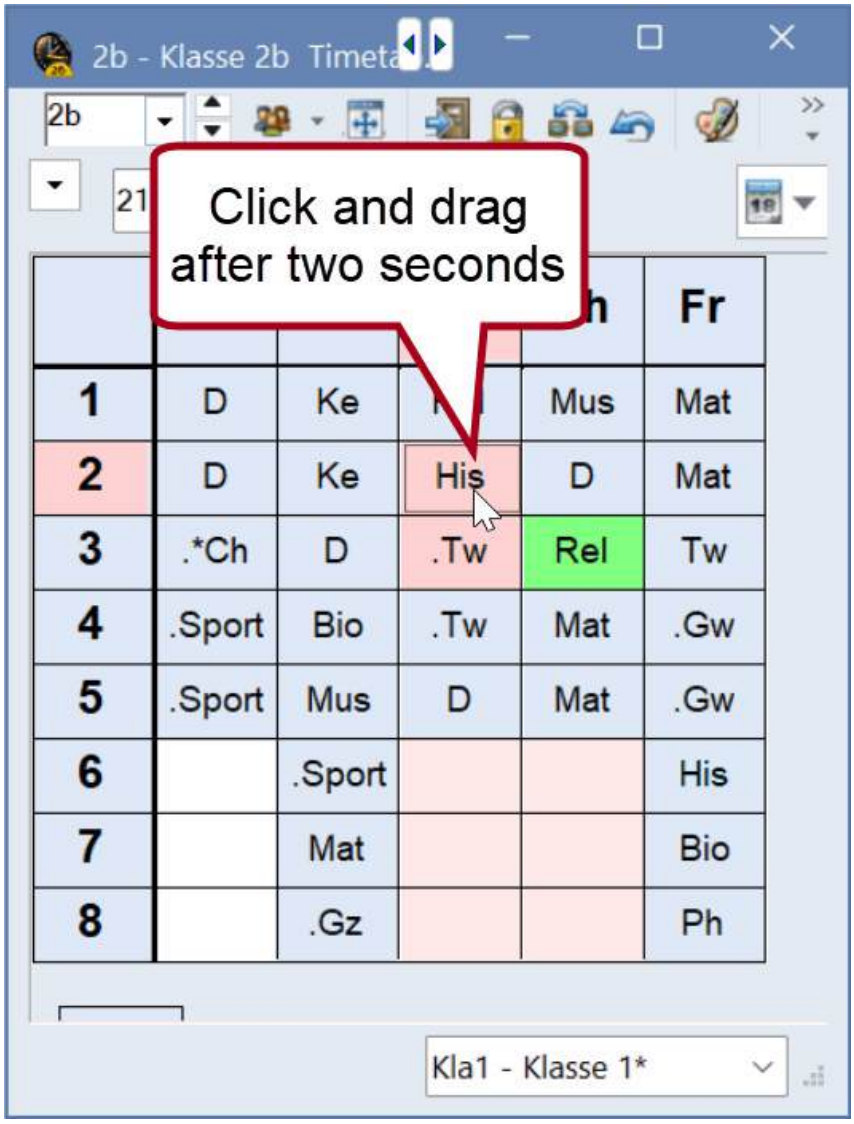
Especially for swap chains of linked periods, it is advisable to activate the function "All elements of the lesson" in the timetable. Tabs appear in the timetable which you can use to switch back and forth between the classes, teachers and rooms involved in a period. When swapping, the elements for which the swap has an effect are displayed in these tabs. You can view all elements before you confirm the swap.



5.2.6 Suggestions for hollow periods

If you want to move a period from Wed-3 to Wed-2, for example, you can easily do this using drag & drop. But how do you find out whether it is possible to solve a class void with an already scheduled period?

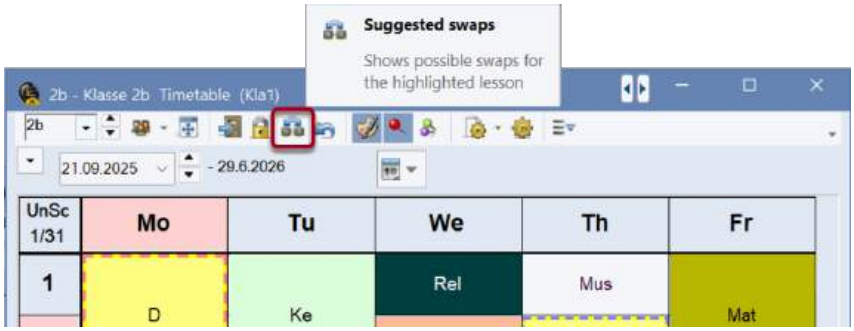
Click on the position to be filled in the timetable and hold down the left mouse button for at least 2 seconds. Then move the mouse. Scheduled periods that can be moved to this position are then highlighted in green.



5.2.7 Suggested swaps

A window group for the swap suggestions can be called up via the "scheduling" tab.

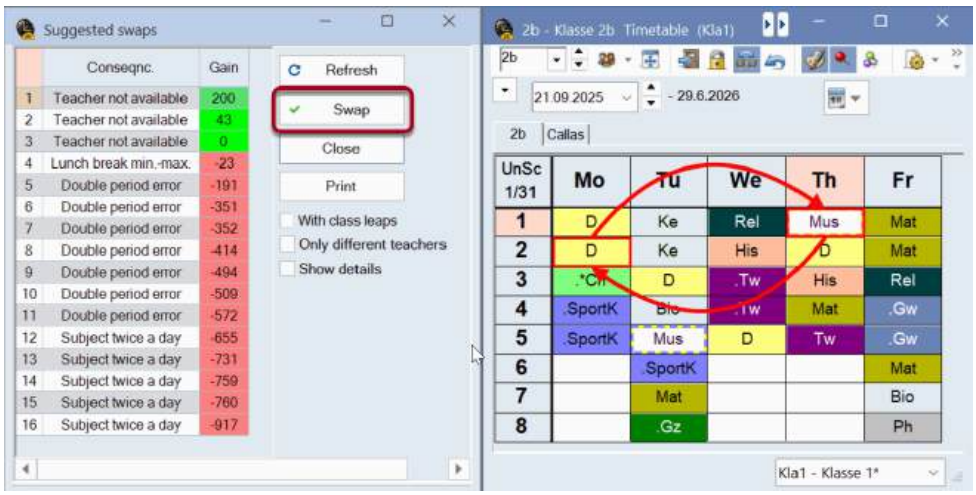
Alternatively, the function can be called up via the <Suggested swaps> button via each individual timetable for classes.



Possible swaps of 1, 2 and 3 are suggested for the active period. The "Gain" column shows whether the timetable would improve (positive values) or deteriorate (negative values) based on the data entered.
If you select a different period in the timetable, click on the <Refresh> button in the swap suggestions.

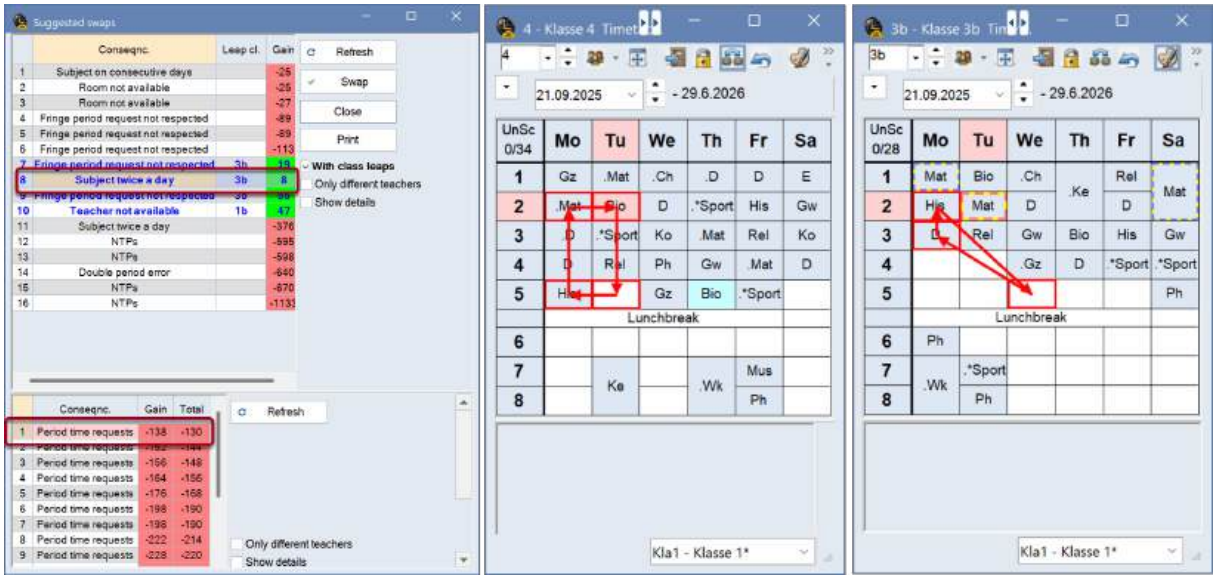
In the "Conseqnc." column, the worst violation that the respective swap would cause is displayed in the event of a worsening of the schedule. If, on the other hand, an improvement can be achieved (positive value in the "Gain" column), the category in which the greatest improvement has taken place is displayed.

The possible swap suggestions are symbolized in the timetables with red arrows. The selected swap is carried out using the <Swap> button.



Cross-class suggestions
It is often necessary to carry out swaps across several classes. To do this, select the option "With class leaps".

For example:
In class 4, the Math period that takes place on Monday in the 1st period is to be moved. Swapping it with the Bio period on Tuesday results in an improvement of 8 points (Gain column). The gain is not high because there is an unwanted double Math period on Thursday. However, the swap can only be carried out without collision if a second swap takes place at the same time.
This is because teacher Hugo's His period with class 3b on Tuesday in period 2 has to be postponed for this, so the jump class is class 3b and is shown in the "Leap cl." column. The options for moving this period from Hugo to class 3a are displayed in the lower part of the swap suggestion window. The best way to do this is to resolve an unwanted double period in the Math class. The difference between the two swaps (+8 and -138) results in a minus of 130 and is shown in the "Total" column.



Only different teachers
If a teacher teaches more than one subject in a class, it is often undesirable for deceptions to be offered between these subjects. If "Only different teachers" is ticked, such deceptions are not displayed.

5.2.8 Schedule with collision

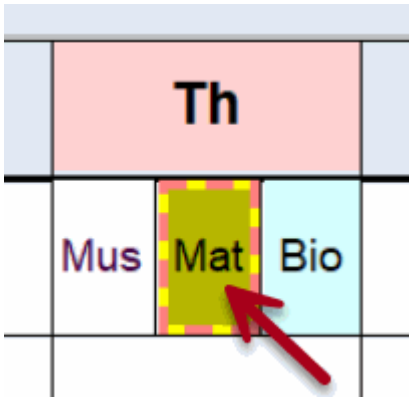
It is not possible to schedule the period drawn to a field that is not color-coded without collisions. In the period magnifying glass you can see the period number (and the details) of the obstructing period.

If you drop the period in question on such a period, a window opens offering you the following options:

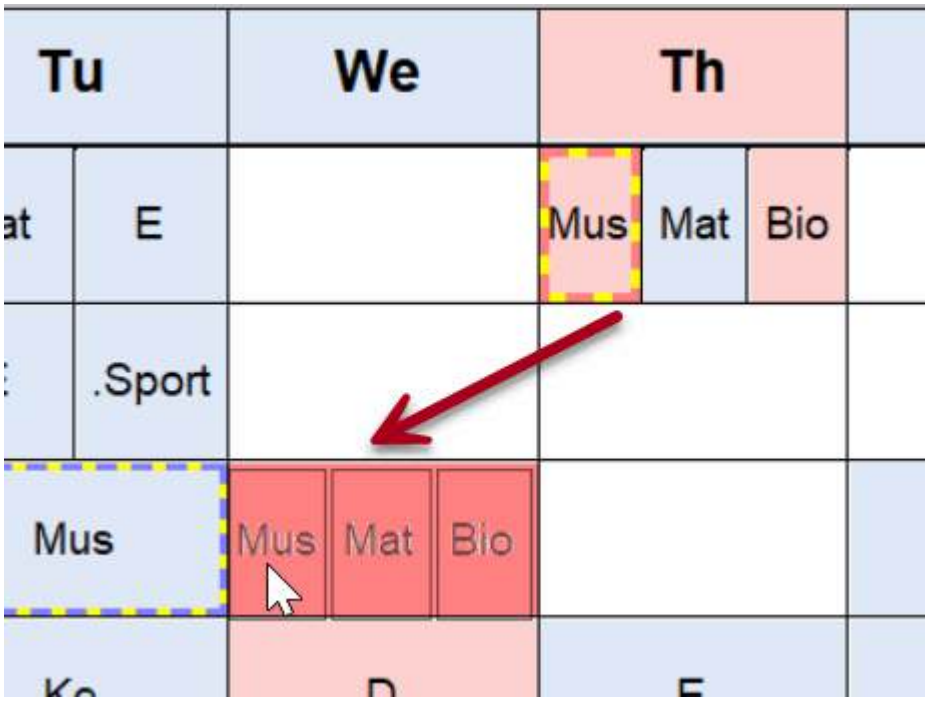
- <Cancel> - the action is canceled.
- <Save block> - the dragged (active) period is scheduled and the original period is unscheduled.
- <Create clash> schedules the period with class and possibly also teacher collision. If you select "Save with room clash", the room will also be occupied twice.

The period magnifier always shows all elements of the periods scheduled at this time. With the option "Separate period in case of collision" in the Layout 2 tab in the <Timetable settings>, the collisions (or courses that are in a band) are also displayed individually in the timetable (see chapter "Timetable design | User-defined views | Layout 2").

Each of these periods can be clicked and moved separately.



If you want to move all periods that are parallel in a period at the same time, this is also possible. To do this, hold down the Ctrl key and then click on the relevant period. All periods in this period are selected and can be moved at the same time.

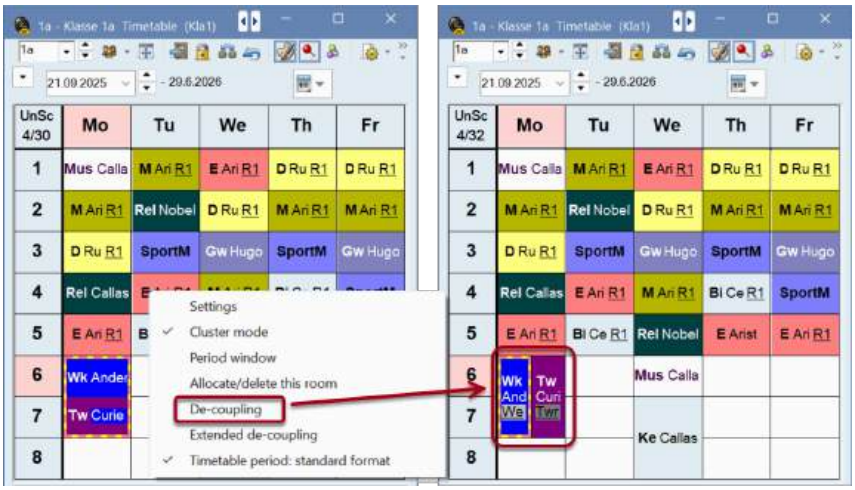


If you would like to activate this functionality in general, check "DragDrop: multiple lessons" in the <Settings> in the Layout 2 tab.

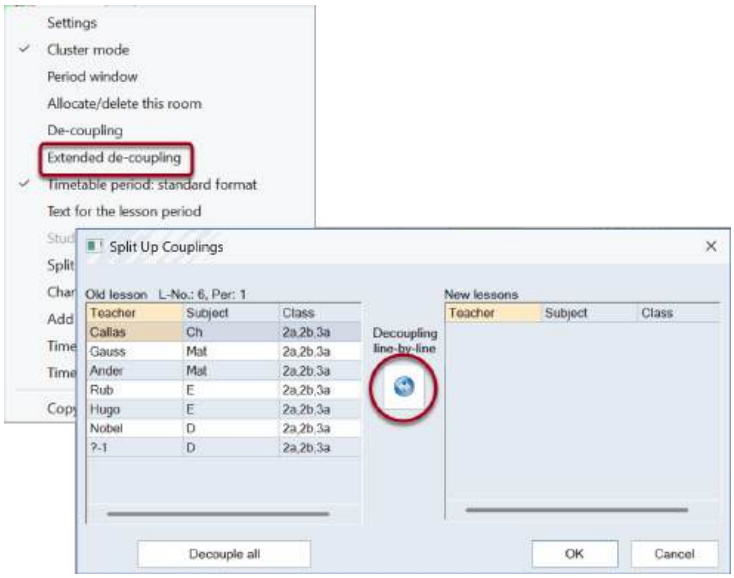
5.2.9 Decoupling in the timetable

A linked period can be decoupled directly in the timetable and the resulting new period can be scheduled elsewhere.

Example: The linked periods on Monday 6th and 7th periods are to be decoupled because teacher "Ander" is to teach his group on Tuesday. Right-click on the period and select "De-coupling". The period is then decoupled and the new period with teacher "Ander" can be moved easily using drag & drop.



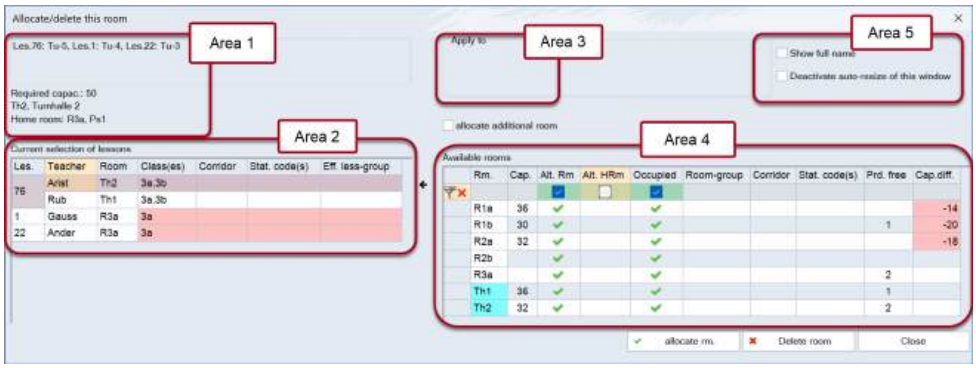
You can use the "Extended de-coupling" function to define exactly which coupling lines are to be decoupled from the existing period for larger couplings. In our example, only the chemistry period is to be decoupled from this linkage:



5.2.10 Change and add rooms

Using the room assignment dialog, you can assign a room to a specific period or delete or change an assigned room and assign an additional room to a period. There are 3 ways to access this dialog:

- By selecting < Allocate / delete room >  in the timetable
- By right-clicking in the timetable and selecting < Allocate / delete room >
- By clicking in the timetable and pressing Ctrl+R



In area 1 of the dialog, you can see the selected period, the scheduling and the currently assigned rooms. The master rooms entered in the period are also displayed here if a subject room has been scheduled.
Below this, you will find the details for this period in area 2. In the case of a linkage, you can select the linkage line for which the room is to be changed under "Current selection of lessons". The black arrow is an additional indication of which line is active.

In area 3, you can select which periods are to be affected by the room change:

- The selected period
- A block of periods (in the case of double periods or blocks)
- All periods of the selected period

Here you will also find the option "Allocate additional room". If you check this box and then select a room, it will be assigned in addition to the room already selected.

The rooms entered in the master data are listed in area 4 "Available rooms". You can use the filter line to restrict the selection to specific rooms. Y

Here you will also find additional information on the rooms in the individual columns. If you right-click in the heading line, you can show and hide columns. You can also show or hide the filter line in the same way.

The following columns and information are available:

Rm.:	The short name of the room.
Cap.:	The room capacity, if this is entered in the master data.
Alternative room:	The room in question is an alternative room to the room entered for teaching.
Alternative room:	The room in question is an alternative room to the main room of the class.
Occupied:	The room in question is free or occupied, whereby the green tick means "occupied".
Room group:	The room groups in which the room is entered.
Corridor:	The corridor in which the room is located if it is entered in the master data.
Statistics:	The statistics indicators, if any are entered in the room's master data.
Prd.free.	If the option "All hours of a period" has been selected, this column shows the number of hours on which the room in question is free.
Cap. diff.	The difference between the room capacity and the number of pupils, if both are entered in the master data or in the period. A positive number means that the room is large enough. A negative number means the room is too small.

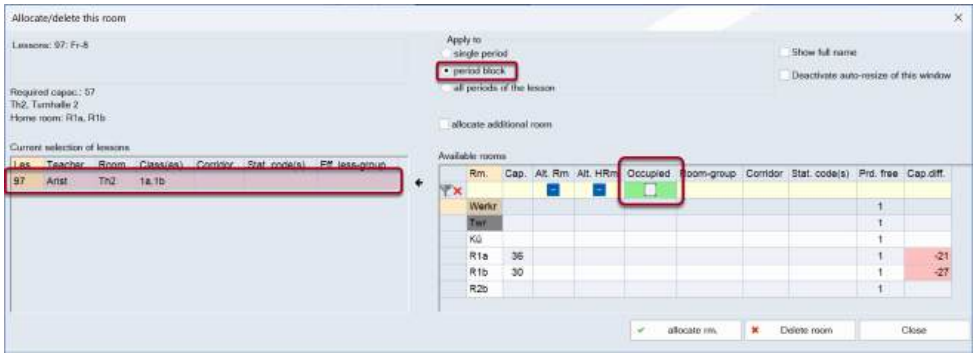
In area 5, you can display long names instead of short names and prevent automatic resizing (optimal adaptation to the screen) with the option "Deactivate auto-resize of this window". This is intended for users who want to position the window in a specific size at a specific position on the screen. In general, the room allocation dialog always opens at the position where it was last closed.

Tip:
If you move the mouse pointer over the heading of a column, a tooltip appears containing a short description of the meaning of the respective column.

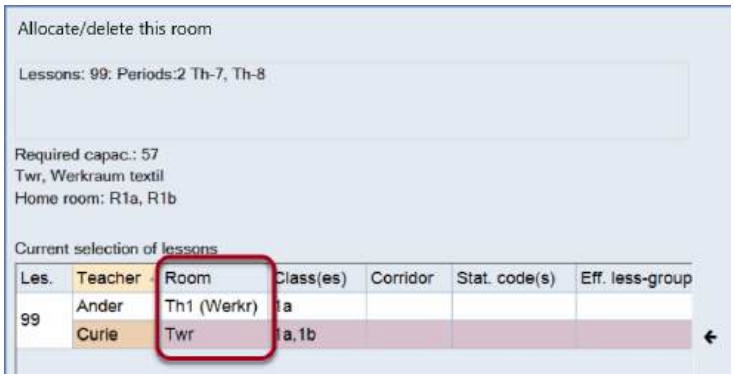
Different rooms are to be assigned to the work periods on Friday in the 8th period.

1. Open the demo.untis file and open a timetable for class 1a.
2. Place the cursor on Fr-8 and open the room assignment dialog.

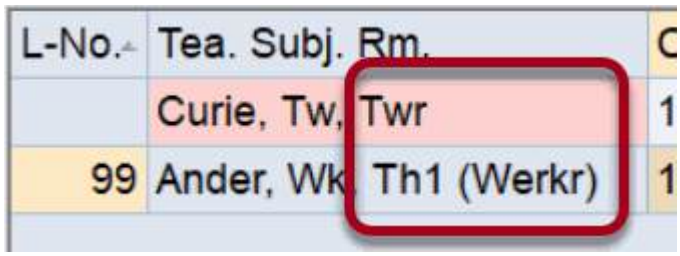
3. in our example, the room allocation is to be changed for all periods in the first linking line of this period. We will only display the rooms that are not occupied.



4. Now select a room (e.g. Werkr) and click on the <allocate room> button. Room Werkr is now assigned instead of the room Th2. Th2 is displayed next to Werkr as information in brackets.
5. Click in the second line on the left-hand side of the window and replace the room "Twr" with another room (e.g. Phys). As an alternative to the <allocate room> button, you can also assign the new room by double-clicking on it.



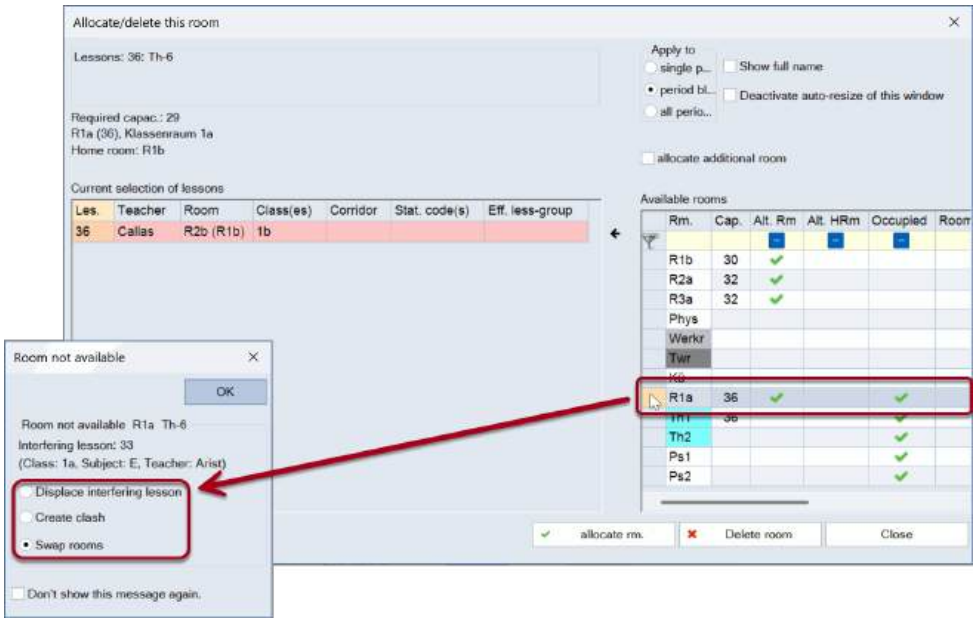
You can now see the newly assigned rooms for the 7th and 8th period in the period magnifier of the scheduling timetable. The original room entered in the period is also shown here in brackets.



With <Delete room> you can delete a room that has already been scheduled.

If you use the filter in the room assignment dialog to display the rooms occupied in the period in question, you can also assign them. In the following dialog, you can choose between the following options:

- Create clash
- Displace interfering lesson
- swap rooms



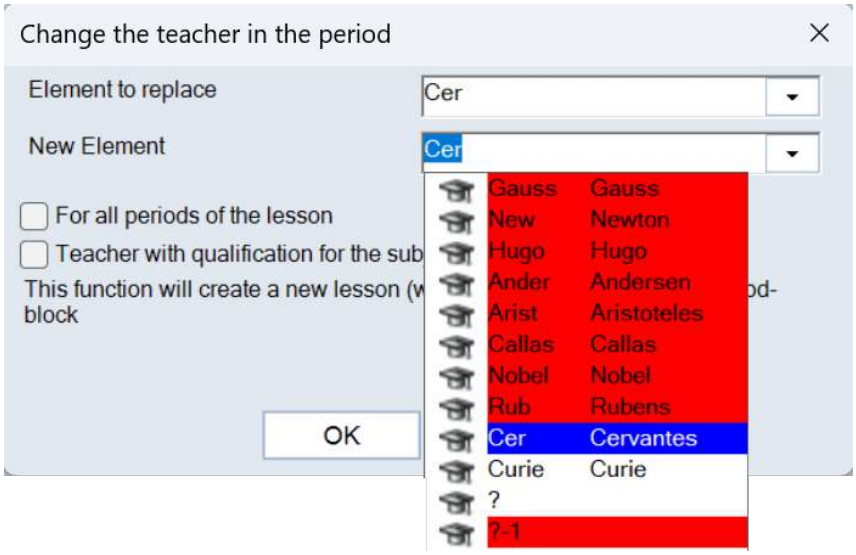
You can also change the room allocation via the room overview plan.

5.2.11 Change and add teachers

In the timetable, you also have the option of adding a teacher to a period or changing a teacher. To do this, right-click on the relevant period and you will find the "Change the teacher in the period" and "Add teacher" functions.

Change teacher

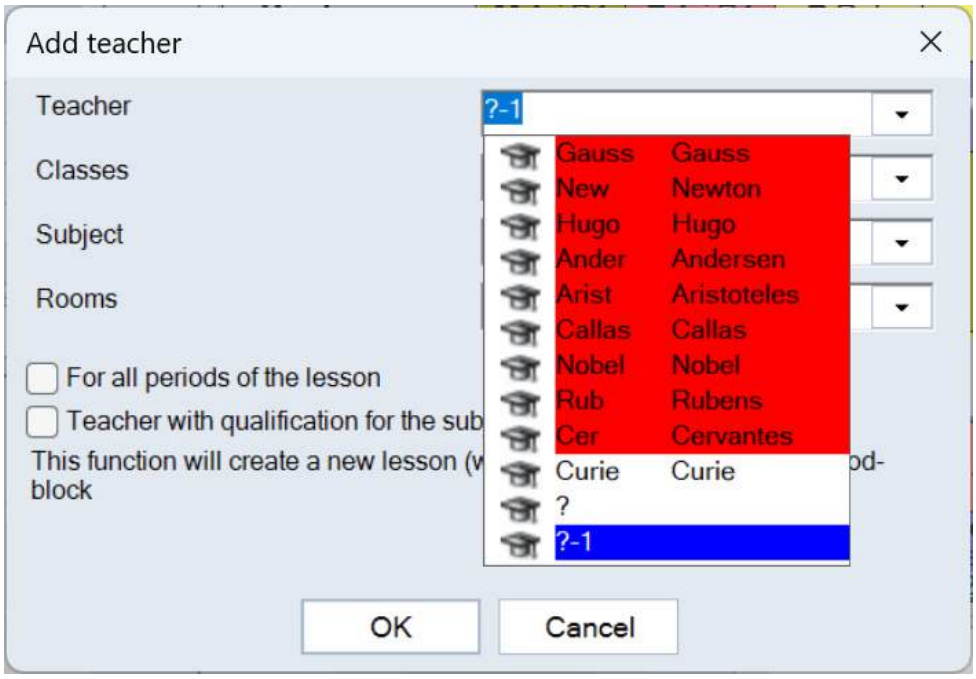
If you select "Change the teacher in the period", you can select a different teacher for this period in the subsequent dialog under "New element". Teachers who are already scheduled at the selected time are highlighted in red in the list.



If, for example, the teacher is replaced in a 5-hour period, Untis automatically creates a new one-hour period with the selected teacher. The number of hours in the existing period is reduced from 5 to 4.

Adding a teacher

You can add a teacher to any period via the "Add teacher" item.



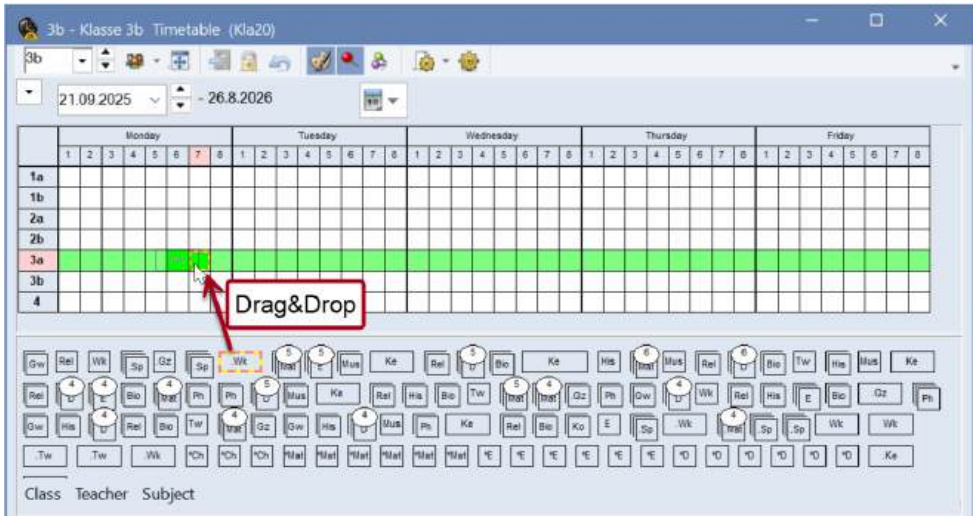
In this dialog you can also see which teachers are available at this time. A new period is created and the added teacher is linked to the existing teacher.

You can select the following options in the "Change teacher" dialog:
- "For all periods of the lesson" changes the teacher not only in the selected period, but in all periods in this class.

- "Teacher with qualification for the subject" only appears with the *Lesson scheduling* module and restricts the selection to those teachers who are qualified to teach according to the entries.

5.2.12 Scheduling in the overview plans

For manual scheduling, not only the individual timetables can be used, but also the overview plans for classes and teachers. This means that you always have an overview of several classes or teachers when scheduling in the timetable.

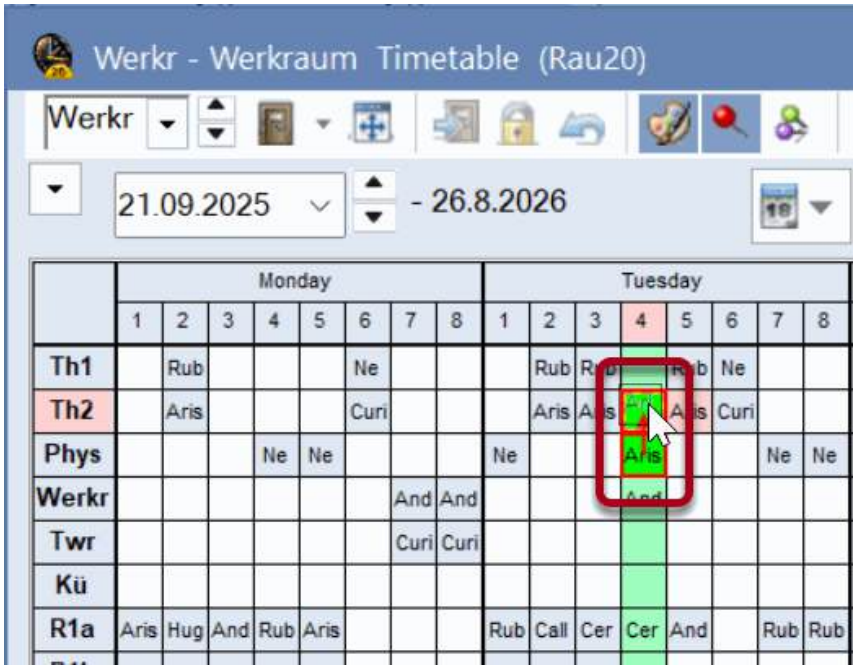


The unplanned periods are displayed as cards below the timetable and can be planned using drag & drop.

For a better overview, the display can be restricted to individual classes by selecting the desired elements in the selection menu while holding down the Ctrl key. These filters can also be saved permanently by saving it as format on the bottom right corner of the timetable window.

Room changes in the overview plan

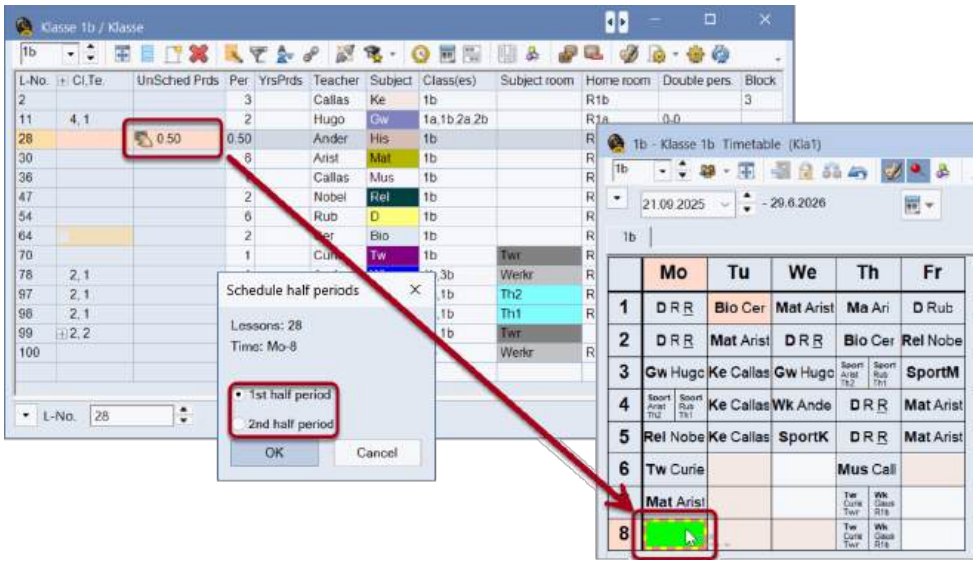
As an alternative to the room allocation dialog, room changes can also be made in the room overview plans. Simply drag the period from one room to another. If the room is already occupied, the room is swapped.



5.2.13 Scheduling half hours

If you are scheduling non-integer periods, you must decide in which part of the period the half-hour period should be.

When scheduling a block of periods (e.g. 1.5 hours), Untis asks whether you want to schedule the whole period or whether half a period should be in the first or second part of the period.

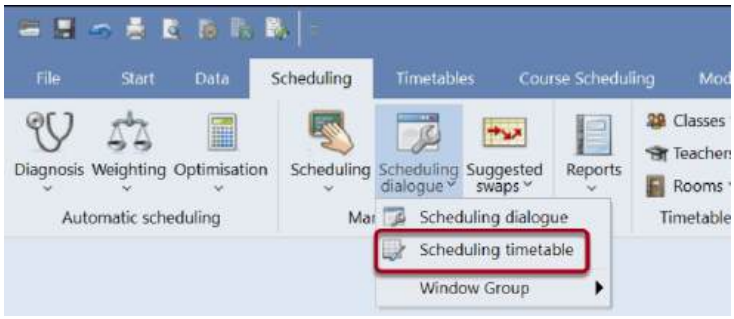


For a 0.5-hour period, you must decide whether it should be in the first or second half-hour.

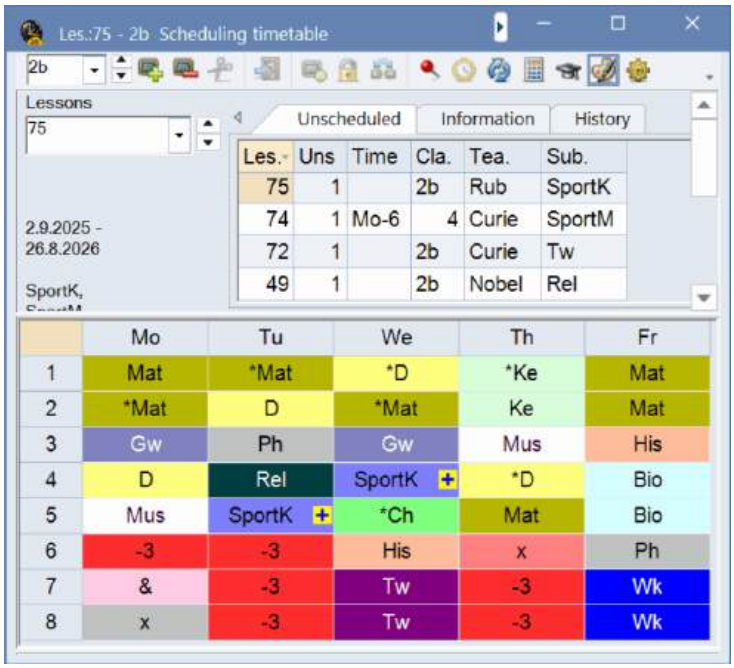
5.3 The scheduling timetable

You also have the option of changing your timetable manually in the scheduling timetable. All the manual scheduling functions described in the "scheduling in the timetable" chapter are also available in the scheduling timetable. This tool also offers additional functions for manually scheduling periods.

Open the scheduling timetable via the menu item "scheduling | scheduling dialog | scheduling timetable".



The timetable for class 2b is displayed with additional information relevant to scheduling.



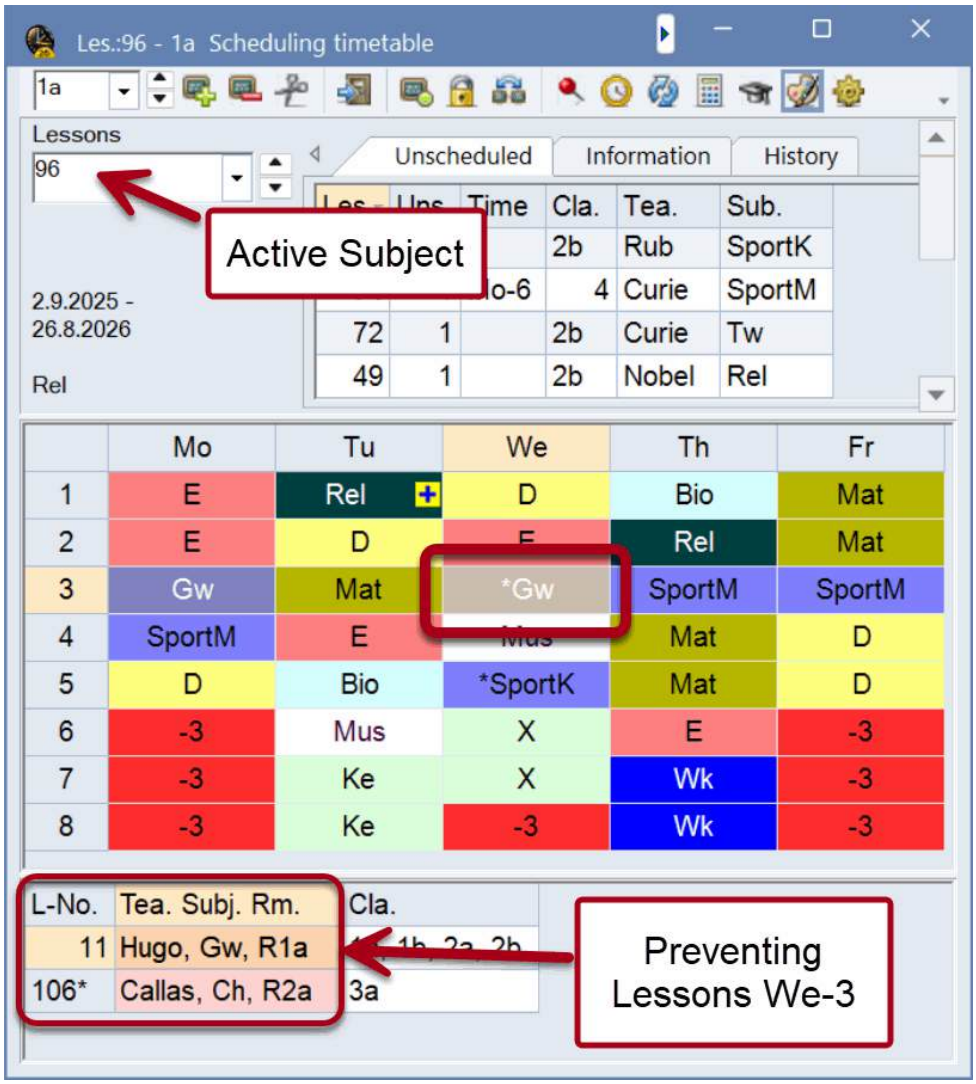
You can see which class (2b) is active in the top left-hand section of the scheduling timetable. The "Unscheduled" tab lists the periods that are not planned. In the list of unscheduled periods, click on period 96, which still has one unscheduled periods.

The actual timetable window shows additional information for the active periods in addition to the periods already scheduled for the class.

The active period in the example is period 96: Religion in 1a with teacher Rub. Accordingly, you can see the timetable for class 1a.

If you now want to schedule a period of this class, for example on Wed-3, the "Gw" period of 1a with Hugo would prevent this. However, this is not the only period that would prevent collision-free scheduling on Wed-3. A period by teacher "Callas" is also already scheduled at this position. You can also see this information in the magnifying glass of the scheduling dialog.

Accordingly, the magnifying glass of the scheduling dialog shows all periods that would prevent collision-free scheduling of the active period.



5.3.1 Schedule periods

+.... This is a period of active teaching.

***....** locked active period (see chapter "locking periods").

x.... The fields marked with a small x are already occupied by the teacher.

X.... A capital X indicates a linkage in which the teacher is involved.

***x*, *X*, *&*.....** A marker with two * indicates that the periods that prevent scheduling have been locked. Locked periods are no longer rescheduled by the automatic scheduling.

&.... Several elements (classes and/or teachers) are occupied at this time.

-3 .... Some of the periods not yet occupied by a class or teacher are marked with time requests. -3 indicates that scheduling is not possible in these periods. In this case, the reason is a time block for the class (see "Classes | Time requests").

If a field is empty, you can schedule the active period in this hour. There are several ways to do this:
- By double-clicking on the empty field,

- By clicking on the symbol  ,
- By pressing the <Insert> key.

	Mo	Tu	We	Th	Fr
1	E	*Rel	*D	Bio	Mat
2	E	D	*E	Rel	Mat
3	Gw	Mat	Gw	SportM	SportM
4	SportM	E	Mus	Mat	D
5	D	Bio	SportK	Mat	D
6	(	Mus	X	E	-3
7	x	Ke	&	Wk +	X
8	x	Ke	X	Wk +	&

Room allocation
Click on a period in the "Not scheduled" tab. You will see that some periods have a purple background. This indicates that the room (and all alternative rooms) in which the period is to take place is already occupied.

	Mo	Tu	We	Th	Fr
1	E	*Rel	*D	Bio	Mat
2	E	D	*E	Rel	Mat
3	Gw	Mat	Gw	SportM	SportM
4	SportM	E	Mus	Mat	D
5	D	Bio	SportK	Mat	D
6	(	Mus	X	E	-3
7	x	Ke	&	Wk +	X
8	x	Ke	X	Wk +	&

For better illustration, the colors from the master data, which are also displayed in the scheduling timetable, have been switched off by clicking on the "Display lesson colours" button  .

5.3.2 Lock period

If you no longer want a scheduled period to be rescheduled by the optimization, lock it by clicking on the <lock period> button. The period is now marked with stars (*,*x*, *X*). locked periods are no longer rescheduled by the optimization.

5.3.3 Swap lessons

To find a swap partner for a period within a class, click on it and drag it away from its place by holding down the left mouse button. All periods with which an exchange is possible are highlighted

in green and marked with a double arrow. If you drop the period and confirm the query with the "Swap 2" option, the swap will be carried out.

5.3.4 Plan with collision

In principle, Untis assumes that each teacher, each class and each room can only be occupied by one period at a time. This means that you are also made aware when scheduling if an element (class, teacher, room) is not free for a certain period.

As with scheduling in the timetable, periods can also be scheduled with collisions (see chapter "Scheduling in the timetable | Scheduling with collisions").

5.3.5 Delete period

If you want to remove a period that has already been set, select it and press the <Delete period> button  or the <Del> button. The period in question will now appear again as unscheduled in the "Unscheduled" window. Alternatively, you can also delete the activated period by double-clicking on it.

5.3.6 Allocate room

Using the "Allocate room" button, you can assign a room to a specific period or delete or change an allocated room, just like in the timetables. You can find more information on this in the chapter "Manual scheduling | scheduling in the timetable | Changing and allocating rooms".

5.3.7 Undo

All scheduling steps that you have carried out - both in the timetable and in the scheduling timetable - are logged in the "History" tab and can be undone step by step using the button of the same name. Clicking on the <Delete list> button, deletes this and the entry of the scheduling steps starts again.

All functions described in the "scheduling timetable" chapter can also be called up from the scheduling dialog.

5.4 The Scheduling dialog

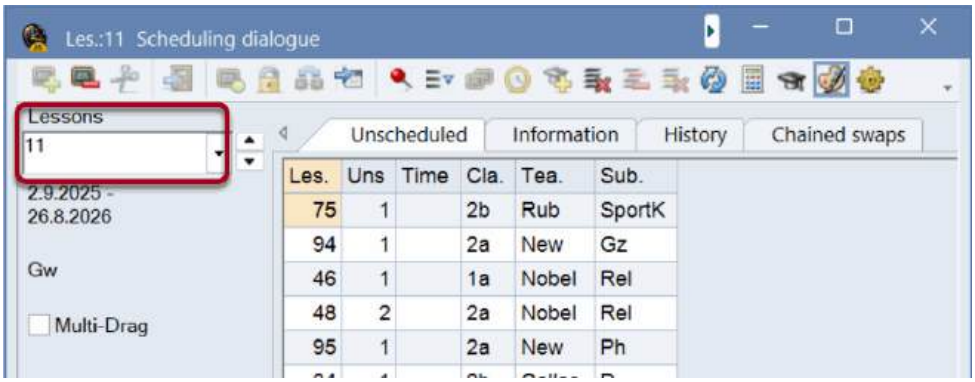
The scheduling dialog is used to manually set and move periods. Similar to a pegboard, the periods for the week are arranged next to each other and the individual elements (teachers, classes, rooms) are arranged line by line below each other.

5.4.1 Structure

You can reproduce the examples described in this chapter using the demo file demo.untis.

5.4.1.1 Selection field

In the selection field for the period, you can see from the perspective of which period the information is displayed. In this case, it is period 11.



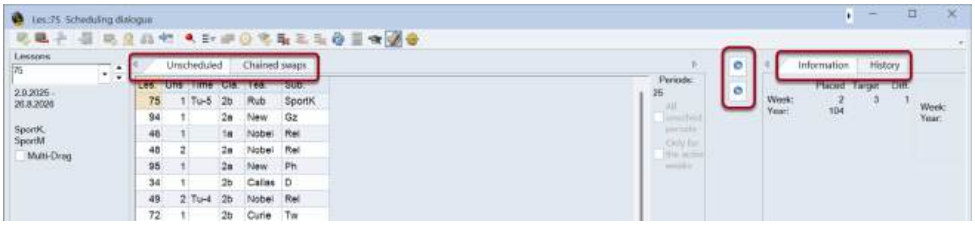
Instead of entering a period number, you can also search for a period in the selection field. By entering classes, teachers or subjects, you can find the relevant period. For example, an entry "1a" will find all 1a periods, an entry "G" will find all German periods (and all other periods that contain a "G" in one of the master data elements).

5.4.1.2 Index cards

You will find various information in the index cards:

- "Unscheduled" provides an overview of all unscheduled periods
- "Information" shows additional information on active periods, such as the number of periods not yet planned
- "History" shows the last changes made, as in the scheduling timetable. Individual scheduling steps can also be undone here.
- "Chained swaps" offers you additional options for swapping periods in the scheduling dialog. You can find more information on this in this chapter.

The individual index cards in the scheduling dialog can also be arranged next to each other using the arrows. This makes better use of the space above the timetable area and increases clarity.



5.4.1.3 Magnifying glass of ther period

In the lower part of the scheduling dialog, you can see the information on the active period. This corresponds to the display of the period magnifying class in the timetable. A detailed description of the fields can be found in the chapter Timetable design.

In the middle window, you will see information for all classes, teachers and rooms involved in the period for the whole week from the perspective of the active period.

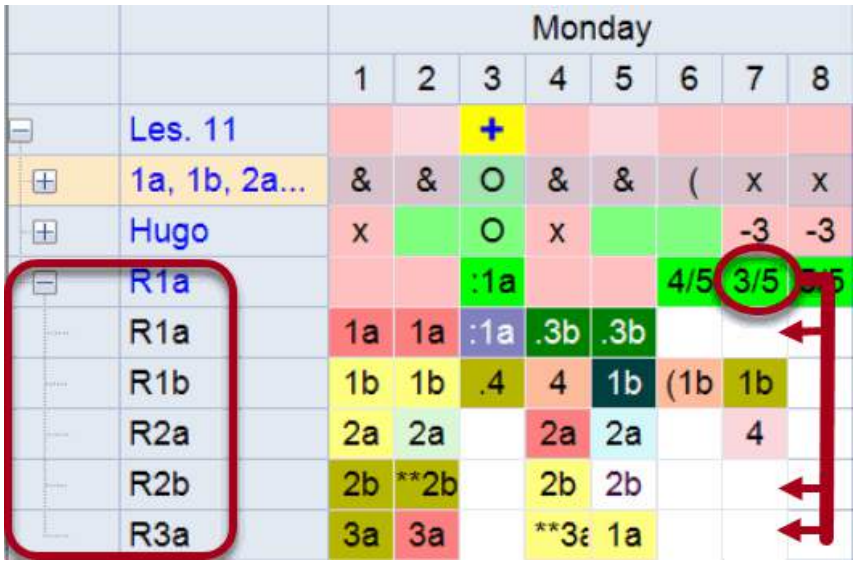
5.4.1.4 Scheduling area

In the scheduling area, you will first see all the elements involved in a particular period grouped by element. For example, there is a totals line for the classes involved in the period. As in the

scheduling timetable, the period marker is displayed in this totals line. You can find more information on the meaning of the period marker in the chapter "scheduling timetable | Scheduling periods".

You can use the + symbol in front of the totals lines to extend the dialog to all elements involved. In our example, classes 2a and 2b are involved in period 75.

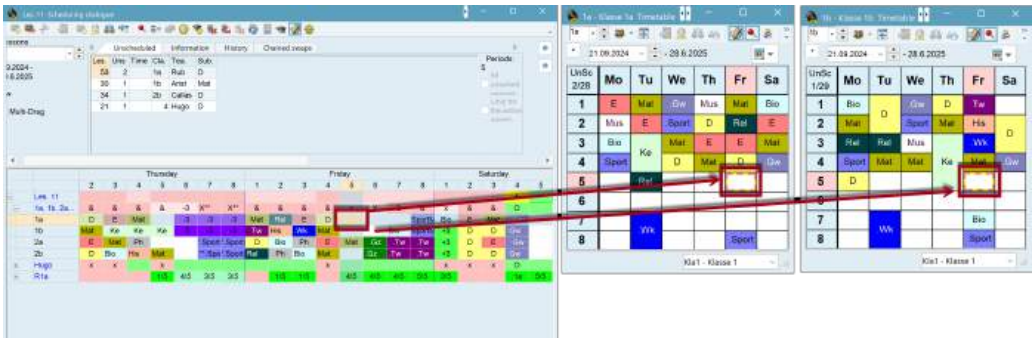
The same principle applies to the teachers. If you have defined alternative rooms in the master data, Untis will show you the desired room and its alternative rooms in the scheduling dialog after you have expanded the rooms. In the totals line you can already see how many of these rooms are free. For example, "3/5" means that 3 of the 5 possible rooms would be free at this time.



Tip: Space-saving view for periods with few elements
In the settings of the scheduling dialog, you can set the option "Do not show the totals if there is only one additional row". This results in a space-saving display if, for example, only one teacher is involved in the period, as the totals line is not displayed.

If a field in the grid is empty, this means that the relevant element (teacher, class, room) in this row can still be scheduled at this time. In the example, Fr-5 in class 1a and 1b would still be free. This can be easily checked in the class timetable.

<!1!> appears above this period in the period line; this number shows you how well the active period would fit in this position. <!1!> is the best fit of the available free slots, followed by <!2!> and so on.



For the period and for all elements involved in the period, the time requests entered are shown in the corresponding colors. If, for example, a time request has been entered for a teacher in the master data, this will appear in the line for this teacher.
If there are undefined time requests, these will be given a different color, in our example purple, depending on the setting in the time request window:

Tip:
The time request entered in the master data or for the period can be deleted directly in the scheduling dialog with the <Delete period> button, with the <Delete> button or changed in the time request window.

5.4.2 Scheduling functions

A range of different scheduling functions are available to you in the scheduling dialog:

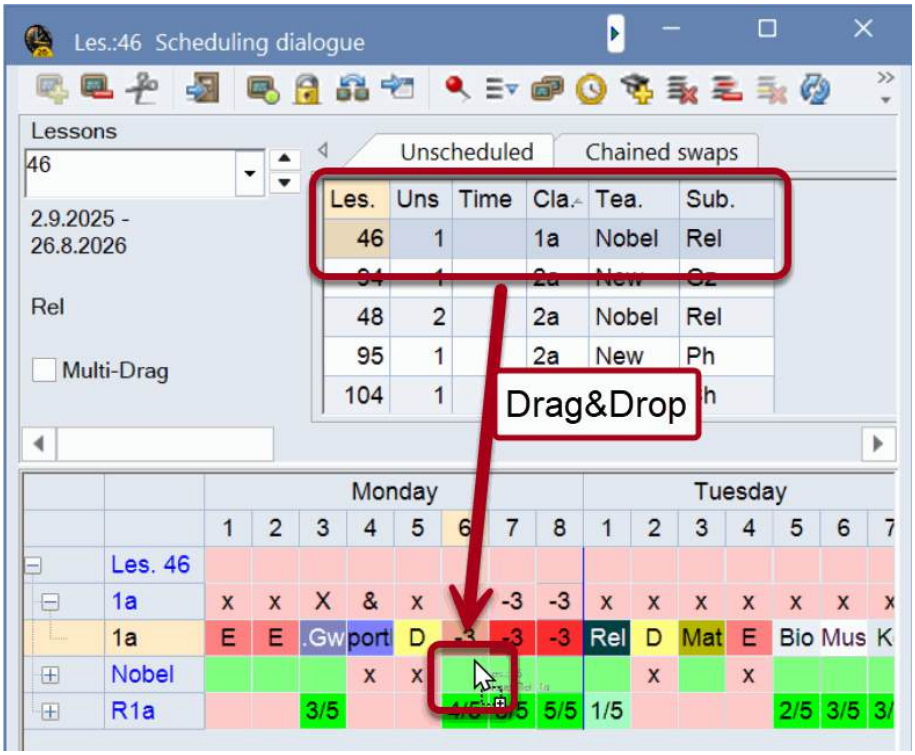
Schedule periods
Unschedule periods
Schedule with collision
Move periods with drag & drop
Undo
Allocate room
New current period
lock periods
Optimization
Evaluation at the current time
Change teacher in period

5.4.2.1 Schedule periods

You have several options for scheduling unplanned lessons:

- by double-clicking
- with the <Schedule period> button
- with the <Insert> key

- via the context menu of the right mouse button
- by dragging and dropping into the grid view from the list of unscheduled periods or from the period view



5.4.2.2 Unschedule periods

You have several options for unscheduling (deleting) periods that have already been scheduled:

- an active period by double-clicking on it
- with the <Delete period> button
- with the <Delete> button
- via the context menu of the right mouse button
- using drag & drop in the hour magnifier

Delete periods of one row
If you want to delete the entire (timetable) row of an element (e.g. class 1a), press the <Delete periods of one row> button .

Delete, current period
If you want to delete an inactive period and then schedule it again immediately, press the <Delete and activate lesson> button . The period is then unscheduled and automatically becomes the current period so that it can be scheduled again immediately. Alternatively, you can use the key combination Ctrl+X.

5.4.2.3 Plan with collision

If you plan a period for a class, teacher or room that is already occupied, Untis will warn you. Carry out a collision as describedin the chapter scheduling in the timetable | Plan with collision.

5.4.2.4 Moving periods with drag & drop

As in the timetable and in the scheduling timetable, you can also move periods that have already been planned in the scheduling dialog.

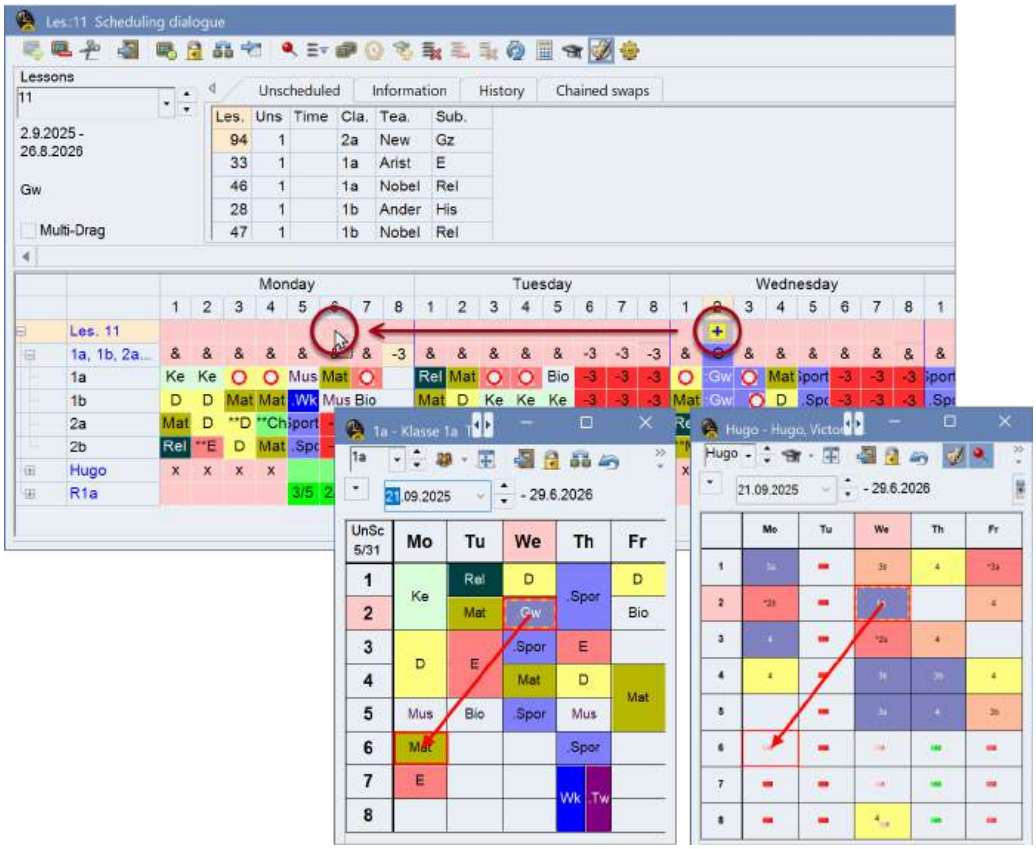
Click on a period in the scheduling dialog and drag it away by holding down the left mouse button.

All periods that can be rescheduled are shown in green in the period line.

If the arrow is over a period that is already occupied, the details of this period are shown in the period magnifier.

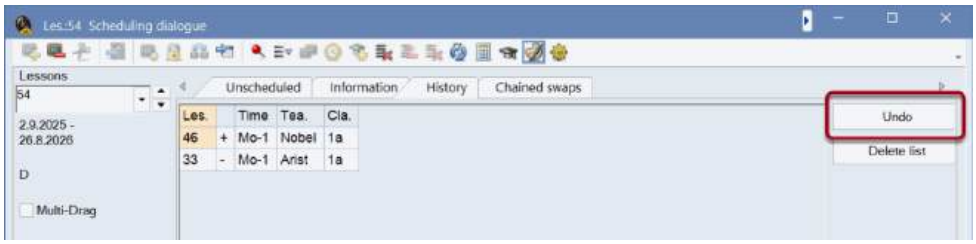
For better visualization, the planned shift in the timetables is shown with red arrows. This allows you to see at a glance whether the postponement of the period is favorable from a class and teacher perspective.
Drop the period in a suitable place by releasing the left mouse button.

periods marked with the symbol ↔ can be swapped.



5.4.2.5 Undo

All scheduling steps that you have carried out in the timetable, in the scheduling timetable and in the scheduling dialog are also logged in the "History" tab and can be undone step by step using the button of the same name.

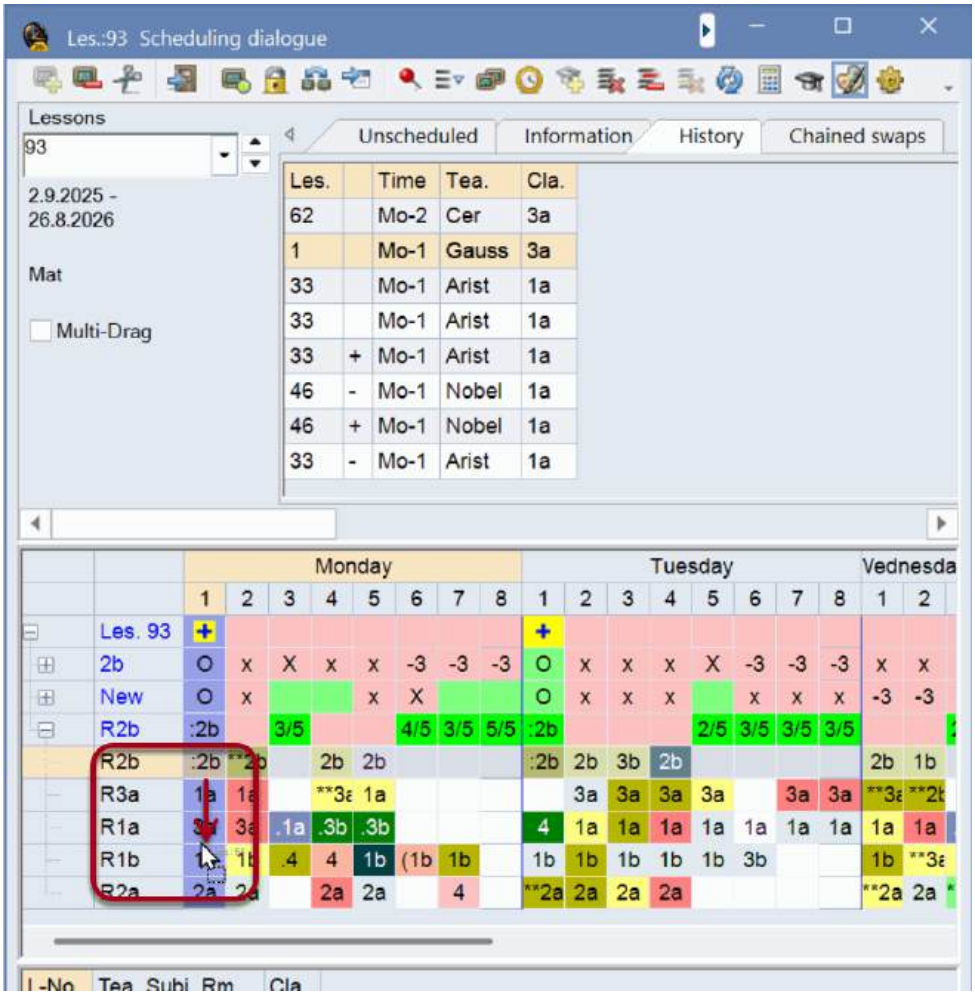


5.4.2.6 Change and allocate rooms

You can also call up the room allocation dialog in the scheduling dialog via the <Allocate/delete room> button, via the context menu of the right mouse button or via Ctrl+R. The functionality of the room allocation dialog has already been described in the chapter <scheduling in the timetable | Change and allocate rooms >.

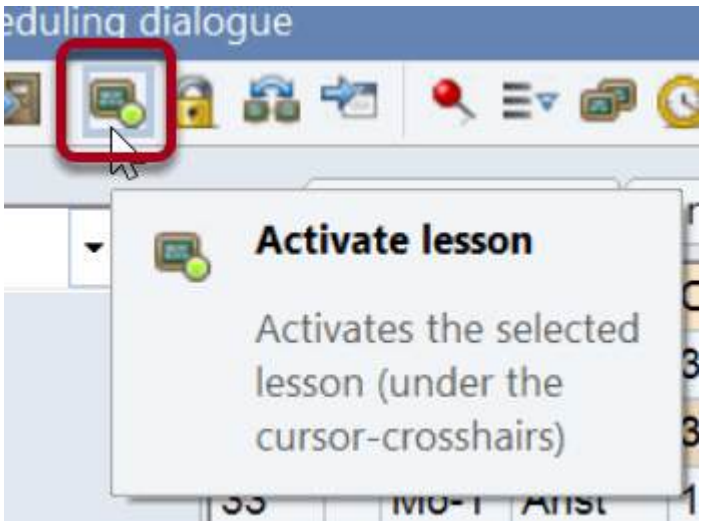
If the cursor is in the column of the active period in the room row, clicking on the button immediately deletes the room that has already been planned or plans the room allocated in the period.

To change a room in the scheduling dialog, you can also simply move the period in the scheduling area of the rooms in the row.



5.4.2.7 Activate lesson

By clicking on this button, the period becomes the active period according to the cursor. The corresponding command on the keyboard is Ctrl+Enter. You can also do the same by double-clicking on the inactive period.



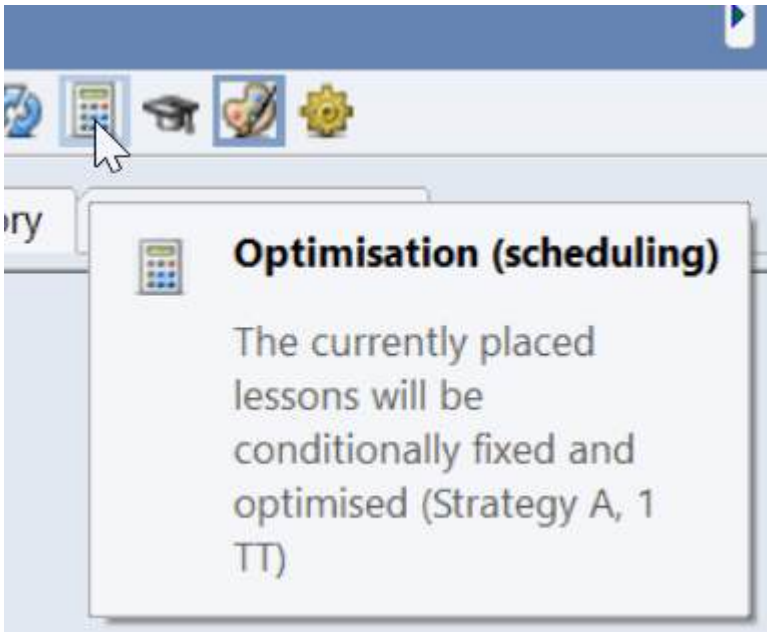
5.4.2.8 Lock period

This function locks the period on which the cursor is positioned (or unlockes an existing lock). The position of locked periods is no longer changed during an optimization run. In the scheduling dialog, they are marked with an at risk * in the row of elements.

You can also select an area in the scheduling dialog and apply the <lock period> function to it. This function can also be executed via the context menu of the right mouse button.

5.4.2.9 Optimisation

You can use this function to start the optimisation from the scheduling dialog.



The plan is optimised conditionally locked. The conditional locking of a plan means that the hours that are already planned remain untouched in the optimisation setting run. Unplanned periods are set. In the subsequent swap run, however, all non-locked periods can be swapped.

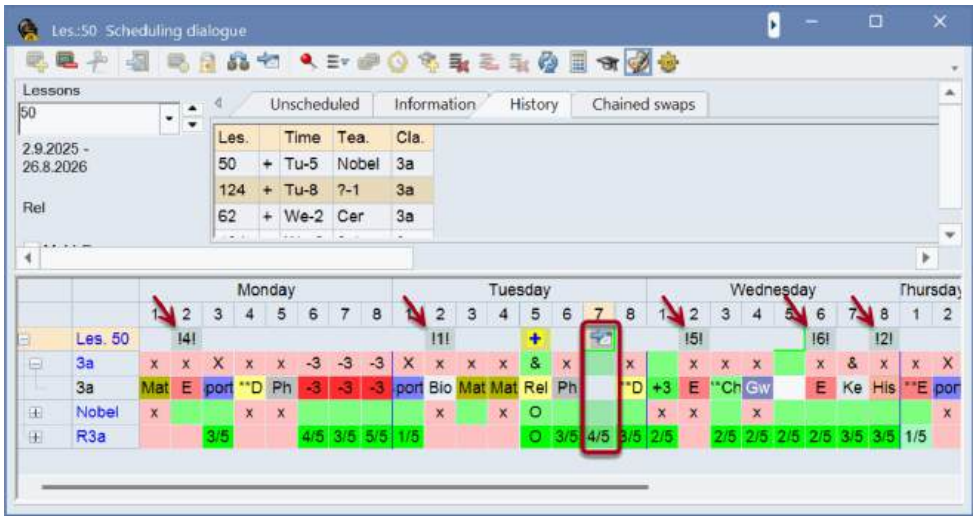
A plan is calculated according to strategy A.

5.4.2.10 Valuation at the current time

This function evaluates all periods of the week for their schedulability at a certain point in time.

Place the cursor on a period of the class that is not yet occupied and then click on the button from the toolbar of the scheduling dialog. The position for which a period is being searched is marked with the symbol in the period line.

All periods for the week are now evaluated to determine the extent to which they are suitable for scheduling in this position. The rating number is displayed in the period line; the lower the rating number, the more suitable the period is.



5.4.2.11 Replace teacher(s)

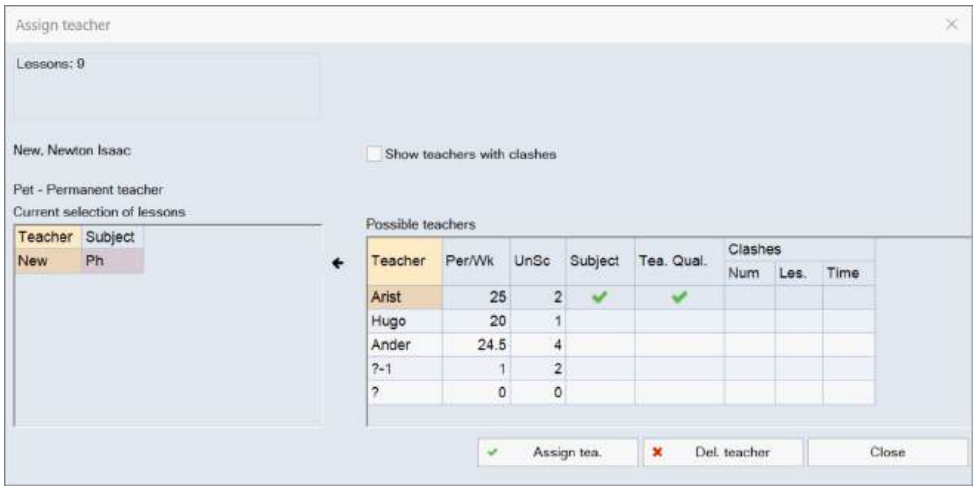
You can use this function to insert another teacher into a period in the scheduling dialog.

Activate a period and click on . A dialog will open where you can change the teacher of this period.

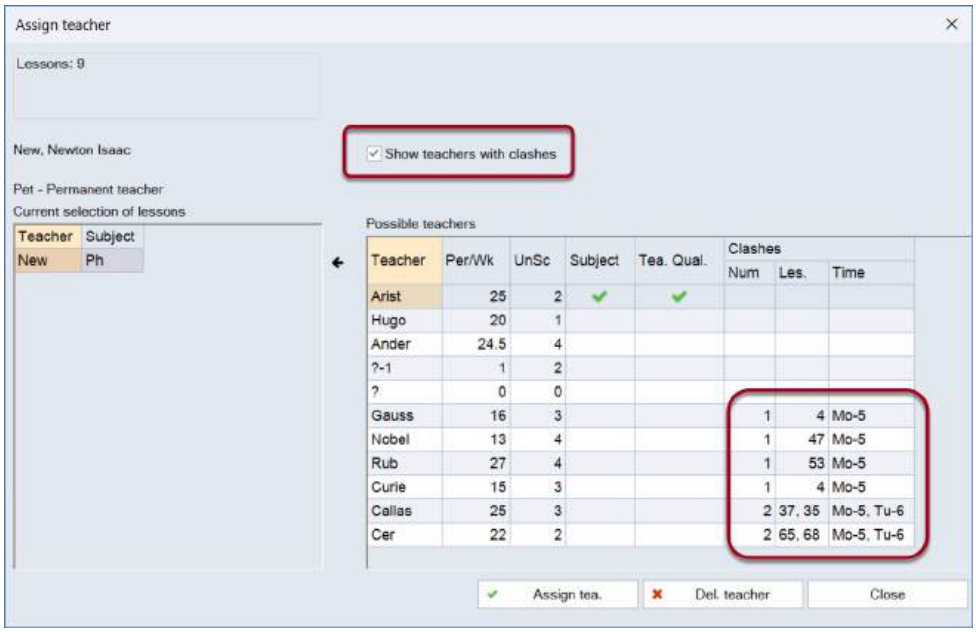
The left half of the window shows the teacher (or teachers) of the active period. The right-hand side lists all those teachers who could take over ALL periods of the active period without collision based on the existing timetable. Additional information is displayed to help you decide:

- Per/WK: The number of periods per week of the teacher.
- UnSc: The number of unscheduled periods.
- Subject: If the teacher already teaches the subject in question.
- Tea. Qual. : The teacher has the teaching qualification for the subject in question.

In the example, "Arist", "Hugo" and "Ander" could teach the subject. Only "Arist" is qualified to teach the subject "Ph". Assign the teacher to the period with <Assign tea.>.



By ticking "Show teachers with clashes", those teachers are also displayed for whom a change would have to be made in the plan in order to be able to assign them. It is of course important to know how many collisions need to be resolved and when they occur.



5.4.3 Display functions

The information displayed in the scheduling dialog can be changed using the buttons described below.

5.4.3.1 Display teachers of this class

If the cursor is positioned in a class line, the timetables of all teachers who teach in this class are displayed under the active period after clicking the button <teachers of this class>. Teachers who are not occupied in this period and uncoupled teachers are listed first.

If the cursor is positioned in a teacher line, the timetables of all classes in which the teacher is teaching are displayed in the same way.

5.4.3.2 Display of all classes, all teachers and all rooms

You can use this function to display all classes, teachers and rooms in your school in the timetable lines of the scheduling dialog. If you hold down the Shift key while calling up the function, only the classes are displayed.

If the cursor is positioned in a teacher line, all teachers will be displayed (under the active period). If the cursor is positioned on a room or class line, the rooms or classes will be displayed first.

5.4.3.3 Display of a 2nd lesson

With the "Display a 2nd lesson "function , you can also display the period information for the period according to the cursor. This function displays the period according to the cursor in addition to the active period.

5.4.3.4 Delete rows

You can use this function to delete the display of additional rows in the scheduling area. However, the active period always remains on the screen.

5.4.3.5 Show lesson colours

The colours that have been defined for master data elements and individual periods can be switched on and off using the <Display period colours> button .

5.4.3.6 The window logic

As you are already used to with Untis, the scheduling dialog communicates with all other windows.

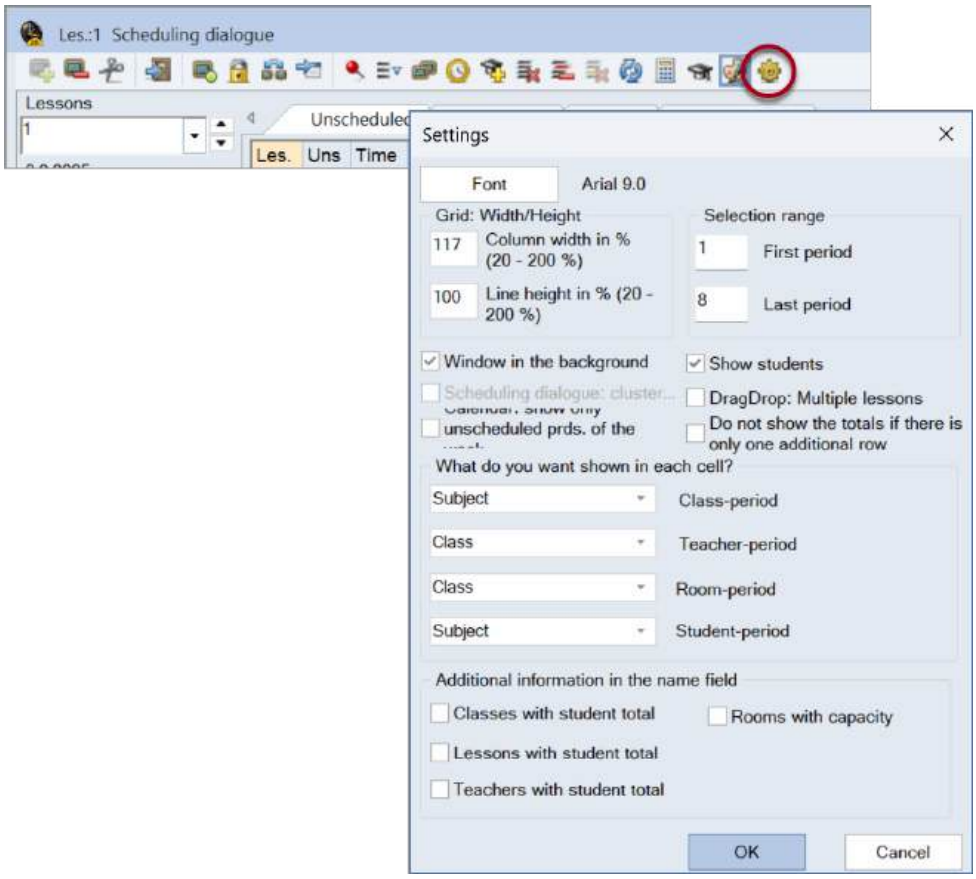
Synchronization
For example, if you open a period view (or a timetable) and select a period in it, the scheduling dialog automatically shows the current period and, conversely, the period window and timetable show the period selected in the scheduling dialog.

lock view
If you do not want the display in the scheduling dialog to change, activate the <Keep the source lesson> button.

Window in the background
Normally, you are used to bringing each window to the foreground by clicking anywhere in the window. In the scheduling dialog, you can specifically prevent this behaviour by activating "Window in the background" in the settings .

5.4.3.7 Settings

Here you will find various settings for the layout of the scheduling dialog.



On the one hand, you can adjust general settings such as the size of the font and the size of the cells, the latter also works by simply dragging the columns in the dialog larger or wider with the mouse. Under <Selection range> you can also control how many periods are displayed in the scheduling dialog. Assuming you have 11 hours in your time grid, you can set here that only hours 1 to 8 are displayed in the scheduling dialog. This function can help you to save space.

In the "What do you want shown in each cell?" area, you can define what information is displayed in the rows of the elements. For example, the subject is displayed in the rows of the classes.

Workstation-specific settings

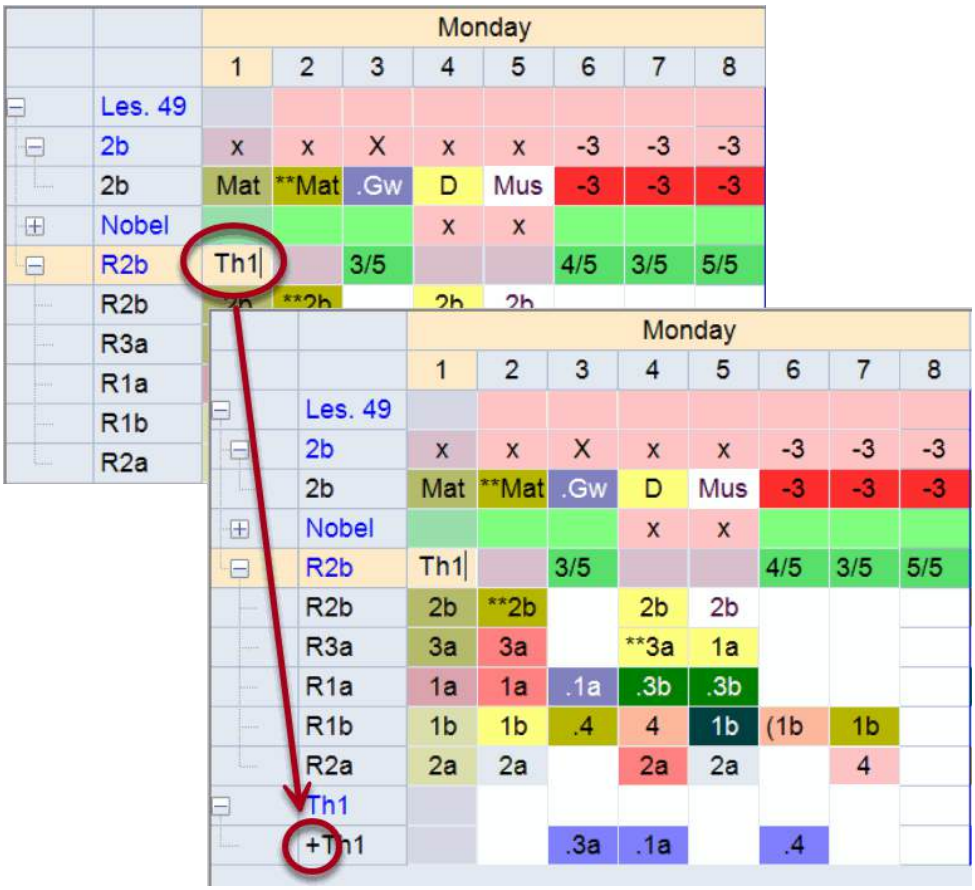
If you work on two different computers - at home and at school, for example - you are rarely dealing with two identical systems. Different hardware (screens, graphics cards and the like) can lead to tedious adjustment work when switching from one system to the other.

For this reason, all individual settings (e.g. font size, column width etc.) for the scheduling dialog are saved in the views.ini file, which is created locally on the PC. This allows you to work with different settings on different devices and these are saved locally in each case.

5.4.3.8 Display of any element

To call up the timetable of any element (or period), simply type the name of the element (or the period number) anywhere in the timetable window and confirm with the Enter key.

In the example, the short name of gym 1, Th1, has been entered. The occupancy of the room is then displayed.



This additional line is now displayed until you close the scheduling dialog or you hide it with the <Hide selected rows> button .

5.4.4 Operation via the keypad

The scheduling dialog can also be partially operated without a mouse.

You can use Ctrl+Tab to switch between the individual windows within Untis.

In the middle section of the scheduling dialog, you can use the arrow keys to move the cursor. The following key combinations are also available:

Pos1: first period of the week
End: last hour of the week

Alt+<right arrow>: same hour of the next day
Alt+ <left arrow>: same hour of the last day

You can also call up the various functions of the scheduling dialog using the keyboard:

Ins:	Schedule period
Del:	De-schedule period
Ctrl+X:	Delete, current period
F7:	lock period
Ctrl+Enter:	new current period
Ctrl+R:	Room dialog
Ctrl+Shift+Enter:	second current period

5.4.5 Multi time grid

If you use different time grids, the display in the scheduling dialog depends on the current period. The time grid of this period is also the current time grid. periods in this time grid that are fully or partially blocked by periods in other time grids are marked with the symbol  . This also applies to the scheduling timetable.

5.5 Exchange of periods

It may happen that you want to move a period that has already been scheduled to another position, even if this means that another period that is in this position has to be moved. For this second period, too, either a suitable free position is found in the timetable of the elements involved, or it itself displaces another period. This also applies to every further displaced period until a suitable position is found.

Untis supports this intuitive scheduling method with chain swaps, which can be carried out directly in the timetable, using the "Suggested swaps" and "Chained swaps"functions.

5.5.1 Suggested swaps

This function shows you how the period could be swapped within a class according to the cursor. Untis evaluates the plan according to your weighting specifications and shows whether the plan is better or worse as a result.

The suggested swaps can be called up via the button of the same name in the scheduling dialog 
.

A description of this function can be found in the chapter "scheduling in the timetable | Swap suggestions".

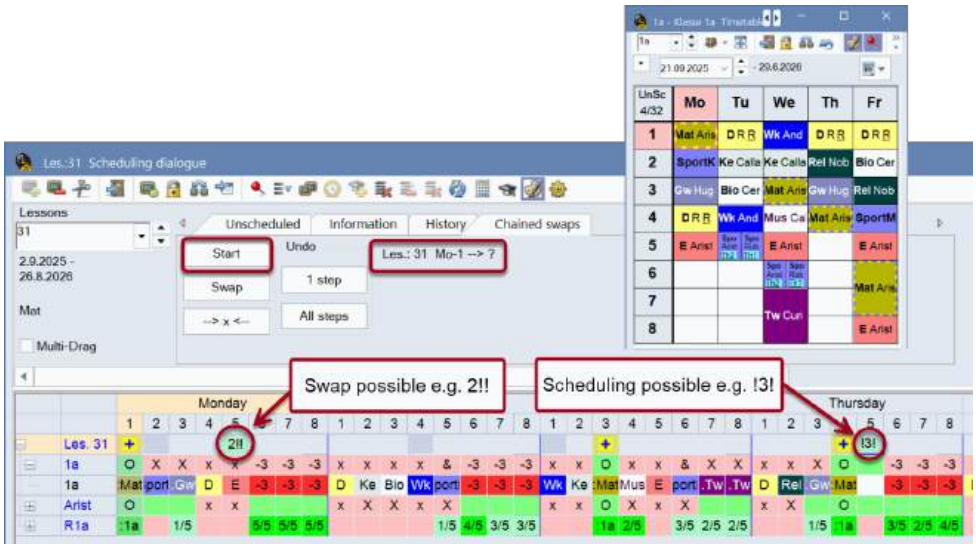
5.5.2 Chained swaps

The chained swaps function can be found under the tab of the same name in the scheduling dialog.

1. Open the demo.untis file, the scheduling dialog and a class timetable.

The aim of this exercise is to swap period 31 from Monday 1st period (Arist, Mat, 1a) to another location.

2. Start the swap chain by clicking on "Start" on the "Chained swaps" tab.

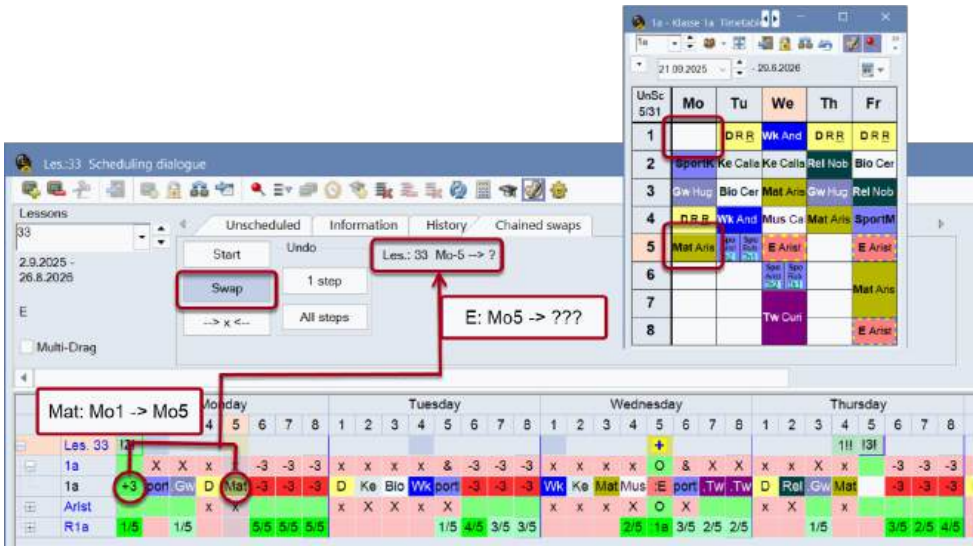


In the period line, number symbols representing possible swap places appear at some points in the time grid. The lower the number, the better Untis rates the corresponding place. Two call signs after the number (e.g. 2!!) mean that an already scheduled period would be displaced in the event of a swap. If there is a call sign before and after the number (e.g. !1!), this means that no period would be displaced if a period was swapped to this position and the swap chain would therefore be completed.

We now want to swap the period from Monday 1st period (U31, Arist, 1a, Mat) to Mo-5. Period 33 (Arist, 1a, E) will be displaced.

3. To do this, place the cursor on Mo-1 and press the <Swap> button.

The original period of period 31 has now been moved to Mo-5. This can also be seen in the timetable. period 33, from which a period has been displaced, also becomes the active period.



Again, Untis marks suitable swap places with numbers in the period line.

If you are not satisfied with the result of the swap, you can undo the individual steps or the entire swap at any time.

We now want to schedule the displaced period of period 33 on Tuesday, 1st period. The symbol !1! indicates that no further periods will be displaced and the swap chain will therefore be completed.

4. Place the cursor on Tuesday, 1st period and press the "Swap" button.

The period displaced by Mo-5 (Arist, 1a, E) has now been set to Tuesday-1. The swap chain is now complete.

Please note that Untis only supports swaps that do not significantly worsen the overall timetable (according to the settings you have made in the weighting). Accordingly, only the places marked in the period line are available to you as a swap partner.

6 Timetable

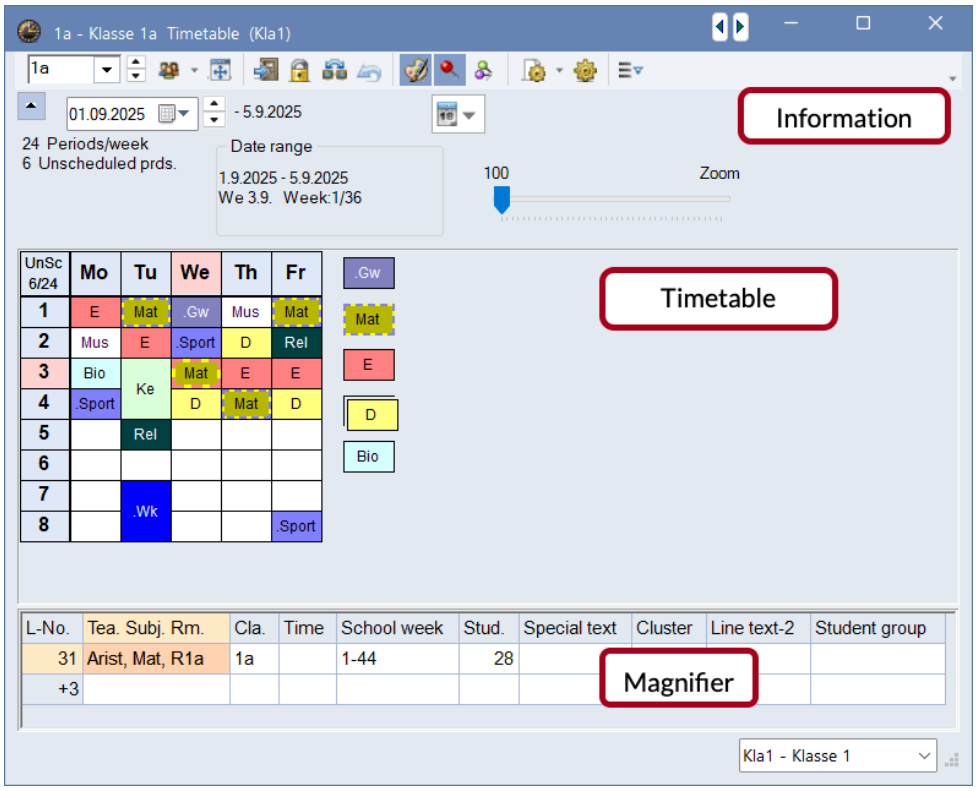
6.1 Timetable design

Once the timetable has been created, the information must also be presented clearly. The possibilities for timetable design in Untis are as varied as the requirements for the timetable layout. The following chapter provides an overview of the ready-made timetables and shows the numerous options for customizing them.

6.2 Window structure

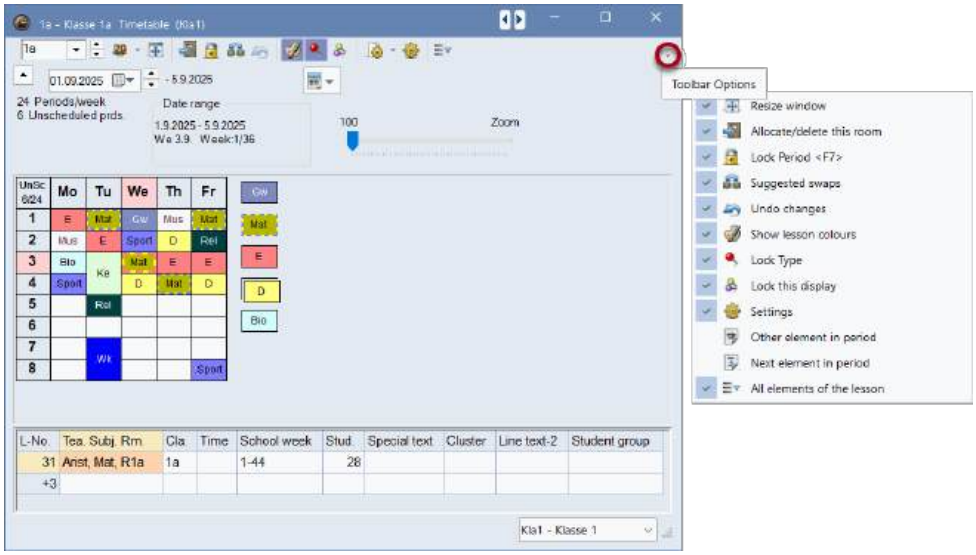
Under the "Timetables" menu item, you can open ready-made timetables for classes, teachers, rooms and subjects. When using the *student timetable* or *course planning* module, you can also display timetables for individual students.

In principle, a timetable window consists of 3 parts in addition to the toolbar: the information part (top part), the actual timetable (middle window) and the timetable magnifier (bottom).



Toolbar

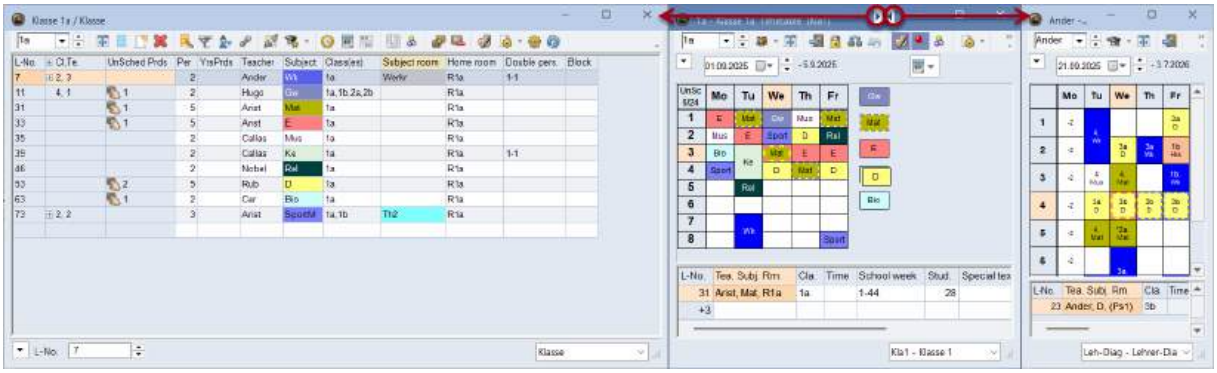
Buttons that you do not need can be removed from the toolbar (add or remove button).



Pop-up window

If you have opened a class timetable, for example, you may want to view the corresponding teacher timetable or just make a small change in the corresponding lesson window. These windows can be opened and closed again quickly using the two arrows in the timetable window.

From a class timetable, for example, you can click to the right to open a teacher timetable and to the left to open the lesson window for classes.

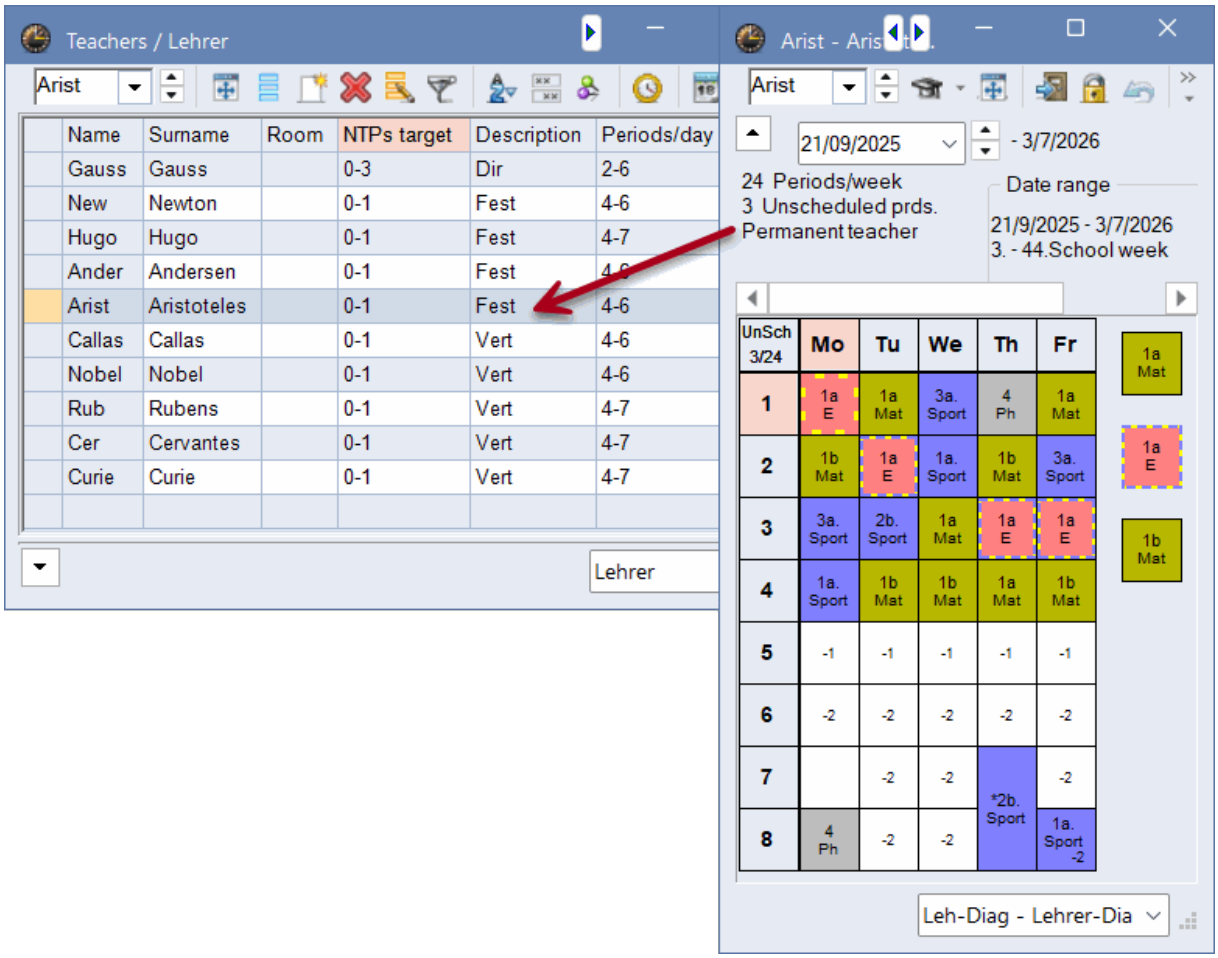


6.2.1 Information section

The top part of the timetable contains useful information for lesson planning and the period shown in the timetable.

Information
For each element, the number of periods per week according to lessons and the number of (weekly) periods not currently planned are displayed.

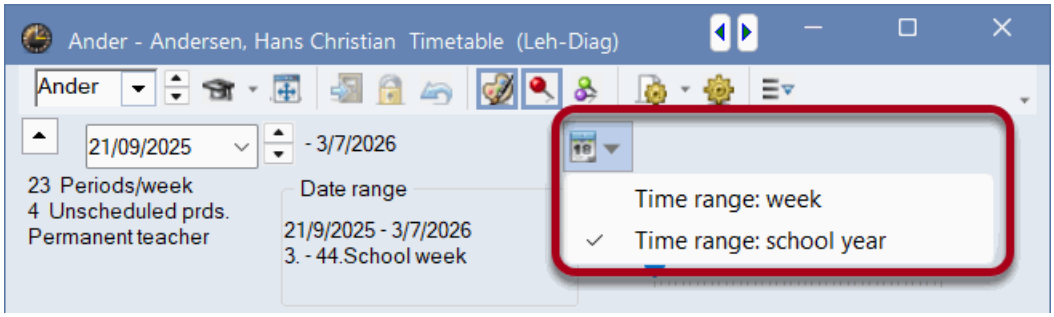
The text and description from the master data can be seen in the timetable. For class timetables, the class teacher (head of class) of the respective classes is also displayed.



Time range

The time range of a timetable can be based on a specific week, the selected period or the entire school year. This can be selected by clicking on the calendar symbol.

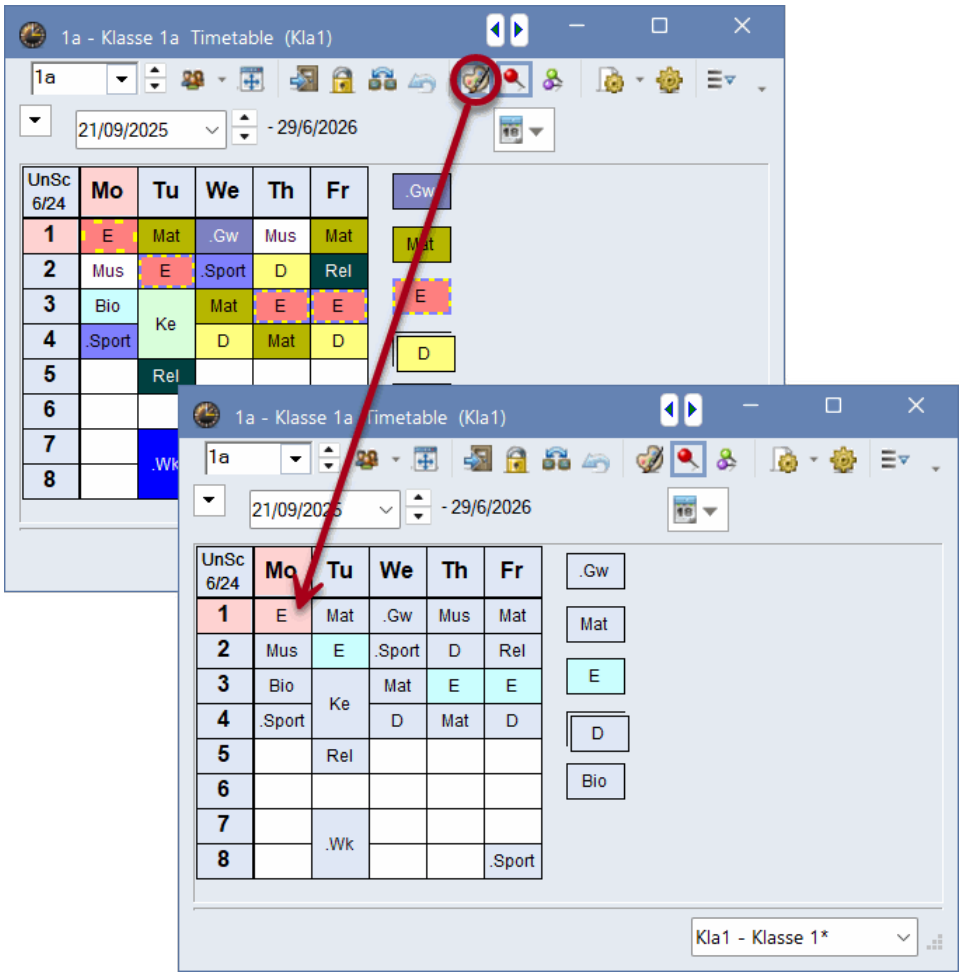
Tip: Period time range
If you are working with periods, it is advisable to set the time range of the timetables to "Period". This means that the timetable always displays the time range of the currently selected period and there can be no misunderstandings if, for example, the period shows the 2nd semester and the timetable is set to a week in November.



Tip: Changing the time range
The time range can also be changed using the keyboard shortcut <CTRL+D>.

6.2.2 Timetable window

The timetable of the active element is displayed in the actual timetable area of the timetable window. You have various setting options here to customise this display for your personal use. These setting options are described in detail in the chapter "User-defined views".



If you click on an (occupied) lesson in the timetable - and thus activate it - this lesson is shown with a red and yellow border and the other lessons belonging to this lesson are shown with a blue and yellow border. If the display of colors in the timetable is switched off (color palette icon), the active lesson is shown in pink and the other lessons in the timetable are shown in light blue. This allows you to see at a glance how the lessons are distributed over the week.

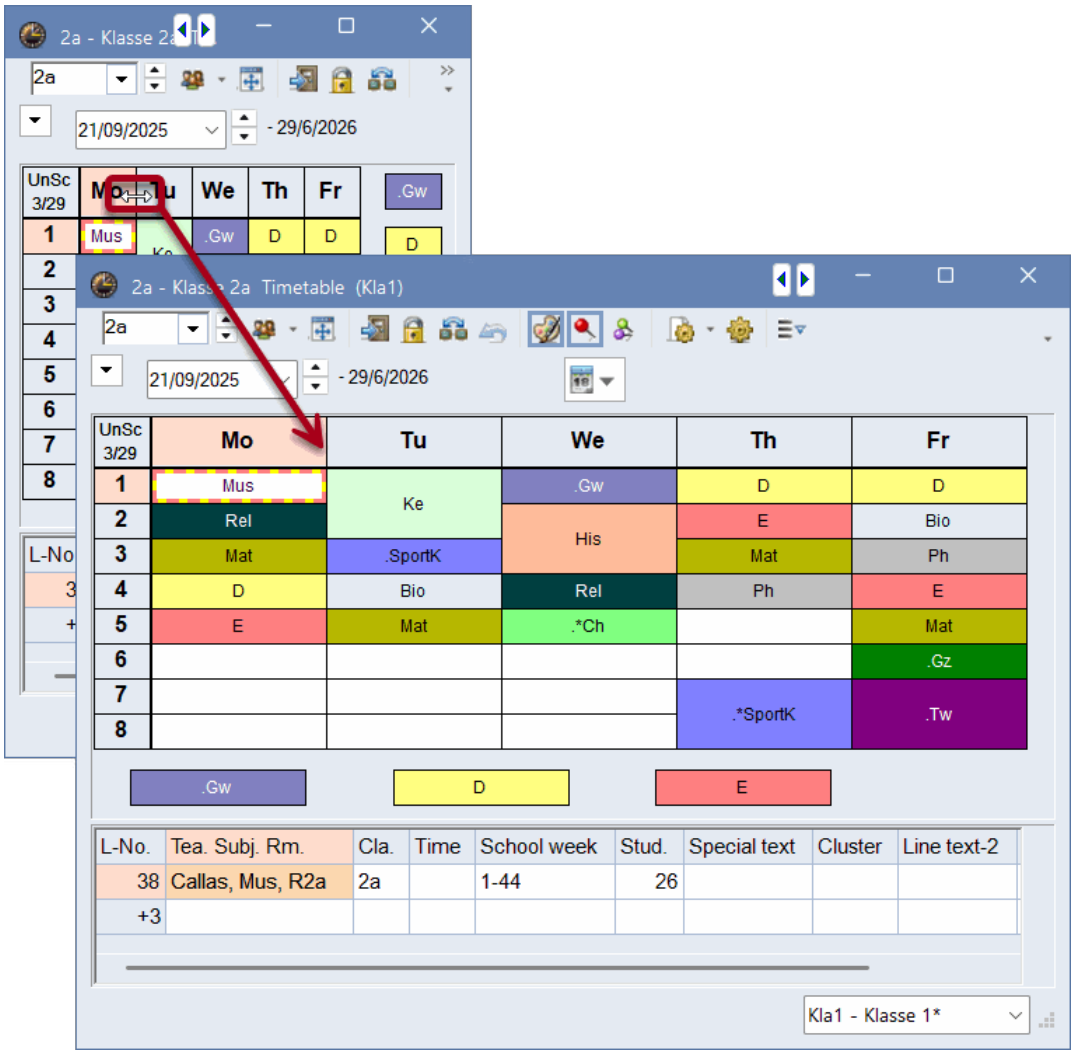
Resize window

This function adjusts the frame around the displayed timetable and thus adapts the window size to the timetable.

Tip:
The buttons <Lock period >, <Undo changes>, <Allocate/delete room>, <Suggested swaps> are intended for manual changes to the timetable and are therefore described in the chapter Manual planning.

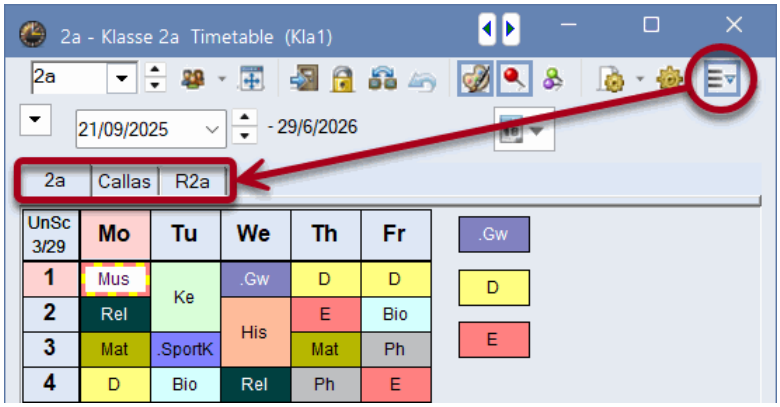
Change size

The size of the timetables can be easily changed in the timetable window. Open or close the dividing lines of the individual columns or rows - the size of the timetable changes accordingly.



Tab

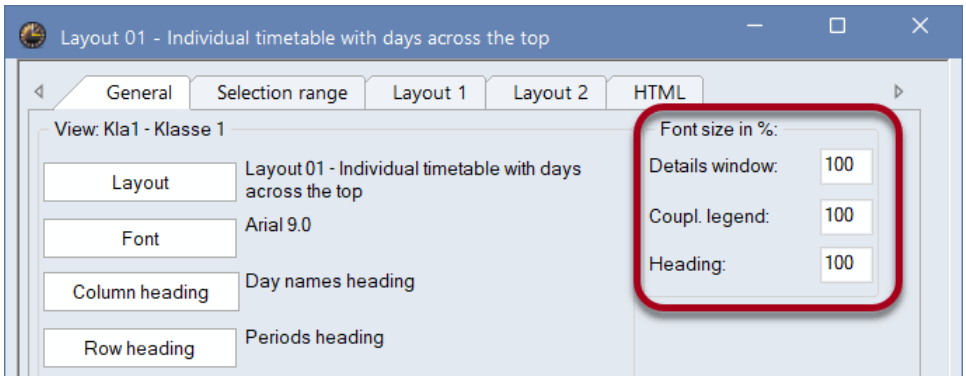
For individual timetables, the <All elements of the lesson> button allows you to show tabs in the timetable that list all classes, teachers and rooms involved in a lesson. Click on a tab to see the timetable for the relevant element.



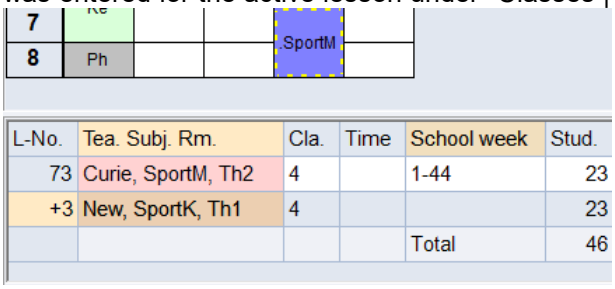
6.2.3 Lesson magnifier

As there is often not enough space in the individual timetable windows to display all the information for each lesson, you will find this information in the lesson magnifier.

The font size of the lesson magnifier can be changed in the timetable settings . The lesson magnifier shows you details of the active lesson:



L-No
In the example, this is lesson 73 (column U-Nr). Directly below you can see the desired time that was entered for the active lesson under "Classes | Master data" ("+3").



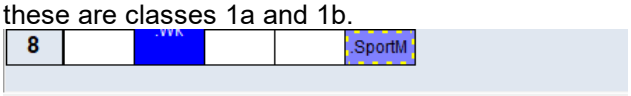
L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.
73	Curie, SportM, Th2	4		1-44	23
+3	New, SportK, Th1	4			23
				Total	46

Tea. Subj. Rm.
In the second column, all teachers, subjects and rooms involved in the relevant lesson are displayed. One line is also displayed in the lesson magnifier for each linking line.

If, instead of the room entered for the lesson, another room has been assigned during planning, for example the alternative room, you will see the room entered for the lesson in brackets. In the example, room R1a was entered for the lesson, but the lesson was scheduled in the alternative room R1b.

L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.
30	Arist, Mat, R1b (R1a)	1b		1-44	29
+3					

Cla.
In this column you can see the class(es) that are being taught in active lessons. In the example, these are classes 1a and 1b.



L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.
73	Arist, SportM, Th2	1a, 1b		1-44	
+3	Rub, SportK, Th1	1a, 1b			

Time
Time restrictions or periodicities are displayed in the "Time" column. This is particularly useful for the *multi-week timetable* module. The SportM lessons in the example take place every 14 days in the A week.

L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.	Special text
73	Arist, SportM, Th2	1a, 1b	A A	1,3,5,7,9,11,13		Only for girls
	Rub, SportK, Th1	1a, 1b				

Stud.
The number of students who have been entered in the lessons or the number of students who have chosen this course (with the *course planning* module) is displayed here.

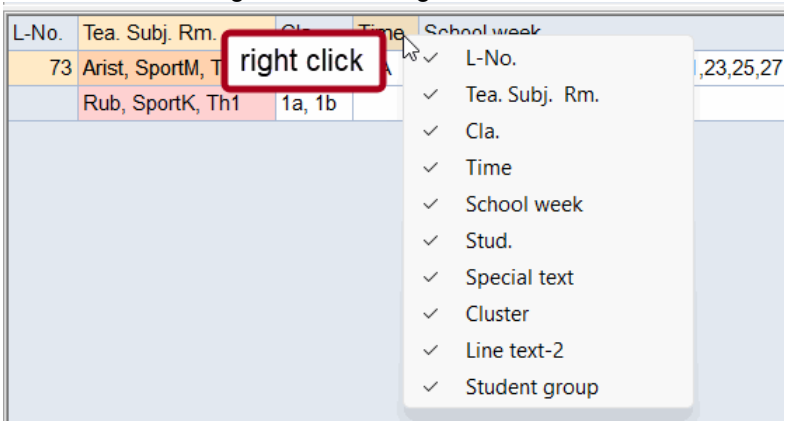
L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.	Special text
7	Ander, Wk, R2b (Werkr)	1a		1-44	28	Voluntary exercise
	Gauss, Wk, R2b (Werkr)	1b			29	

Special text
In the Special text field, the text or description entered for the lesson and the line text entered in the lesson magnifier for the lesson are displayed. In this example, the description "Only for girls" is entered as a special text.

L-No.	Tea. Subj. Rm.	Cla.	Time	School week	Stud.	Special text
73	Arist, SportM, Th2	1a, 1b	A A	1,3,5,7,9,11,13		Only for girls
	Rub, SportK, Th1	1a, 1b				

Line text-2
In the form view of the lessons, an additional, independent text can be defined in addition to the line text via the "Line text-2" field.

Show or hide columns
Individual columns can be shown or hidden in the magnifier of the timetable views. To do this, right-click on the heading line of the magnifier and deactivate the desired field.



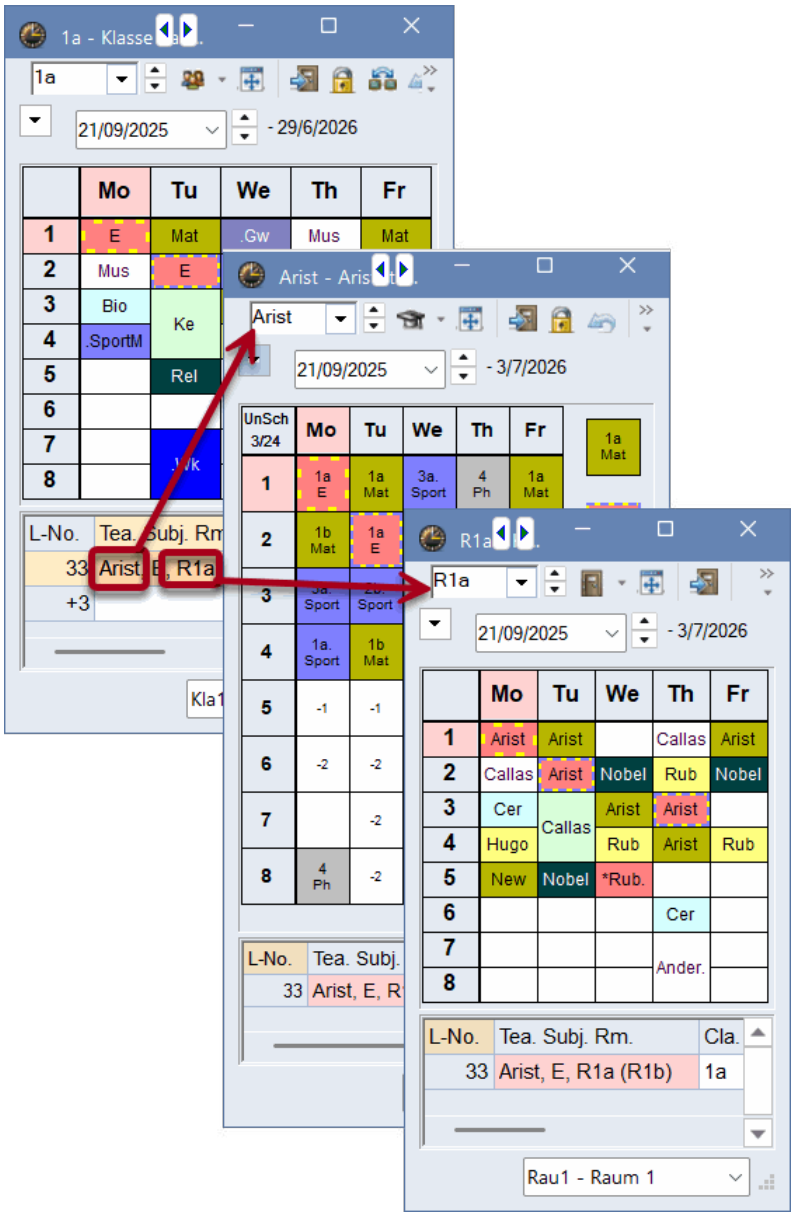
Tip:
The columns that are shown in the magnifier of a timetable are also displayed in the legend when the timetable is printed. Therefore, if the legend takes up too much space when printing, simply hide the columns in the corresponding timetable view.

6.3 Timetable interaction

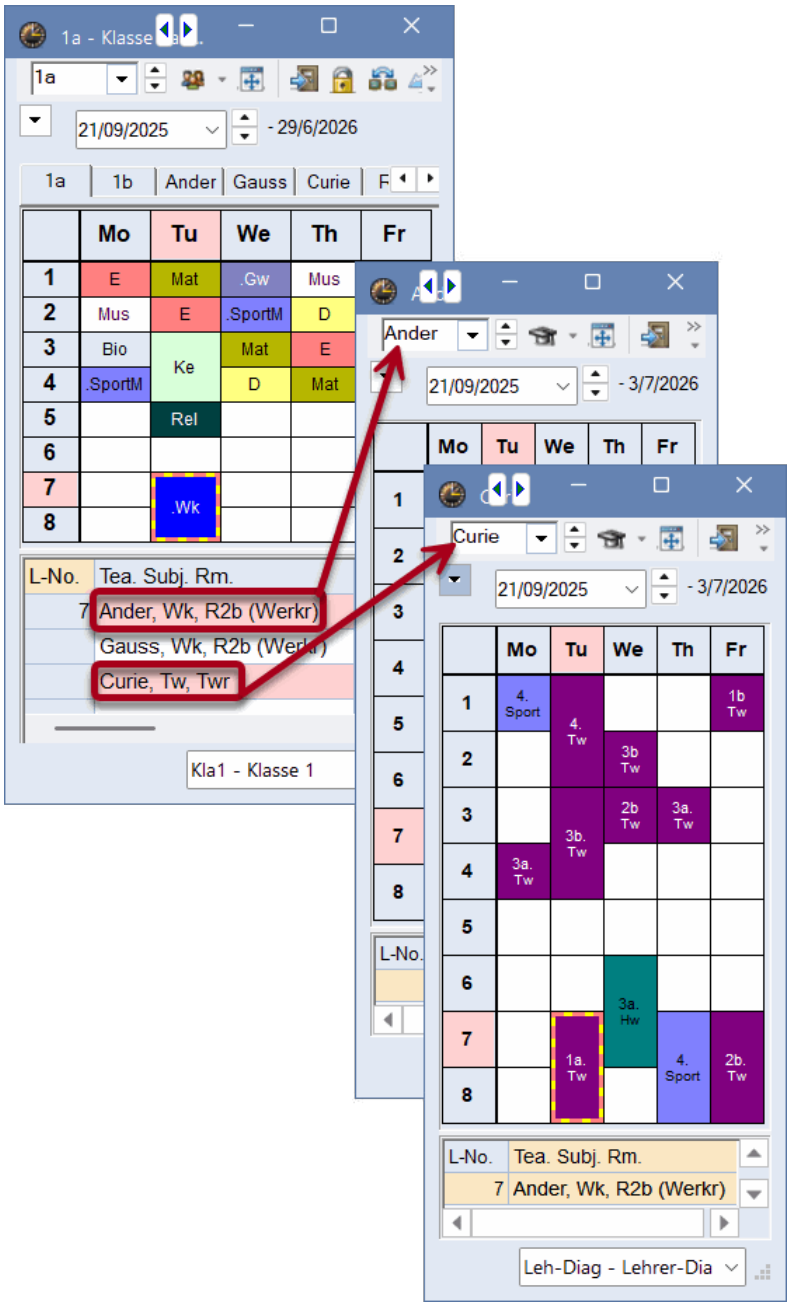
The timetables can not only be set manually, but also - if desired - automatically set themselves to the element that was selected in another window. This means that you always have the latest information on the screen without having to search for a long time.

Communication between the timetables

Open the demo.untis file and call up one class timetable, one teacher timetable and one room timetable. Place these timetables next to each other. In the timetable for class 1a, click on Monday, 1st lesson ("E"). At the same time, the timetable of the teacher who teaches class 1a Mo-1 in subject "E", namely Aristoteles ("Arist"), is displayed in the teacher timetable and the occupancy of the room in which this lesson is held ("R1a") is displayed in the room timetable.

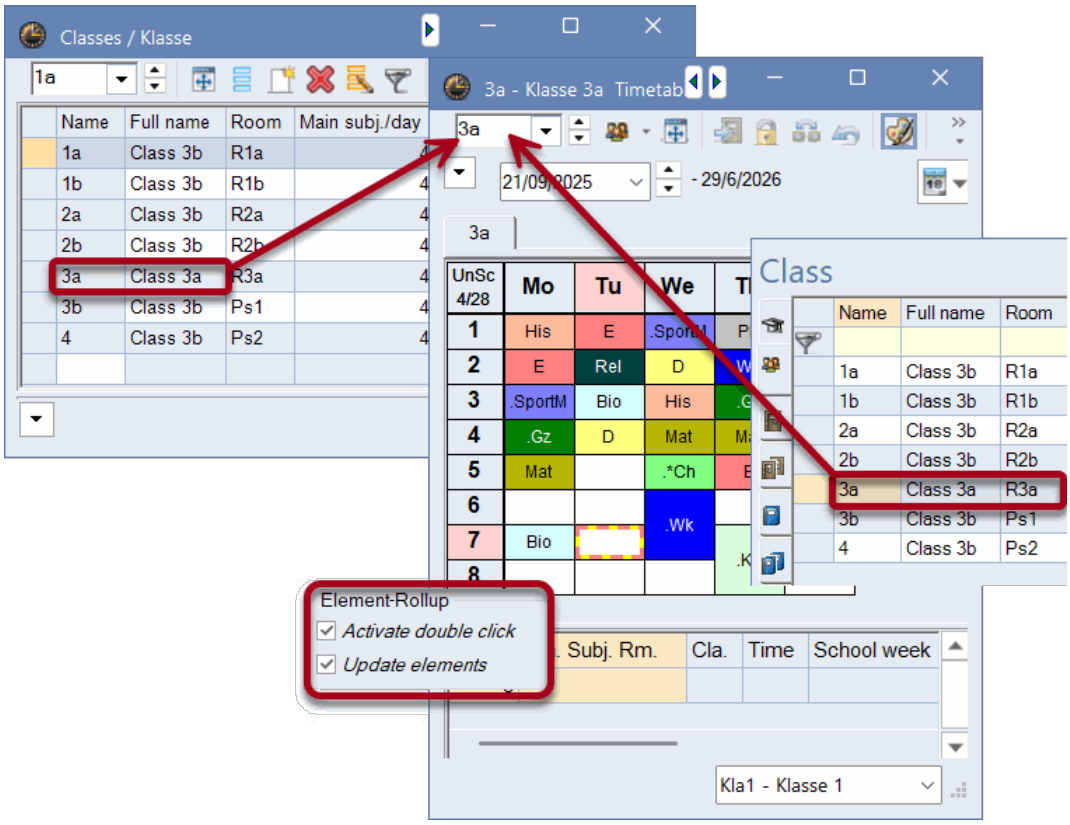


A click in the linking line of the timetable magnifier also synchronizes other open timetables.



Communication with other windows
Open a class timetable and the master data window of the classes. If you click on a class in the master data, the timetable is automatically synchronized with this class.

The timetable is also updated if you change the respective element in a lesson window or in the element rollup ("Settings | Miscellaneous | customise").



Lock type

In the previous examples, the type of timetable was always locked. Open the demo.untis file, a teacher timetable and the "Teachers | Master data" window. In the master data view, click on one teacher after the other. The timetable shows the timetable of the teacher you clicked on. However, if you click on a class name in the "Classes | Master data" window, the timetable view is not affected, i.e. the type of timetable - in this case "Teacher" - does not change.

Unlocked timetables

Deactivate the locking of the type by clicking on the <Lock type> button. Switch back and forth between teachers, classes and rooms in the master data windows. Now the timetable always shows the current element, regardless of whether it is a class, teacher, room or subject. Both the element displayed and the type of element displayed change.

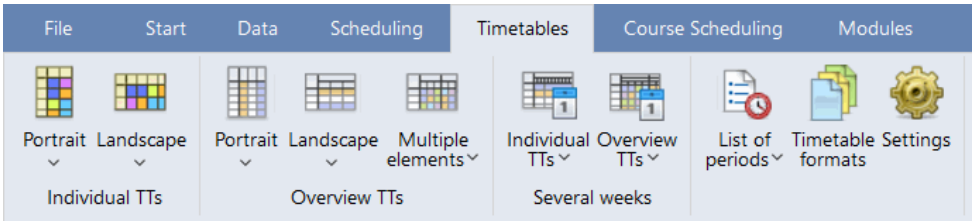
Tip:
Unlocked timetables are particularly practical when used in conjunction with diagnostics, as you can quickly switch between teacher and class timetables without having to open a second timetable window. Read more about diagnostics in the chapter of the same name.

Lock this display

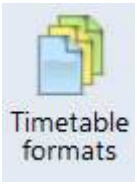
If you want to "freeze" the timetable of a certain element - e.g. a certain teacher - and keep it locked on the screen, you can "nail" it by clicking the <Lock this display> button. If a timetable is locked by two nails, the displayed element is not changed.

6.4 Timetable formats

Untis offers you around 50 different predefined timetable formats, which you can call up via the "Timetables" tab. A distinction is made between "Individual timetables", "Overview timetables" and timetables for "Several weeks".



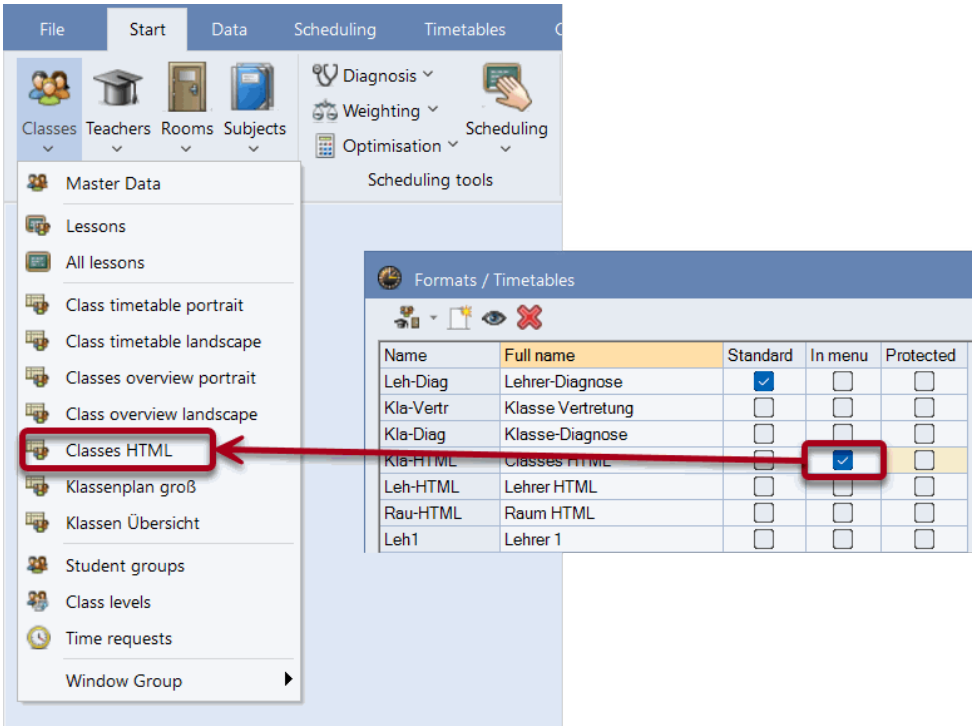
All formats are listed under the "Timetable formats" button.



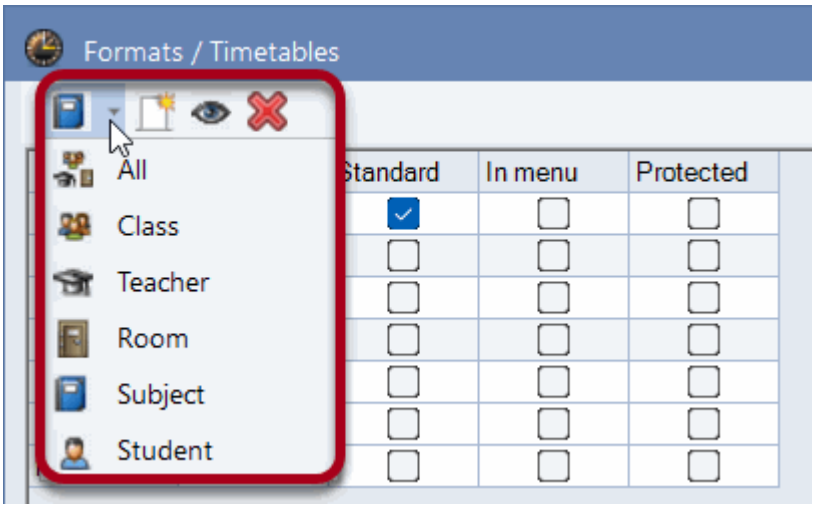
Each timetable is clearly described with short and long names. You can open the timetable by clicking on the <Show TT> button or by double-clicking on the long name.

Standard format
The timetable format for which the Standard checkmark is set is the format that opens in some predefined window groups - for example, by clicking on the <Classes> button in the "Start" tab.

Timetables in the menu
You can also specify which timetables should appear in the menu in addition to those listed by default (e.g. Classes overview horizontal) - i.e. which timetables you want to access quickly.

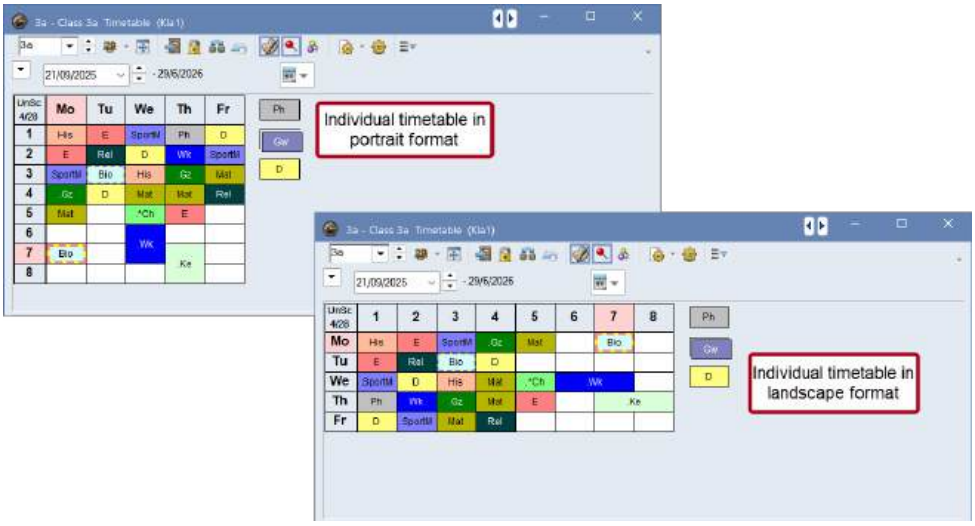


The predefined formats are displayed by default for all timetable types. However, you can also restrict the view to the individual elements (class, teacher, etc.).

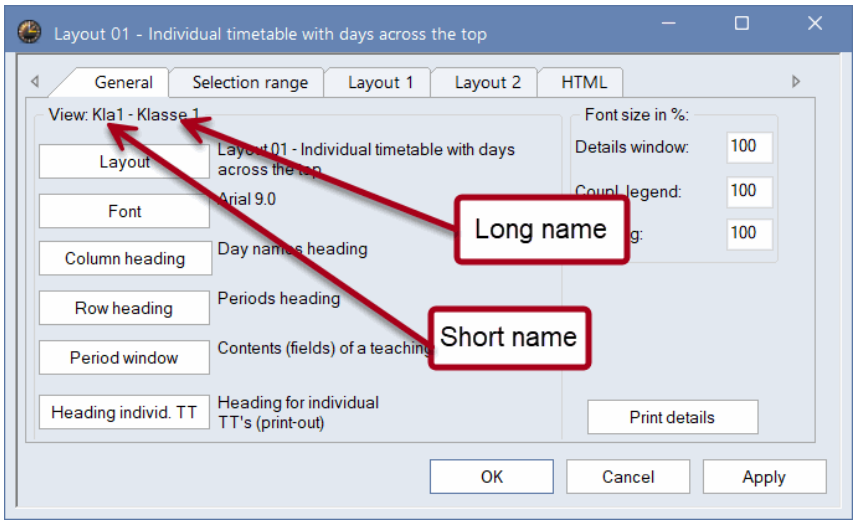


6.4.1 Individual timetable

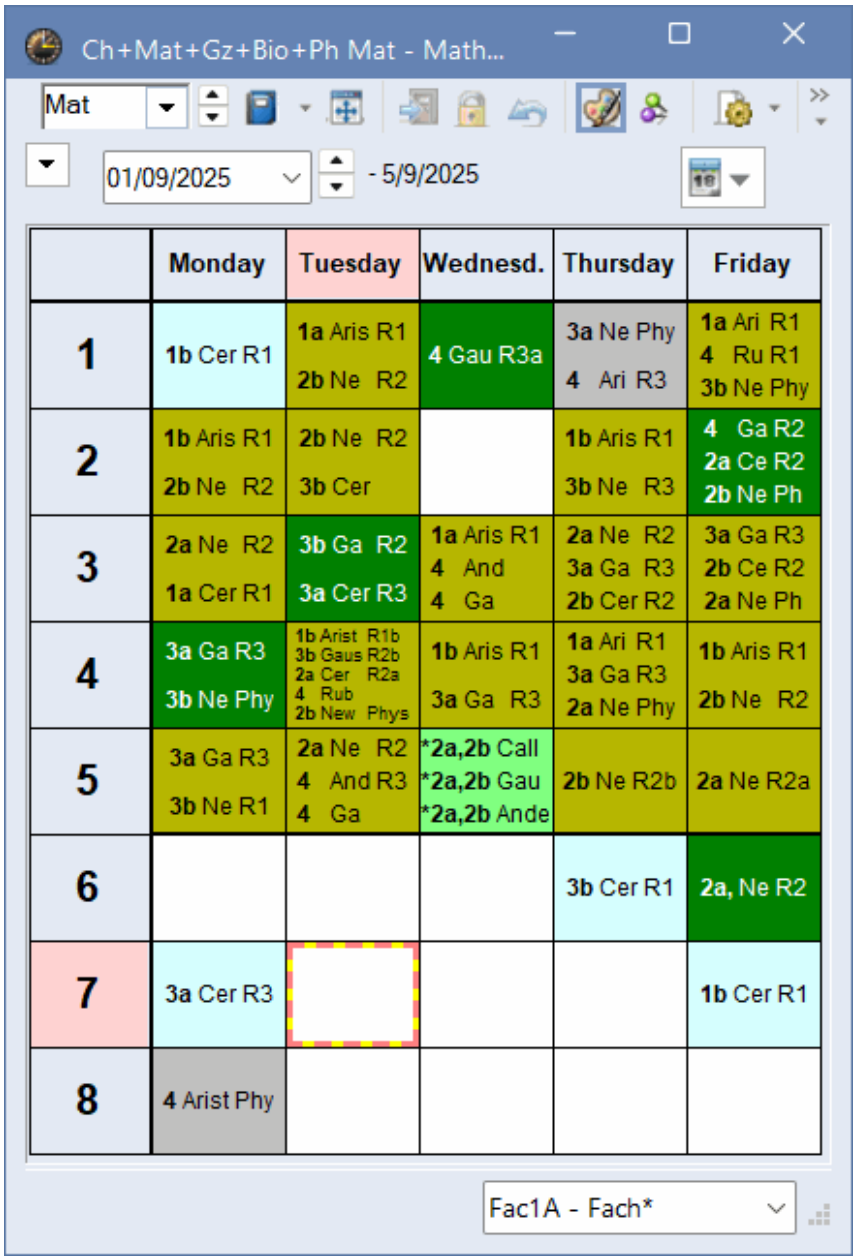
Individual timetables always show the timetable of a single element (class, teacher, room, subject, student). The orientation can either be in portrait format (days of the week at the top) or in landscape format (days of the week in the rows).



Individual timetables in portrait format always have the number 1 in the name - e.g. Kla1 or Kla1A, individual timetables in landscape format can be recognized by the number 10 - e.g. Leh10 or Leh10A. The short name of the format can be seen in the title bar of the timetable or under <Timetable settings> in the "General" tab.



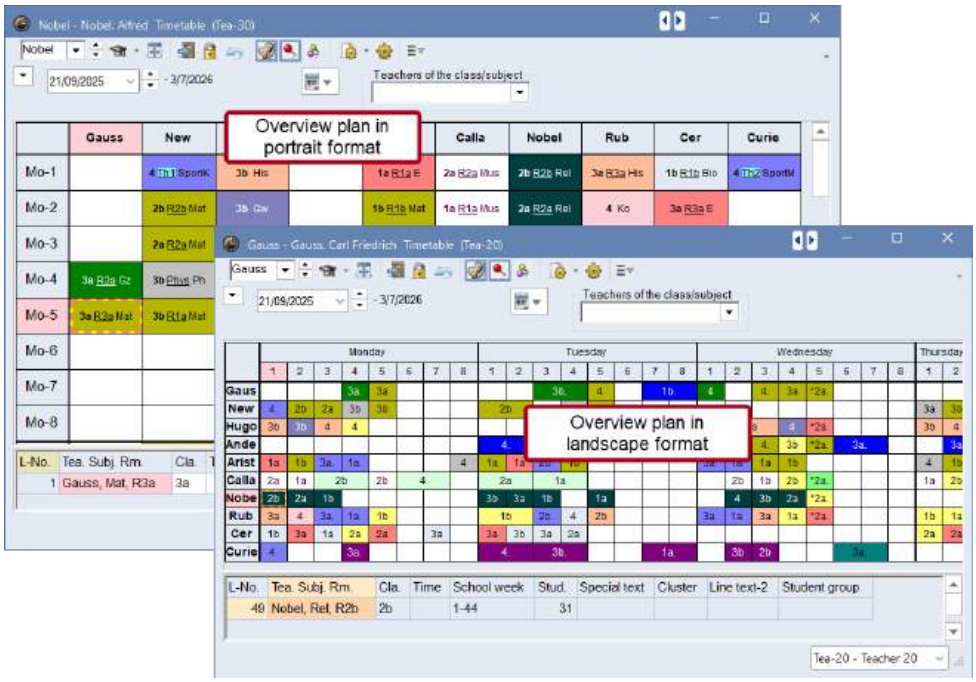
A special form of individual timetable is the subject timetable. All lessons in the school are shown for the selected subject. Subject timetables are available in the formats 01, 10 and 11. The example shows a subject timetable for mathematics.



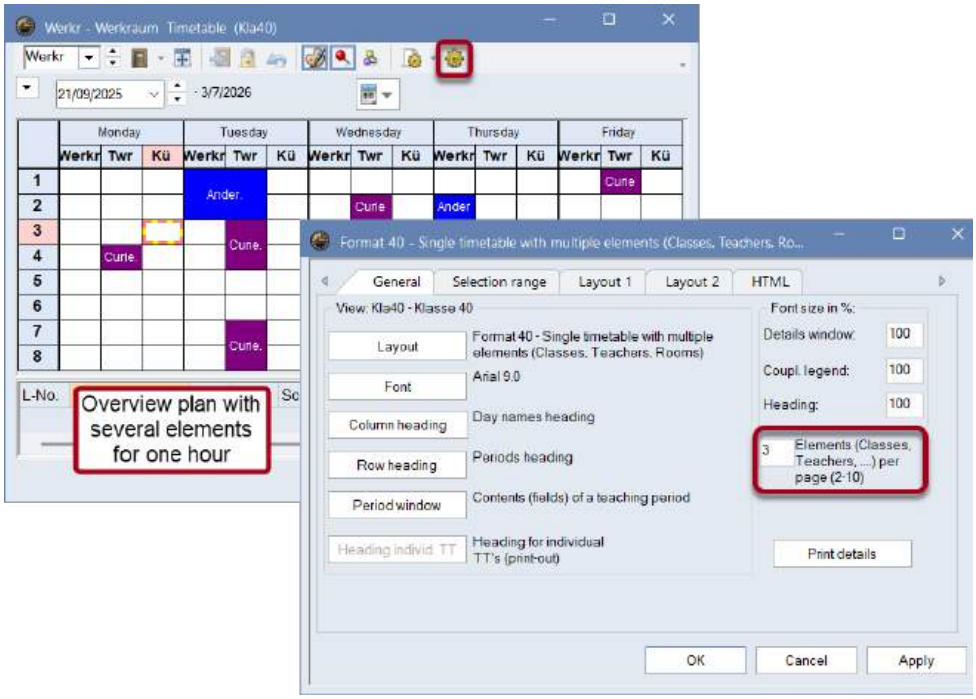
6.4.2 General timetables

Overview timetables always show the timetable of several elements and are therefore ideally suited both for planning activities that require a visual overview of the planning situation (e.g. room overview) and for printing.

Overview timetables in portrait format always have the number 30 in the name - e.g. Cla30 or Cla30A, overview timetables in landscape format can be recognized by the number 20 - e.g. Roo20 or Room20A.

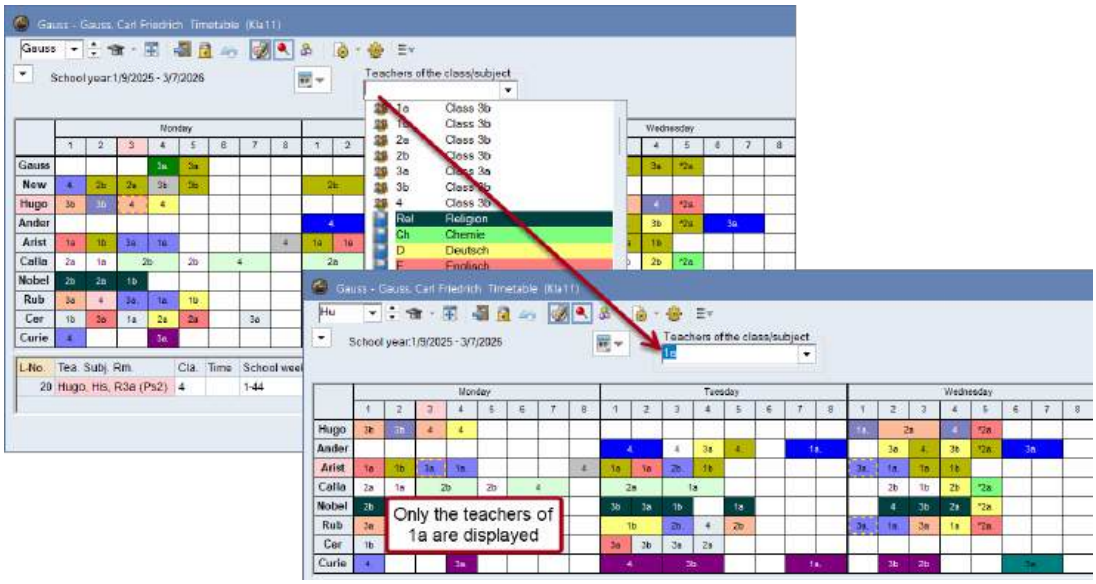


In the overview timetable with the format 40, it is possible to display the week as in an individual timetable, with the difference that several elements can be displayed below the days. For example, it is easy to display the timetables of the function rooms in a timetable. The <Settings> can be used to specify how many elements should be displayed per page.



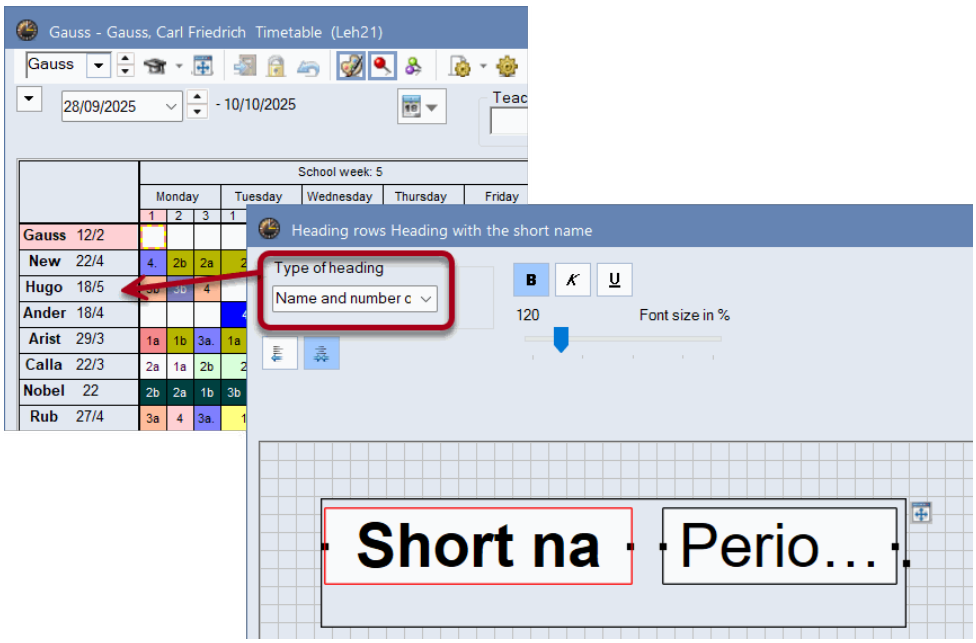
6.4.2.1 Teacher overview timetable: Filter by class teacher

Especially if there are (very) many teachers working at your school, it is often difficult to keep track of the schedules of all colleagues. Untis supports you here by allowing you to filter the overview plans of the teachers according to teachers in the class or teachers of a specific subject.



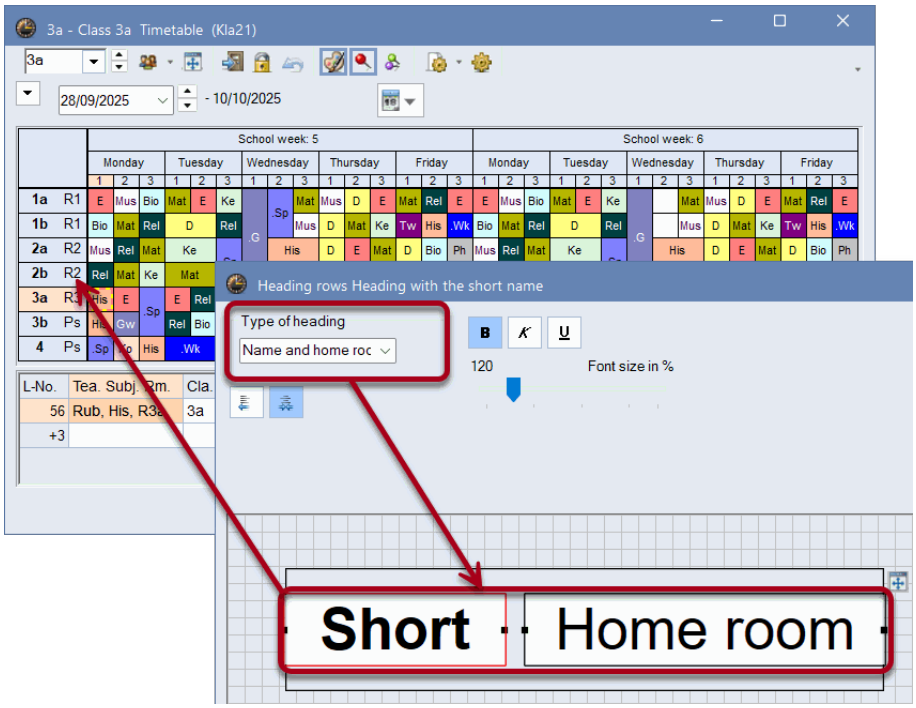
6.4.2.2 Teacher overview timetable: Indication of weekly periods

In the overview plans of the teachers, you can also optionally indicate how many weekly lessons are planned for the respective colleagues in the labeling. In addition, you can also see - separated by a "/" - how many lessons are still to be scheduled for the teacher in question.



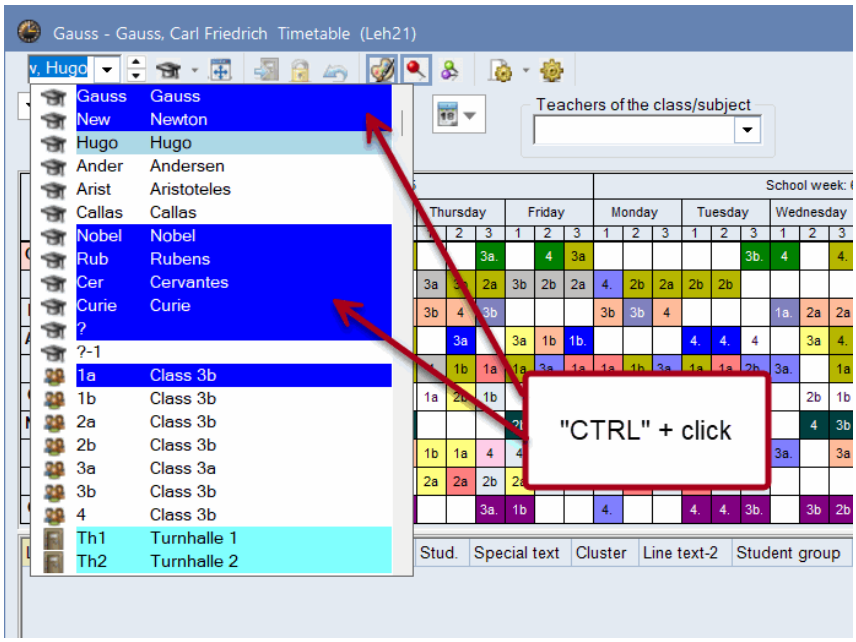
6.4.2.3 Class overview timetable: Indication of the home room

In the overview plans of the classes, you can also display the home room in the line.

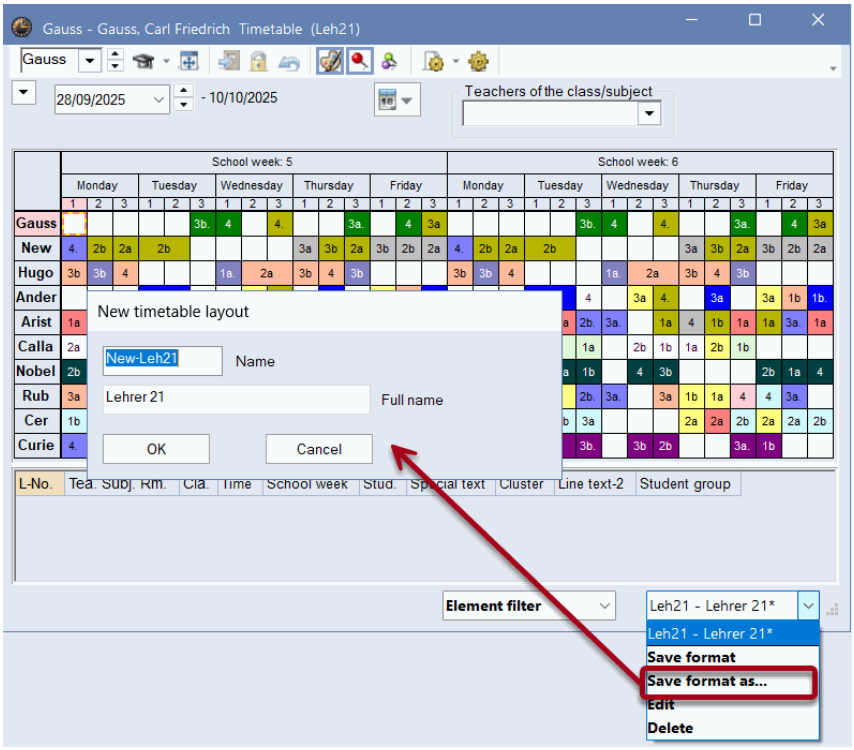


6.4.2.4 Overview timetable: Storable filters

You can use the selection list in the toolbar to filter for individual elements.



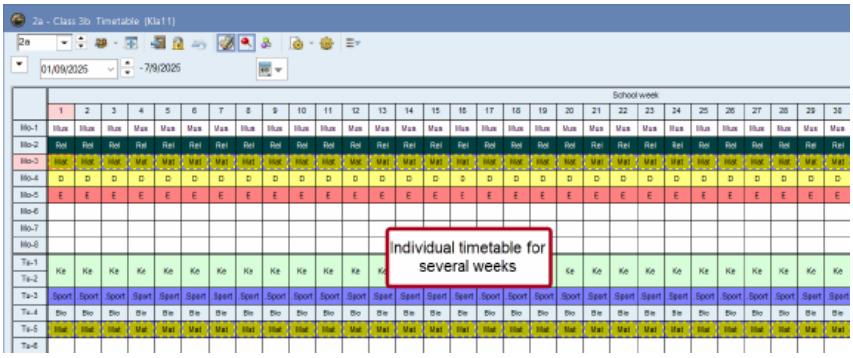
You can save these as your own format.



6.4.3 Several weeks

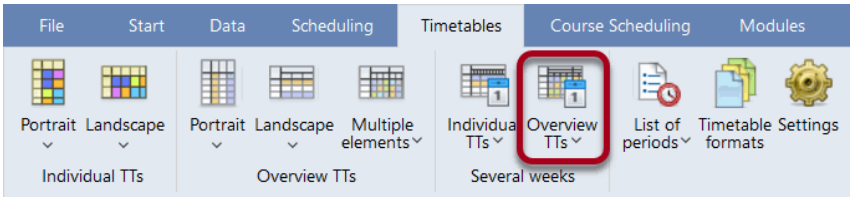
This format is mainly important for you if you use the *multi-week timetable* module. It shows the individual school weeks in columns next to each other and the lessons of a week in rows below each other. Weekly alternating lessons and lesson interruptions can be seen at a glance.

The example shows the timetable for class 2a from school week 1 to 30 for Monday and Tuesday.

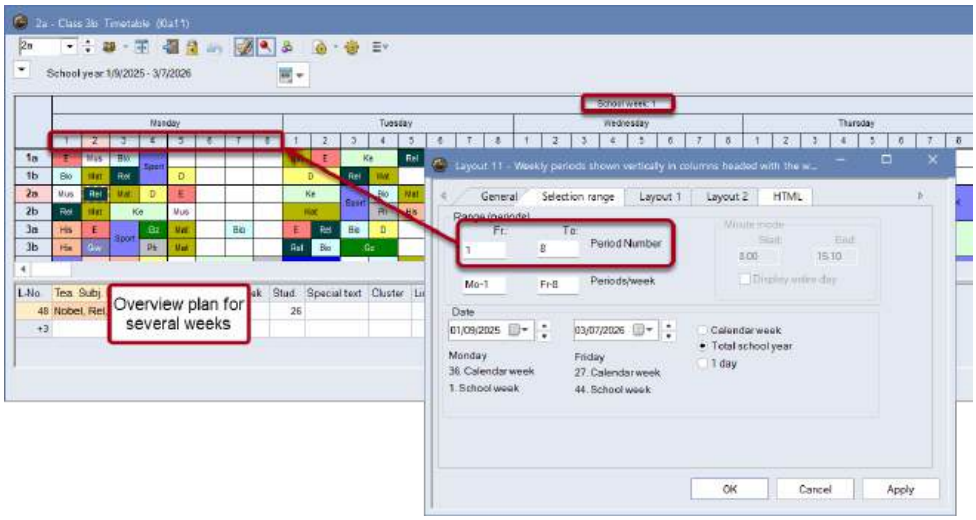


Tip:
Format 11 also allows you to display the periods in columns instead of weeks. To do this, activate the "1 column per term" checkbox in the settings on the "Layout 2" tab.

It is also possible to output several weeks for overview timetables. Format 21 provides an overview of all school weeks and all elements at the same time.

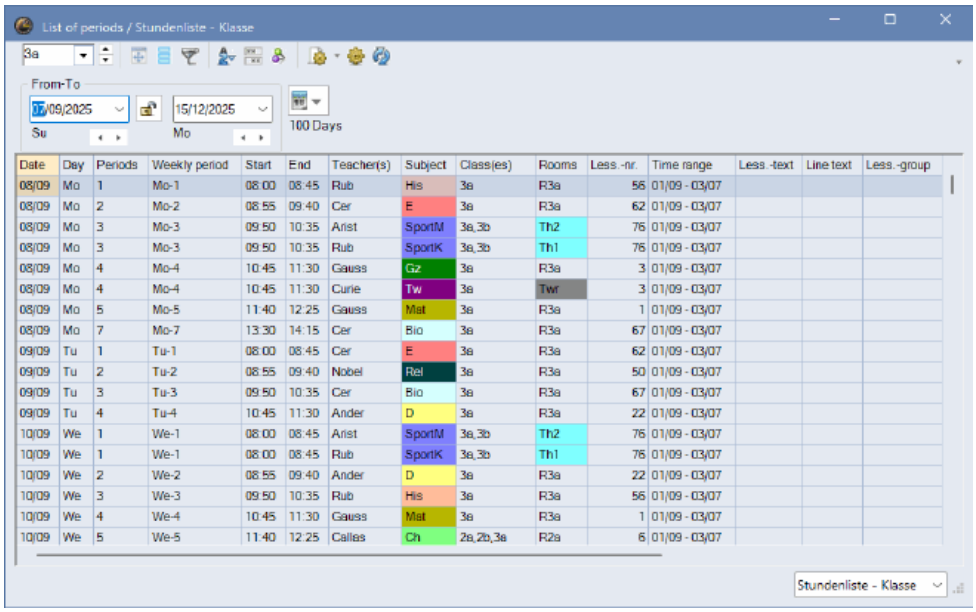


In the timetable settings, the "Selection (range)" tab can be used to set how many periods should be displayed per day.



6.4.4 List of periods

Timetables show the timetable - as in a course catalog - not in a matrix, but in list form. The list can be sorted by class or by teacher. The layout of a timetable is adapted in the same way as the master data or lesson window, or the substitution lists.



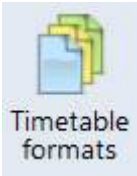
6.5 User-defined views

With Untis, you can easily customise the timetable views to meet the specific needs of your school. This chapter is dedicated to the user-specific design of timetables.

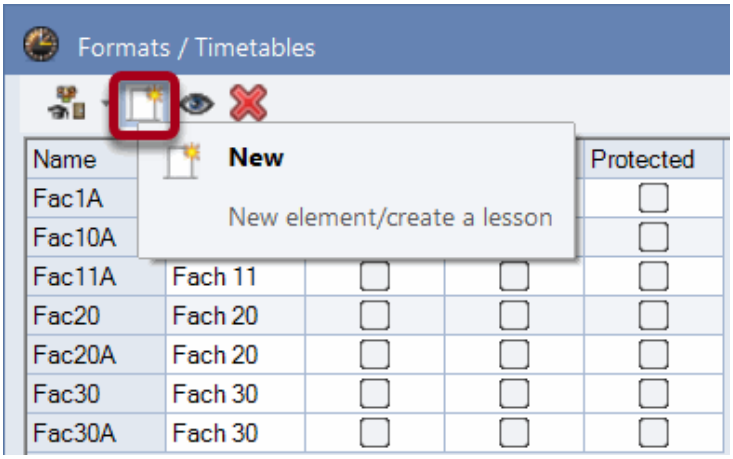
Based on the standard timetable for classes in the demo.untis file, you will create your own screen view.

6.5.1 New timetable format

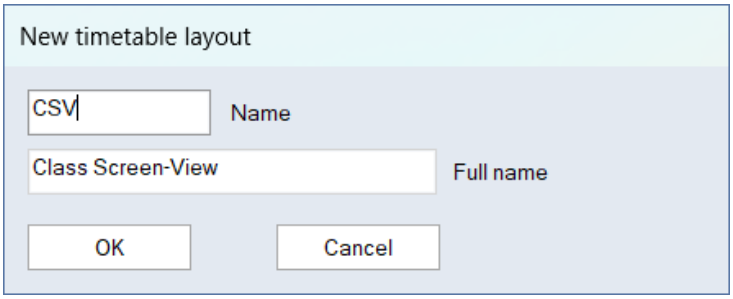
1. Open the demo.untis file and call up the list of timetable formats in the "Timetables" tab.



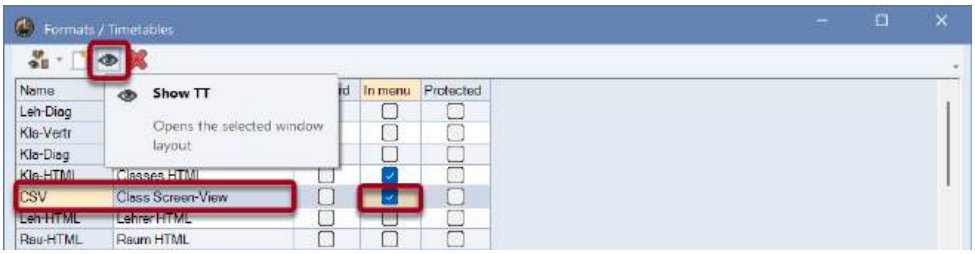
2. Click on the timetable format class 1 and click on the <New> button. This creates a copy of this timetable view.



3. Give the view a new, meaningful short and long name (e.g. CSV, class screen view).



4. The new timetable view opens automatically. You can open the new timetable view again at any time by double-clicking on the long name or using the <Show TT> button. You can also add the view to the menu by ticking the "in menu" column.

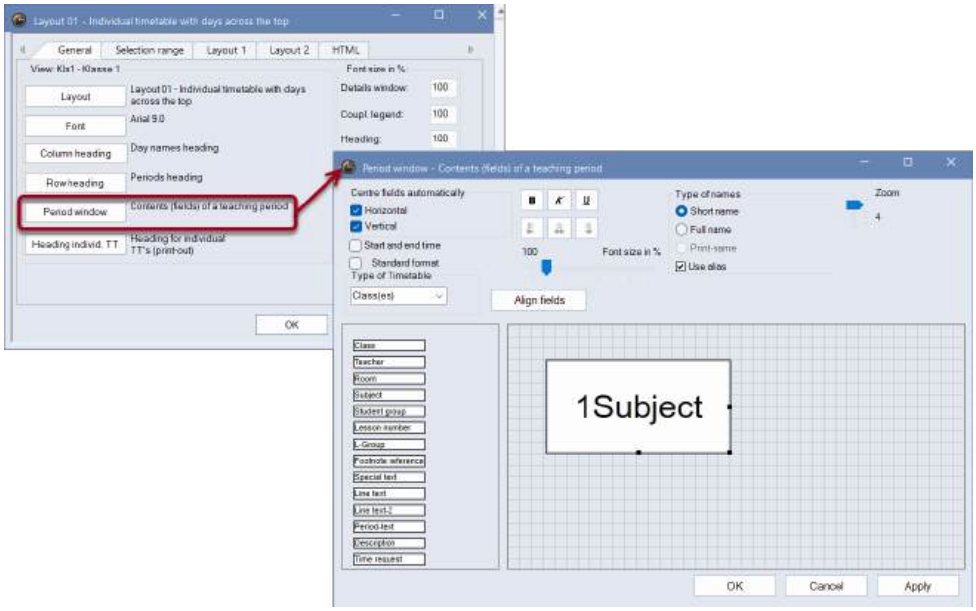


6.5.2 Period window

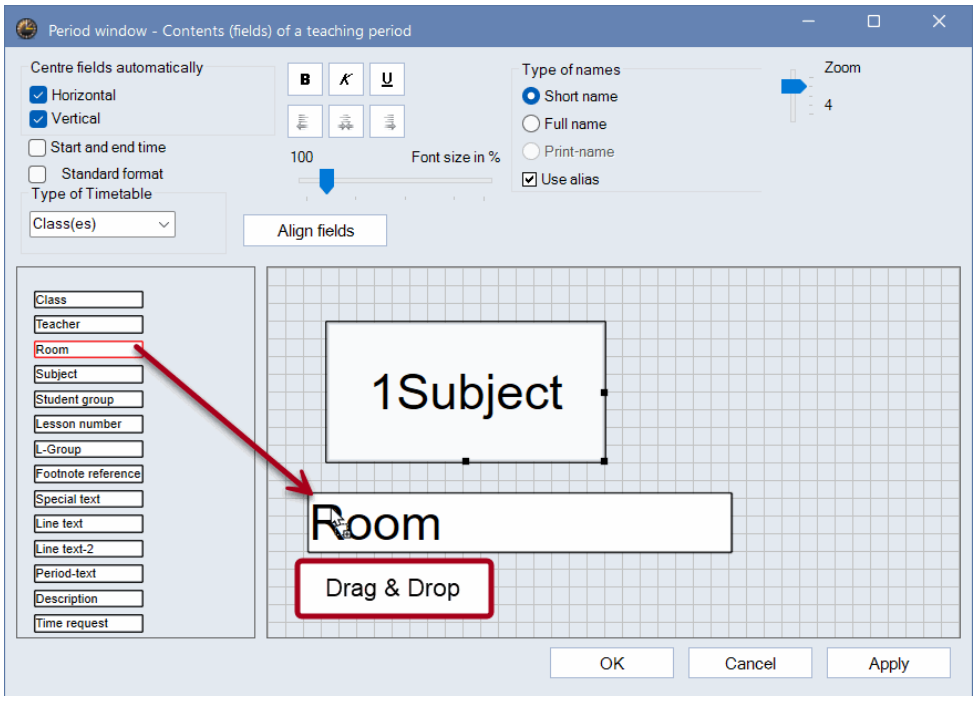
You can also define yourself which content should be displayed in the timetable fields. To do this, click on <Settings> in the timetable window or activate the "Periods window" item via the context menu (right mouse click).

6.5.2.1 Several fields in the timetable period

1. Now open the "Timetable settings" in the new timetable view (or under "Timetables | Portrait | Class timetable" in the demo.untis file) and click on the <Period window> button. This opens a graphic editor with which you can change the content of the timetable window. Currently, only the subject is displayed in the lesson.

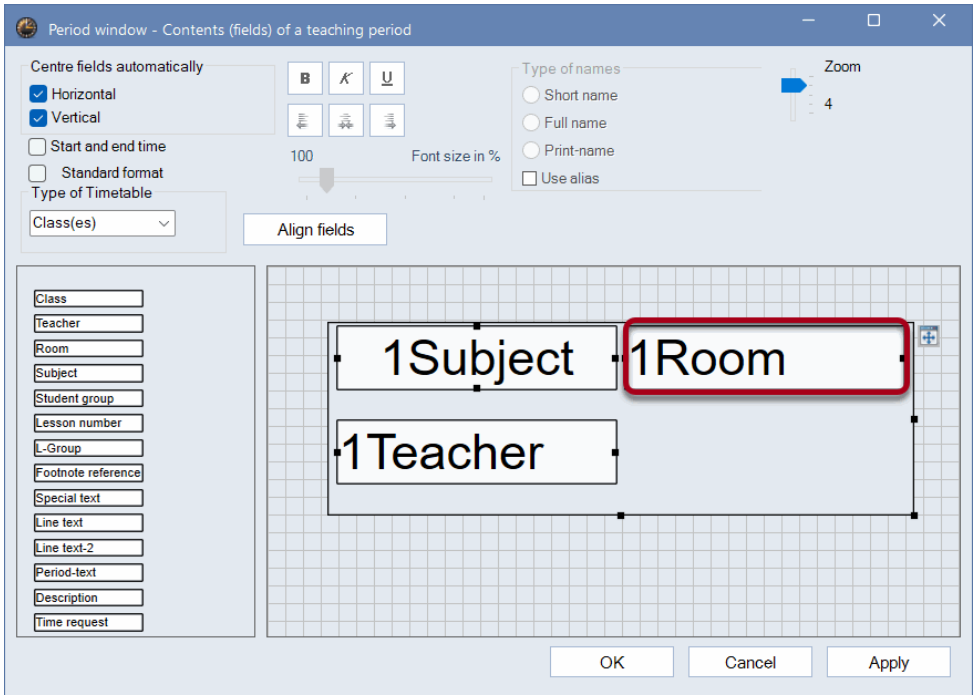


2. However, the teacher and the room in which the lesson is taking place should now also be visible in the lesson. To do this, click on the "Teacher" button and drag and drop it into the Subject field. Likewise the "Room" button

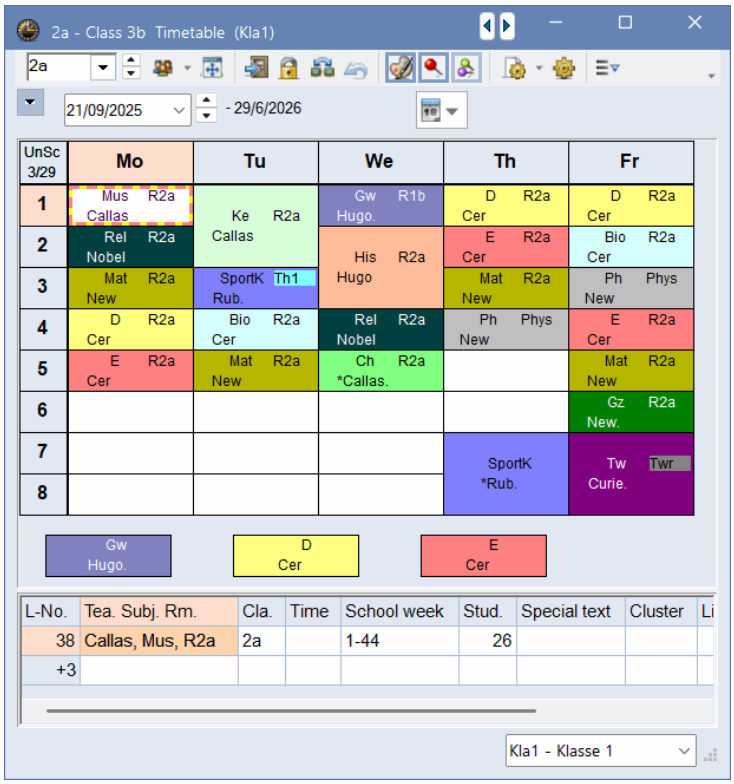


3. The three fields for subject, teacher and room must now be arranged next to each other so that they are clearly legible. You can drag and drop the desired elements into position.

4. Arrange the three fields as shown in the illustration. To do this, click on the field that you want to move. As long as the field is framed in red, you can move the field. Once you have arranged the fields, confirm with <OK> or with the "Apply" button

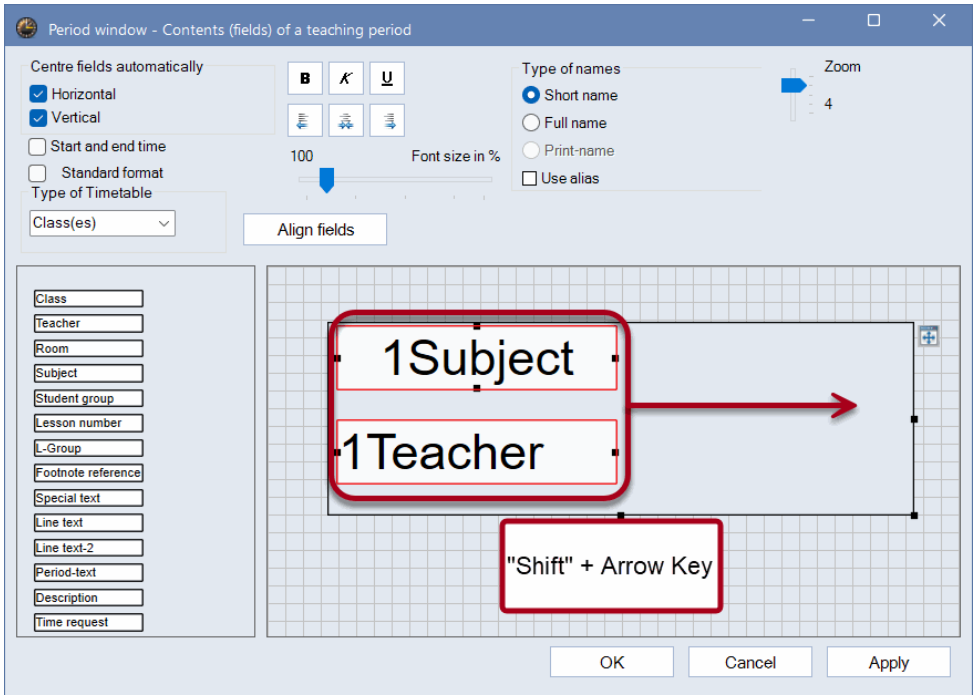


5. The timetable now shows the subject, teacher and room for each lesson:



Tip:
By holding down the <Ctrl> key, you can also select several fields in the graphics editor and then move them together.

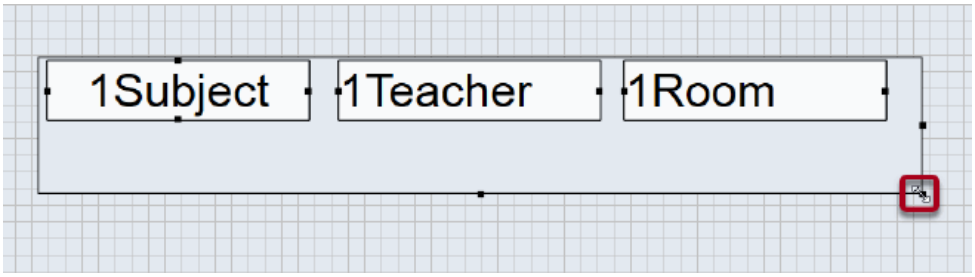
You can also drag several selected fields larger or smaller at the same time by holding down the "Shift" key and arrow.



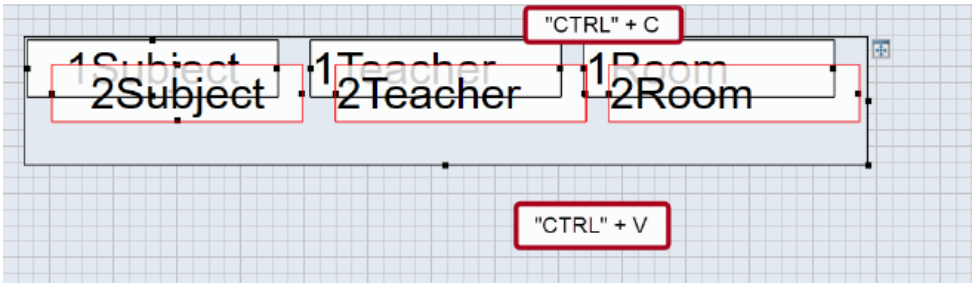
6.5.2.2 Combined lessons

If you also want to see the information for the coupled periods in the timetable, proceed as follows:

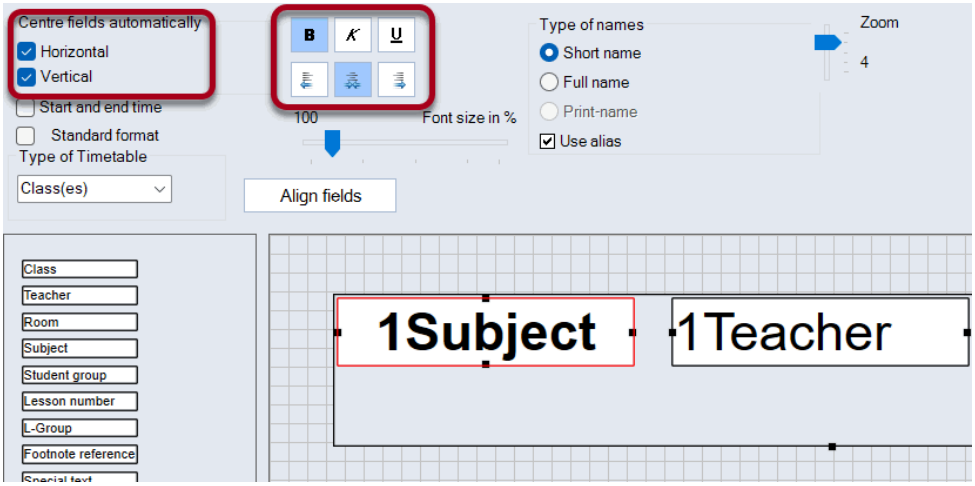
1. first enlarge the lesson window by clicking on it and dragging it into the desired shape. The information on subject, teacher and room should be displayed next to each other.



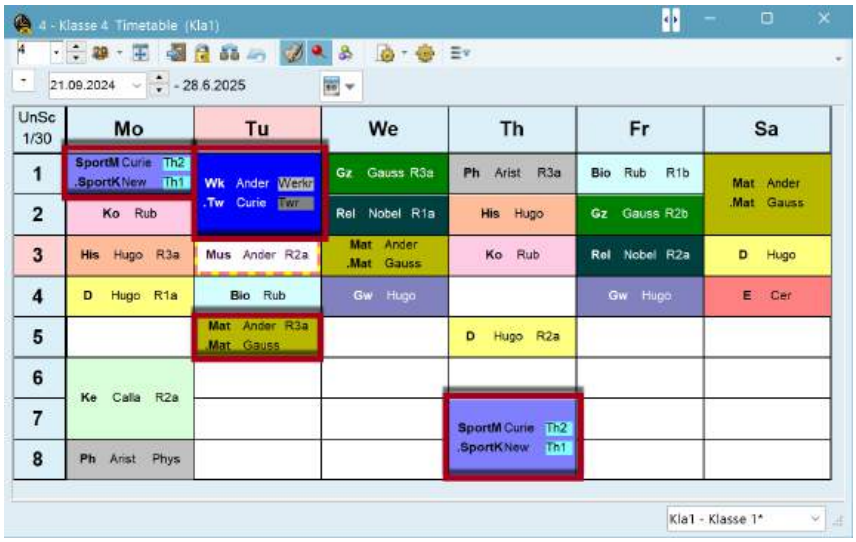
2. select the fields for subject, teacher and room using Ctrl+click and insert them using Ctrl+C and Ctrl+V. Move them to the desired position with the mouse.



3. you can center the fields horizontally and vertically by ticking the box. You can also bold, italicize or underline individual elements or align them left, center or right.

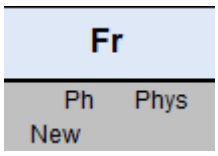


4. the information of the first and second coupling line is now displayed in the timetable lesson.

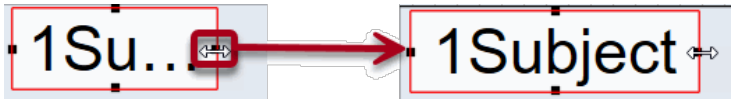


6.5.2.3 Layout field

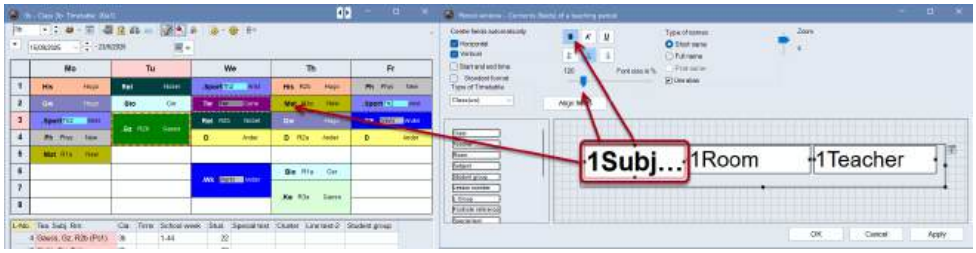
If a field is too short for the displayed names (e.g. Newton, Friday 1st lesson), this can be easily changed.



Each field of the timetable lesson can be changed by "grabbing" it by the side headers and dragging it larger.

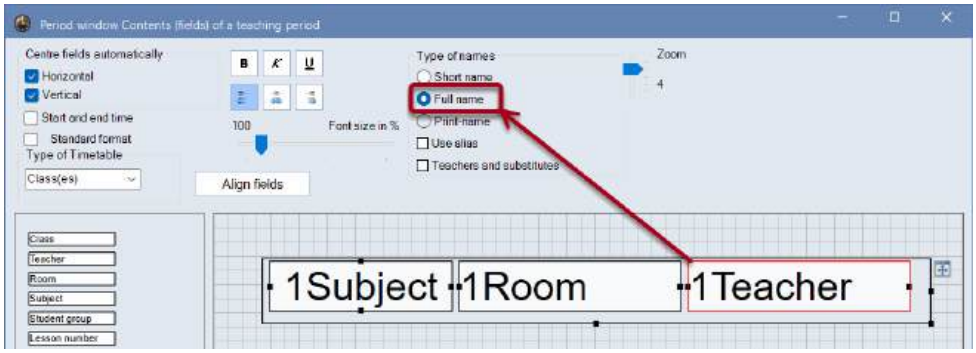


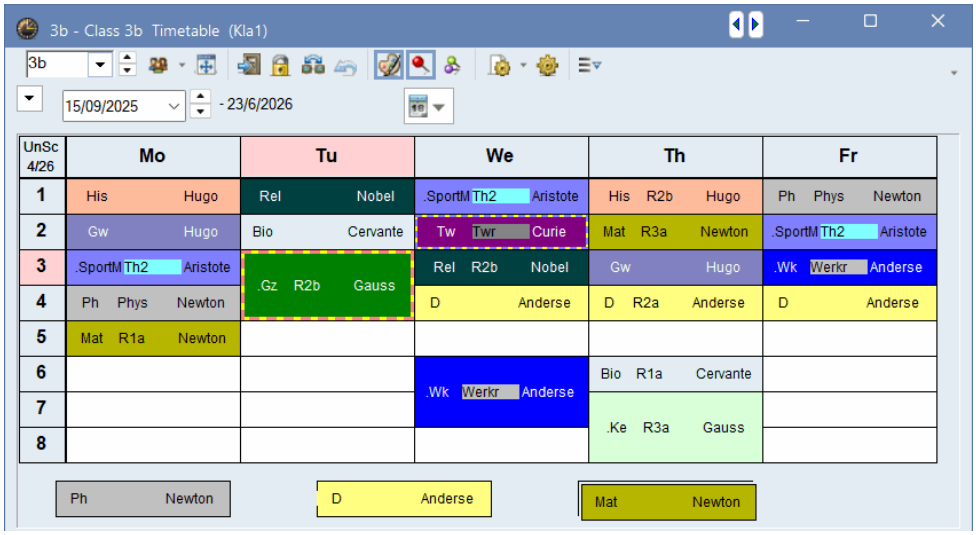
You can also change the size and layout of the font for each field individually. The subject in the example should be displayed in bold and in 120% of the preset font size (Arial 9).



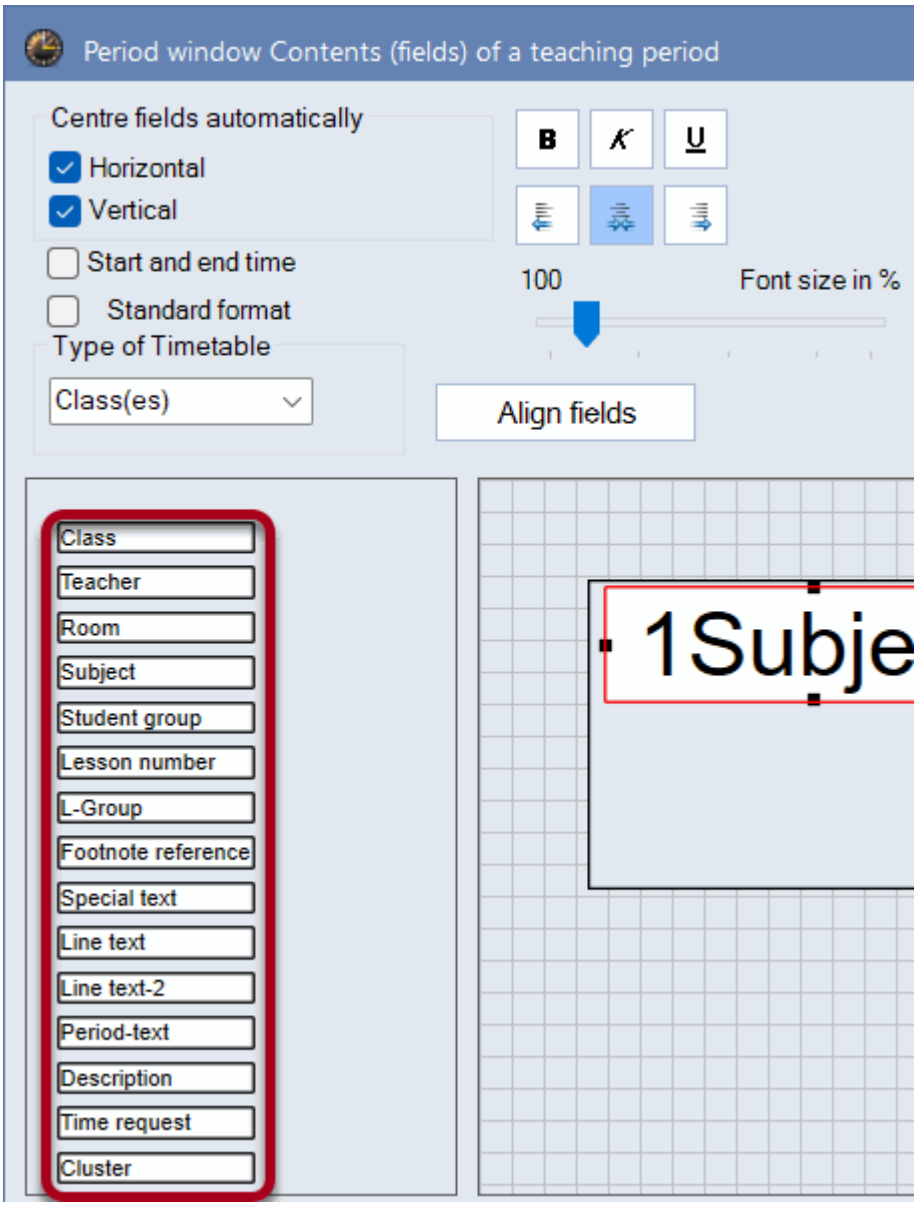
6.5.2.4 Full name

Alternatively, the full name or the alias name specified in the master data can also be displayed in the fields. In the example, the teacher's long name should be displayed in the timetable.



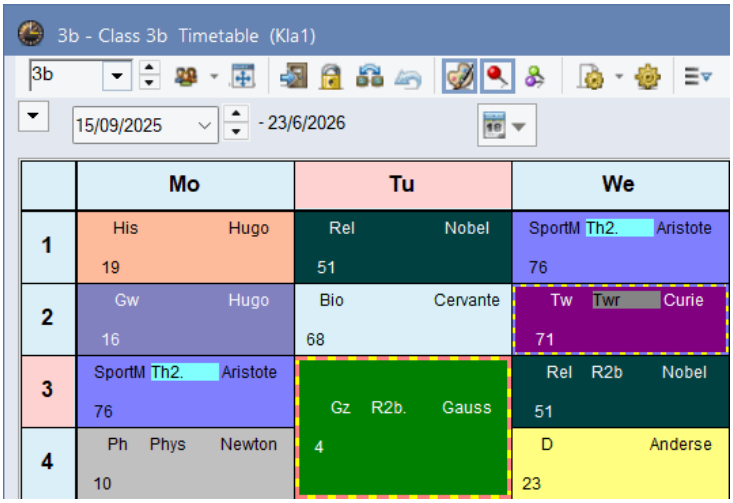


In addition to the Class, Teacher, Room and Subject fields already described, other information can also be displayed in the timetable lesson



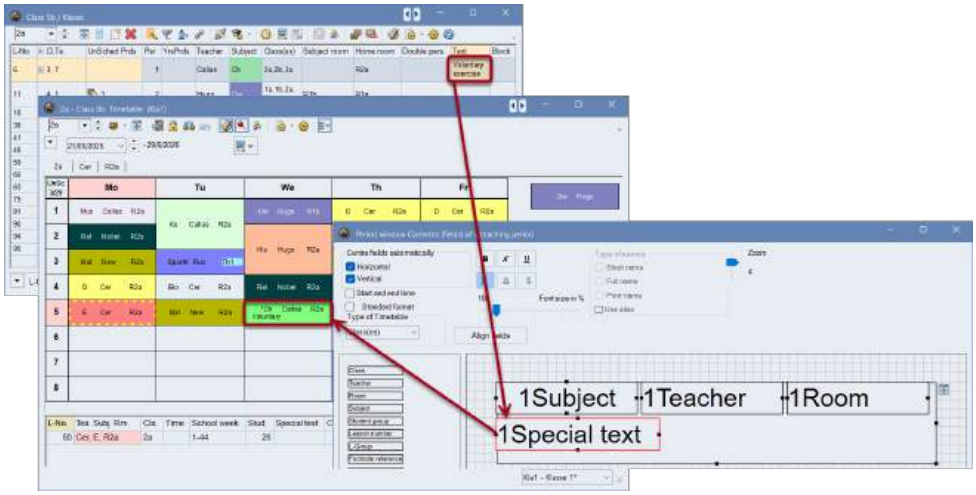
6.5.2.5 Lesson number

The lesson number, which clearly describes the lesson, can also be displayed as additional information in the timetable.



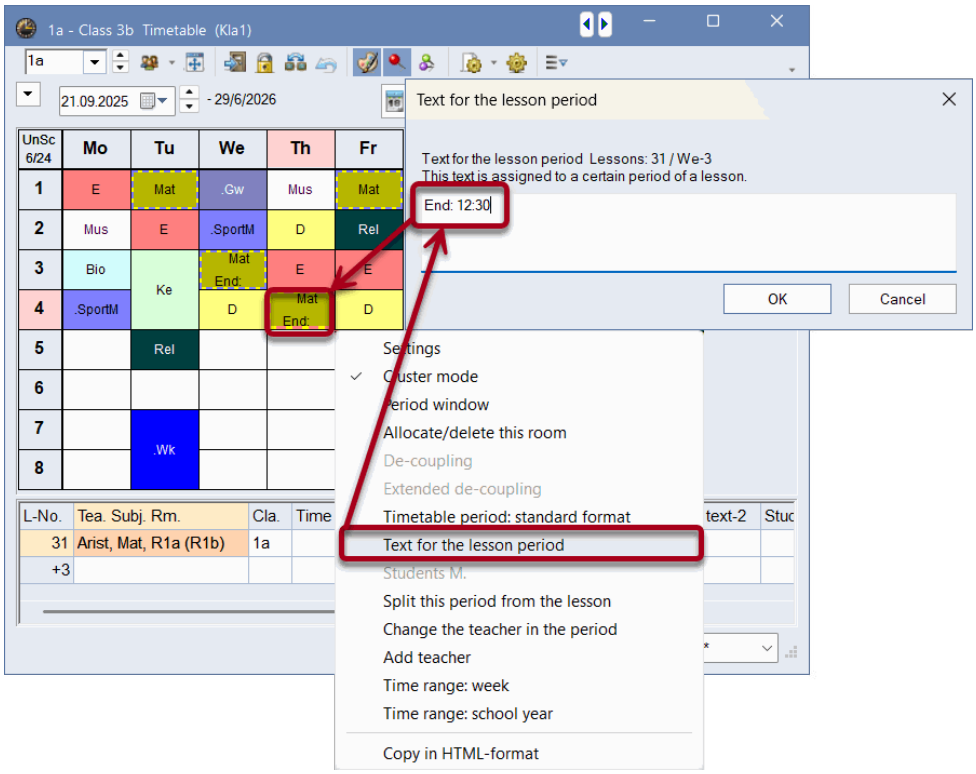
6.5.2.6 Special text

The text entered during the period is displayed in the Special text field.



6.5.2.7 Text for the lesson period

If this field is shown in the timetable, an individual text can be entered for each lesson directly in the timetable. To do this, right-click on the relevant lesson and select "Text for the lesson period". The text entered here will only appear in this one period, even if the period is scheduled for several hours.

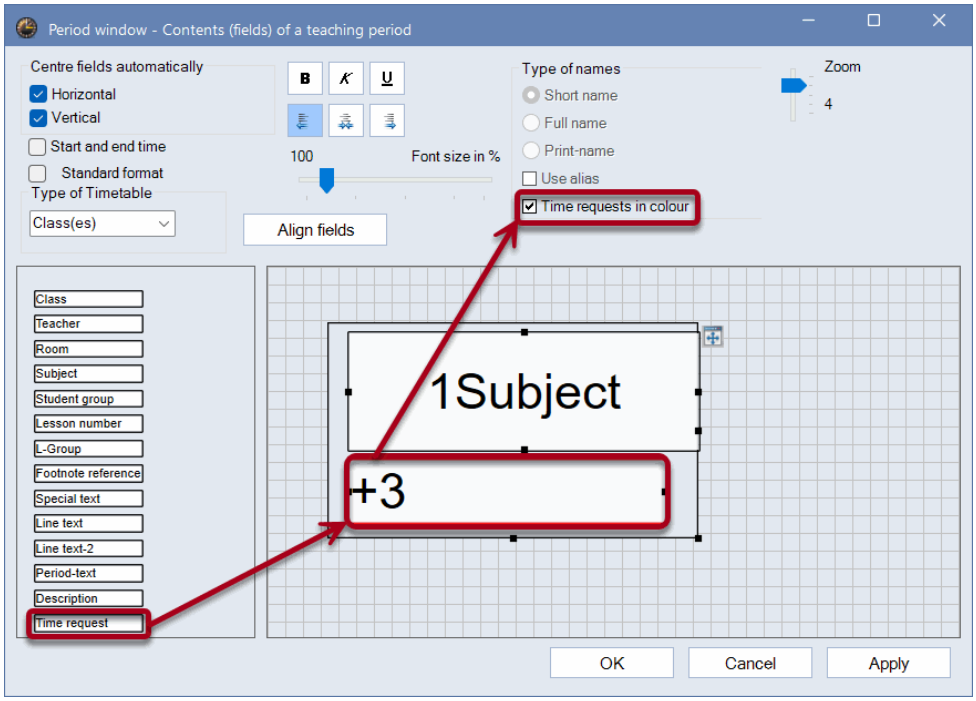


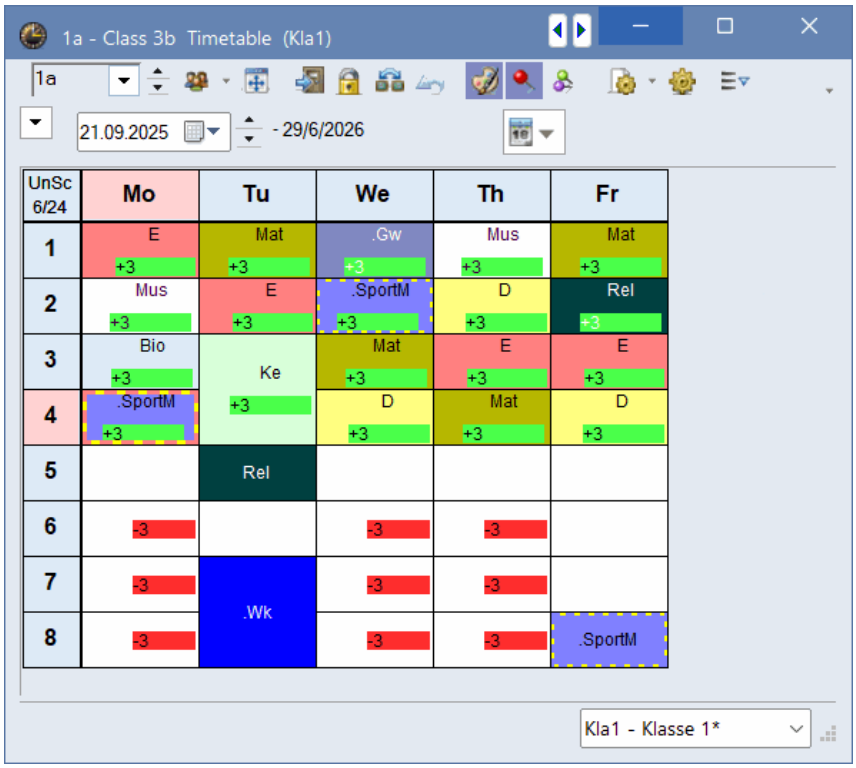
6.5.2.8 Description

Just like the text, the description can also be displayed during periods.

6.5.2.9 Time request

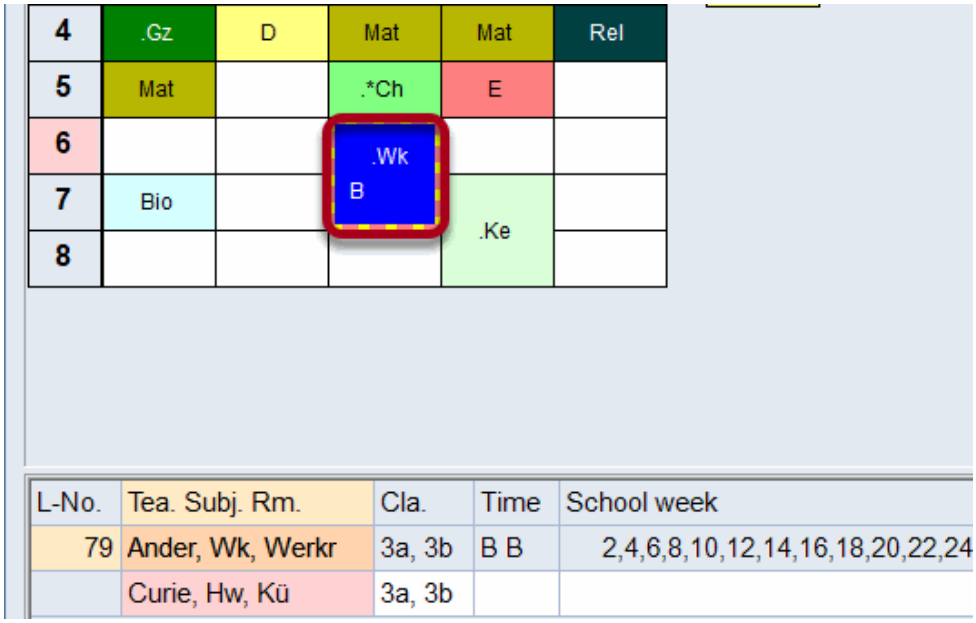
The time requests entered in the master data of the respective element can be displayed in the timetable in either color or black and white.





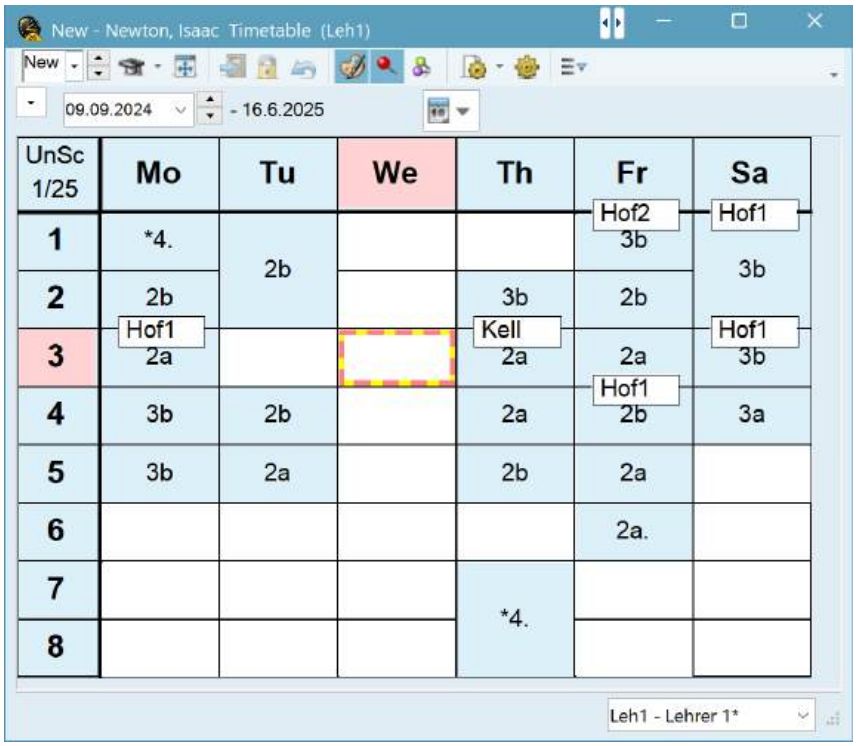
6.5.2.10 Lesson group

The *multi-week timetable* module can beused to display the Lesson group assigned to the period. In the example, the Craft-lessons take place in week B (WB).



6.5.2.11 Show break supervisors

Break supervisors can be shown in the teacher schedules. This function can only be used with the *break supervisors* module.



6.5.2.12 Number of students

For teacher timetables, the number of students entered in the lesson or the number of students who have chosen this course (with the *Student timetable* module) can be displayed.

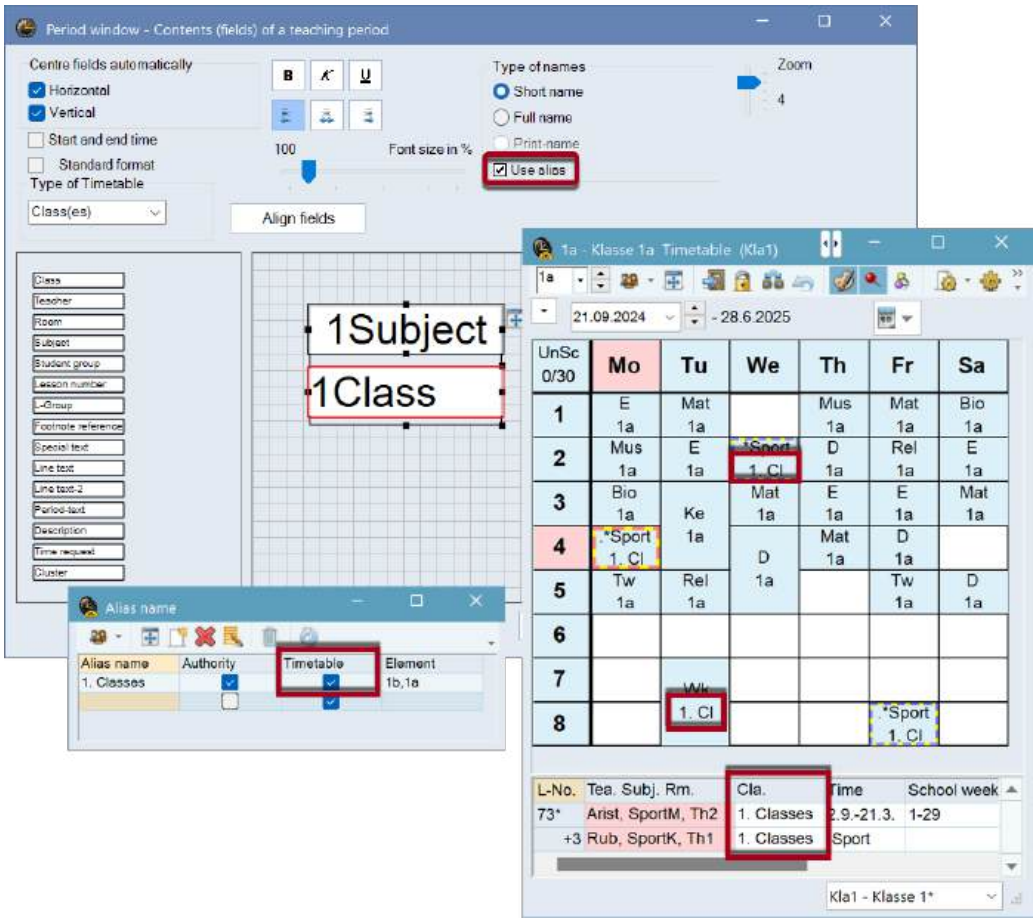
6.5.2.13 Band (simultaneity group)

With the *course planning* module, it is possible to show the names of the bands (concurrency groups) in the timetable.

6.5.2.14 Alias (second name)

If you want the name that is displayed in the timetable and therefore also printed out to differ from the name you normally use, you can define this for subjects, classes and teachers in the "Data entry" tab under "Miscellaneous data | Alias names". In order for the alias name to be displayed in the timetable, the "Timetable" checkbox must be ticked in the "Alias name" window and the "Use alias" checkbox must be ticked in the timetable period window.

However, you can also define an alias name for several classes. For example, if a teacher teaches all 1st classes in one subject, "1st classes" can be displayed in the timetable instead of 1a,1b.

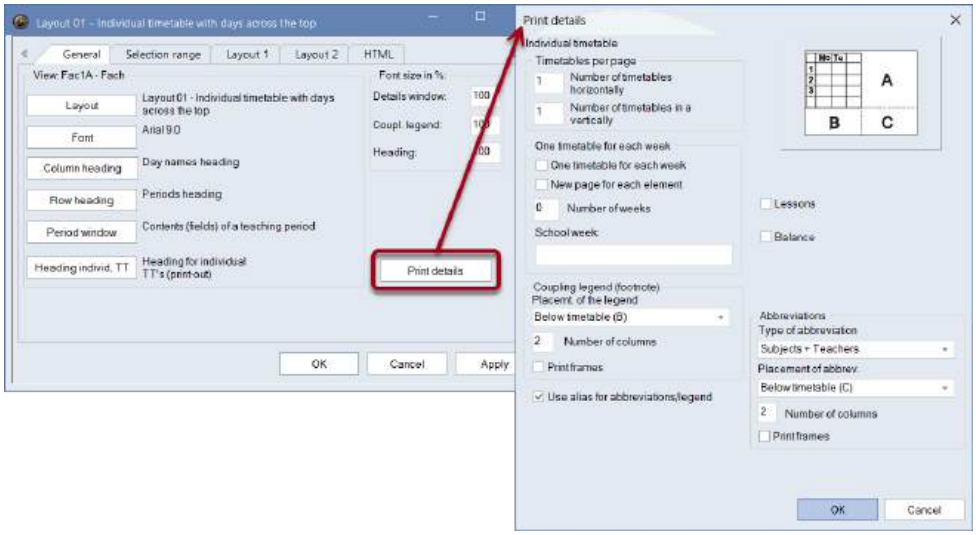


6.5.2.15 Start and end times

If this option is activated, two additional fields appear in the timetable lesson for the start and end times of the lessons, which can be moved as usual and / or dragged larger or smaller.

	Monday	Tuesday
1 8:00-8:	1b Cer R1b	1a Arist R1a 2b New R2b
2 8:55-9:	1b Arist R1b 2b New R2b	2b New R2b 3b Cer
3 9:50-10	2a New R2a 1a Cer R1a	3b Gaus R2b 3a Cer R3a
4 10:45-1	3a Gau R3a 3b New Phys	1b Arist R1b 3b Gau R2b 2a Cer R2a 4 Rub 2b New Phys

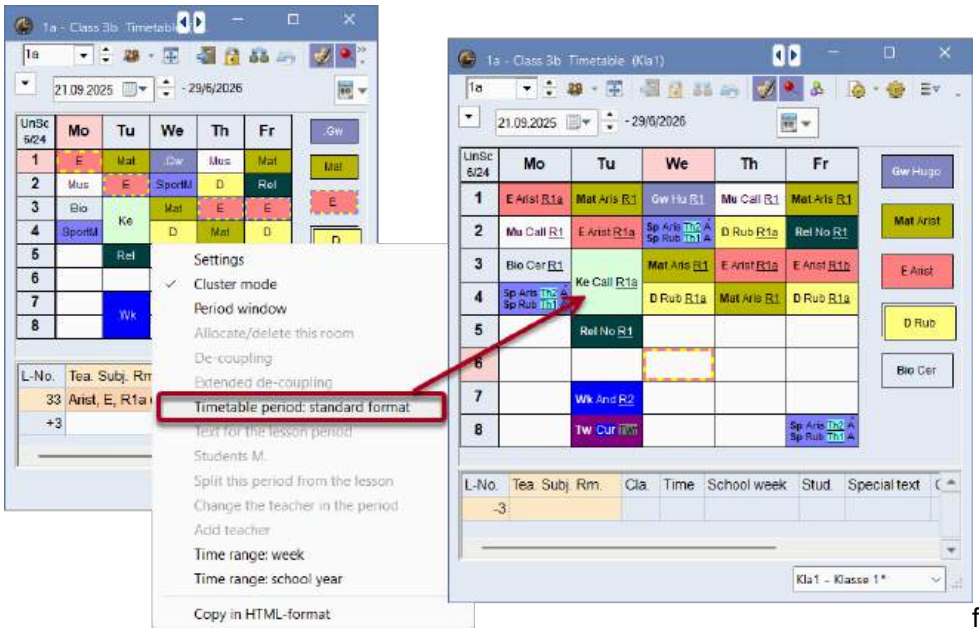
In addition to the editing options for the timetable lesson, there are also a number of options for adapting both the screen view and the print details:



6.5.2.16 Standard format

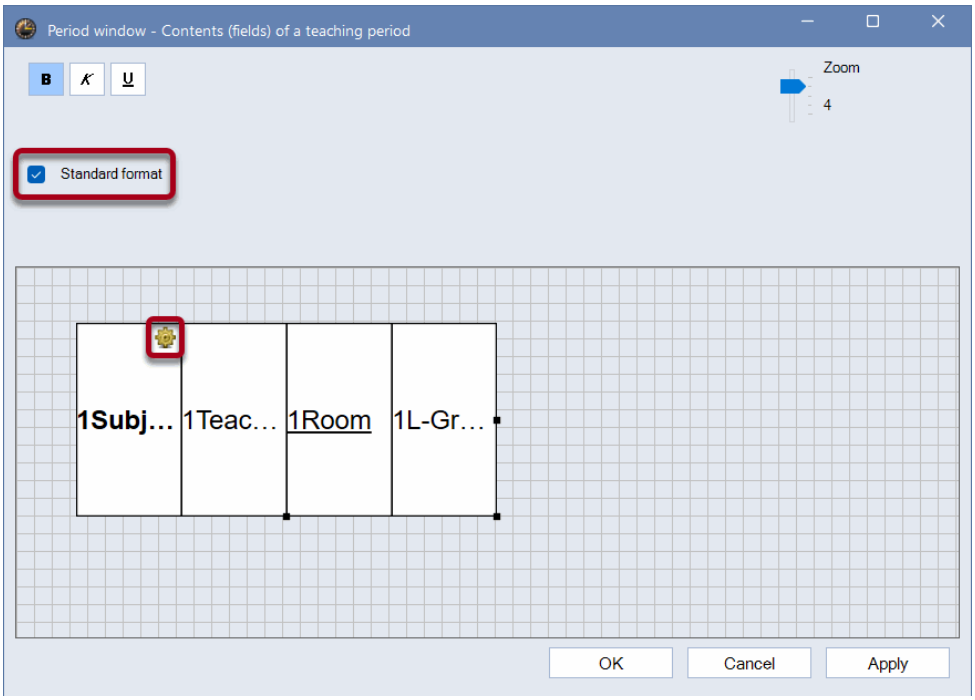
With the functionality of the standard format, the timetable displays all linking rows with information on classes, teachers, rooms and subjects. The available space within the timetable cell is optimally utilized and the font size for linkages is kept correspondingly smaller if required.

The standard format can be switched on and off again in each timetable using the right mouse button "Timetable period: standard format".



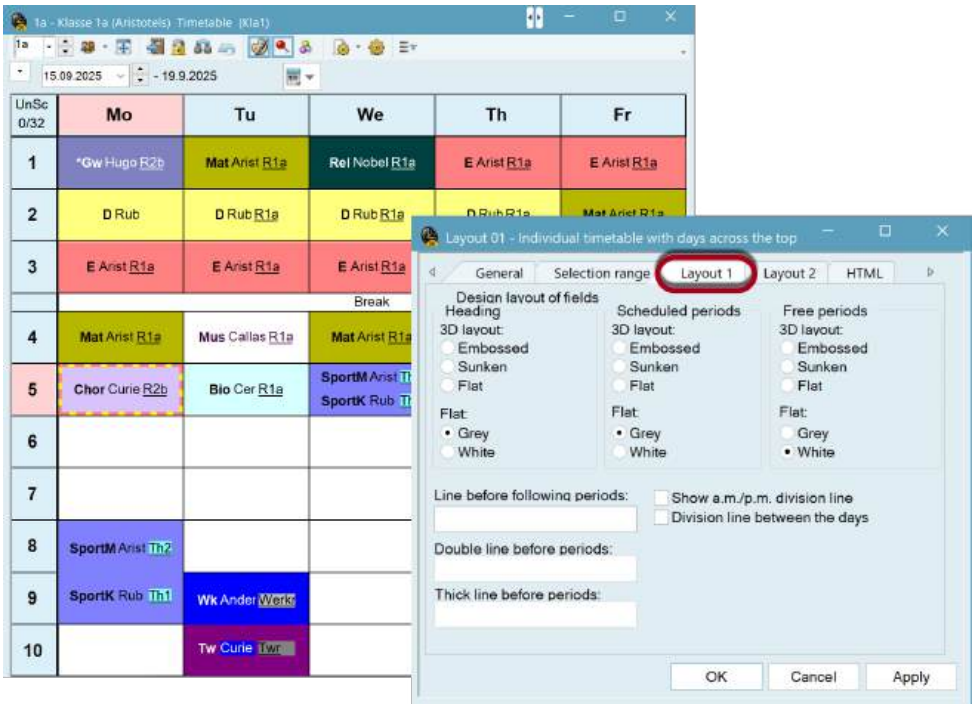
format".

In the timetable settings, you can select the assignment of the fields of the standard format under <Period Window>.

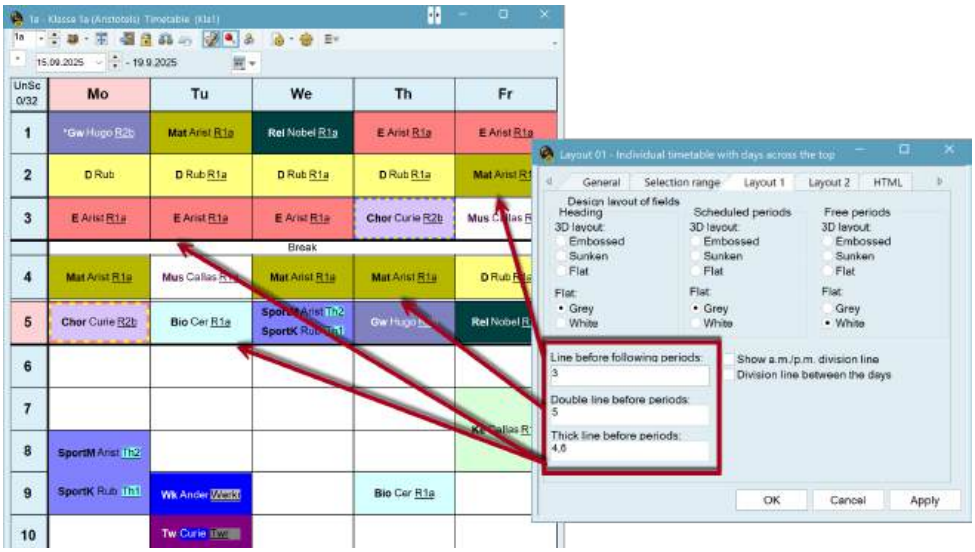


6.5.3 Layout 1

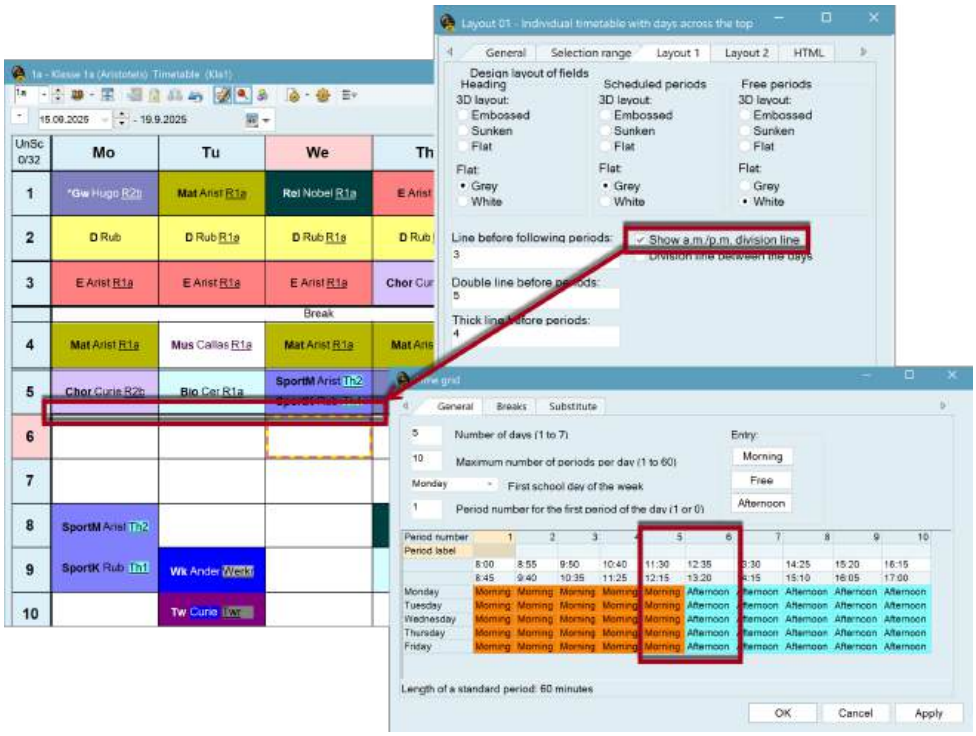
You can use the settings on this tab (Timetable settings | Layout 1) to influence the appearance of the timetable on the screen and when printing. It is possible to layout the headings (e.g. weekday, lesson number), the occupied lessons and the free lessons.



In addition, the "Layout 1" tab offers the option of displaying lines both on the screen and in the printout, for example to indicate different lengths of breaks.

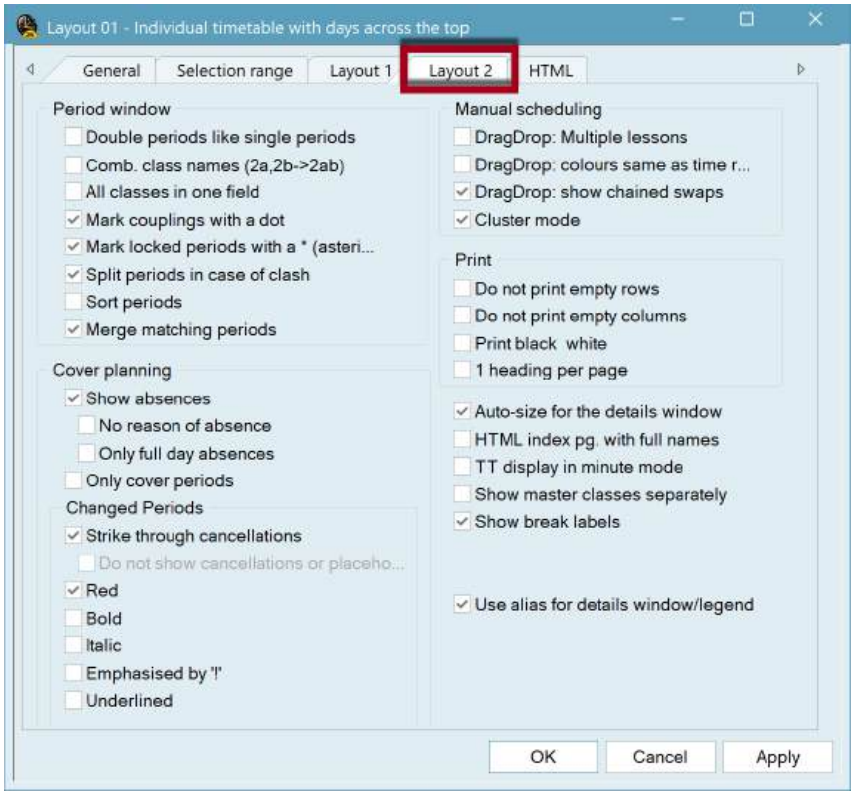


Finally, the selection field "Show a.m/p.m. division line" makes it possible to visualize the boundary defined in the time grid between morning and afternoon with a divider.
If you also want the dividing line between the individual days to be thicker than between the hours, check the box "Division time between the days".



6.5.4 Layout 2

Some of the settings in the Layout 2 tab affect the screen and print view, others only affect the print view or the HTML output.

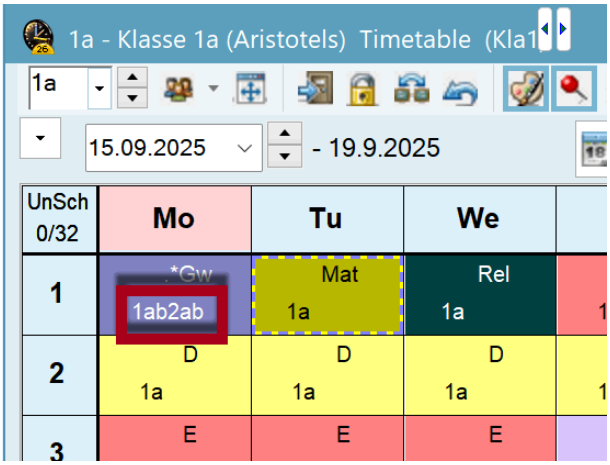


6.5.4.1 Double periods like single periods

Double periods are displayed like single periods.

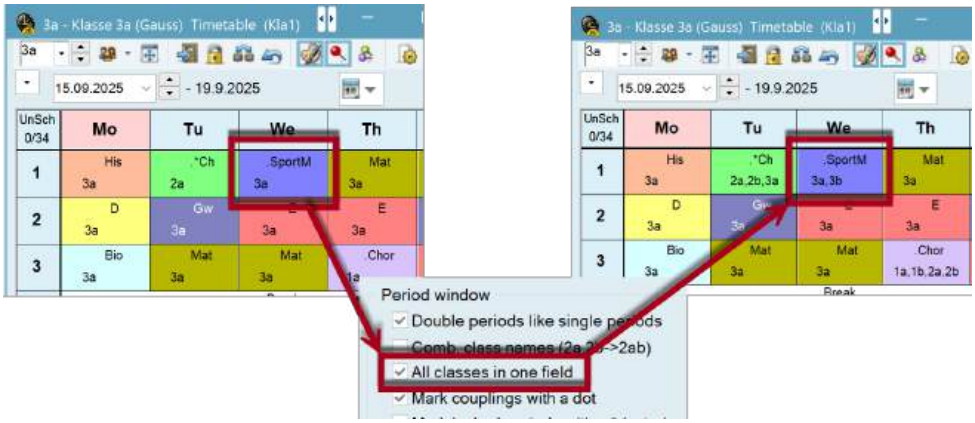
6.5.4.2 Combined classes (2a, 2b -> 2ab)

For teachers' timetables, it is often desirable to see all the classes they teach. To display all classes in a single field and also to save space, the combined class names were created. The names of all classes to be shown are combined.



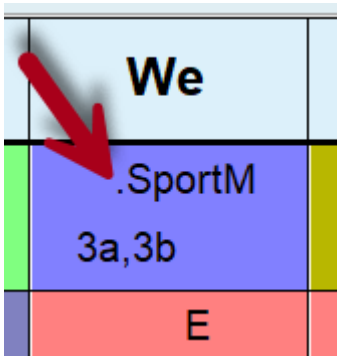
6.5.4.3 All classes in one field

If a teacher teaches students from several classes in one period, all the classes involved are displayed in the timetable lesson field provided for this purpose in the teacher timetable.



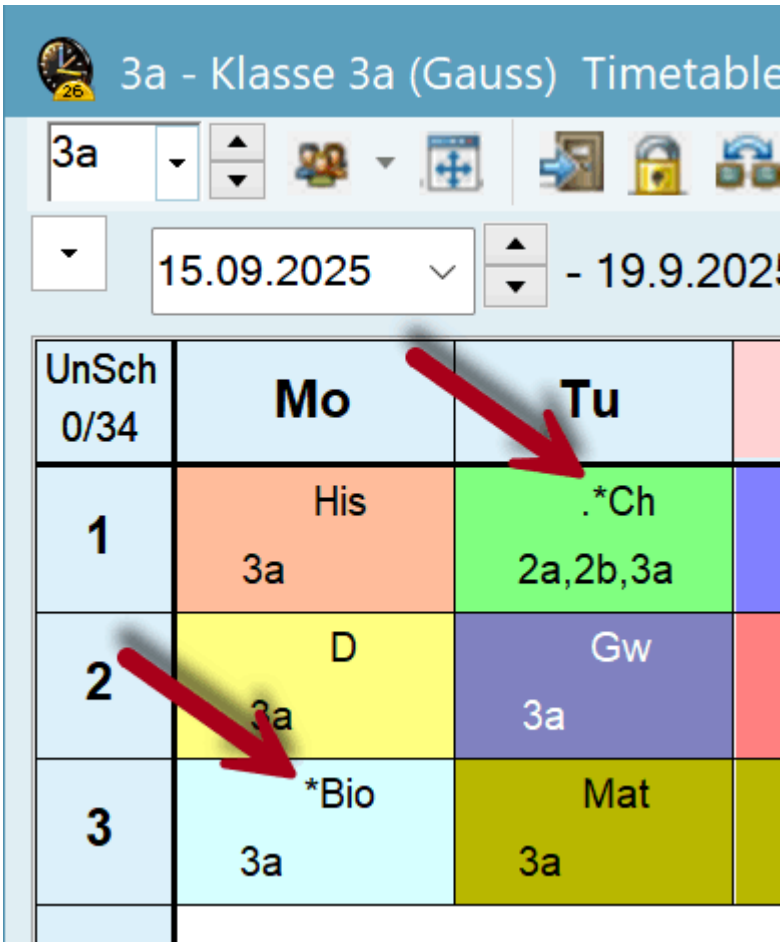
6.5.4.4 Mark couplings with a dot

Couplings are marked with a dot in the timetable lesson.



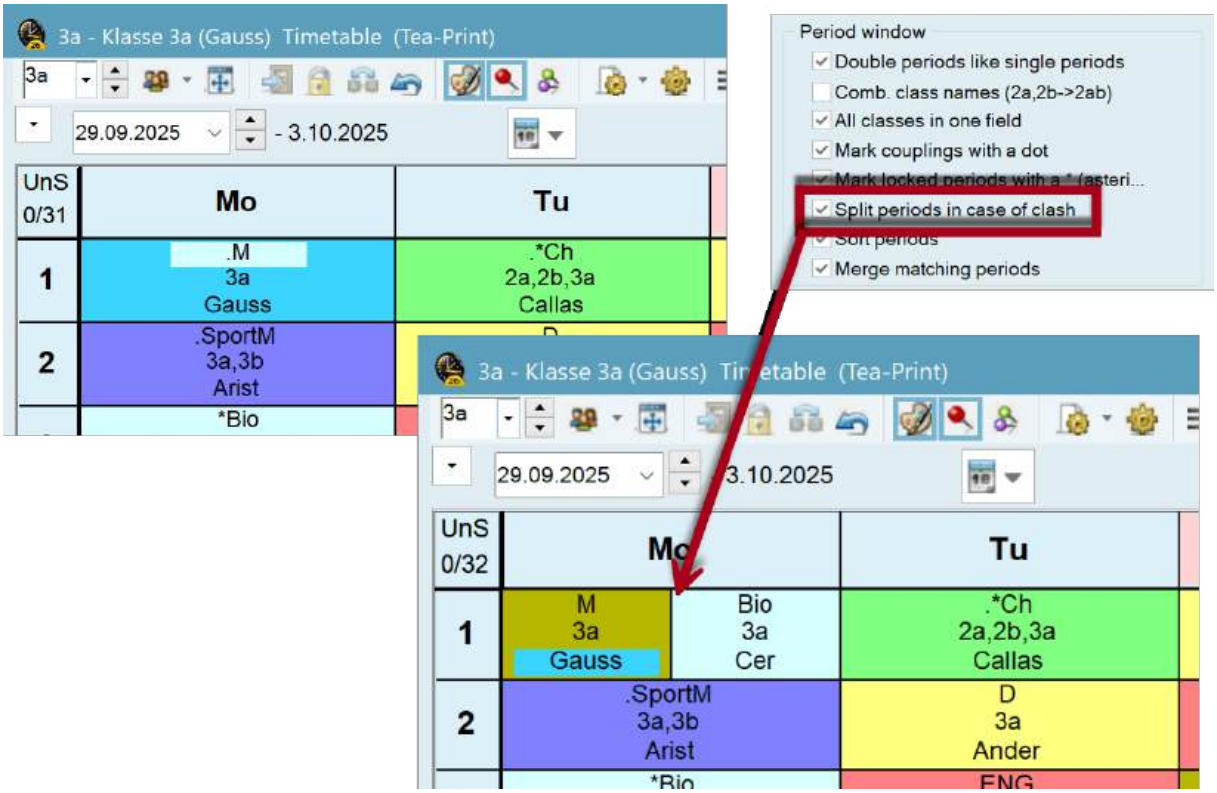
6.5.4.5 Mark locked periods with a *

If periods have been locked manually, they can be marked with an * in the timetable.



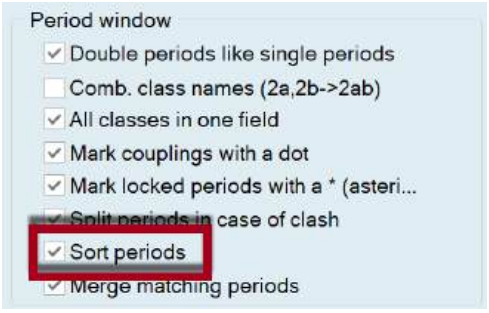
6.5.4.6 Split periods in case of clash

With this option, clashes (see chapter "Manual planning") are displayed in separate cells on the screen, in the printout and in the HTML output. The example shows the timetable of class 3a on Monday 1st period. Mathematics and Biology is scheduled at the same time, so it is a clash for Untis. To display the clash, the checkmark "Split periods in case of clash" must be set.



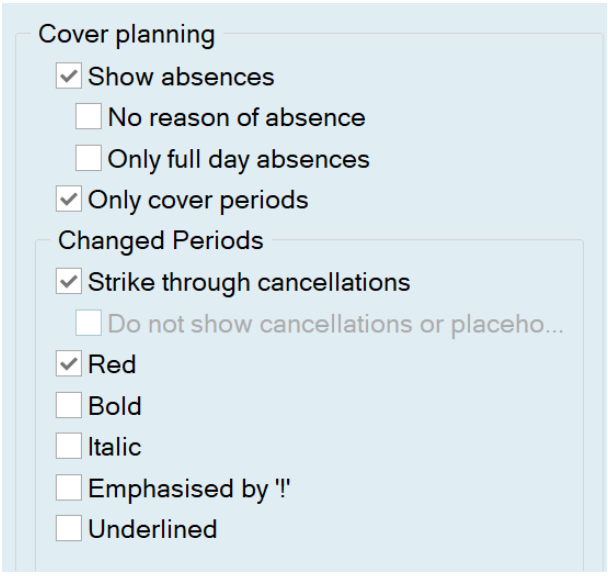
6.5.4.7 Sort periods

If you have several periods that take place on the same day of the week and in the same lesson, but in different weeks, you can optionally sort these periods according to their start date.



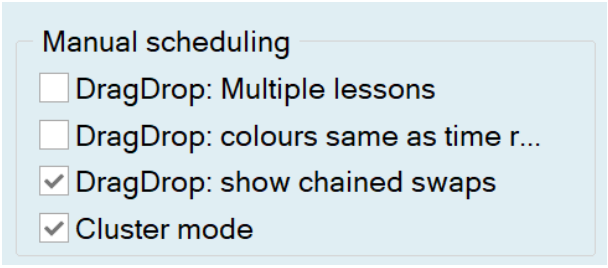
6.5.4.8 Cover planning input block

When using the *Cover scheduling* module, you can use the points listed here to influence the display of changes.



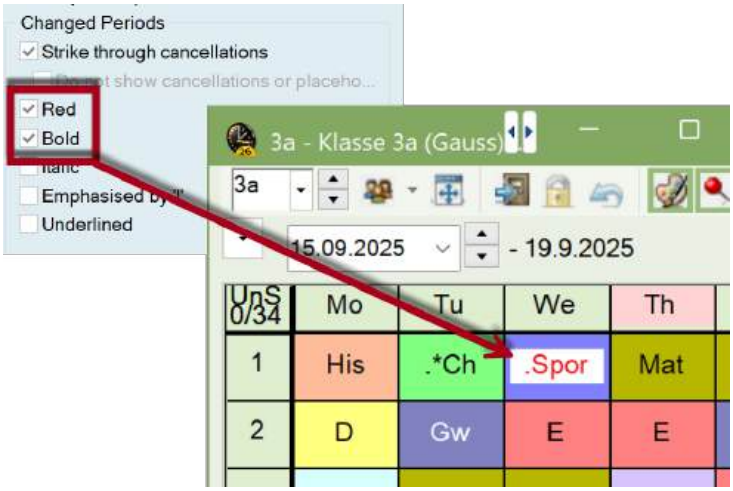
6.5.4.9 Drag & Drop

Visual settings can also be made for the drag & drop function in the timetable.



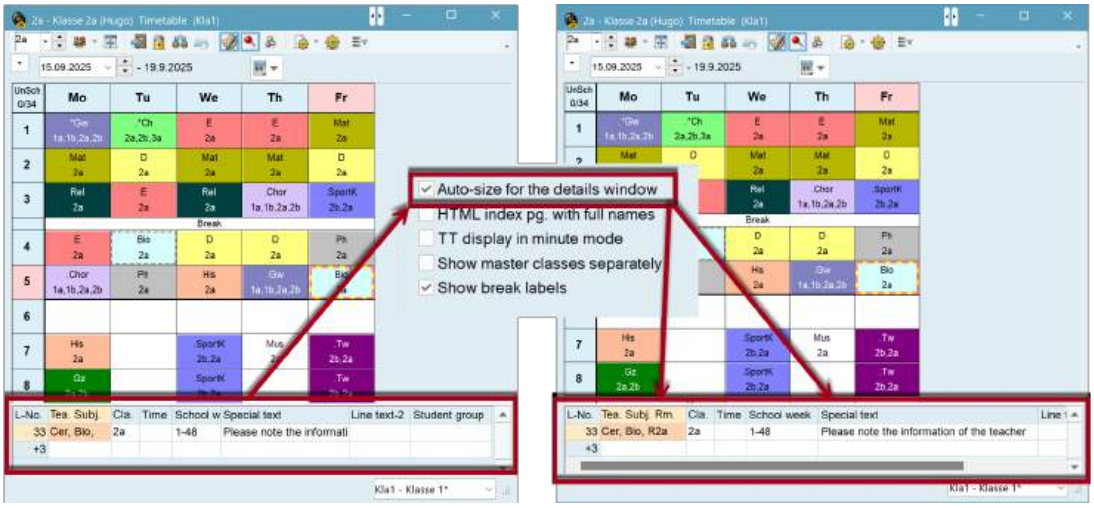
6.5.4.10 Highlight changed periods

When comparing timetables and in substitution mode, you can set how the changed periods are to be highlighted. In the example, the deviations from the standard timetable are highlighted in red and bold.



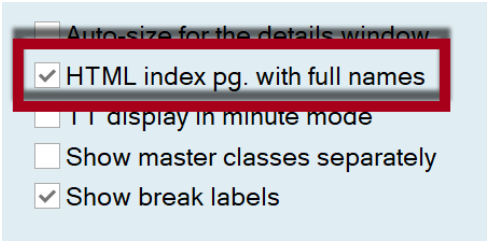
6.5.4.11 Autosize for magnifying glass

This option automatically adjusts the size of the timetable magnifier (bottom part of the timetable window) to its content.



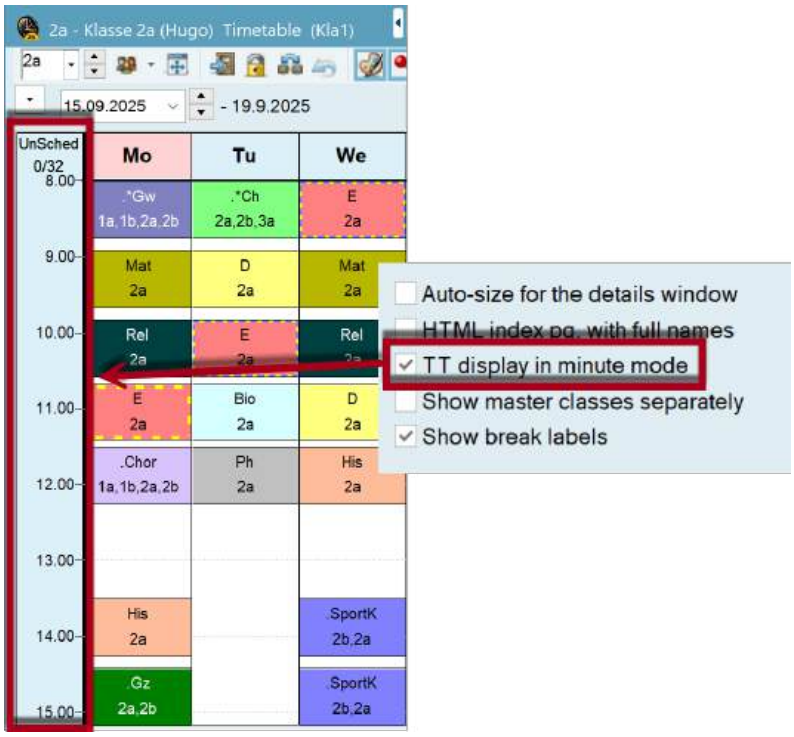
6.5.4.12 HTML index page with full names

If you want the HTML index page to be listed with full names and not short names, you can check this box.



6.5.4.13 TT display in minut mode

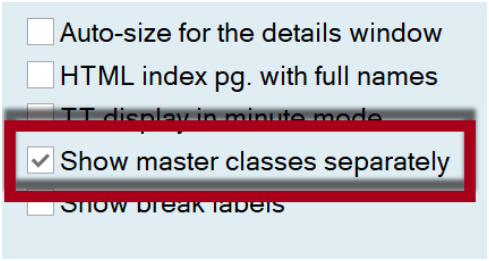
If the lesson times vary on different days, it can be useful to enter the individual lessons of the timetable to the minute in a time scale. Untis allows you to do this by ticking the "TT display in minute mode" box.



6.5.4.14 Show master classes separately

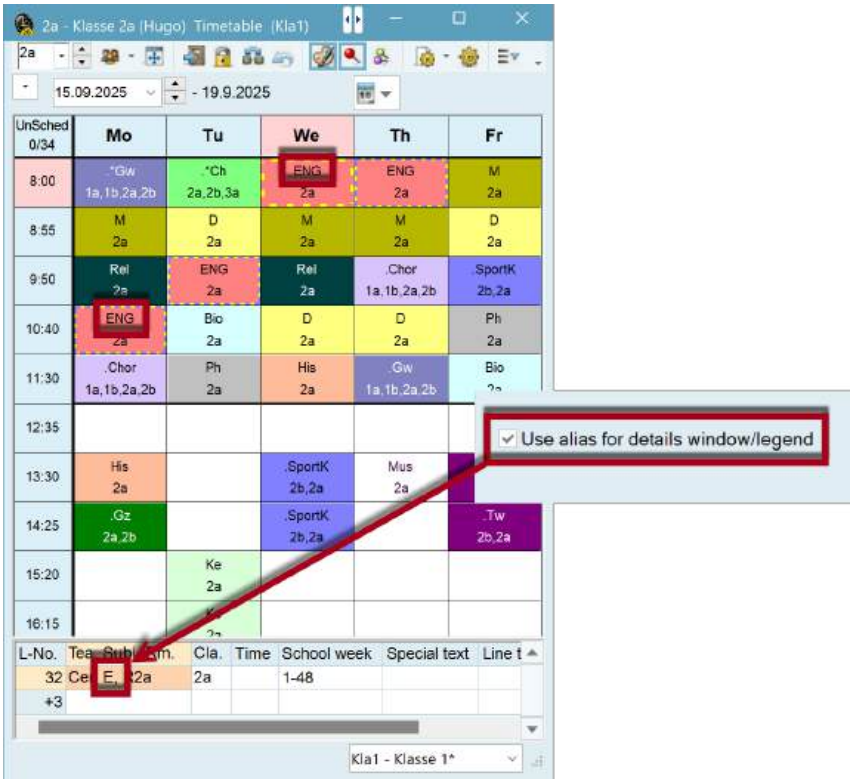
For organizational reasons, two type-mixed/type-separated class parts are sometimes combined in one class.

If a separate display of the master classes is desired, the check mark must be set:



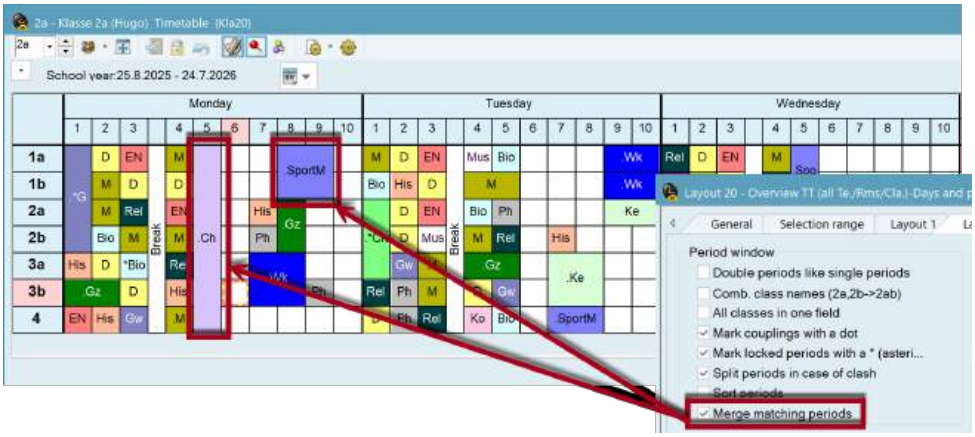
6.5.4.15 Use alias for details window / legend

The alias name is used for the display in the timetable details window or for printing the legend (e.g. to replace your abbreviation "M" with the "Mat" commonly used at the school); (see also chapter "Alias (second name)").



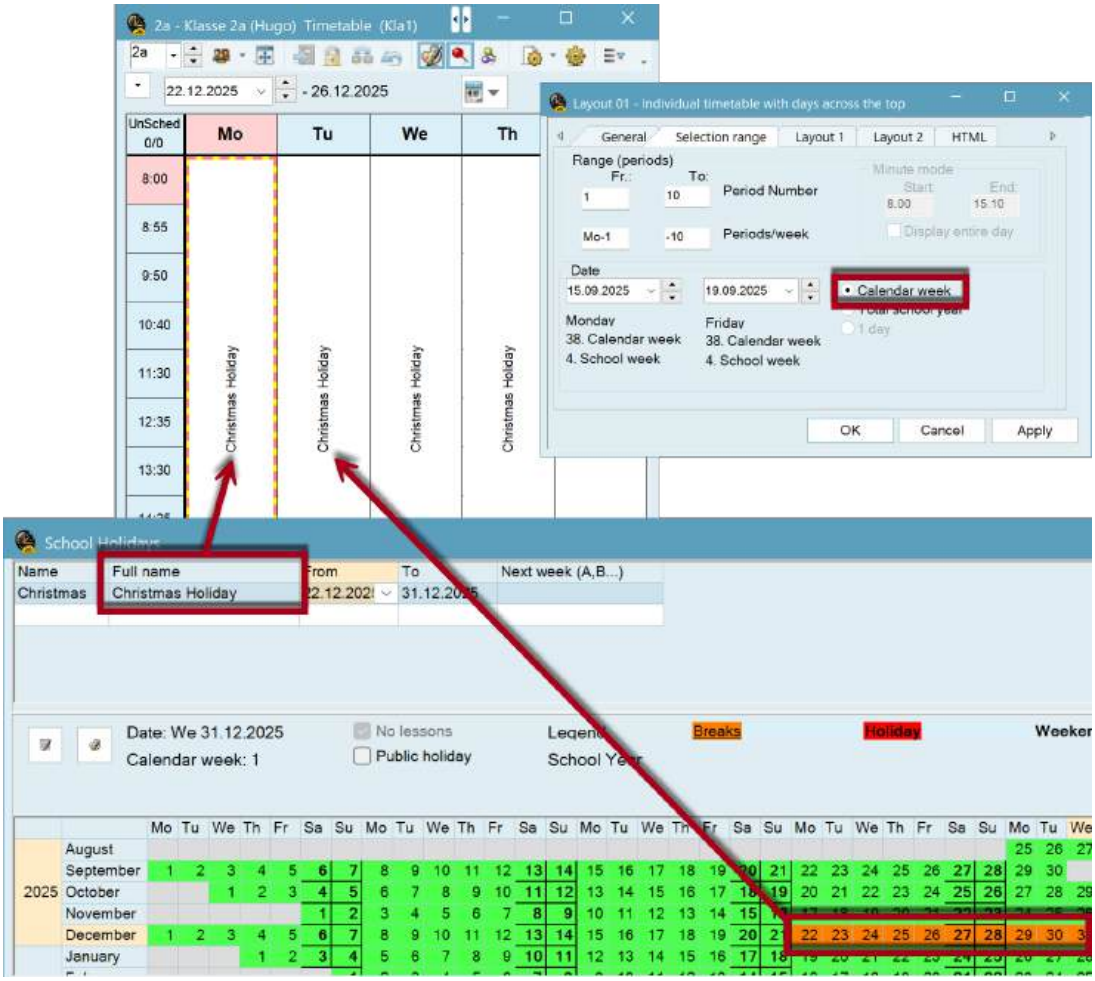
6.5.4.16 Merge matching periods

With overview timetables, it is possible to merge the timetable cells with each other across links.



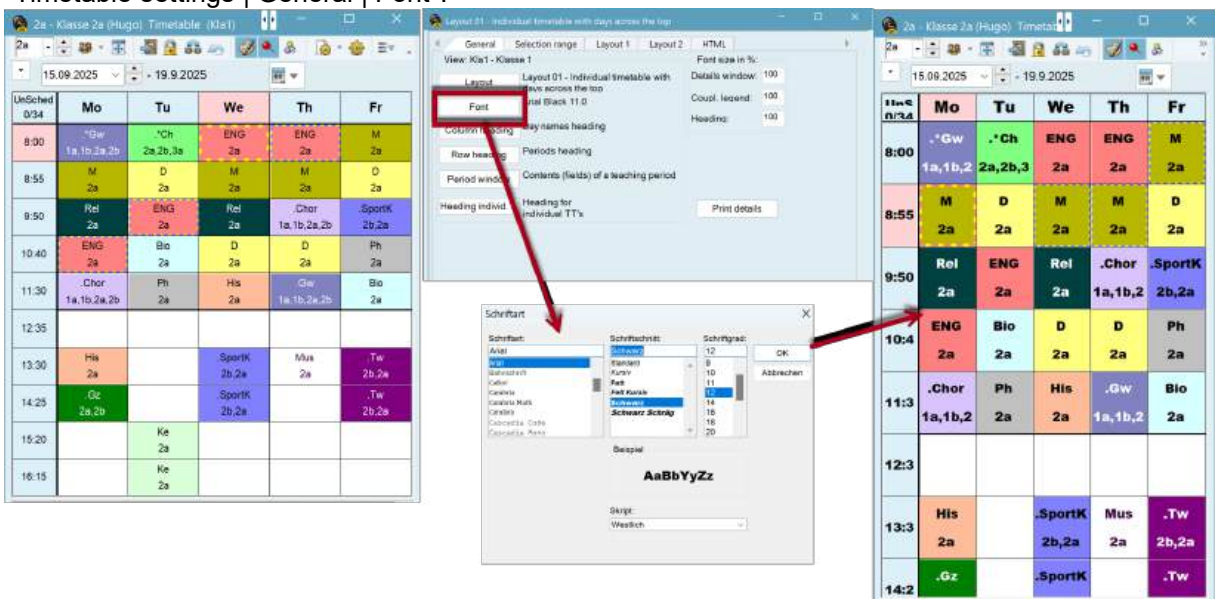
6.5.5 School holidays

The days off entered under "Data entry | School Holidays" are shown in the timetables. The prerequisite for this is that the timetable is set to weekly view (Timetable settings | Selection range | Calendar week).



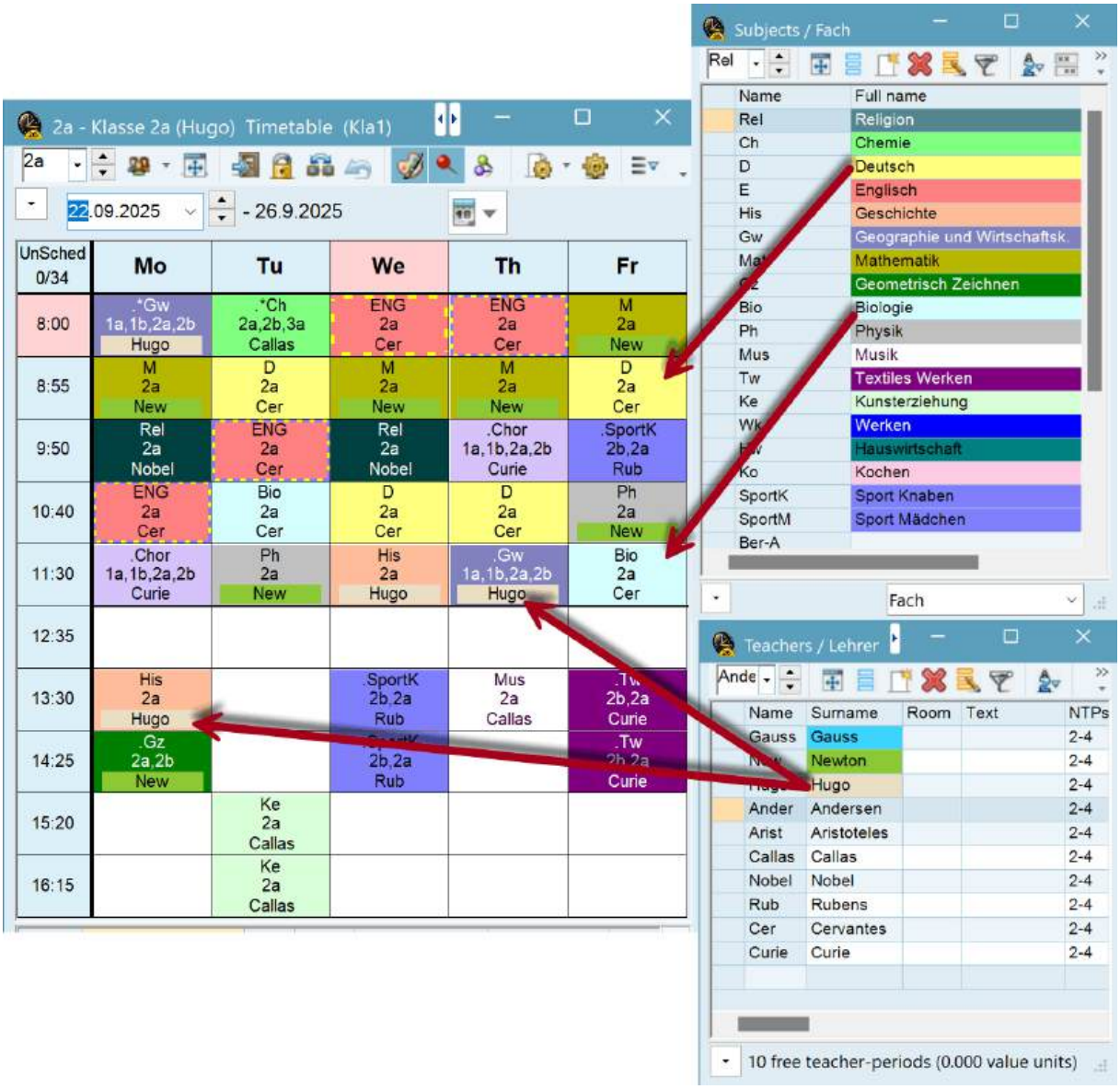
6.5.6 Font

The overall size of the timetable window depends not only on the information displayed in the timetable period, but also significantly on the font size. The font size and type can be changed under "Timetable settings | General | Font".



6.5.7 Colors in the timetable

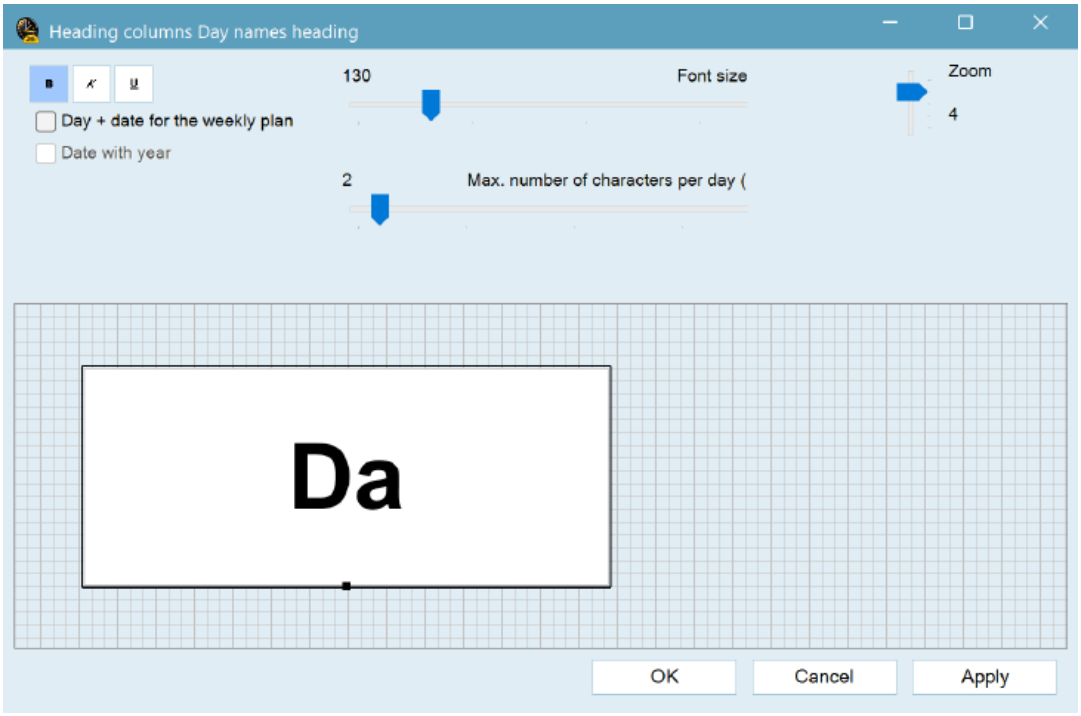
All colors assigned to the master data elements are also displayed in the timetable.



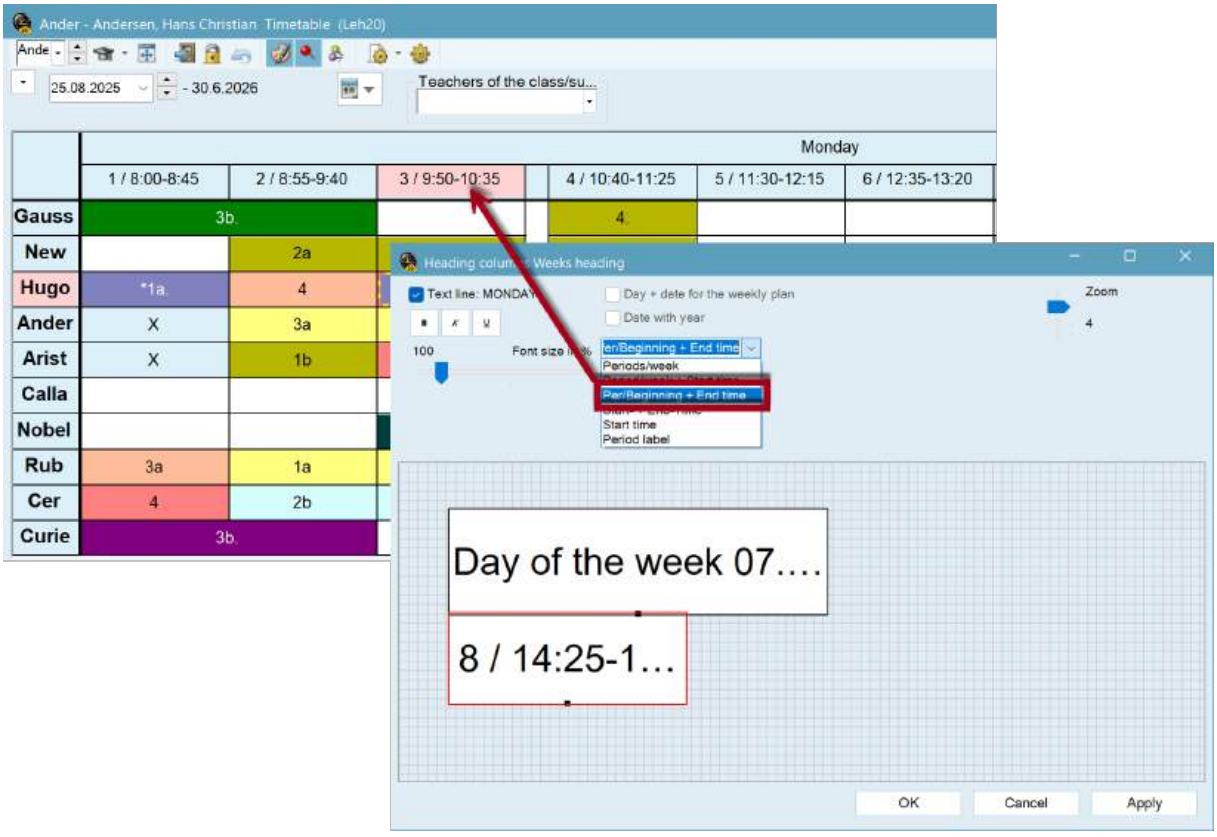
In the example, the subjects and teachers are color-coded. For example, the history lesson (brown-orange background) takes place on Monday with teacher "Hugo" (grey-brown background).

6.5.8 Column heading

The column heading (e.g. days of the week) can be adapted in the timetable settings under <Column heading>.



Additional information such as the date or start and end times can be displayed in the overview timetables in format 20.

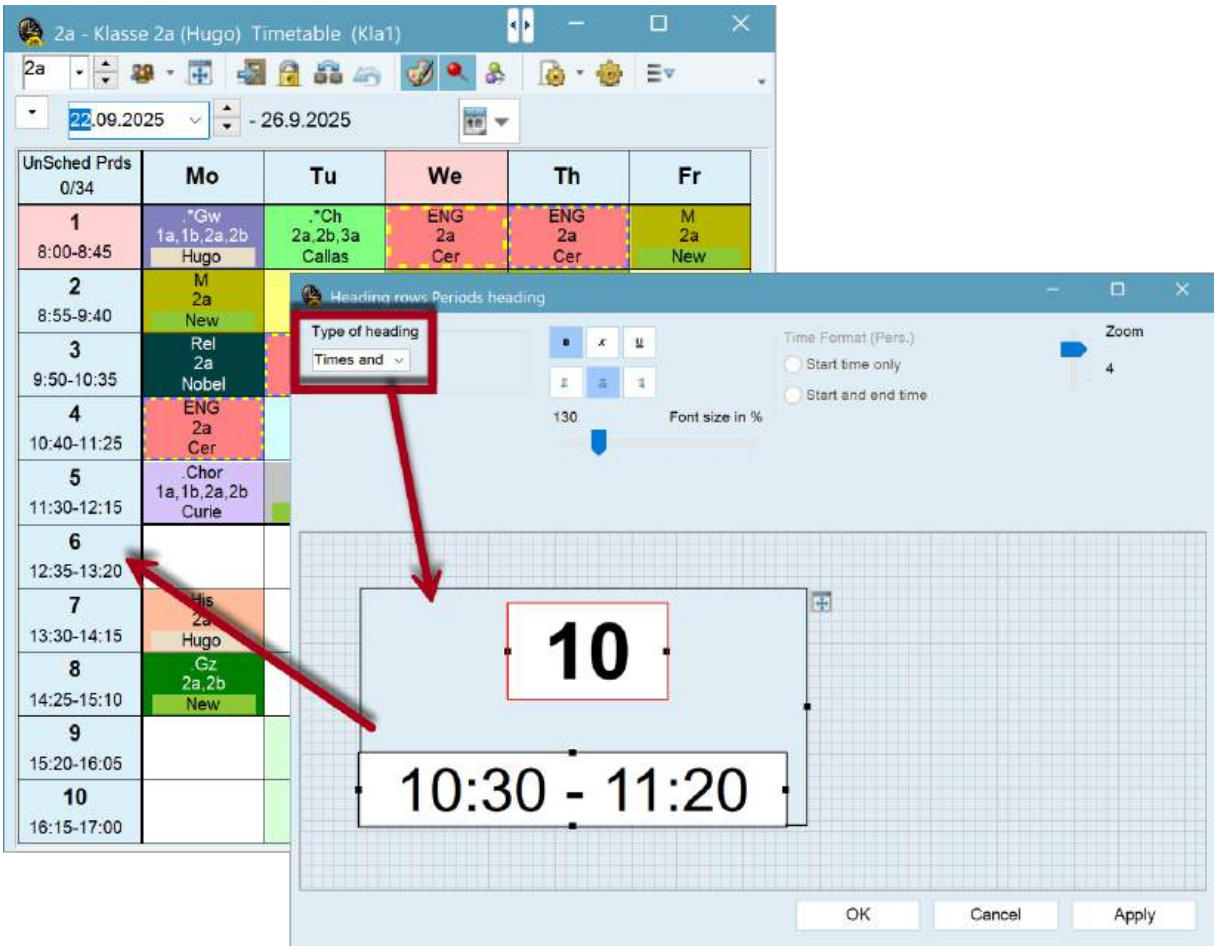


Tip:
Instead of the lesson number, the name of the lesson defined in the time grid can also be displayed for each timetable.

6.5.9 Row heading

The heading of the rows (e.g. start times) can be adapted in the timetable settings under <Row heading>.

Here you can select whether the lesson number and/or the lesson times should be displayed. You can also choose between single-line and multi-line display and determine the font type and size.



6.6 Print

Timetables can be printed using the <Print> button or via the <Page preview> button. Alternatively, you can also use the shortcut Ctrl+P. This will first take you to the print selection, where you can make further settings. Press <OK> to continue to the print dialog or page view.

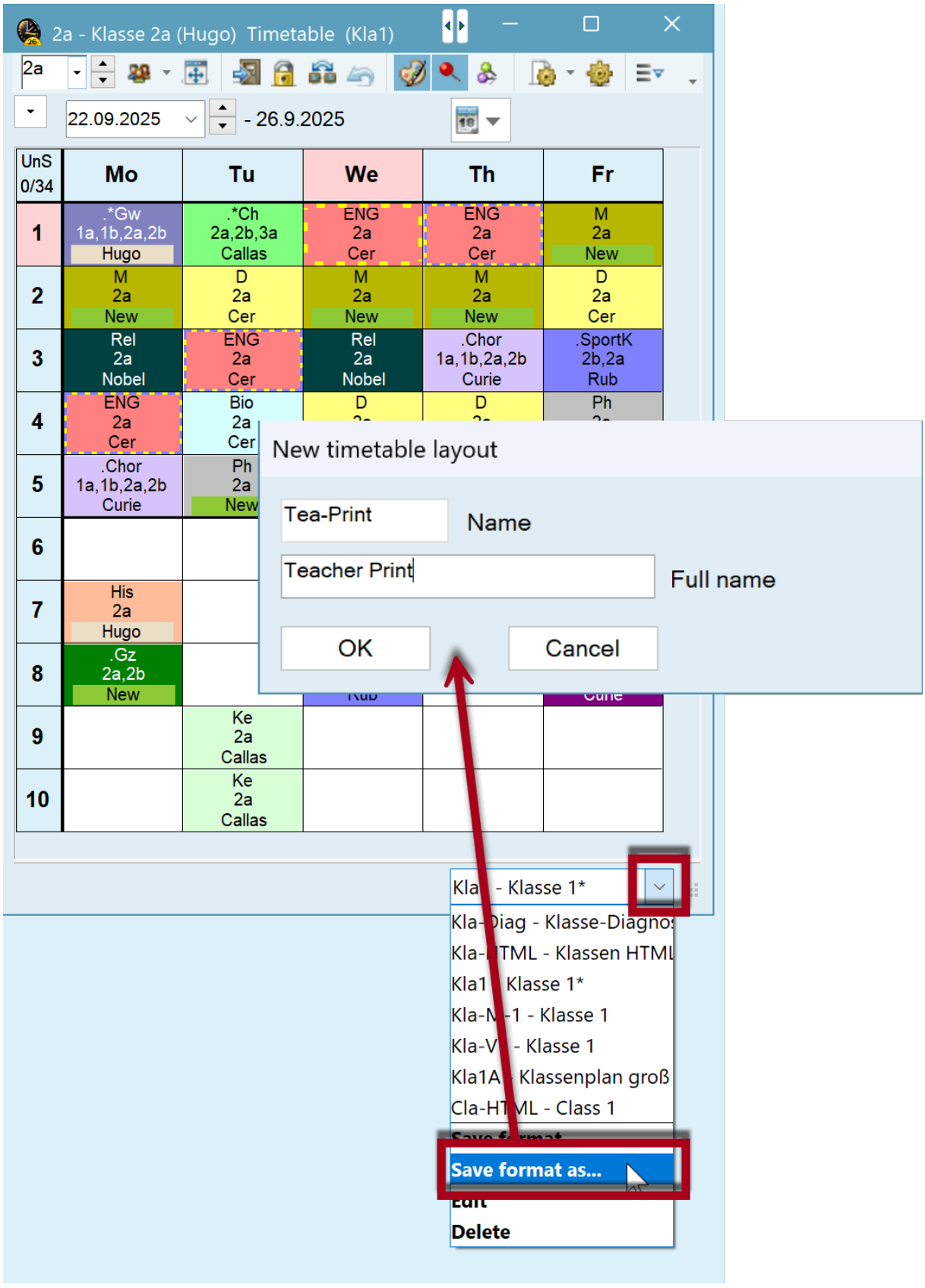
If you want the printed timetables to be different from the ones you use for your screen work, you can create your own print views.

6.6.1 New print view

Create a new timetable view as described in the chapter "New timetable view". Select the timetable that comes closest to the desired print image as the starting point. Give the new timetable format a meaningful name (e.g. teacher print).

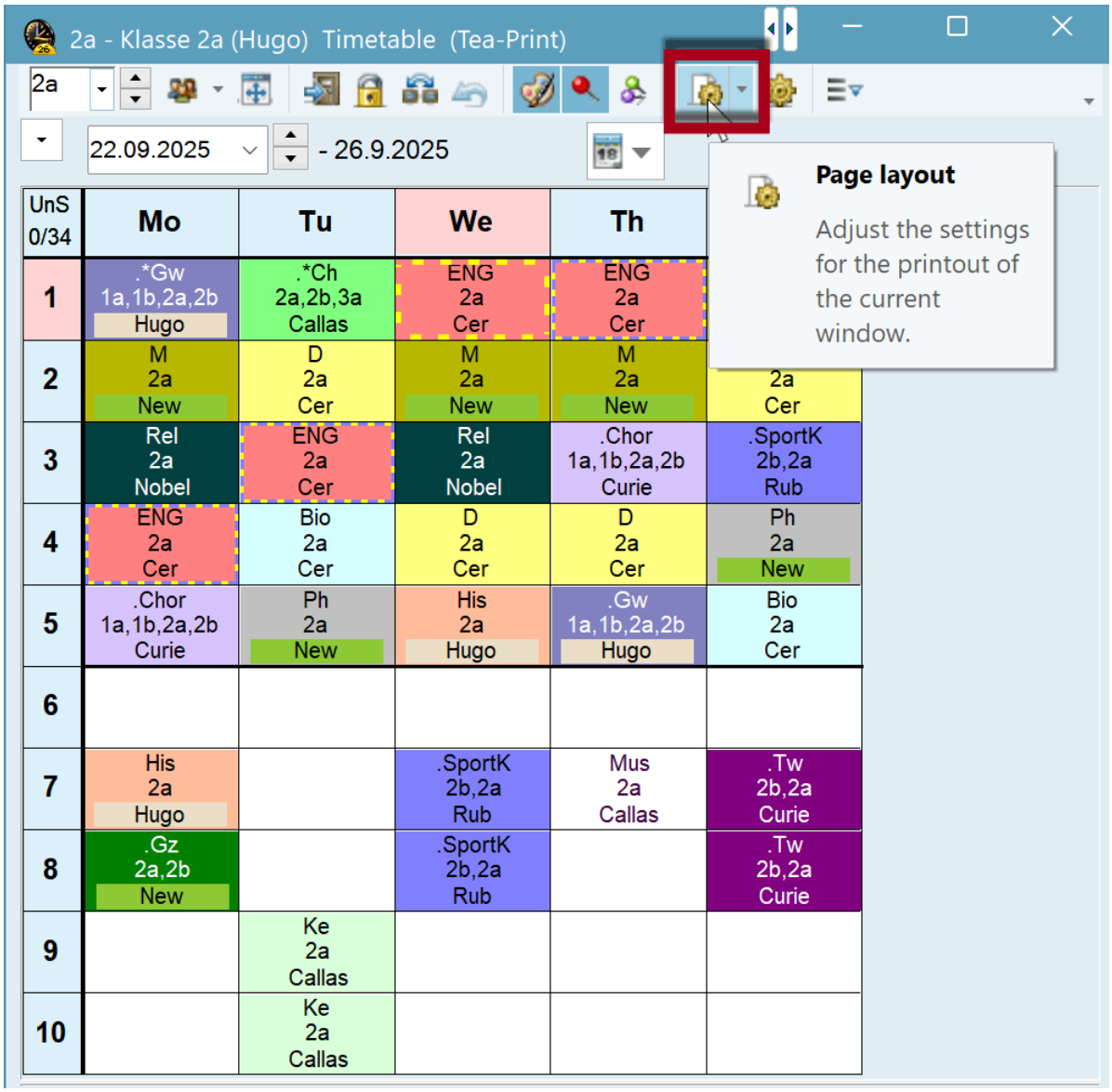
Change the display of the lessons in the lesson window and in the vertical and horizontal headings as described in the respective chapters.

In general, the timetable is printed as you see it on the screen. However, it is possible to adapt the print view and add additional information. This is described in detailin the chapter "Page layout".



6.6.2 Page layout

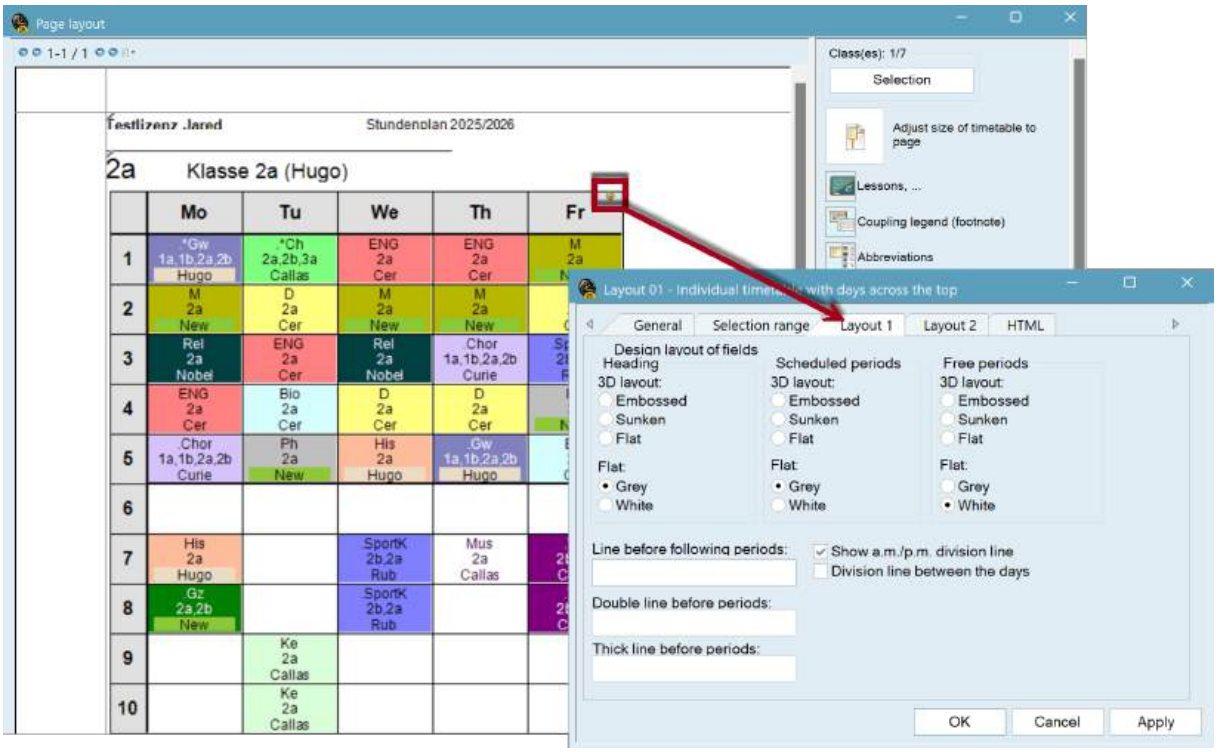
Many settings for printing the timetable can be made directly in the page layout. This can be opened via the button of the same name in the toolbar of the respective timetable, or alternatively via the quick start bar.



UnS 0/34	Mo	Tu	We	Th	
1	.*Gw 1a,1b,2a,2b Hugo	.*Ch 2a,2b,3a Callas	ENG 2a Cer	ENG 2a Cer	
2	M 2a New	D 2a Cer	M 2a New	M 2a New	2a Cer
3	Rel 2a Nobel	ENG 2a Cer	Rel 2a Nobel	.Chor 1a,1b,2a,2b Curie	.SportK 2b,2a Rub
4	ENG 2a Cer	Bio 2a Cer	D 2a Cer	D 2a Cer	Ph 2a New
5	.Chor 1a,1b,2a,2b Curie	Ph 2a New	His 2a Hugo	.Gw 1a,1b,2a,2b Hugo	Bio 2a Cer
6					
7	His 2a Hugo		.SportK 2b,2a Rub	Mus 2a Callas	.Tw 2b,2a Curie
8	.Gz 2a,2b New		.SportK 2b,2a Rub		.Tw 2b,2a Curie
9		Ke 2a Callas			
10		Ke 2a Callas			

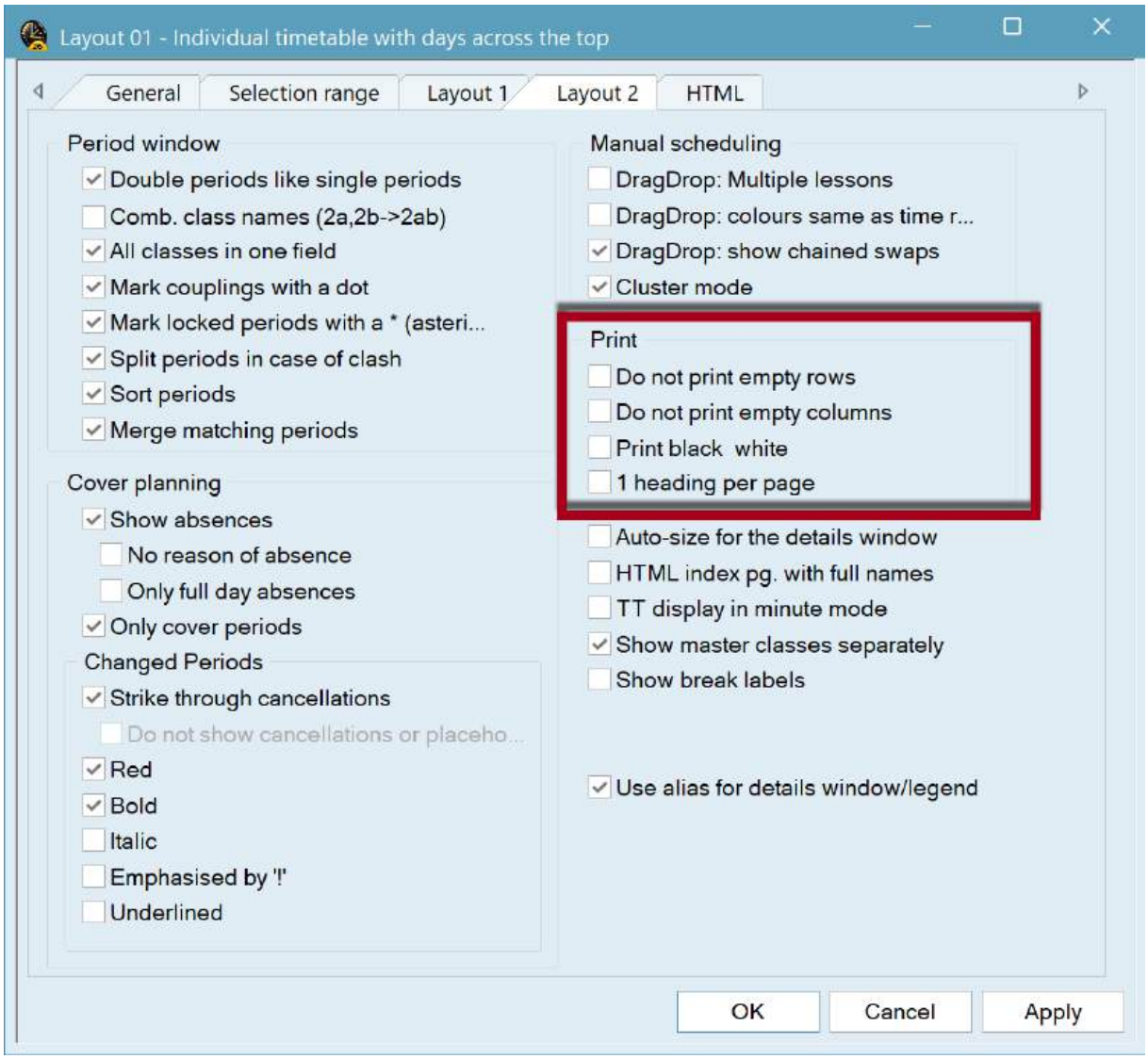
6.6.2.1 Layout

The settings in the page layout can be used to make changes to the print image in the Layout 1 and Layout 2 tabs.



In the Layout 1 tab, the design layout of fields and the background color (grey, white) can be set for the headings, for the scheduled and free periods under "3D layout".

Various print settings can be selected under Layout 2.



Do not print empty rows / columns
When printing the plans, empty rows or columns should not be printed. This can save considerable space and paper in overviews (also in HTML format).

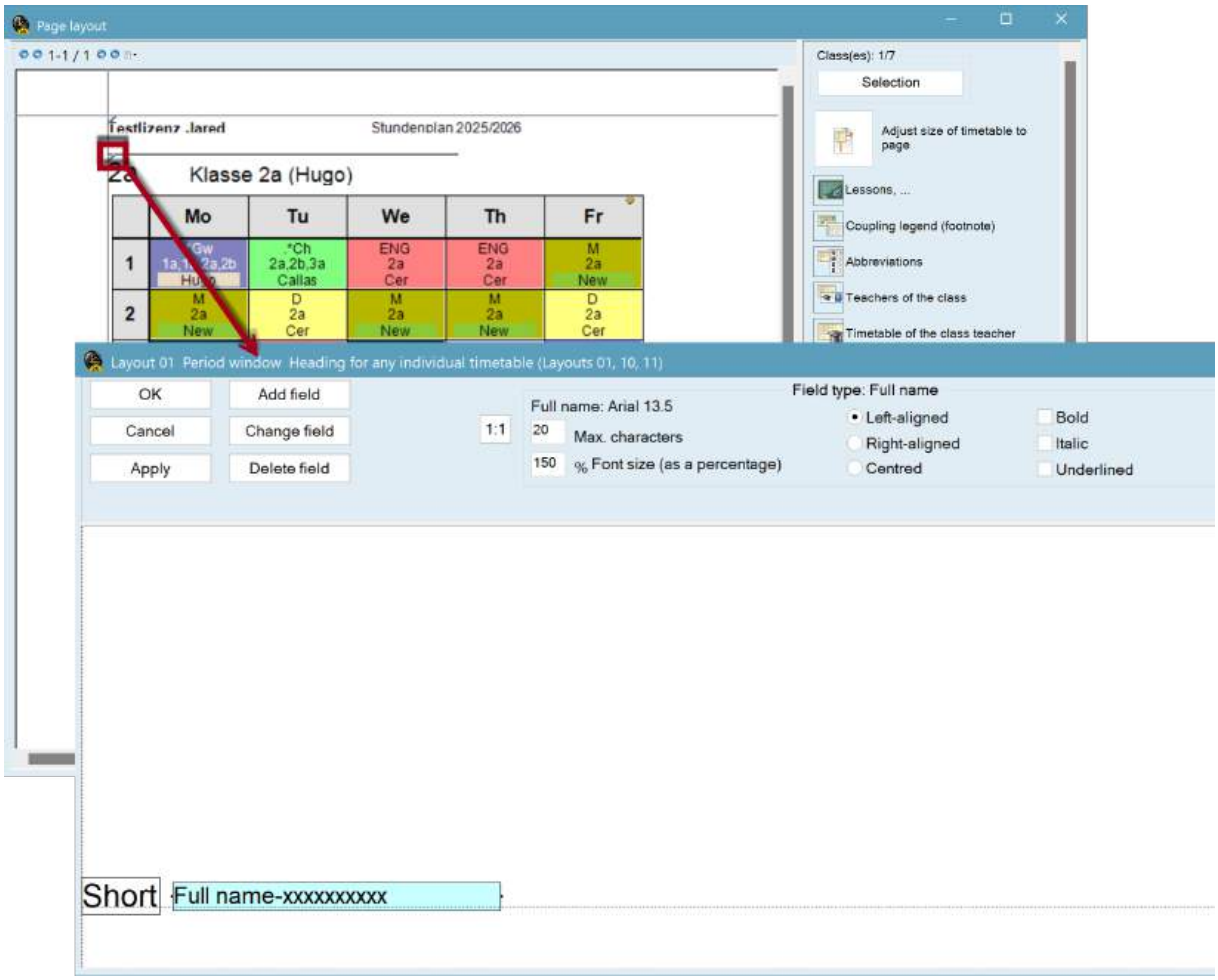
Print black white
You can set pure black and white printing if the timetables are to be displayed in color on the screen, but your printer does not support color output and the color shades should not be printed.

1 heading per page
When printing timetables, any number of timetables can be printed on one page; the title bars (school name, date, file name etc.) are printed above each timetable by default. If the "1 heading per page" checkbox is activated, you can deactivate this function so that only one heading is printed per page.

6.6.2.2 Headings

For individual plans (formats 1, 10 and 11), the heading can be adapted for printing. To do this, simply click on the pencil symbolin the page layout.

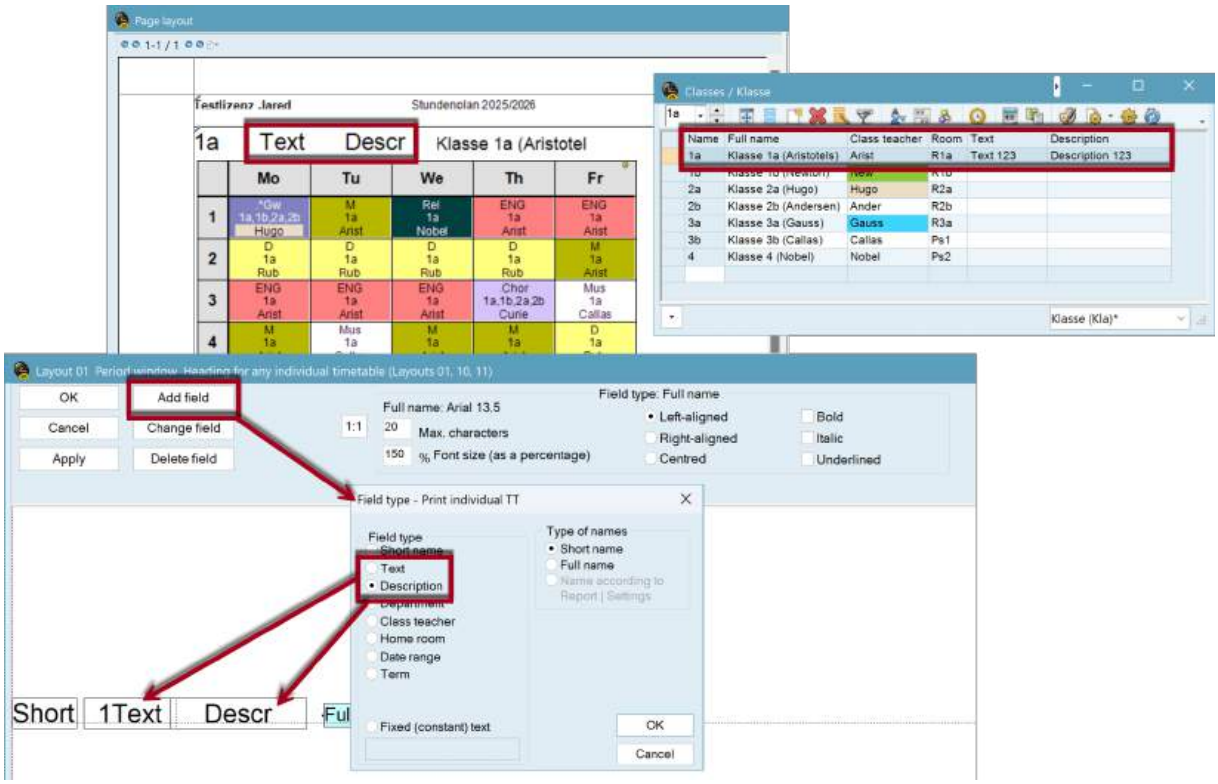
The short and long names of the element are displayed by default. The layout of each heading field (font size, left-aligned, bold, etc.) can be changed in the top right-hand area of the window.



In addition to these headings, the following headings can be inserted using the <New field> button:

Text, Description
Each master data element can be provided with a freely selectable text and a description ("Master data | Descriptions"), which are printed in the heading after inserting this field.

The example shows the text and the description in the heading of the timetable, which were entered in the master data of class 1a. The two fields have been arranged next to each other, the maximum number of characters is set to 5. If you want the "Description" field to be written out in the timetable, the maximum number of characters must be increased.



Department
If you are working with departments, the department name can be printed in the heading.

Class teacher
The name of the class teacher can be entered in the master data of the classes and printed in the heading of the class timetable.

Home room
The name of the home room of the class is displayed.

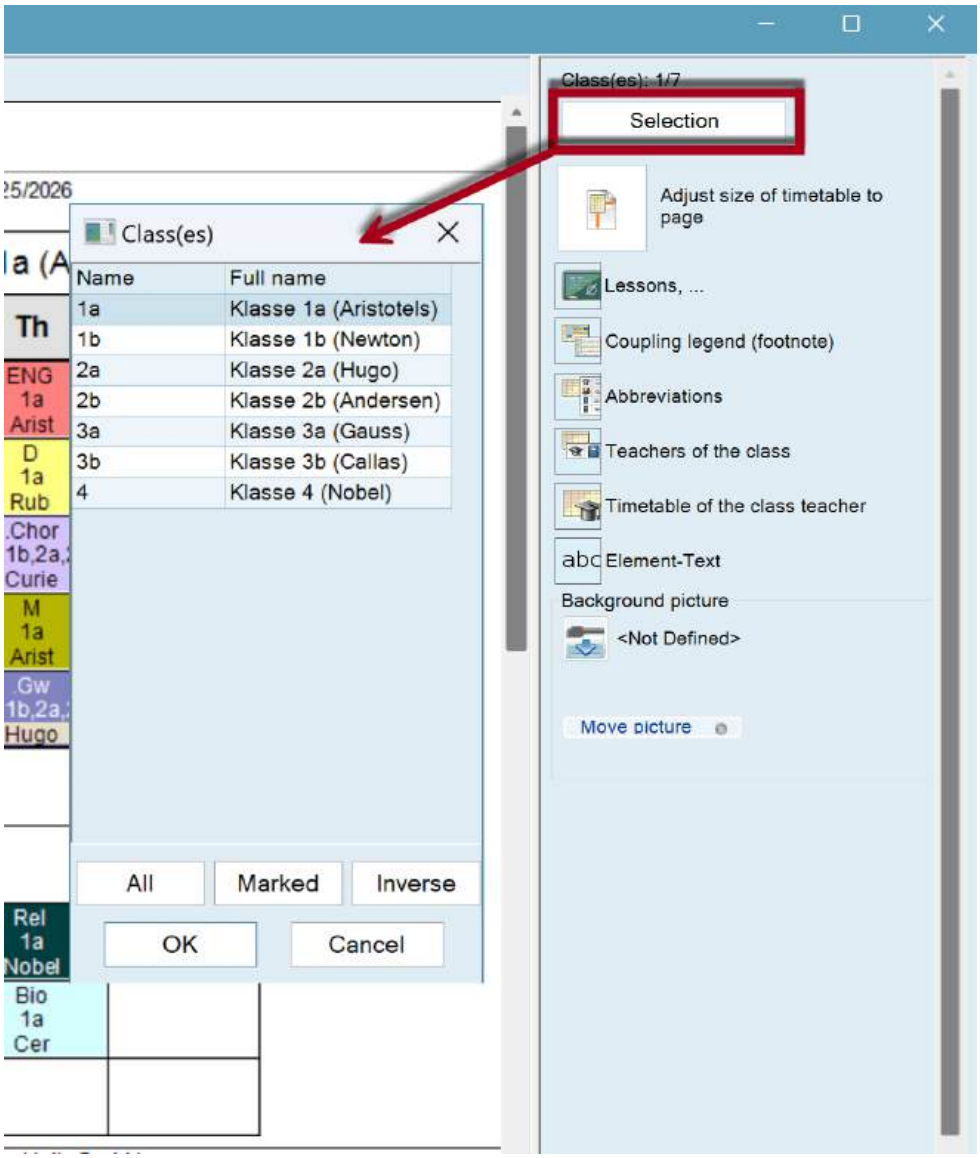
Date range
The date range displayed in the heading can either be the calendar week, the period, a self-selected period or the entire school year - depending on the date selected under "Timetable settings | Selection (range)".

Term
If you are working with terms, the current term name can also be printed in the short or long name.

Fixed (constant) text
A text entered here (e.g. elective timetable) is displayed for all timetables in the format.

6.6.2.3 Selection of timetables

By default, the timetable displayed on the screen is printed. Several timetables of the same format can be printed simultaneously via <Select>:



Selection with mouse
The timetables of the desired elements can be selected by swiping over with the left mouse button held down or selecting with Ctrl+click.

All
All elements can be selected using the button of the same name.

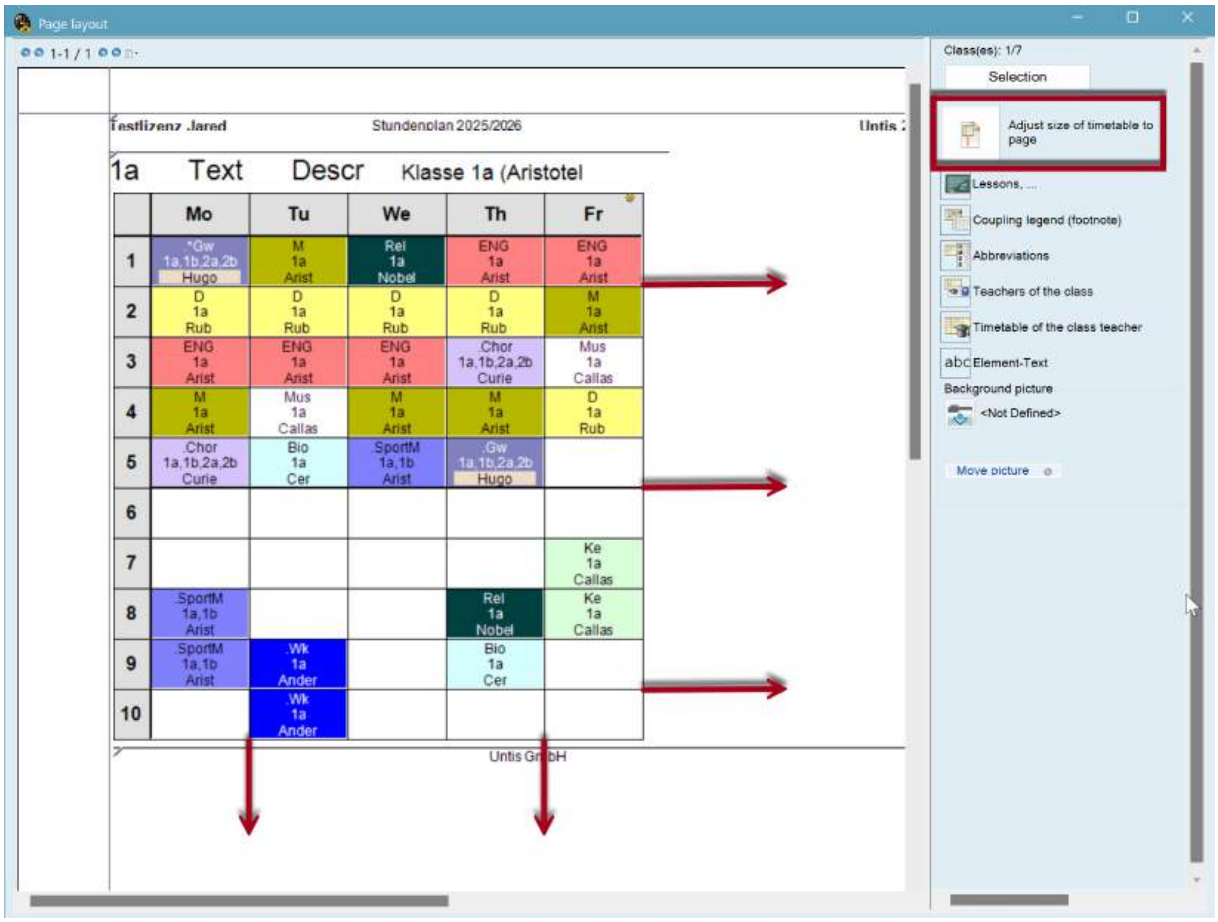
Marked
All elements with the "Marked" indicator set in their master data are selected.

Inverse
All elements that were not previously selected are selected. This facilitates the print selection for two different groups of elements (e.g. part-time teacher / full-time teacher).

Department
In the case of teacher timetables, printing can also be restricted to a specific department.

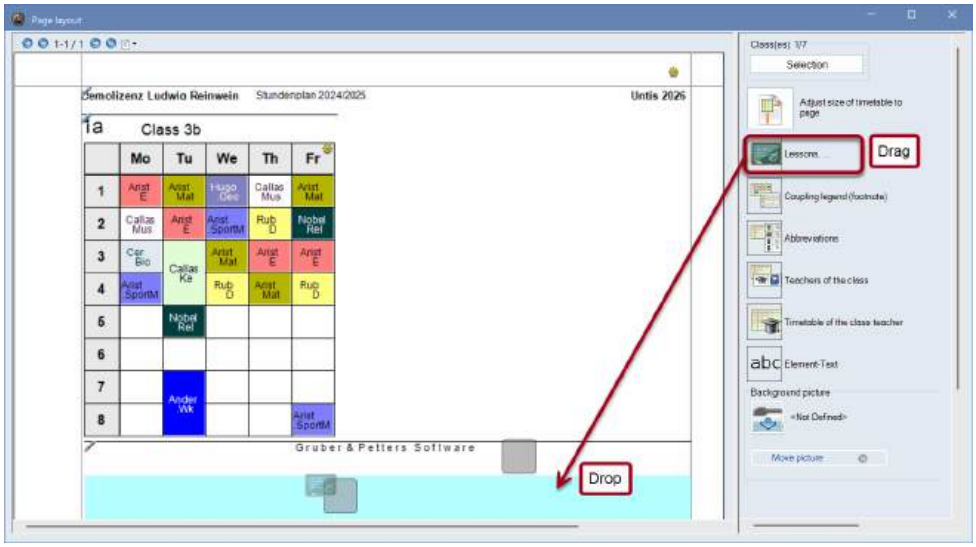
6.6.2.4 Adapt to page size

The size of the timetable to be printed can be automatically adjusted to the page size.

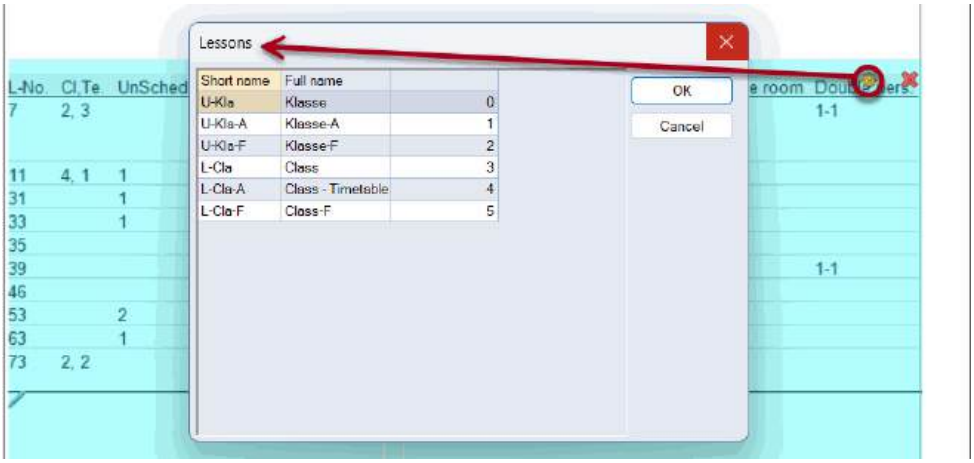


6.6.2.5 Print lessons and timetable

For timetables for classes and teachers, the lesson view can also be printed. Simply drag the teaching panel to the desired part of the sheet (e.g. below the timetable).

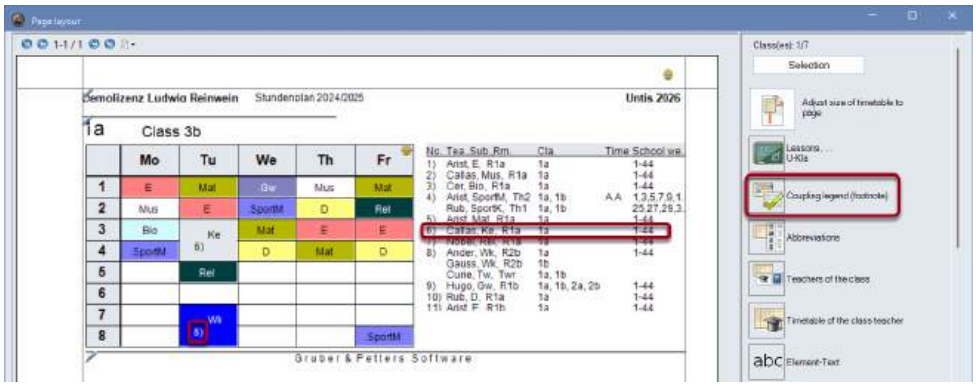


The desired lesson view can be selected via the <Settings> button. The settings for printing that were made in the lesson view are applied.

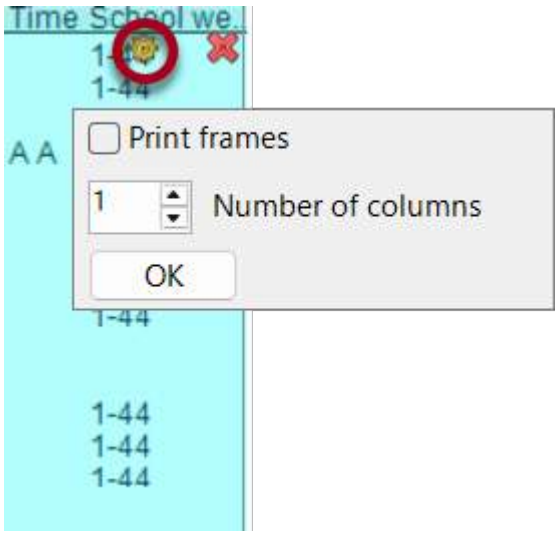


6.6.2.6 Coupling legend

A legend is always printed if the entire lesson information is not visible in the lesson window. The lesson information (for classes) includes all rooms, all subjects, all teachers and any time restrictions.



The settings can be used to select how many columns the legend should have and whether the legend should have a frame.

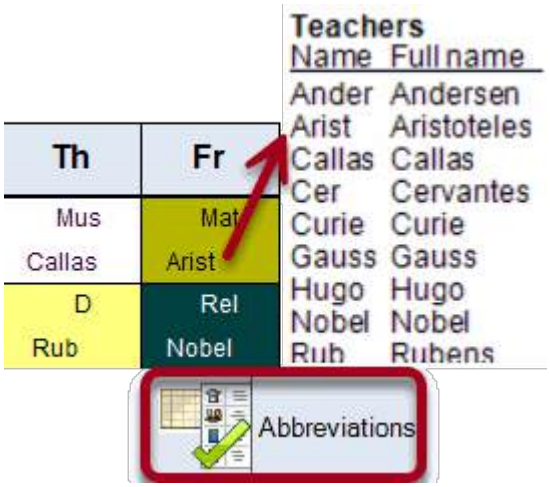


Tip: Not in legend

If you want to exclude certain lessons from the legend when printing timetables, you can set the "(L) Not in legend" indicator for these lessons.

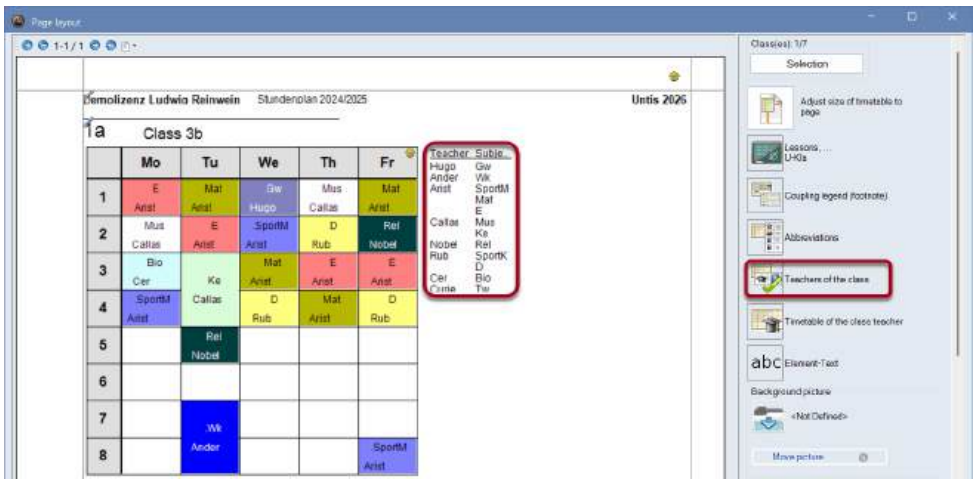
6.6.2.7 Abbreviations

A legend can also be printed for the abbreviations of the subjects and/or teachers. In the following example, the short and long names of the subjects are listed next to the timetable.



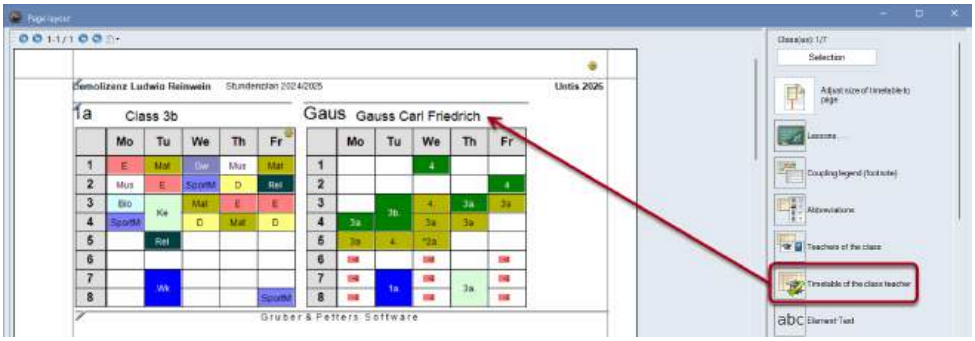
6.6.2.8 Additional information classes / teachers

The teachers who teach in the class with the respective subjects can be output as additional information to the class plans. Conversely, for the teacher plan, his/her classes with the respective subjects.



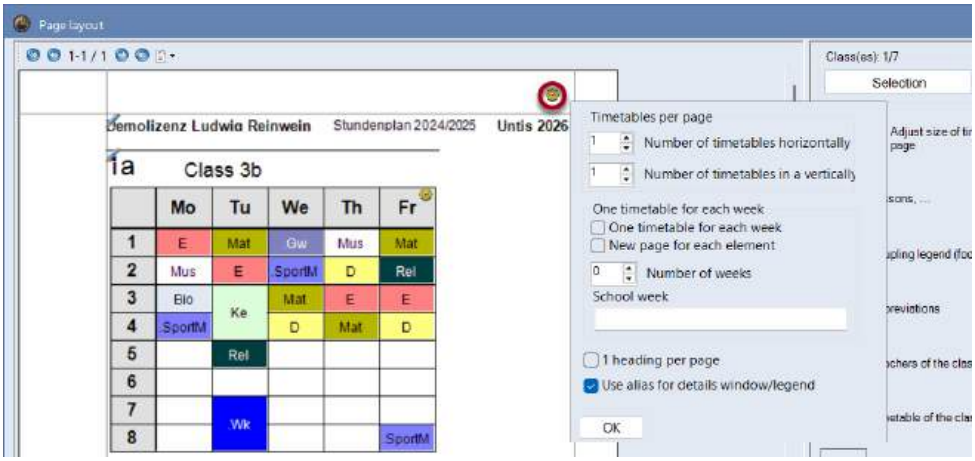
6.6.2.9 Timetable of the class teacher

Gauss is entered as the class teacher (head of class) in the master data for class 1a. The timetable for "his" class can be printed on the same sheet.



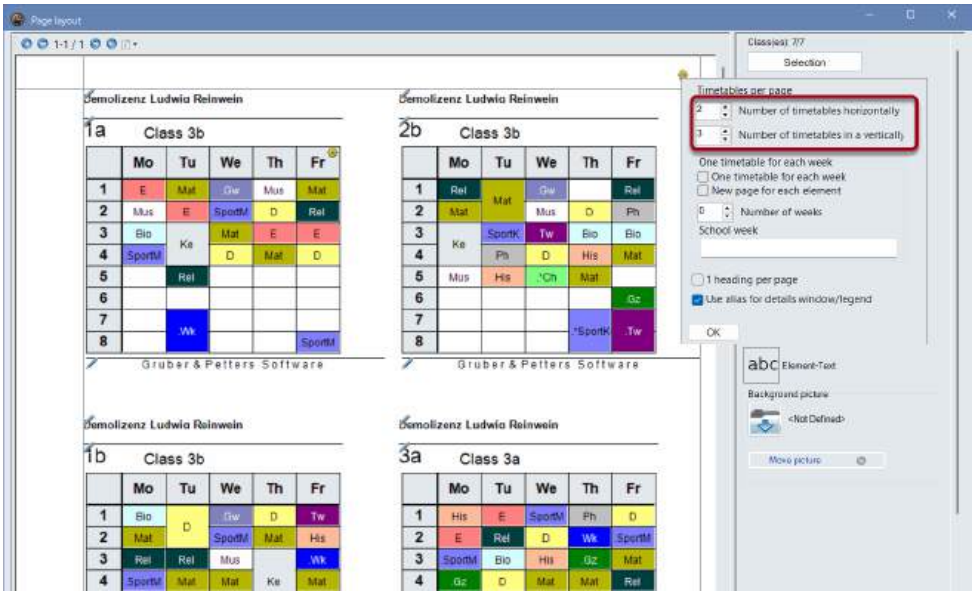
6.6.2.10 Multiple timetables per page

The settings in the page layout can be used to specify further details for the respective printout. The setting options vary depending on the format of the timetable. The following descriptions apply to individual timetables in formats 1 and 10.



Timetables per page
You can select how many timetables are printed on one page. In the illustration below, 6 timetables are printed on one page.

Tip:
The print details are saved separately for each timetable format, so it is easy to save your own settings for the different print requirements.

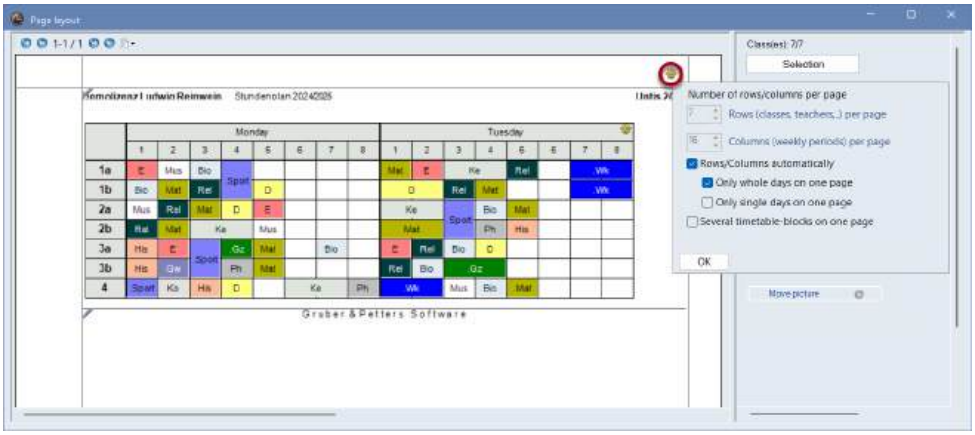


If the "One timetable for each week" box is also ticked, a timetable is printed for each selected element per week. The "School week" field can also be used to specify which weeks are to be printed. If this field remains empty, the weeks that were selectsed in the timetable in the <Timetable settings> are used. This is particularly helpful for schools with irregularly scheduled lessons. If you also check "New page for each element", a new page will be started for each new class or teacher.

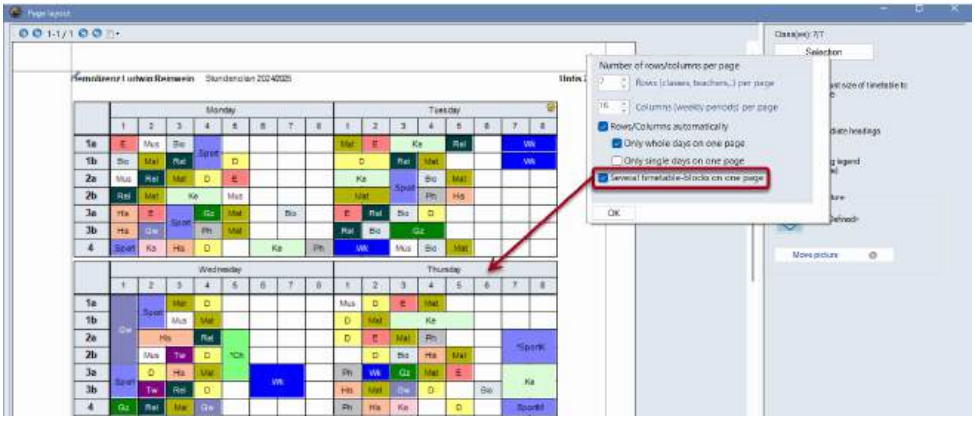
6.6.2.11 Details General plans

For overview plans in formats 11, 20 and 30, the following details can be set for printing:

Number of rows / columns per page
This determines how many rows and columns are printed on one page. The example shows an overview plan for classes. The number of rows or columns should be calculated automatically. In this case, there is space for three days (Monday to Wednesday) on one page.

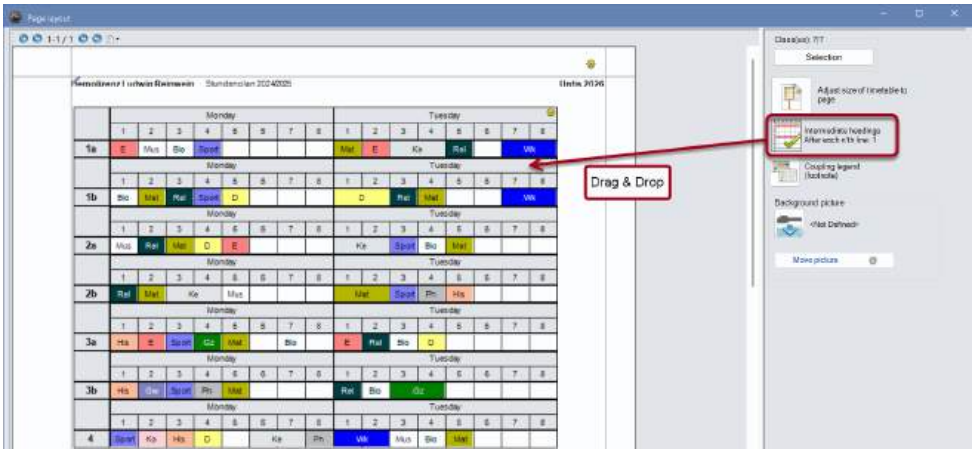


With the "Several timetable-blocks on one page" option, you can specify that the individual days of the overview timetable are printed one below the other on the same page. In this context, "Timetable blocks" stand for consecutive days that can be printed next to each other on the respective page.



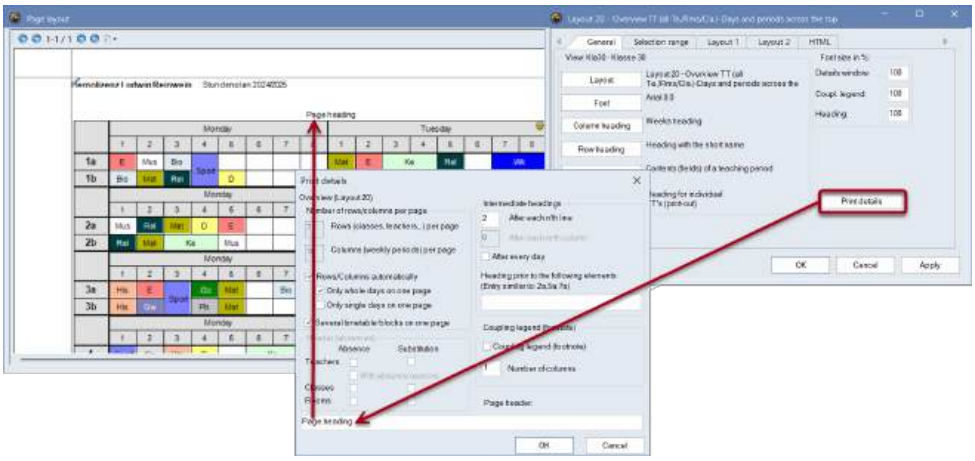
Linking legend
As with the individual timetables, a legend can also be printed for the overview timetables for information that does not fit into the timetable lesson. The legend is always printed on a separate page in the overview timetables.

Subheadings
The overview timetables can be very extensive. In order to increase the clarity of these printouts, the horizontal and vertical headings can be repeated in the plan at regular intervals.



If the subheadings are not to be repeated periodically, but before specific elements, please use the "Heading before the following elements" field (under Print | Details).

Page heading
In the "Page heading" field (Print | Details), you can enter a text that will be printed as a heading on each page.



6.6.2.12 Background

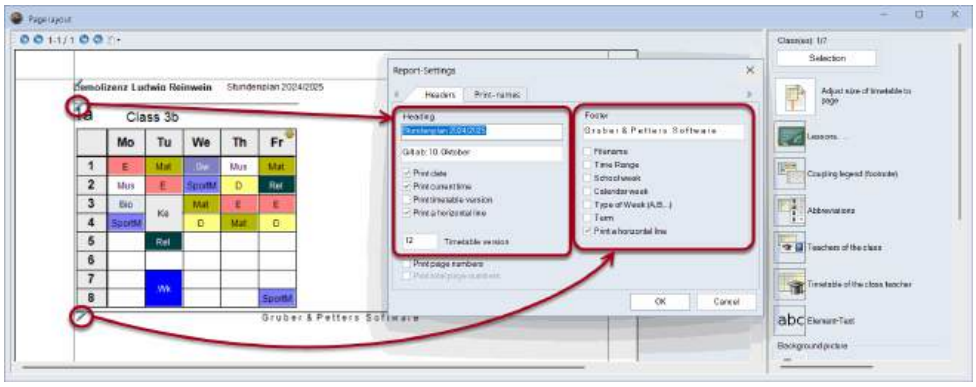
When printing timetables, any images can also be printed. The image must be available as .bmp, .gif or .jpg. Depending on the image, you can use this function to print your school logo or a background.

1. In the page layout, you can select the desired image using the "Background picture" button.
2. Click on the <Move picture> button to drag the image to the desired position.
3. Deactivate the "Move picture" option to fix the image in the desired position.

You can remove the picture again by clicking on the "Background picture" button.

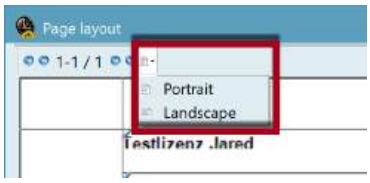
6.6.2.13 Header and footer

The information displayed in the header and footer can also be changed directly in the page layout by clicking on the pencil icon. The license text (school name and address) is always displayed and cannot be hidden.

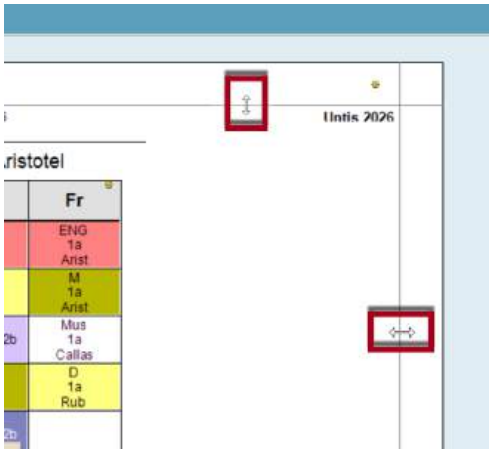


6.6.2.14 Set up page

You can set the paper format (portrait or landscape) and the page margins directly in the page layout.
Select the desired format using the paper icon.



To adjust the page margins, click on the boundary lines on the sides of the page and drag them to the desired position.



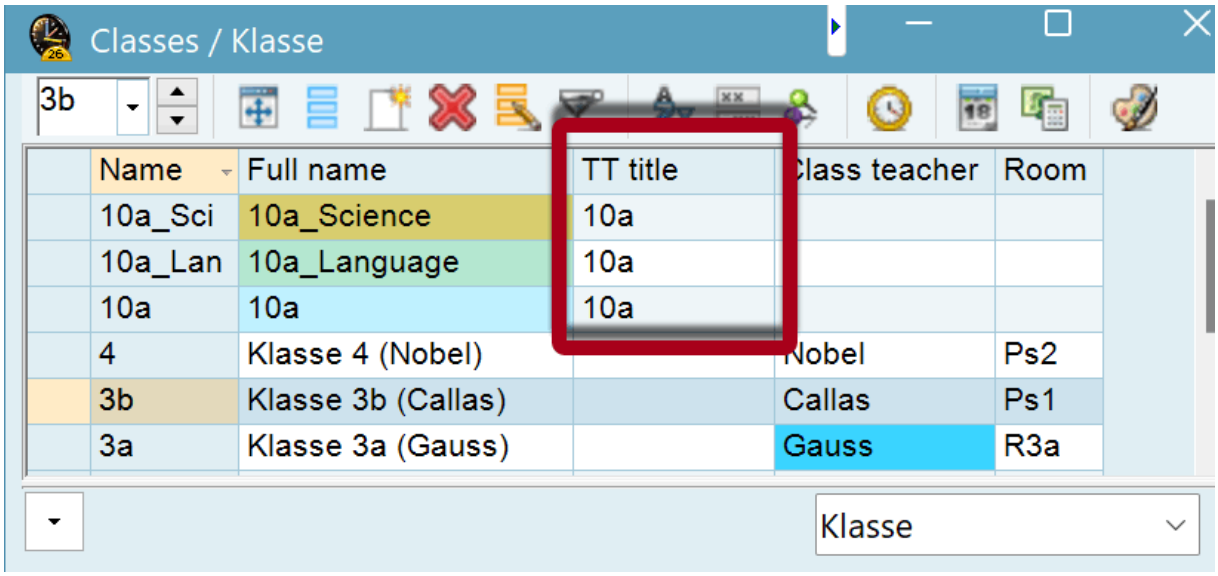
A3 printing
For overview plans, it is often advantageous to print the plans on A3 paper. If your printer supports A3 output, proceed as follows:

Set the paper size in the settings of your printer ("Print | Properties") to A3 paper size. If the A3 printer is defined as the default printer in the Windows Control Panel and A3 paper is entered as the default paper size in the printer driver, printing will automatically take place in A3 format.

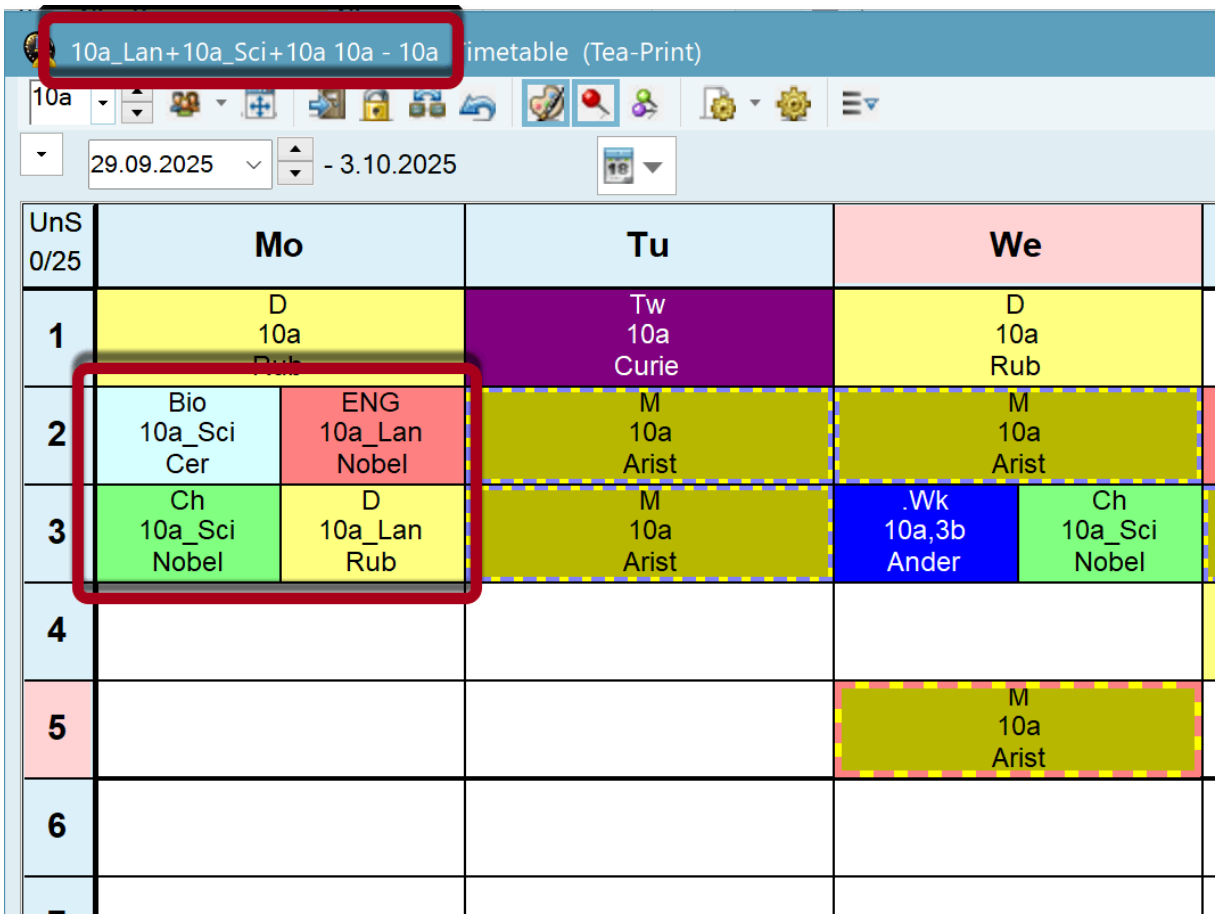
6.6.2.15 Several classes in one plan

If a class is divided into two sub-classes, e.g. a science and a new language branch, whose lessons only differ in some subjects, it may be useful to output the timetables of both classes in one plan.

To do this, enter the common class name in the "TT title" master data field under "Classes | Master data" for those classes whose timetable is to be printed in a common timetable.



The example shows a class with a science branch (10a_Sci) and a language branch (10a_Lan). In the lesson magnifier, it can be seen that the pupils in the science stream (10a_Sci) are taught Biology on Tuesday 2nd period, while the pupils in the new language stream (10a_Lan) are taught English. The common main class is 10a. The name of all subclasses is shown on the screen (10a + 10a_Lan + 10a_Sci).



When printing the timetable, all information of the subclasses is displayed in the common timetable of class 10a.

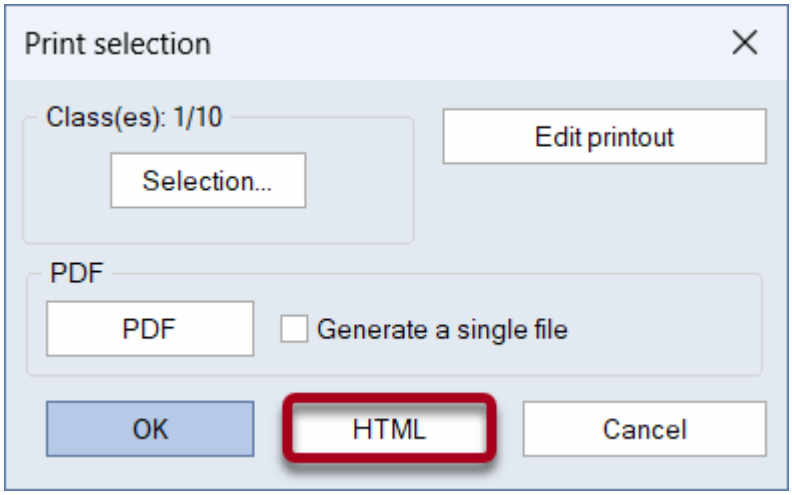
Tip:
If you want to prevent the timetables from being combined for individual timetable formats, deactivate the "Show master class separately" option on the Layout 2 tab in the <Timetable settings>.

6.6.2.16 Timetables in HTML format

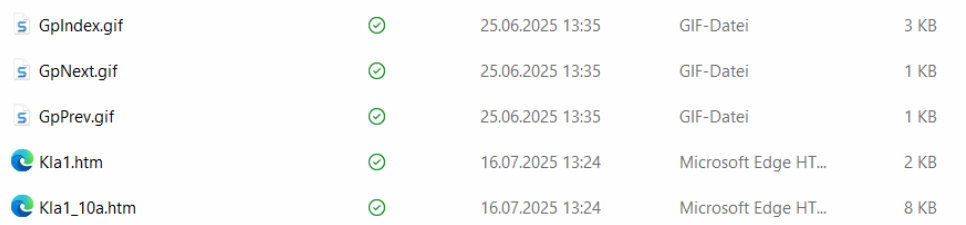
Untis offers you the option of outputting the timetables in HTML format at the touch of a button, making them immediately available for the school's own intranet or the Internet.

The creation of HTML files differs only slightly from normal timetable printing. Proceed as follows:

- Activate (by clicking on) the timetable that you want to save in HTML format and open the print selection dialog (by pressing either the <print> or <page preview> button).
- Select the elements you want to print (save in HTML format) as usual. Set all the usual details, such as legend printing.
- Click on <HTML output>.



- In the file dialog that appears, enter the directory in which you want to save the HTML files and confirm with <Ok>.



An index file is created for each output process, from which you can branch to each of the output elements. According to the default settings, this index file has the name of the format used (e.g. KLA_HTML). You can use this file to open the index with the links to the exported elements.

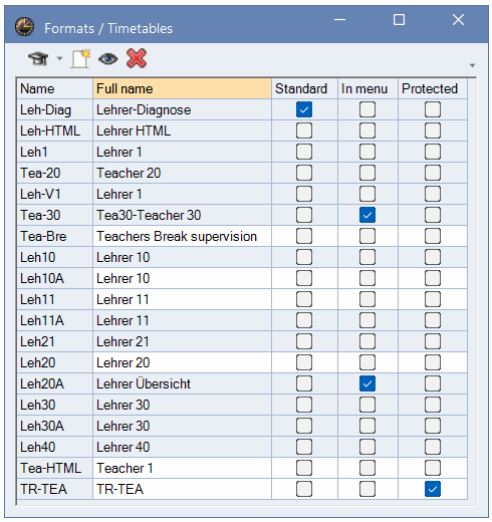
Tip:

If the long names of the elements to be output are to be used in the index file, activate the option "HTML index page with long names" in the <Schedule settings> on the "Layout 2" tab.

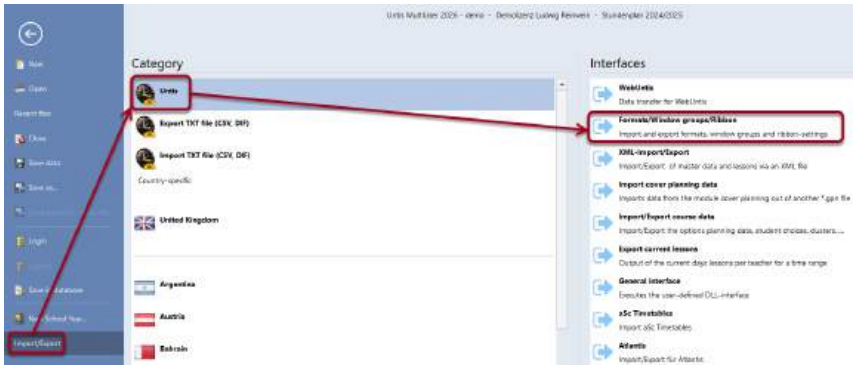
- In substitution mode (*Substitution scheduling* module), the daily timetables are output taking the substitutions into account.

6.7 Import and export of formats

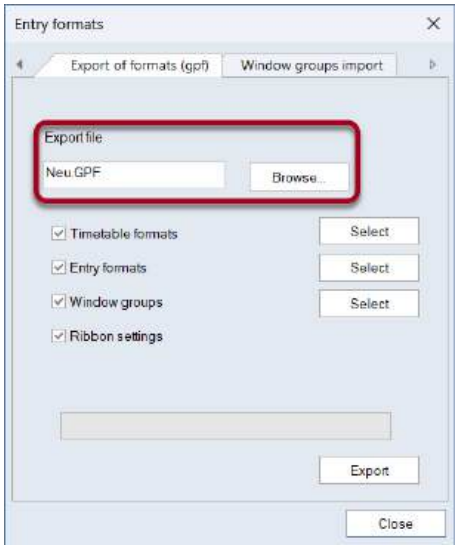
The formats you create are always saved in the current work file. To make these views available in other files, you can also export and import them.



- Select "File | Import/Export | Untis | Formats/Window groups/Ribbon".

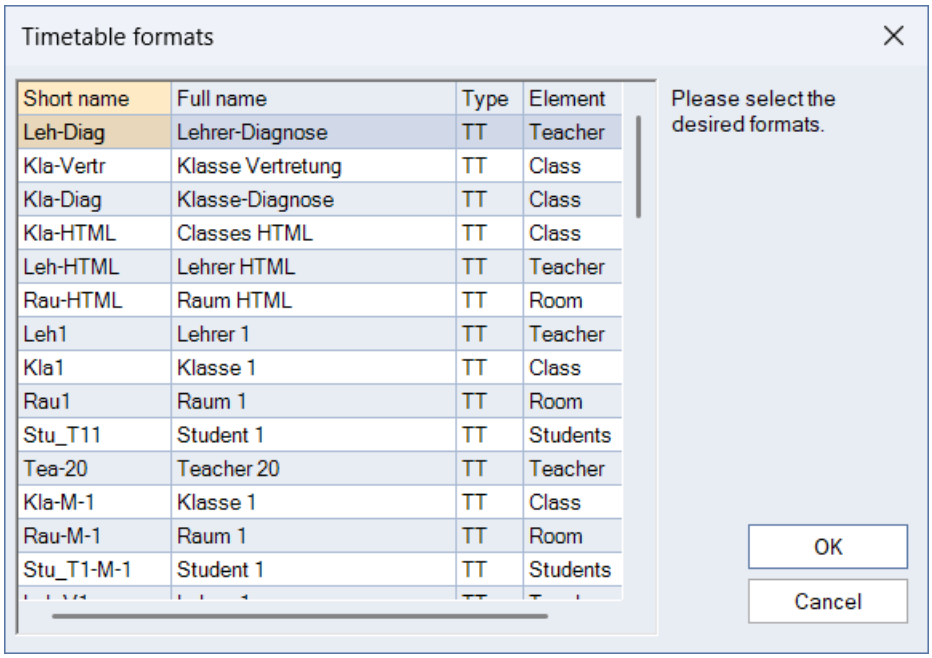


- In the dialog that appears, select the "Formats (gpf) export" tab.
- Enter a name of your choice in the name field for the export file (e.g. "New.gpf").



You can export both the format details of the timetable views and those of the master data views. To select specific timetable views for export, click the <Select> button in the "Timetable formats" line.

- In the window that appears, select the timetable views whose format you want to export and confirm with <Ok>.



The format data has now been saved in the "New.gpf" file. You can now, for example, make your formats (without school data) available to other Untis users or import these formats into other files.

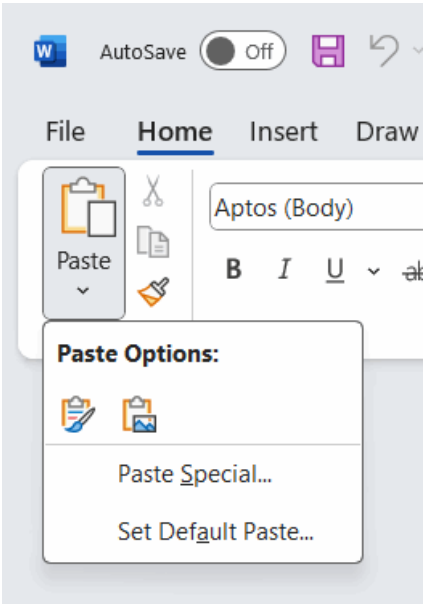
Importing formats from a .gpf file or directly from an .untis file works in the same way.

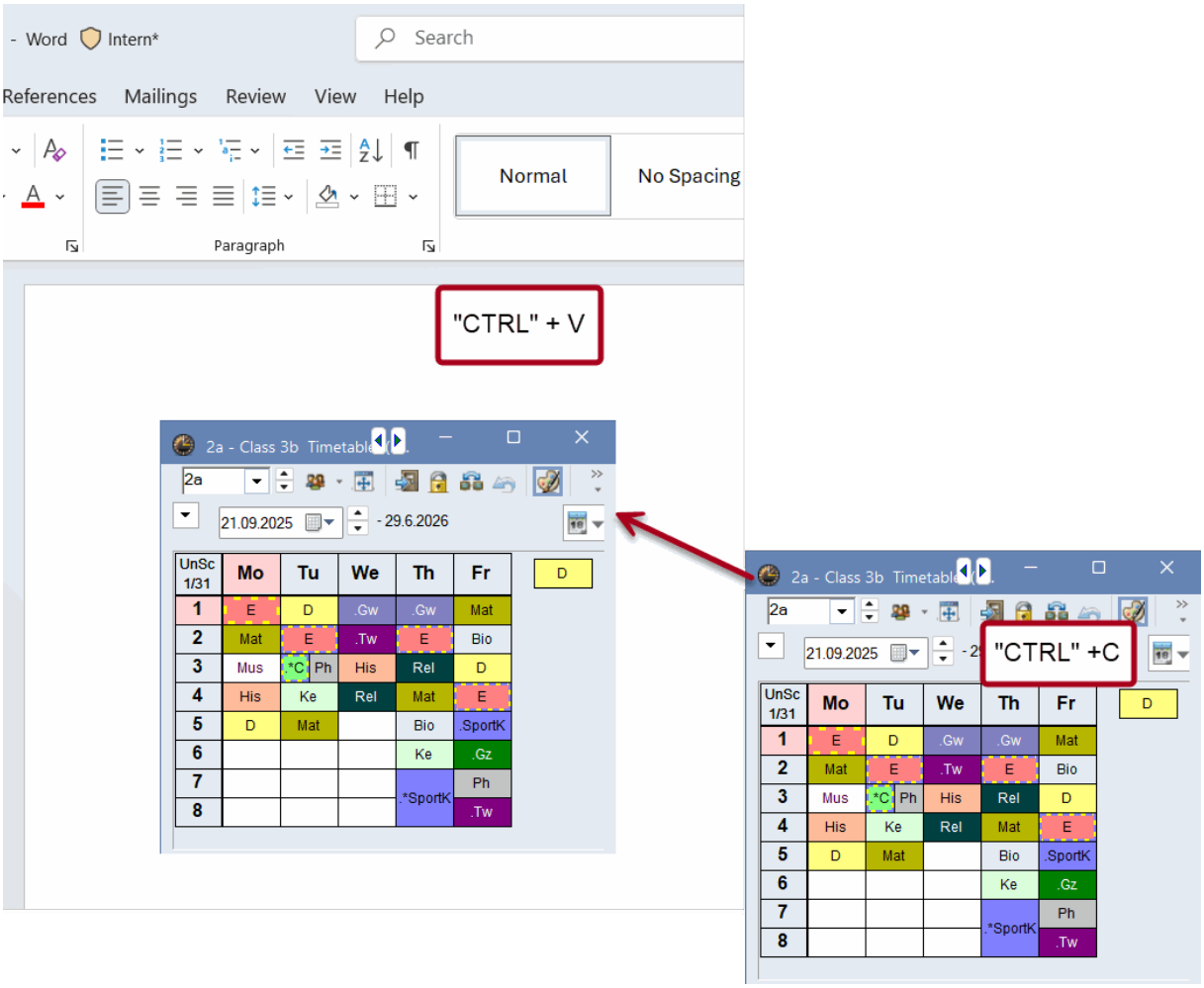
6.8 Using the clipboard

You can also export the timetables to other programs, such as word processing programs, via the clipboard.

To do this, proceed as follows:

- Click on the timetable you want to export (the title bar must be blue).
- Copy the timetable to the clipboard (via the menu command "Data entry | Copy" or the key combination Ctrl+ C).
- Switch to your word processing program. Select "Paste | Paste content" to insert the timetable as a graphic or use the key combination Ctrl + V).


AutoSave
Off
File
Home
Insert
Draw
Paste
Aptos (Body)
Paste Options:
Paste Special...
Set Default Paste...


- Word
Intern*
Search
References
Mailings
Review
View
Help
Normal
No Spacing
Paragraph
"CTRL" + V
2a - Class 3b Timetable
2a
21.09.2025
- 29.6.2026
D
"CTRL" +C
UnSc 1/31
Mo
Tu
We
Th
Fr

7 Instructions for use

7.1 Instructions for use

This chapter describes entries that go beyond master data and lessons, which are intended to help you use Untis and work on your timetable.

7.2 The multifunction bar (ribbon)

7.2.1 General

Untis has a *ribbon control*, or shortly *Ribbon*. The following section explains the most important points of this menu control.

In principle, you should find most of the functions you need on the *Start* tab.

For the Untis basic package, all available commands are also divided thematically into the areas of *Data*, *Scheduling* and *Timetables* and can be accessed via the corresponding tabs.

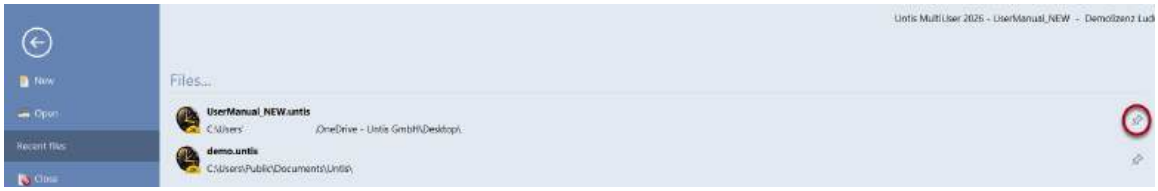
When using *additional modules*, additional tabs may be visible.

Tip:
You can also minimize the ribbon. To do this, right-click anywhere on the ribbon and select the corresponding command.

The minimized ribbon bar is reminiscent of a classic menu.

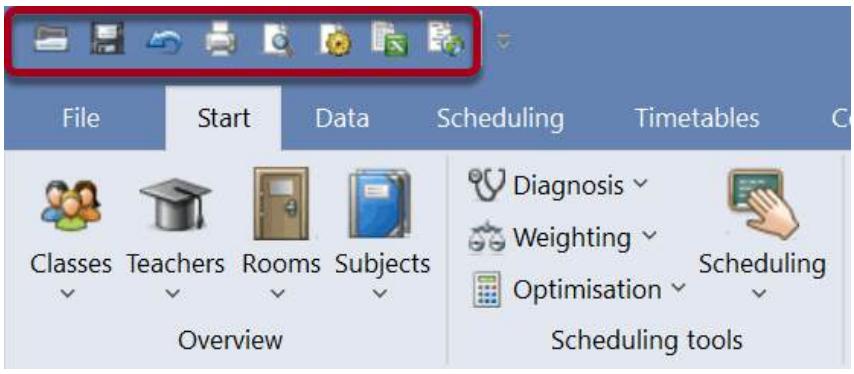
7.2.2 File tab

The "Recent files" menu shows you the last files opened and the folders used for them. Important files and folders can be fixed so that they are permanently displayed in the lists.

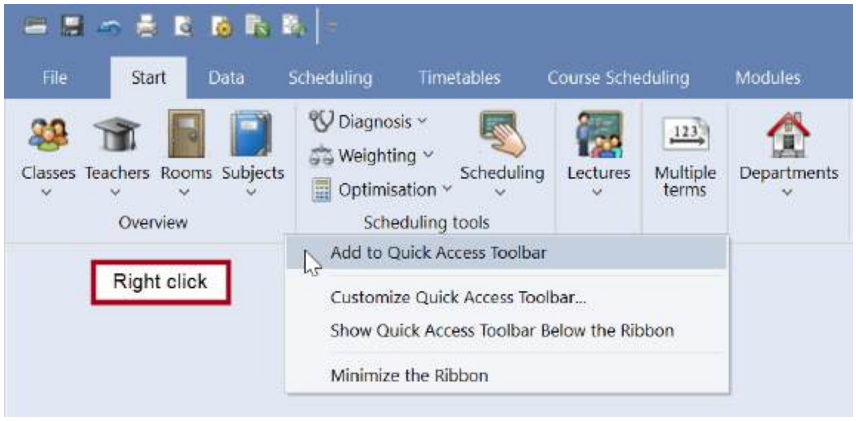


7.2.3 The Quick Access Toolbar

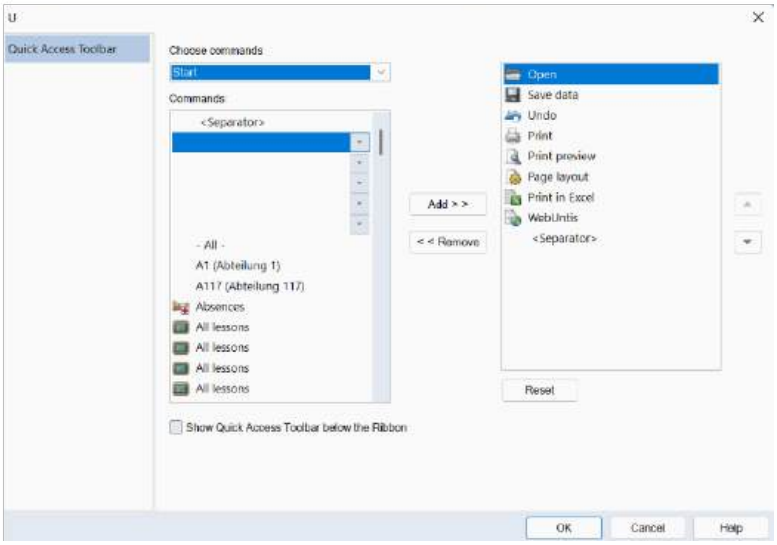
Similar to common Office applications, Untis also has a *Quick Access Toolbar* that you can customize to your liking. There are two ways to do this.



1) Right-click on a button in the ribbon and select the option "Add to Quick Access Toolbar" from the context menu.



2) To add or remove icons, click on the "Customize Quick Access Toolbar..." option in the context menu or on the black triangle on the right edge of the Quick Access Toolbar.

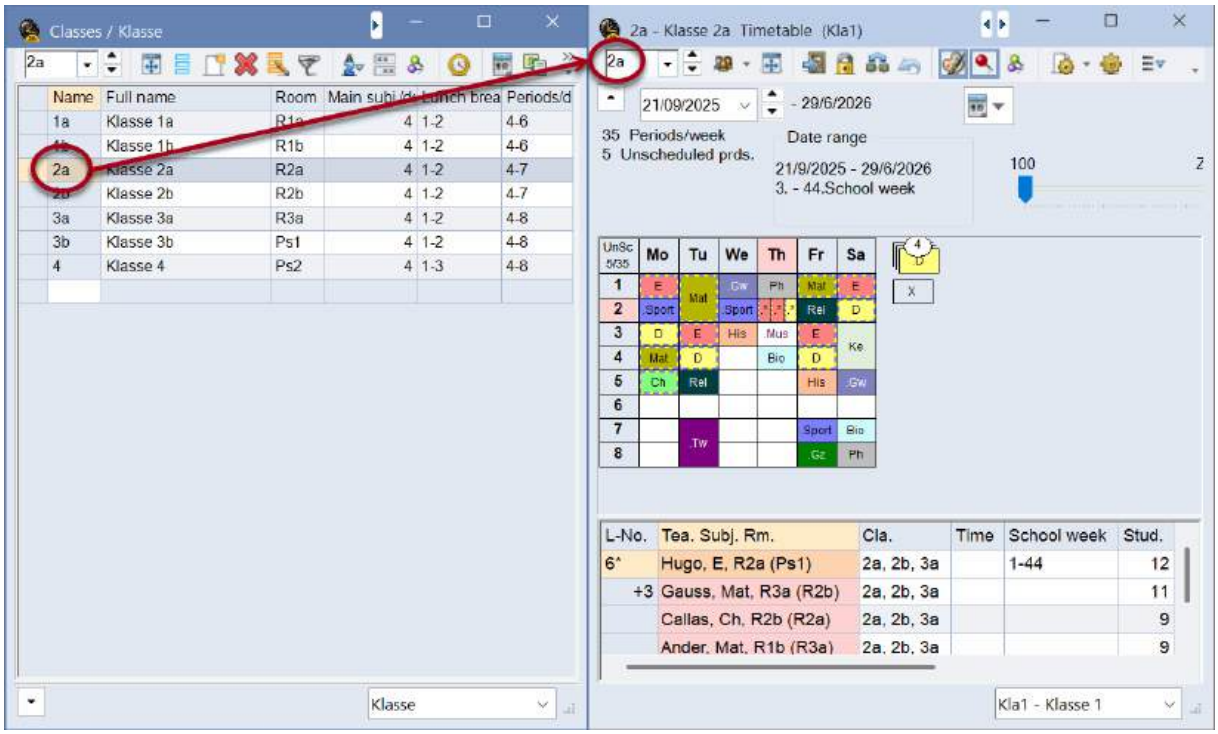


Icons that are already active in the quick access toolbar can be deactivated directly here. If you want to add more functions to the quick access toolbar, click on <Further commands...>.

A window opens in which you can add the commands available in Untis to the quick access toolbar, sorted by tab.

7.3 Working with multiple windows

In principle, the open windows on the Untis desktop synchronize. This means, for example, that a change of element in a master data window has an effect on an open timetable window.



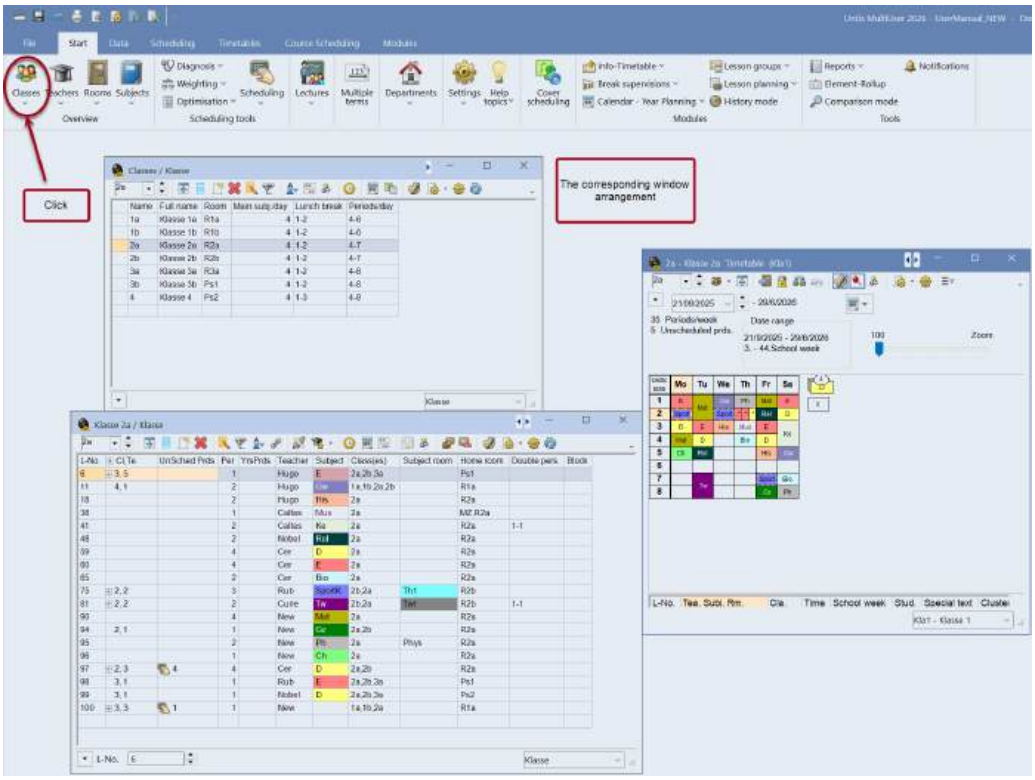
It is therefore advisable to have several windows open on the screen at the same time. It should be noted, however, that the different stages of work on the timetable place different demands on the information that must be available to the planner on *an ad hoc basis* : for example, an open scheduling dialogue is simply in the way while working on the subject distribution, i.e. the distribution of the school's entire teaching to the teachers available at the school, while the weighting window interferes with the final manual fine-tuning of the timetable.

In principle, Untis offers you two options for saving frequently used window combinations individually and switching quickly between these screen arrangements:

1. Window arrangements
2. Window groups

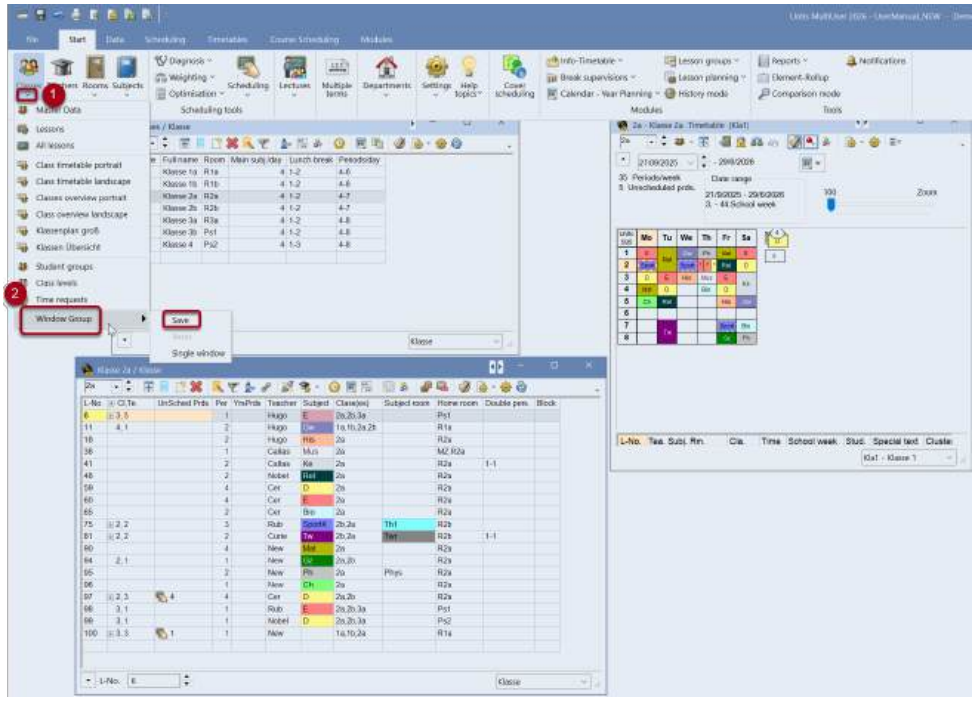
7.3.1 Window arrangements

The Untis ribbon menu is designed in such a way that clicking on a command button opens a window arrangement.



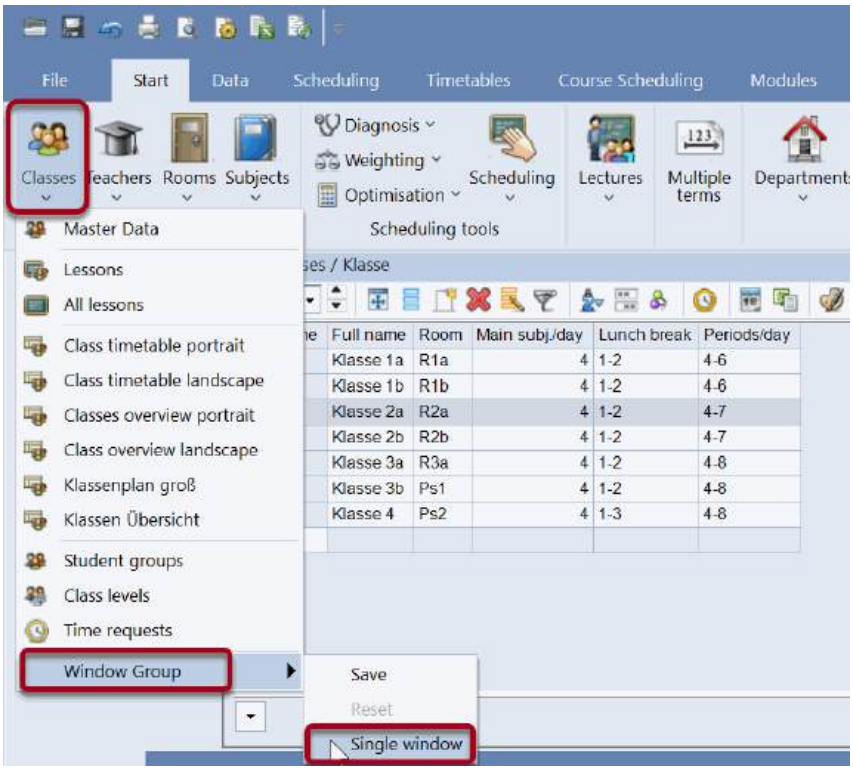
These window arrangements can be customized. To change the default setting, proceed as follows:

1. set up your screen (by opening and positioning the relevant windows) as you wish.
2. in the menu below the command button, you will find the *Window Group* submenu in which you can save the window arrangement.



3. your individual window arrangement is now saved. The next time you click on the command button, your screen layout will be created.

Tip: Single window
If you want a single window to open in addition to those already on the screen when you click on the command button, activate the *Single window* option .



Tip: Reset
If you want to restore the default window arrangement, simply select the *Reset* command in the Window Group submenu.

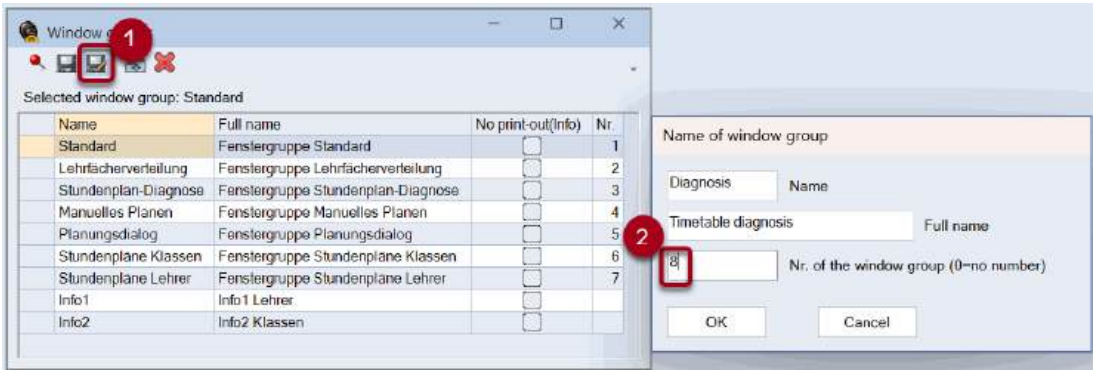
7.3.2 Window groups

Window groups already existed before the introduction of the ribbon and can still be used.

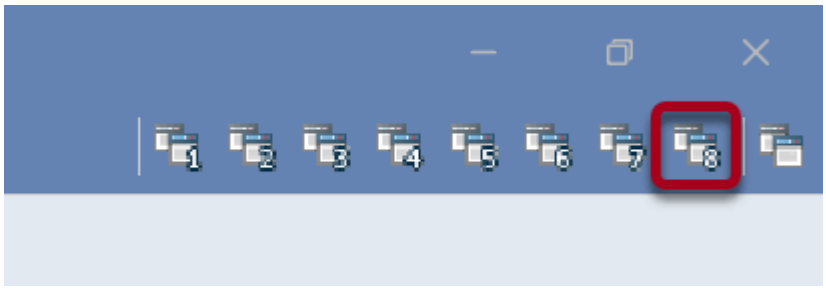
To create a window group, please proceed as follows:

1. Open the desired windows and arrange them as you need them for your work.
2. Click on the <Window groups> button on the right-hand side of the menu bar.

3. The window of the *window groups* opens.
4. Click on the <Save window group as> button and assign a meaningful short and full name for the screen layout.



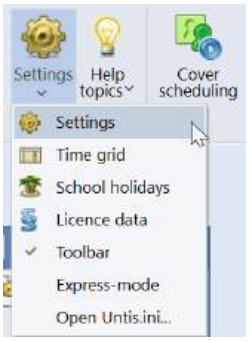
5. Enter a number between 1 and 30 in the "No. of window group" field and confirm the entry with <OK>.
6. Note that a button has now been added to the "Window groups" menu bar.

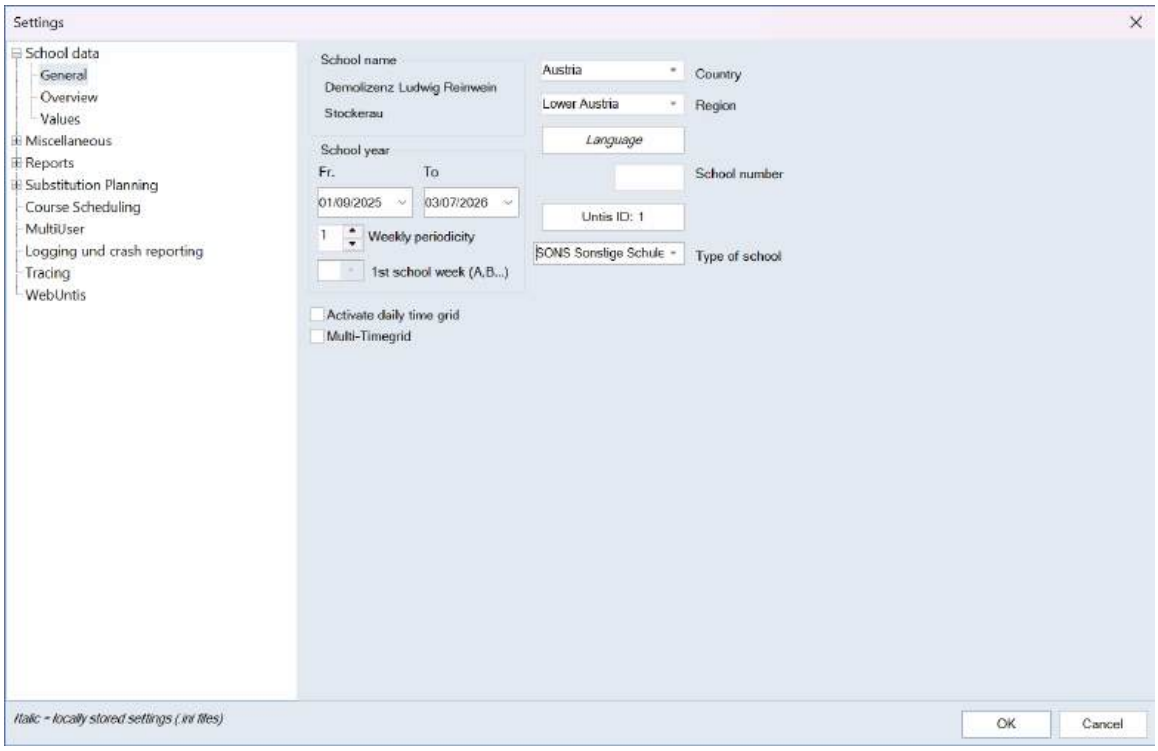


Tip: Importing/exporting window groups
You can transfer window groups from one file to another at any time. To do this, open the file into which the arrangements are to be imported and click on "File | Import/Export | Untis | Formats/Window groups/Ribbon". On the "Window groups import" tab, you can navigate to the Untis file whose window groups you want to import and start the import.

7.4 Settings

On the "Start" tab, you can make all relevant settings in a central location in the "Settings" menu. The most important ones are explained in the following section.





7.4.1 Time grid

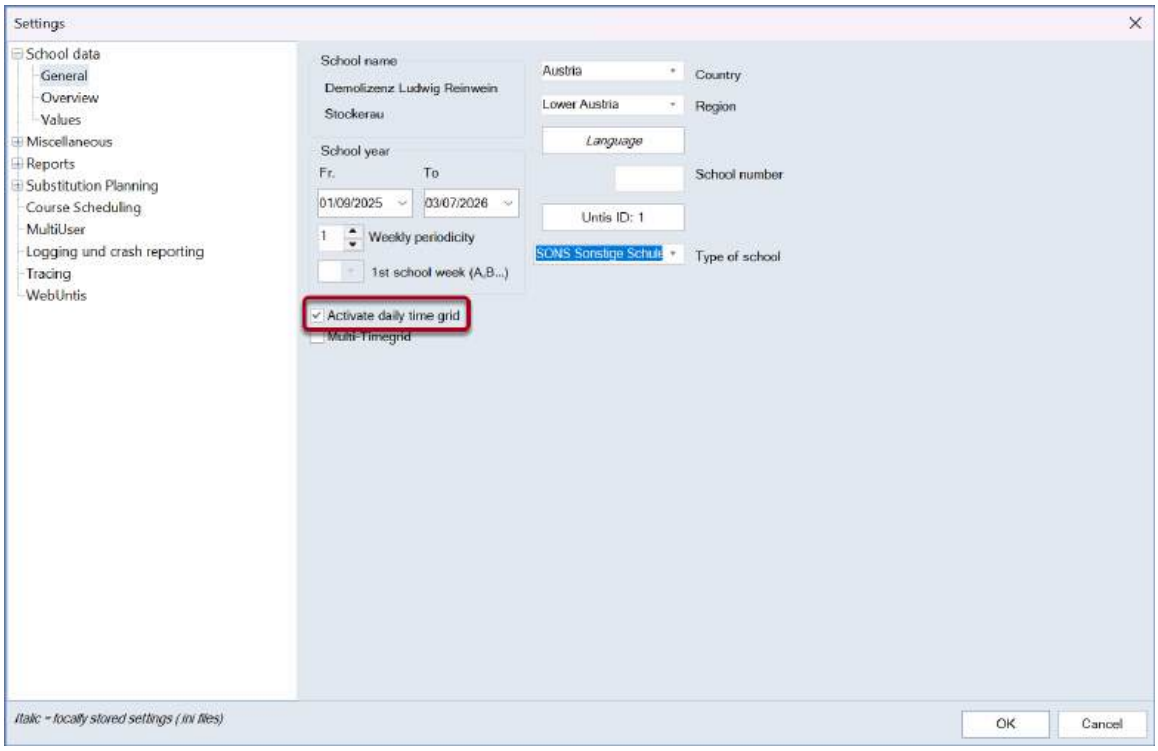
The entry of a simple time grid, in which the same periods prevail on every day of the week, is described in the brochure "Untis getting started".

However, Untis also offers the option of defining a separate time grid for each day of the week. This is described in the following chapter Daily time grid .

7.4.1.1 Daily time grid

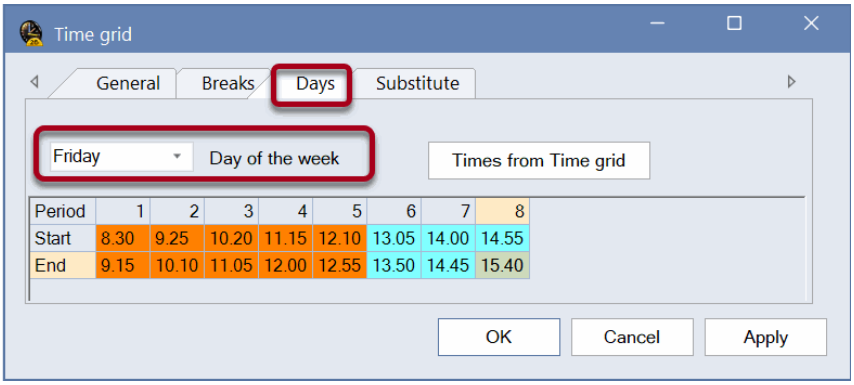
Normally, Untis assumes that the same time allocation applies every day of the week. However, there are also schools where the time grid varies from day to day.

In this case, you must first open the "Settings" on the *Start* tab and check the "Activate daily time grid" option in the *School data* section under *General*.

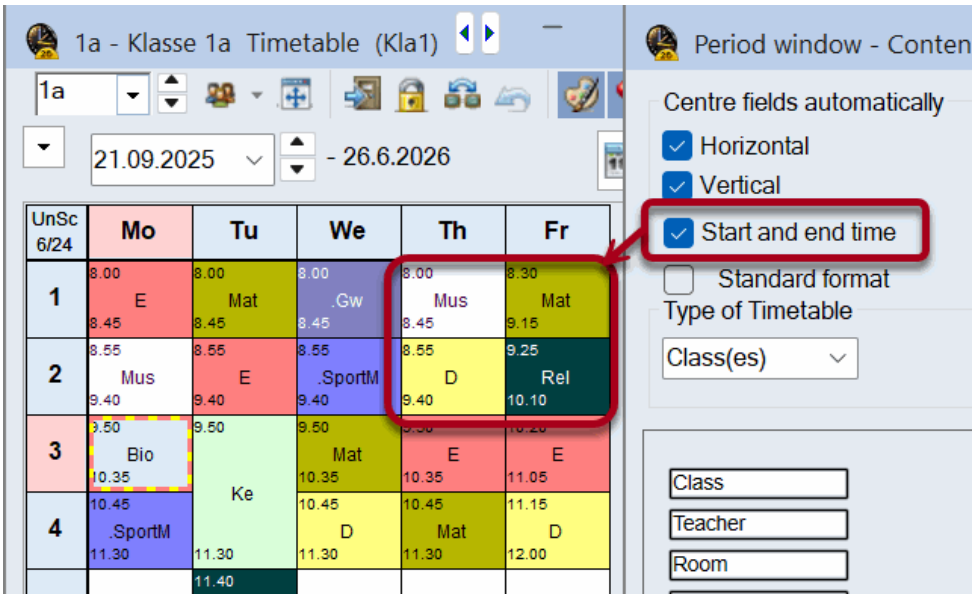


As soon as you have closed the window with <Ok>, an additional tab with the name "Days" appears in the time grid ("Settings | Time grid").

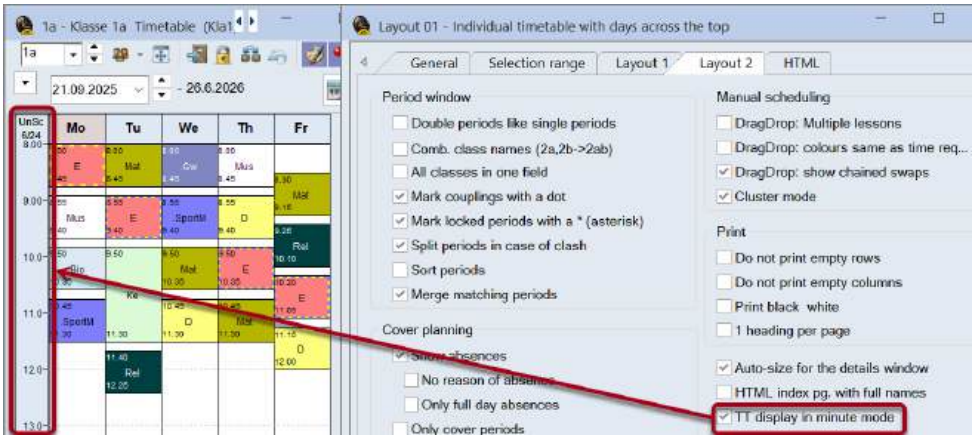
Now select a day from the list (Friday in our example) and change the start and end times of the periods.



The different times are visible in the timetable if you activate the display of start and end times in the <Timetable settings>

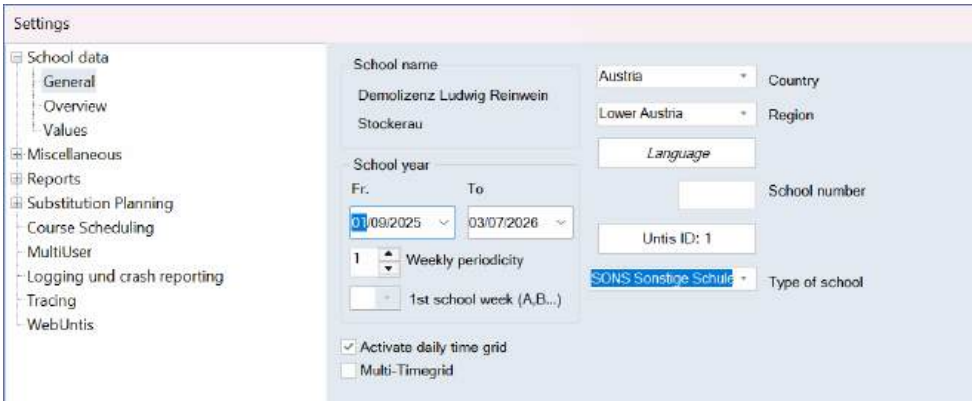


or output the timetables in minute mode ("Layout 2" tab).

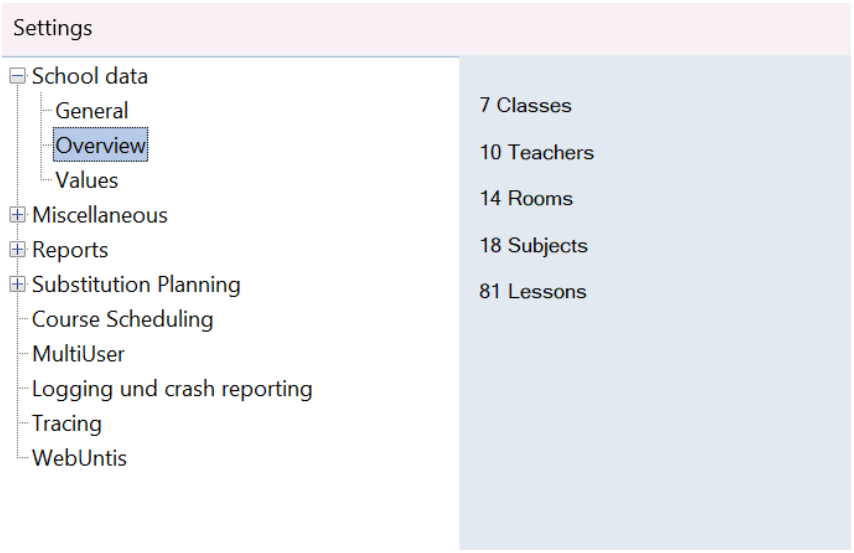


7.4.2 School data

In the *School data* section under *General*, you can enter the start and end date of the current school year, as well as the country, region and type of school. Various (statistical) procedures and calculation methods depend on the settings made here.



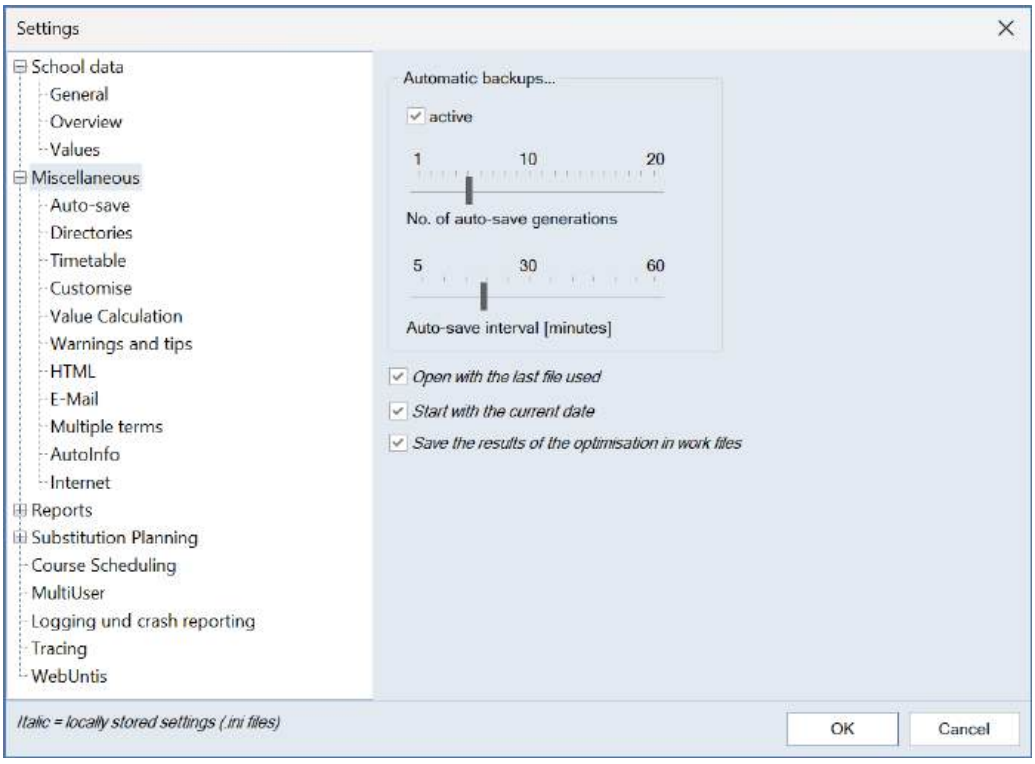
Under *Overview*, you will find an overview of the number of classes, teachers, rooms, subjects and lessons at your school.



7.4.3 Miscellaneous section

7.4.3.1 Auto-save

Here you can set the intervals at which Untis should automatically back up data and how many backup generations should be archived. For example, the settings in the illustration mean that Untis should back up data every 20 minutes and save 5 backup generations. This data is saved in the files Save1.untis, Save2.untis, Save3.untis, Save4.untis and Save5.untis. The most recent data is always in the Save1.untis file, the relatively oldest in the Save5.untis file.



If you check the "Open with the last file used" box, Untis will automatically load the last edited file at startup. You can prevent this behavior by holding down the <Shift> key during startup.

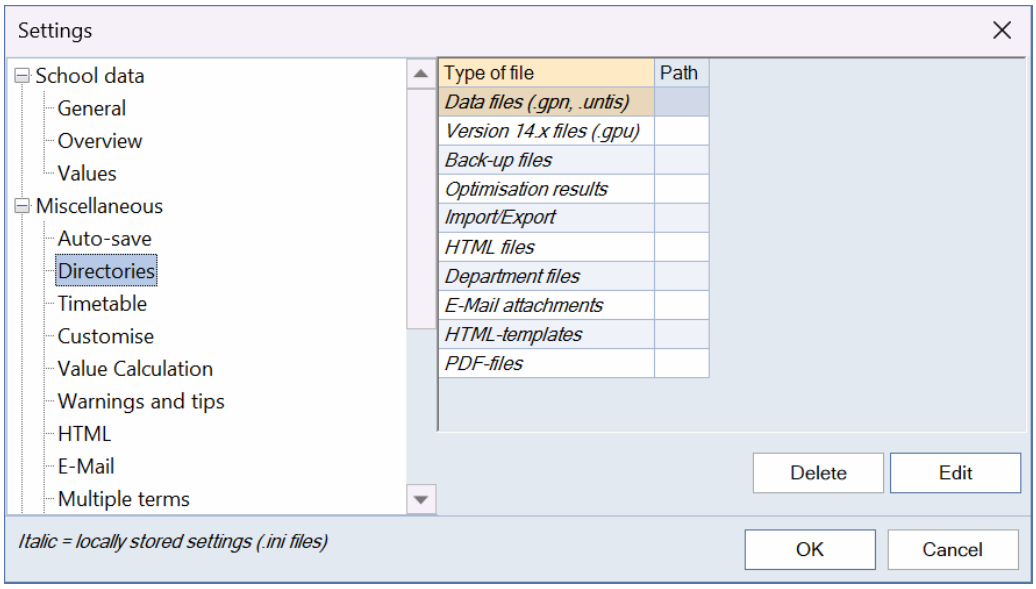
With the "Start with current date" option, you can also control whether those windows for which a date selection is possible should be opened with the current date or the last saved date.

After optimisation, the results can be viewed directly in the optimisation dialogue. If you also want these plans to be available after Untis has finished, check the box "Save the results of the optimisation in work files". This causes the results to be saved in so-called work files.

Tip:
As described under Directories, we recommend specifying a path for saving the optimisation results.

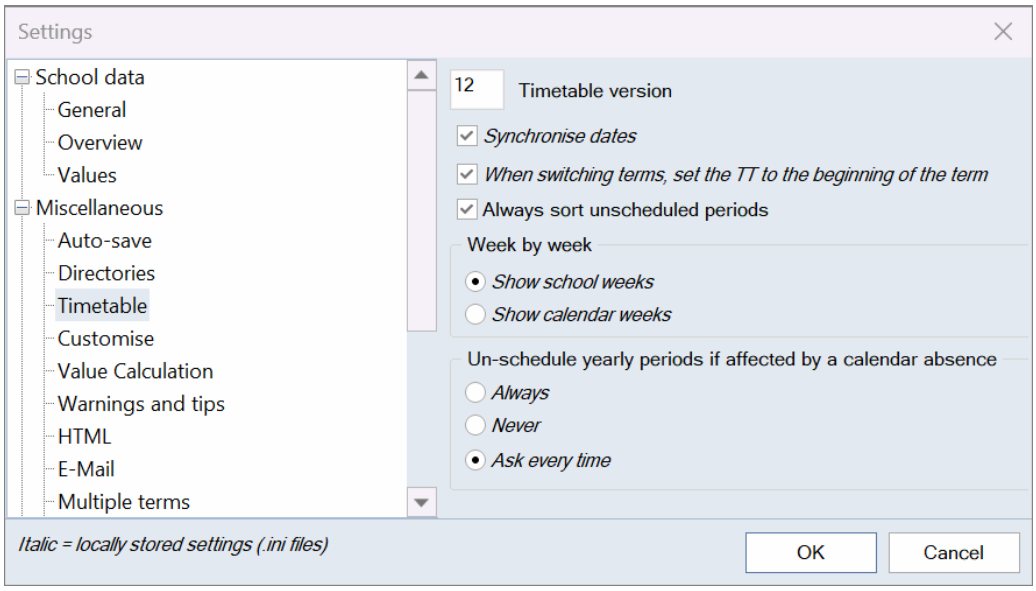
7.4.3.2 Directories

You can define various default paths in this section. We recommend that you create separate directories at least for your backup files and Optimisation results (these are the files in which the various timetables of your school are saved during optimisation) and enter the respective paths here.



7.4.3.3 Timetable

The settings in this section affect various timetable functions.

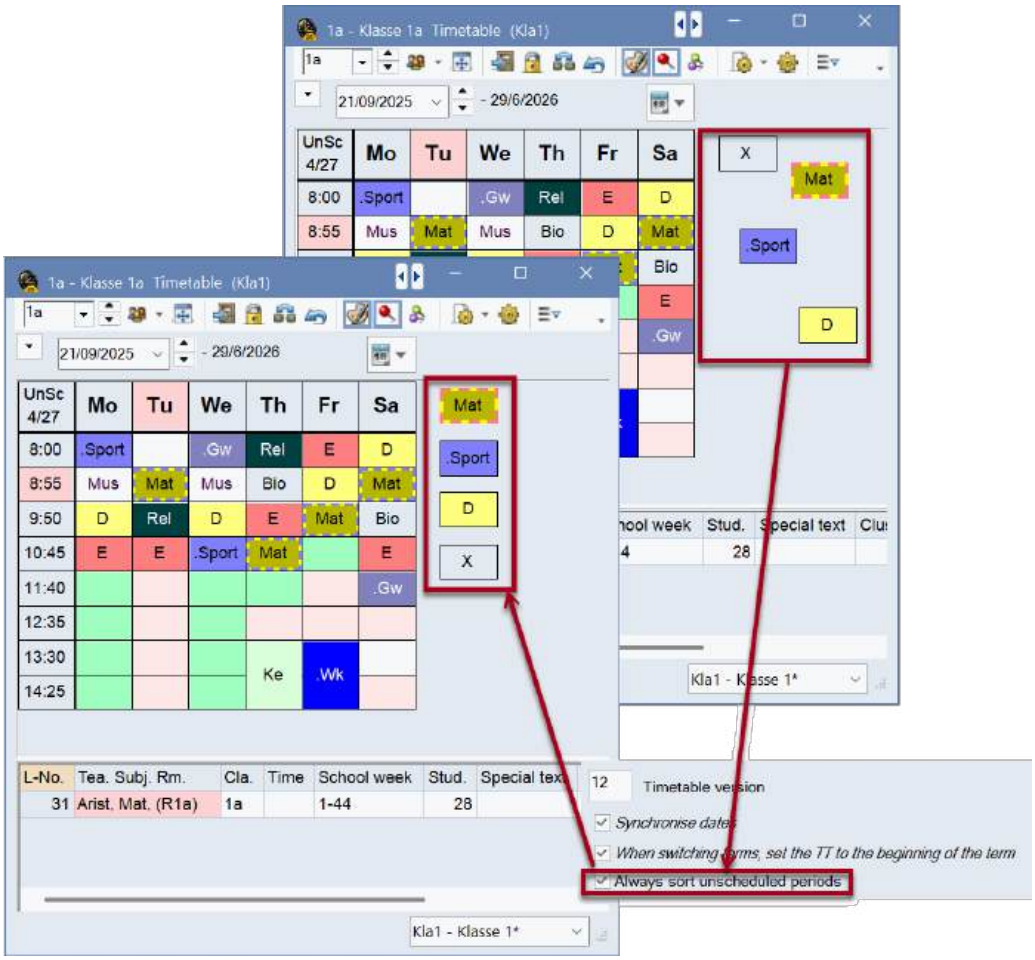


For example, the freely selectable "Timetable version number" is printed on all timetable printouts (see chapter *Timetable design*).

You can use the field "Synchronise dates" to set whether a date change in *a* timetable should also affect the date of *all* open timetables on the screen. This is particularly important when using the *multi-week timetable* module.

The field "When switching terms, set the TT to the beginning of the term" is only active in connection with a valid licence for the multi-week *timetable* module.

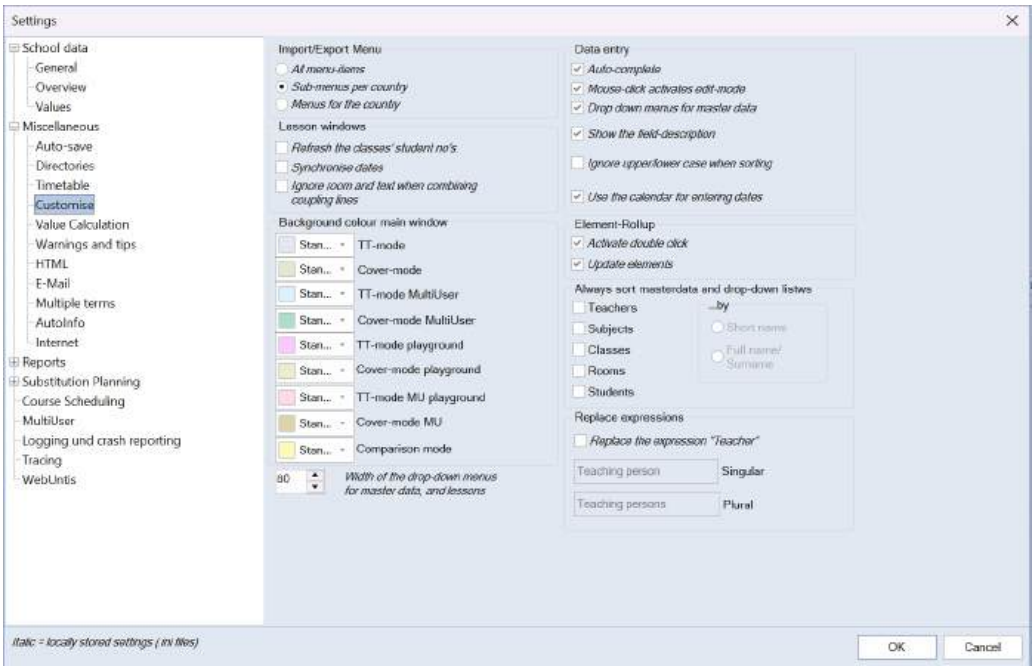
The option "Always sort unscheduled periods" refers to the periods that are next to the timetable for scheduling. If the option is checked, the unscheduled periods are always neatly arranged to the right of the timetable. It is then no longer possible to move these periods manually on the shelf.



The last two options "Week by week" are only active if you have a licence for one of the modules *Multi-week timetable*, *Substitution planning* or *Calendar year planning*. This allows you to choose whether school weeks or calendar weeks are displayed in the timetables.

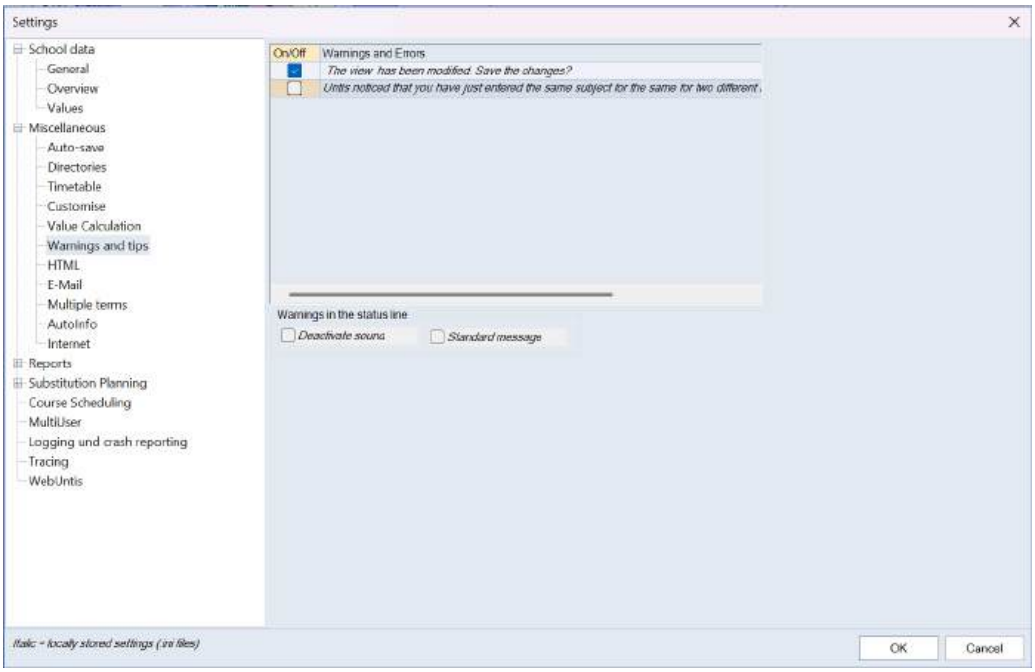
7.4.3.4 Customise

Here you can use various options to customise the handling of Untis according to your needs.



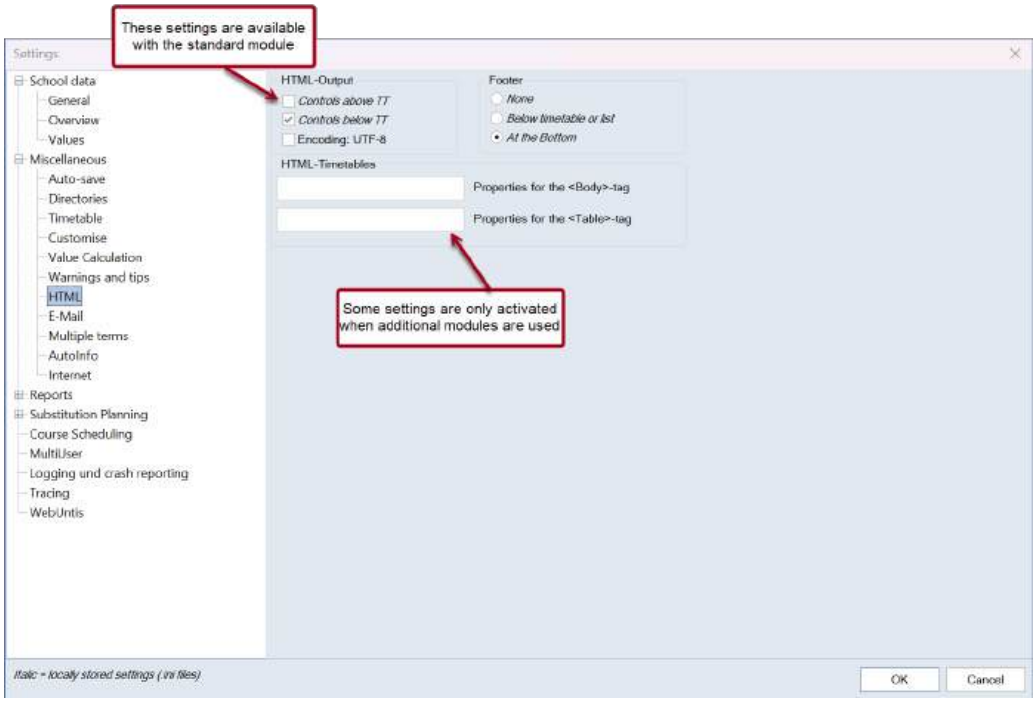
7.4.3.5 Warnings

Various warning messages from Untis can be deactivated. You can activate and deactivate these warnings individually here.



7.4.3.6 HTML

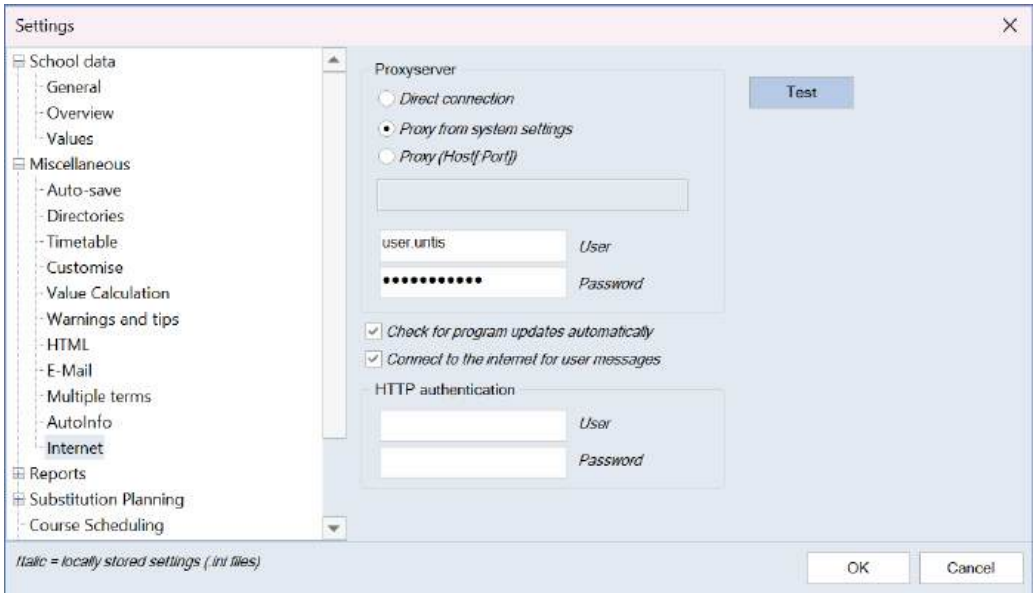
In this section, you can make various settings for the HTML output of timetables.



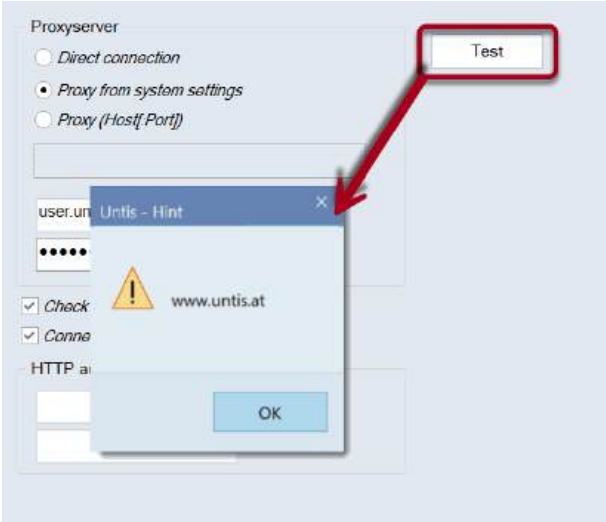
If you use other additional modules in addition to the standard module, such as the *Info timetable* module, you have more advanced setting options.

7.4.3.7 Internet

Untis offers you the option of being informed about version-internal updates. In addition to the activated option "Check for program updates automatically", it is necessary to define how the Internet is accessed - directly or via a proxy server. If you are not sure about these settings, please contact your system administrator.



You can use the <Test> button to test whether the settings you have made are correct and whether Untis can reach the Untis web server. The following message appears if Untis was able to establish the connection successfully.



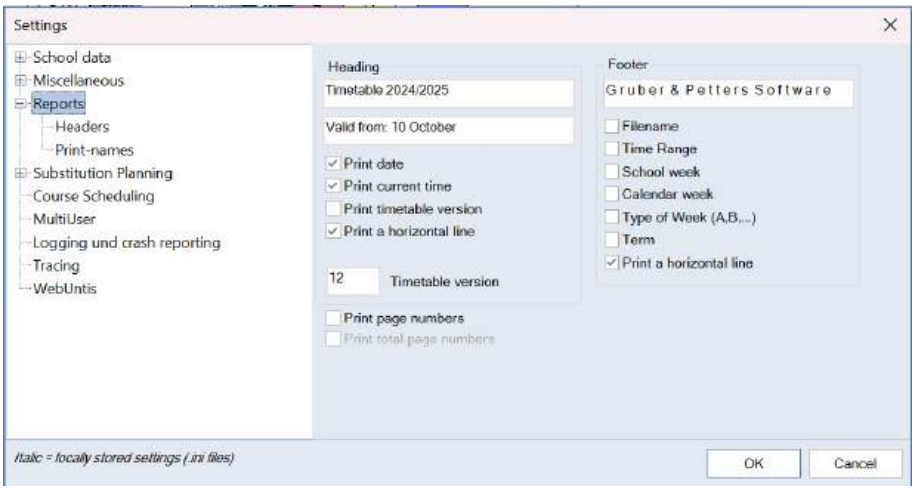
You can use the "Connect to the internet for user messages" option to set whether you want to receive messages from your regional Untis partner or from Untis itself.

"HTTP authentication" is not normally required.

7.4.4 Reports section

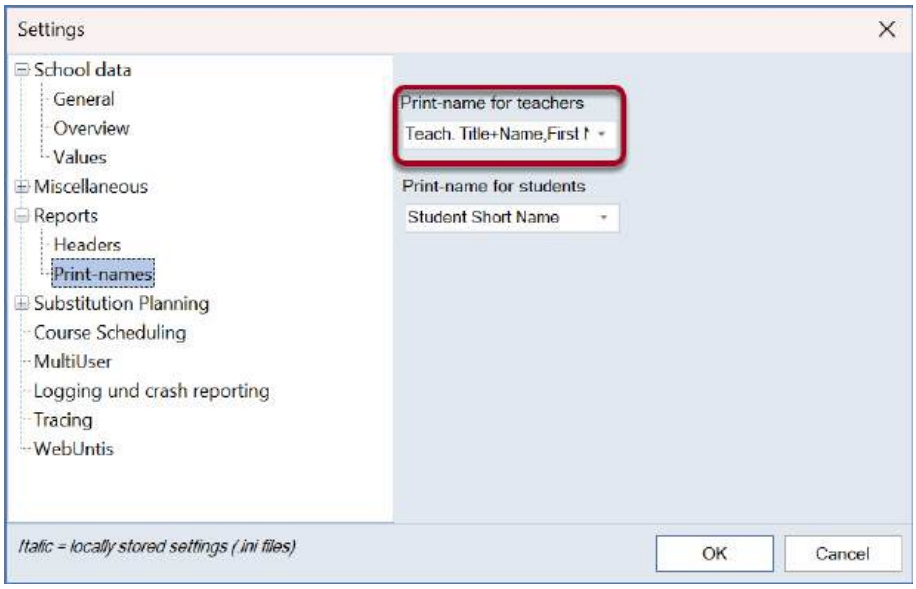
7.4.4.1 Headings

The options that can be set here mainly concern the headings and footer of the printouts. A detailed explanation can be found in the chapter Timetable printing.



7.4.4.2 Print-names

With the print-names, Untis offers an easy-to-use option for replacing short names in reports (and also in timetables) with predefined surname/first name combinations. In the example below, the combination "Title Name, First Name" is selected for printing.



Demolizenz Ludwig Reinwein Timetable 2024/2025
Stockerau Valid from: 10 October

The print names are displayed instead of the short names

Free Periods

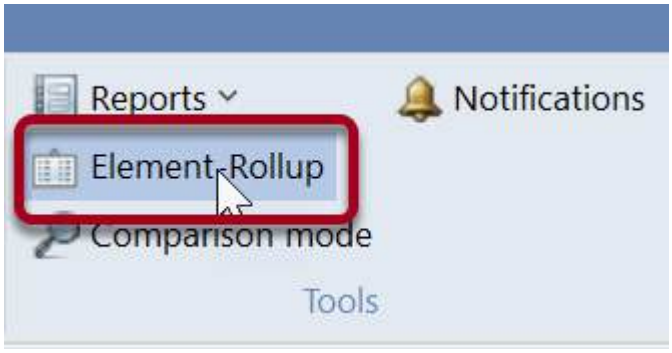
Used symbols:
* Blocked period or blocked day
\+ NTP (Non Teaching Period)

Period	Number Elements Total	*	+	Misc.	Names				
Mo-1 8:00 - 8:45	3	0	0	3	Andersen, Hans Christian	Maestra Callas, Maria	Madame Curie, Marie		
Mo-2 8:55 - 9:40	2	0	0	2	Nobel, Alfred	Madame Curie, Marie			
Mo-3 9:50 - 10:35	2	0	1	1	+Dr. Gauss, Carl Friedrich	Nobel, Alfred			
Mo-4 10:45 - 11:30	3	0	1	2	+Madame Curie, Marie	Andersen, Hans Christian	Nobel, Alfred		
Mo-5 11:40 - 12:25	7	0	0	7	Hugo, Victor	Andersen, Hans Christian	Aristoteles	Maestra Callas, Maria	Nobel, Alfred
Mo-6 12:35 - 13:20	10	0	0	10	Dr. Gauss, Carl Friedrich	Sir Newton, Isaac	Hugo, Victor	Andersen, Hans Christian	Aristoteles
Mo-7 13:30 - 14:15	9	1	0	8	Dr. Gauss, Carl Friedrich	Sir Newton, Isaac	Andersen, Hans Christian	Aristoteles	Nobel, Alfred
Mo-8 14:25 - 15:10	9	1	0	8	Dr. Gauss, Carl Friedrich	Sir Newton, Isaac	Andersen, Hans Christian	Aristoteles	Nobel, Alfred
Tu-1 8:00 - 8:45	4	1	0	3	Maestra Callas, Maria	Rubens, Paul	Madame Curie, Marie	*Hugo, Victor	
Tu-2 8:55 - 9:40	4	1	2	1	+Dr. Gauss, Carl Friedrich	+Nobel, Alfred	Madame Curie, Marie	*Hugo, Victor	
Tu-3 9:50 - 10:35	2	1	0	1	Madame Curie, Marie	*Hugo, Victor			

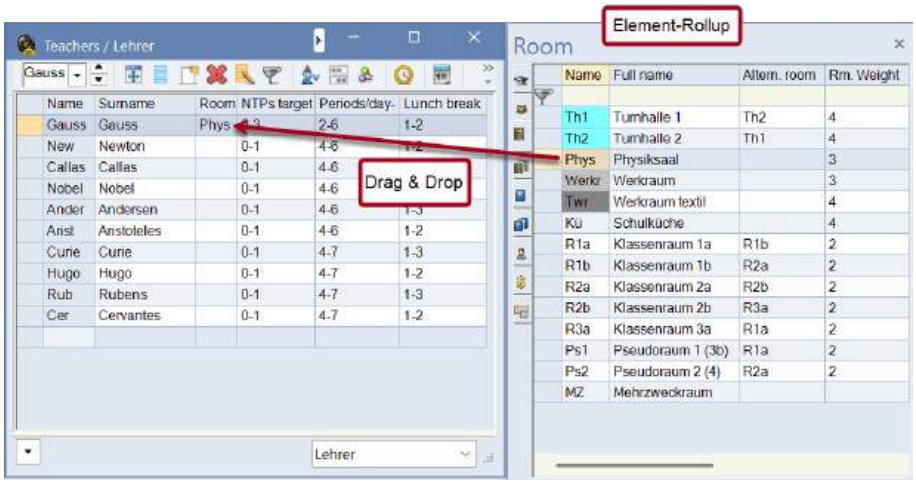
7.5 Accessibility

7.5.1 The Element-Rollup

You can use the Element-Rollup window to make entries in lists via *drag & drop*. You will find the Element-Rollup on the "Start" tab on the right-hand side:

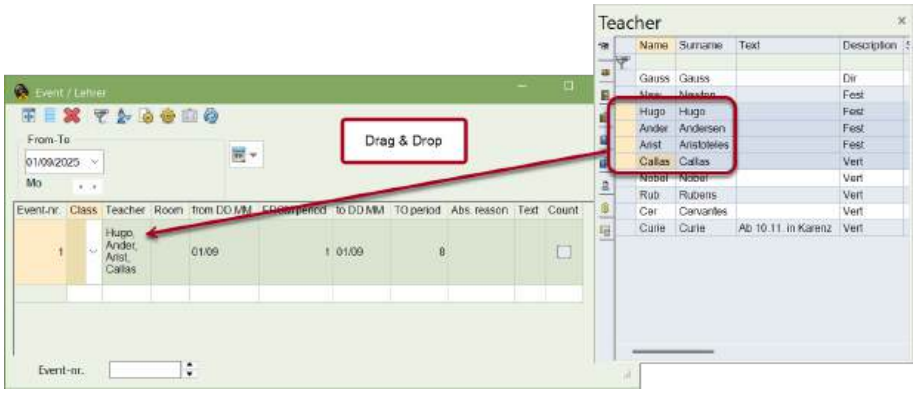


In the Element-Rollup, you can select the different master data and enter it in other windows by double-clicking or drag and drop.



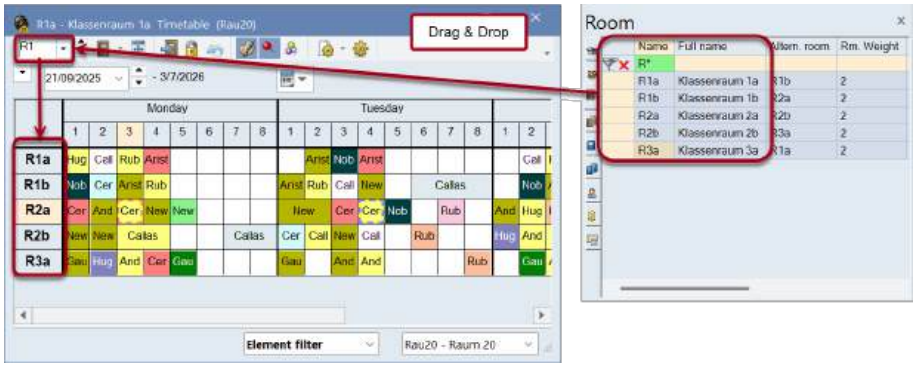
Select multiple elements

The particular advantage of the Element-Rollup is that you can select several elements with the <Ctrl> key and then insert them in one go. In the event below, four teachers were entered in one move:



Filter in the Element-Rollup - overview plans

You can also filter in the Element-Rollup. In the example below, the Element-Rollup is filtered to all rooms beginning with "R". Now you can select all these rooms and then drag and drop them into the selection box of the overview plan.

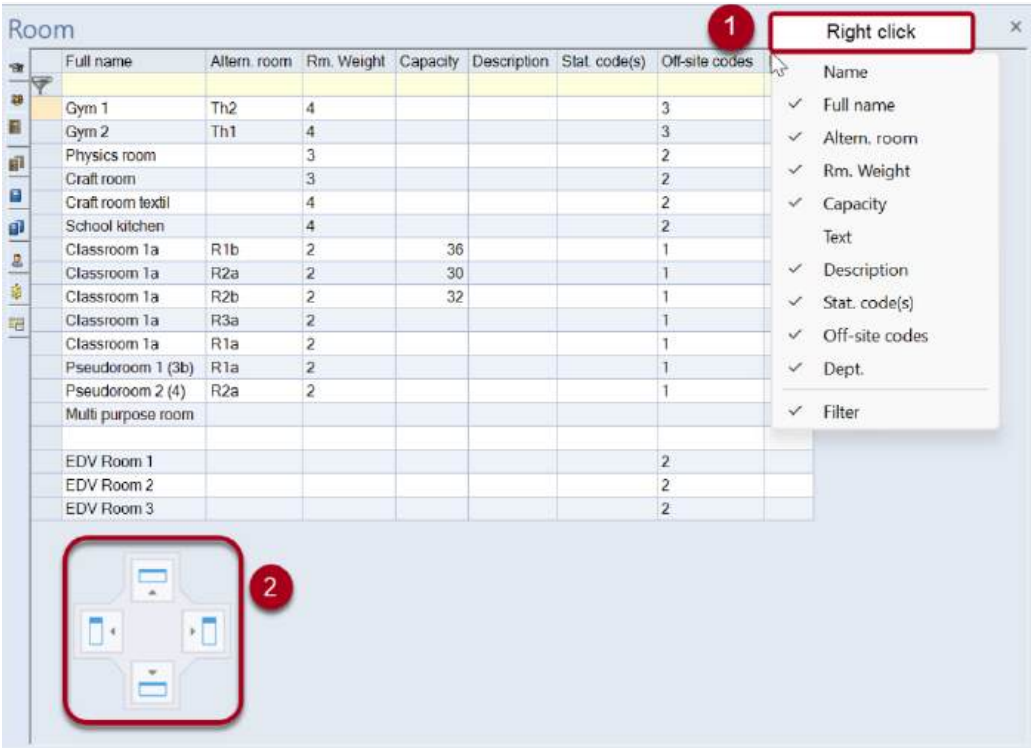


Showing columns - docking

1. You can add (or remove) additional columns to the Element-Rollup via the context menu of the right mouse button.

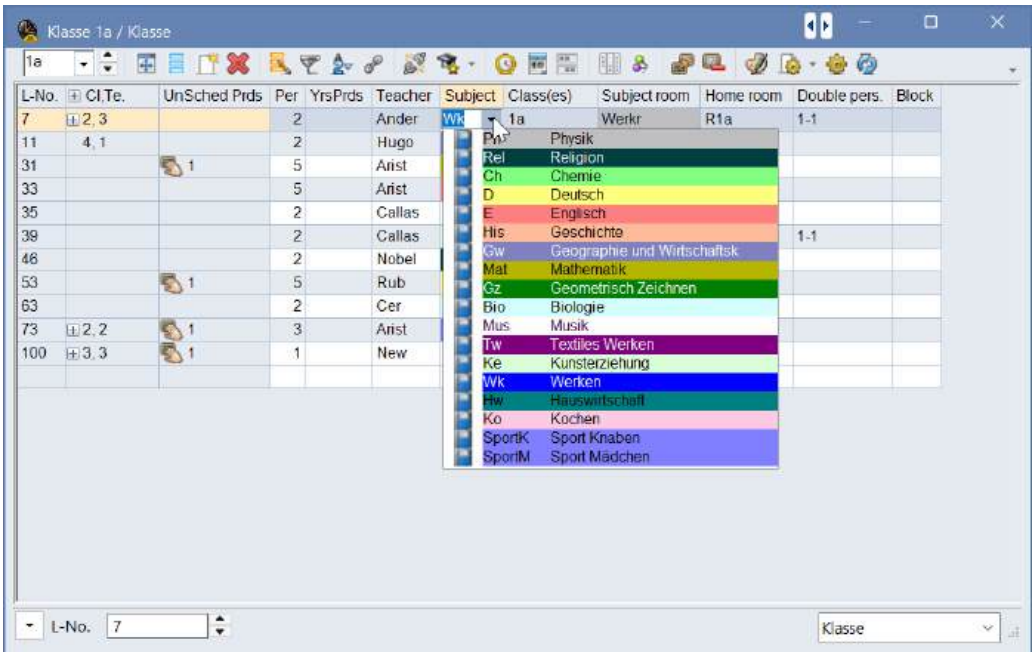
2. The Element-Rollup can also be docked to one of the four edges of the Untis main window. As soon as you move the Element-Rollup on the screen, icons appear on the side edges (and in the

middle) of the window, indicating the four edges. If you now drop the Element-Rollup over one of these symbols, it will be docked to the corresponding edge.



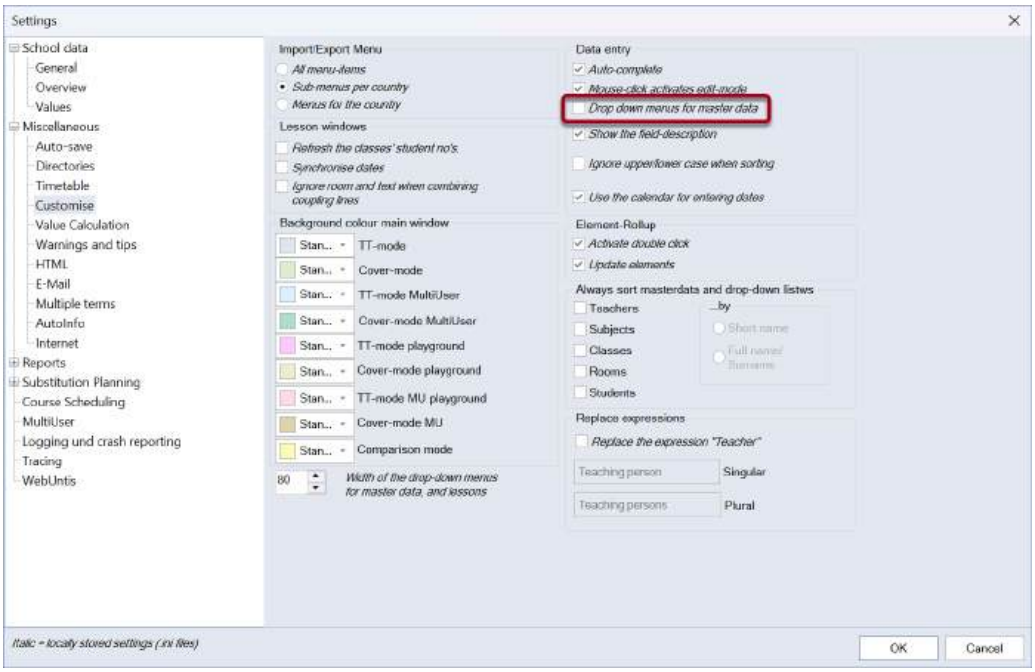
7.5.2 Drop down lists

By default, Drop down lists are activated in the Untis master data and lesson lists.



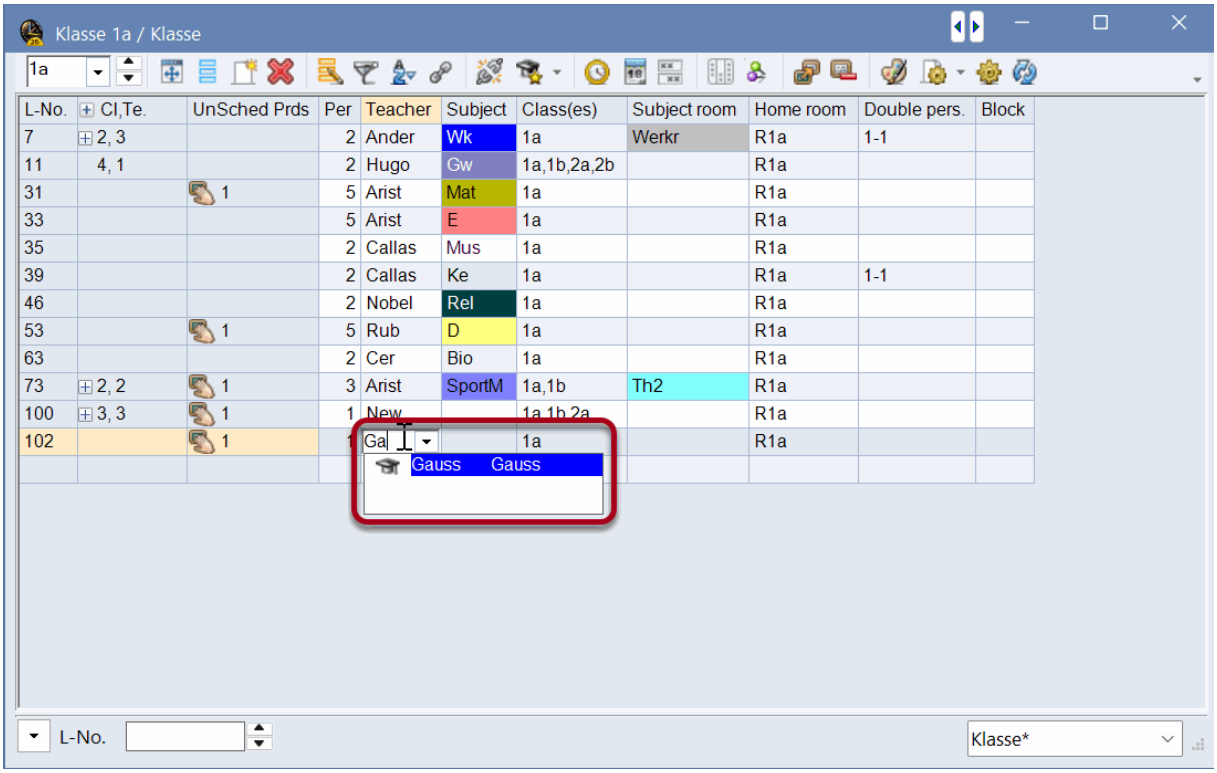
With the help of these Drop down lists, you can select the available elements from a list when entering them in the lesson window, for example.

If you do not wish to use Drop down lists, simply deactivate the corresponding option in the *settings*, in the *Miscellaneous* section under *Customise*:

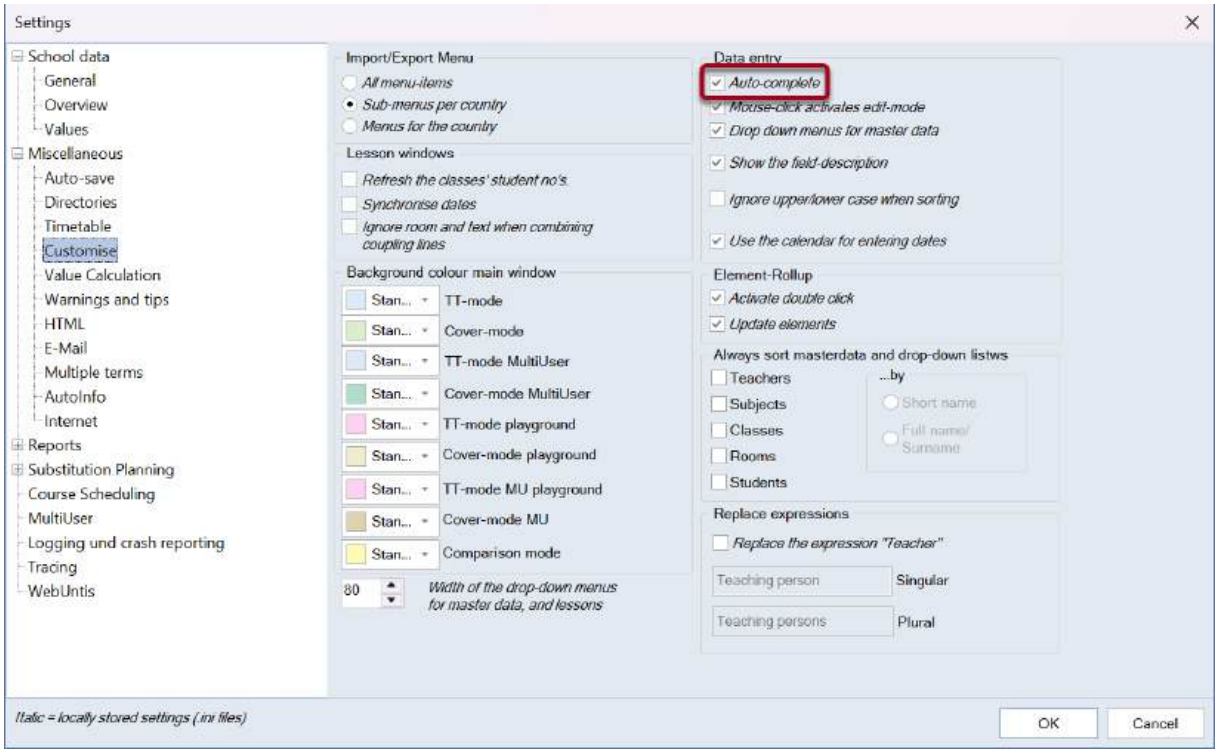


7.5.3 Auto-complete

If you have deactivated the Drop down lists, Untis will try to guess the master data in fields in which it is entered while you are typing - Untis will suggest suitable elements while you are typing.

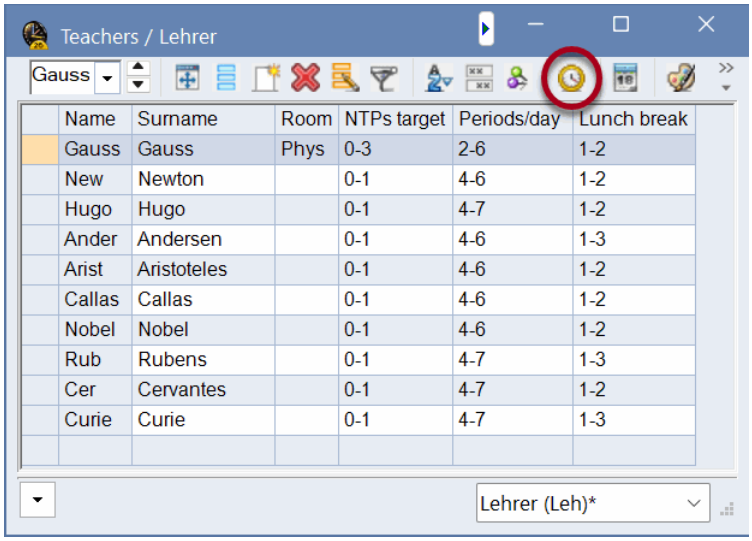


You can also deactivate this behavior in the *Settings* , in the *Miscellaneous* section under *Customise*.



7.6 Time requests

Time requests are of central importance when working with Untis. Time requests can be entered for the master data elements and for lessons. The corresponding button can be found in the toolbar of the respective window.

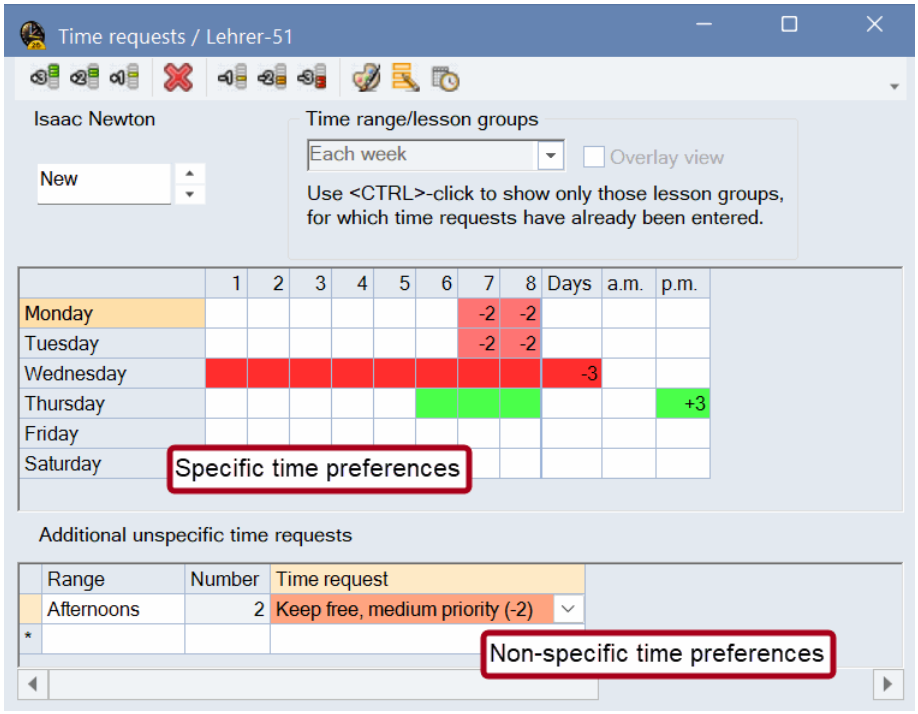


The gradation of these time requests ranges from "*-3* " (*absolute blocking*) to "*+3* " (*core time*), which corresponds to a very strong request for work.

A distinction is made between *specific time requests* and *unspecific time requests*.

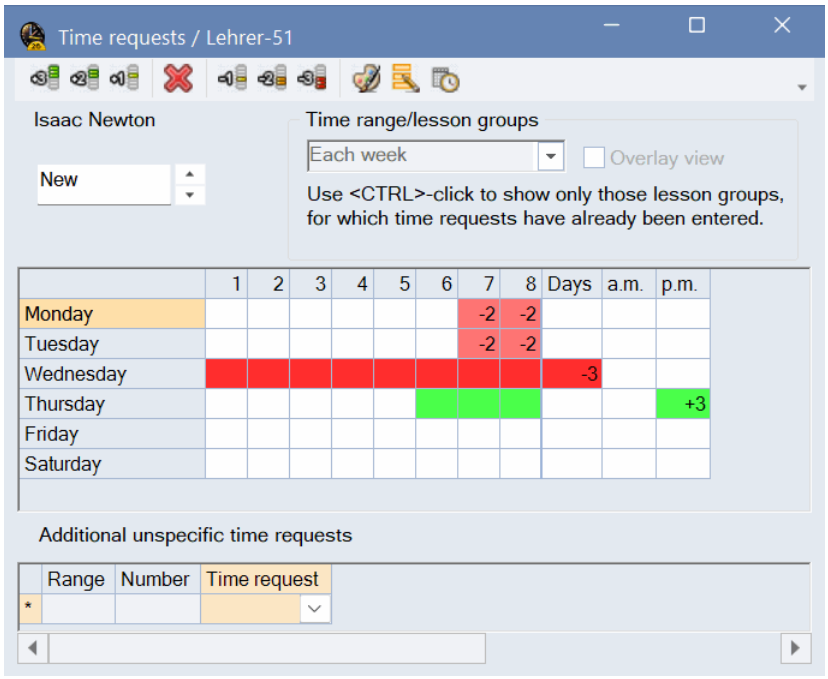
In the case of specific time requests, you specify the exact day and period for which the time request should apply. Separate time-dependent time requests can also be entered for created lesson groups. You can find out more about this in the multi-week timetable module.

With unspecific time requests, you only determine the duration and type of time request (e.g. 1 day, blocking "-2"), but leave the selection of the relevant days to the program.



7.6.1 Specific time requests

Here you can see the time request window of the teacher Newton:



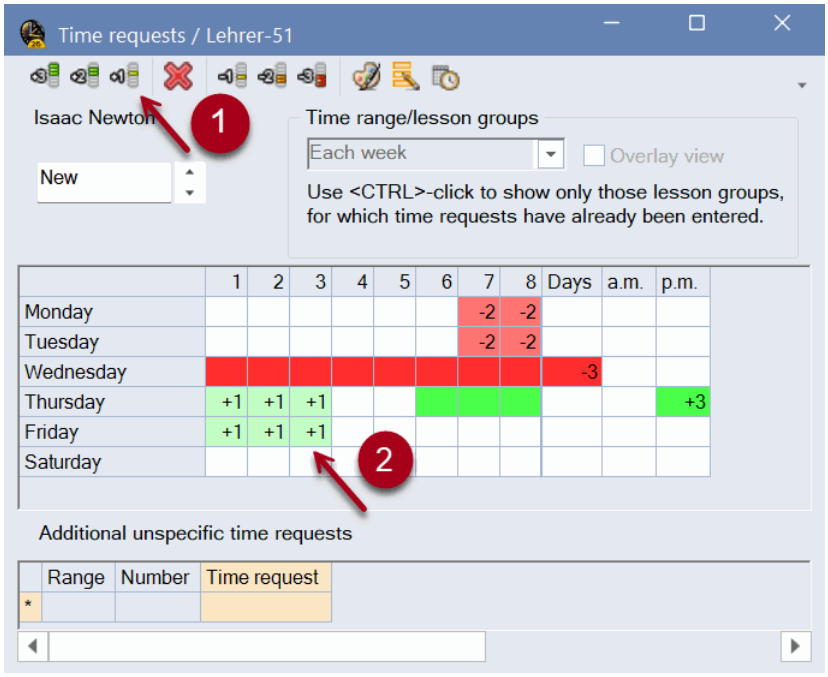
The following time requests have already been entered:

Mon. and Tue. 7th and 8th periods: "-2"; Newton *does not want to* teach in these periods.
Wednesday (whole day): "-3"; this is an absolute *block*, which means that Newton is not available on Wednesday.
Thursday (afternoon) : "+3"; Newton wishes to teach this afternoon (6th - 8th hour).

Please note that in the above example, the time requests for days or half days are entered in the right-hand section of the time grid. This special feature will be explained in more detail below.

Entering time requests

If you want to enter new time requests, click on the corresponding button and move the mouse over the desired area.



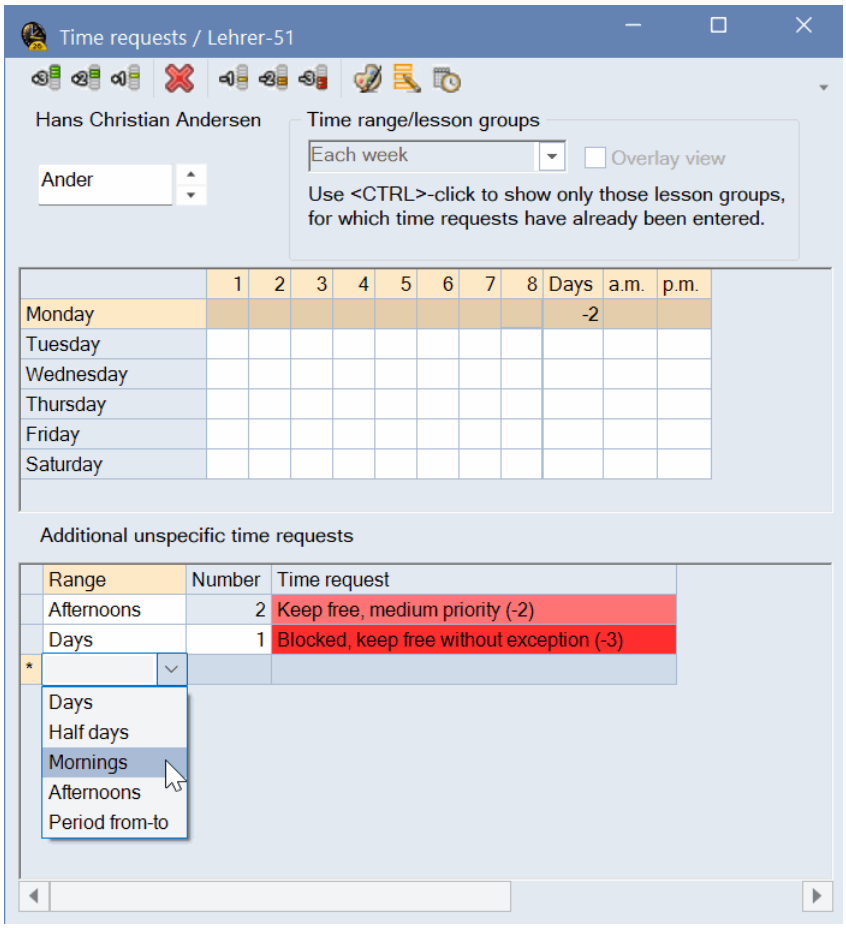
Please note that the button remains active until you press it again. You can therefore enter further identical time requests immediately afterwards by simply clicking on the relevant places in the time request grid.

Delete time requests

If you want to delete the time requests for a certain time range, click the <Delete time request> button and cross out the entries you want to remove.

7.6.2 Unspecific time requests

In the lower area of the time request window, you can enter the unspecific time requests. Here you can choose from days, half days, mornings, afternoons and a freely selectable range of periods. For the selected time range, define the number and gradation of the time request and the optimisation will calculate the most favourable position without you having to specify it.



If you select the "Half days" category for the time range, the decision as to whether the corresponding time request is fulfilled on a morning or an afternoon is only made during optimisation.

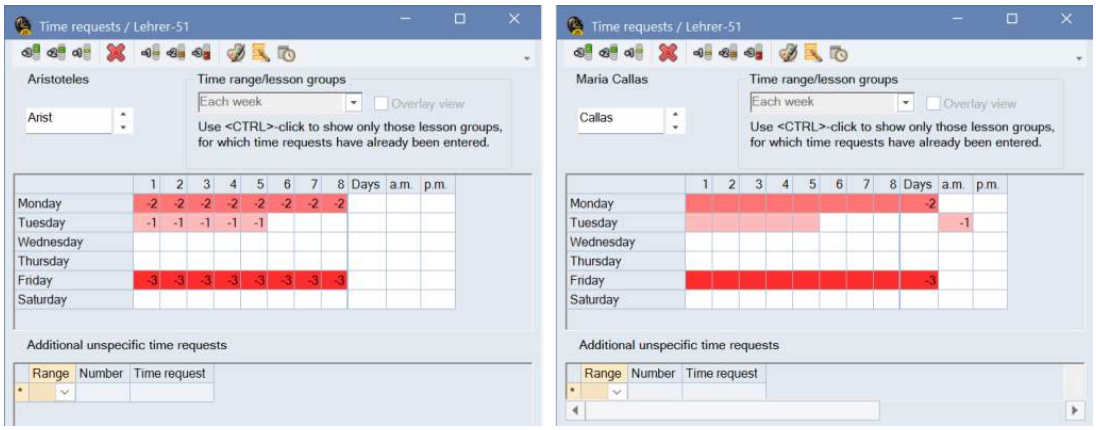
Tip:
Whenever possible, use undefined time requests so as not to unnecessarily restrict freedom in the optimisation process.

Caution:
Specific and unspecific time requests are additive! If, for example, Tuesday is blocked and an entire day is to be kept free in the unspecific time requests with a priority of -3, a total of 2 days must remain free of lessons: Tuesday and any other day.

7.6.3 Hour requests and (half) day requests

In the chapter "Specific time requests", reference has already been made to the option of marking (half) days in the right-hand part of the time request window instead of selecting several periods in the left-hand part of the grid.

The two input methods are not completely equivalent.



Look at the above illustrations of the time wishes of the two teachers Aristotle and Callas.

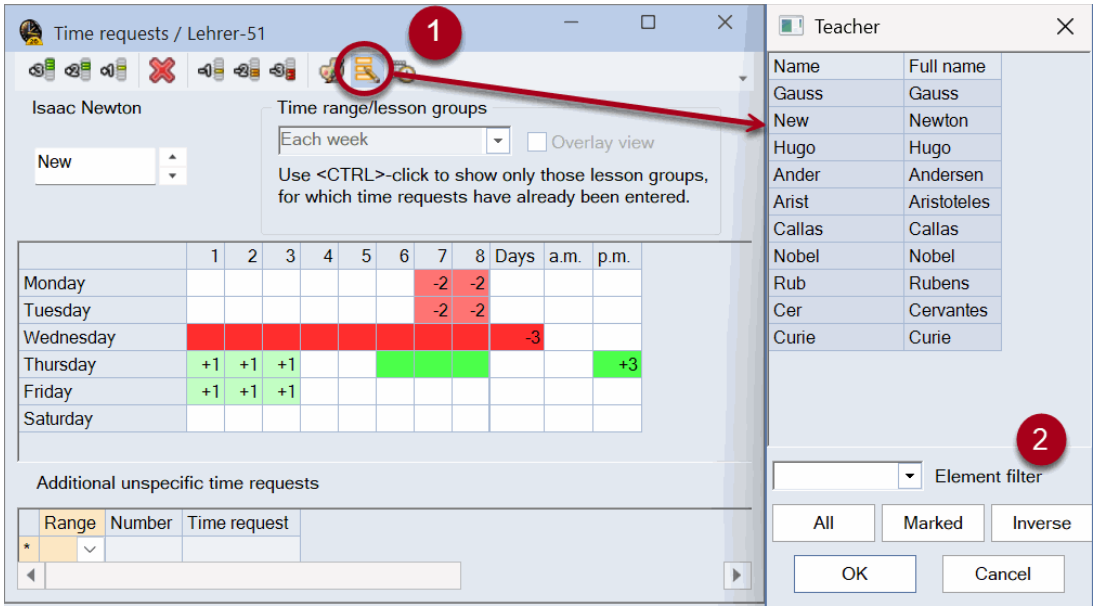
For Aristotle, all requests in the left part of the grid have been entered as requests per period, for Callas the time requests have been entered as (half) day requests.

The *-3* -blocks on Friday are equivalent for optimisation in both cases; Friday is not scheduled under any circumstances. For the weaker *-2* and *-1 entries*, however, the optimisation tries to keep another half-day free as an alternative in the case of Callas if it is not possible to leave Monday or Tuesday morning unscheduled. In the case of Aristotle, care is taken to ensure that Monday is kept free for the whole day with an importance of *-2* and Tuesday morning with *-1* .

Tip:
(Half) day requests with a time request of -2 or -1 can therefore be moved from the optimisation to another day under certain circumstances.

7.6.4 Copying time requests

You can copy the time requests of an element via the clipboard and then transfer them to other elements (<Ctrl>+C, <Ctrl>+V). It is also possible to copy the time requests of an element to any other element by clicking on the <Serial change> button in the time request window.

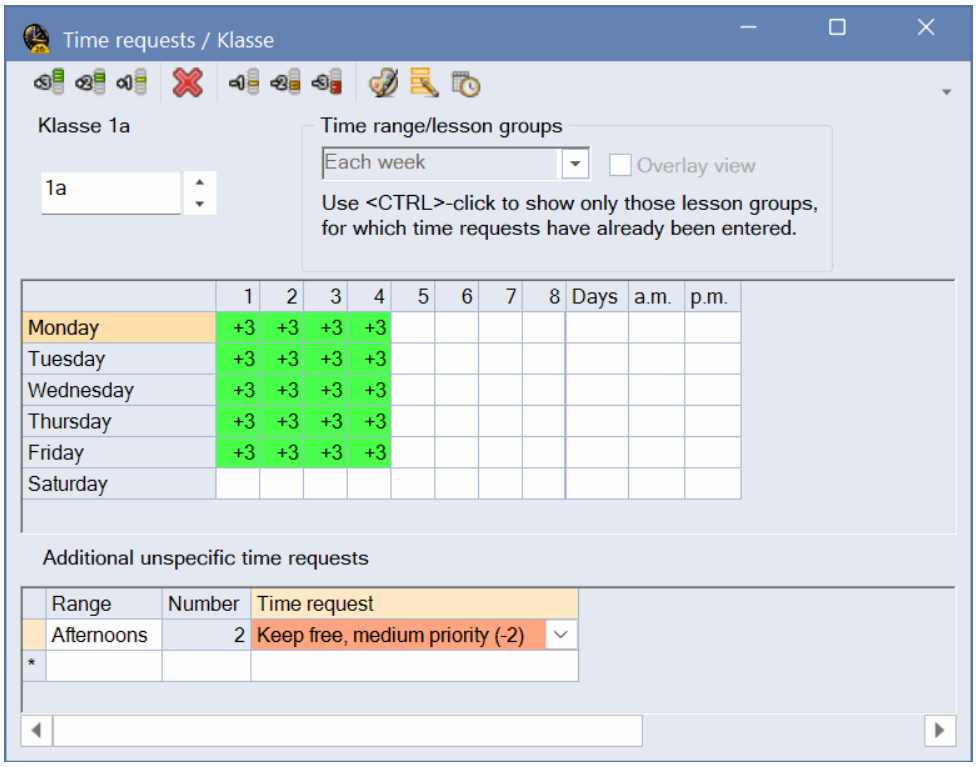


7.6.5 Deleting time requests

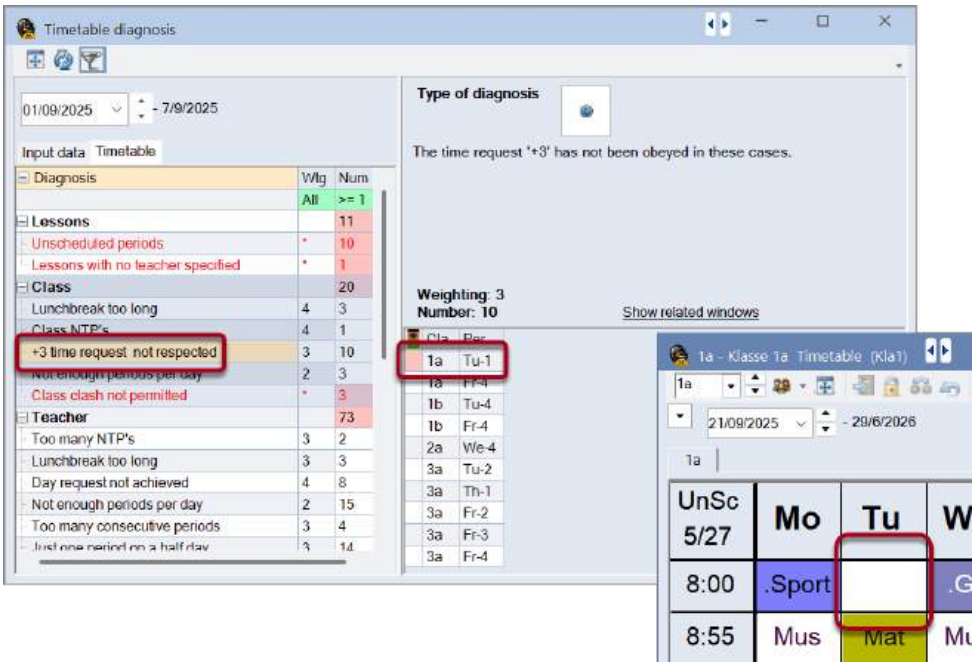
All time requests can also be deleted with the serial change. To do this, remove all time preferences from an element and then copy these settings to all other elements whose time preferences you want to delete using the process described above.

7.6.6 Core time

If you want Untis to start scheduling periods in the morning, you must enter a time request of "+3" at the classes for some morning periods (usually the first 4 or 5). To do this, use the "Change time requests" function just discussed.

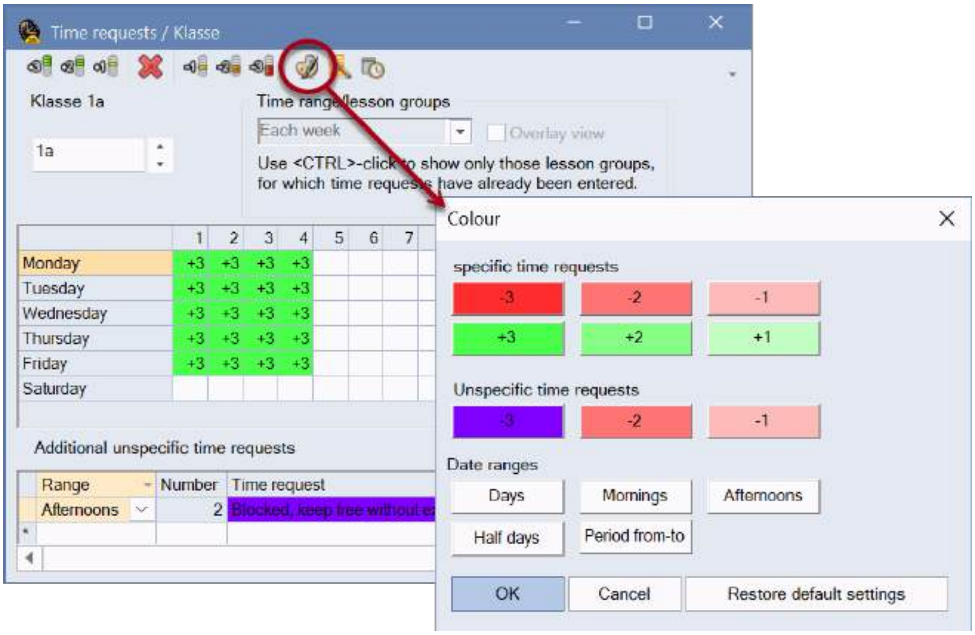


The time request "+3" marks the so-called *core time* for Untis, i.e. the optimisation *must* try to occupy those areas in the time grid of the elements that have entered the time request "+3". A core time violation is a very serious violation for the Untis optimisation algorithm and is displayed both in the optimisation window and as a separate diagnostic point. The following illustration shows the resulting message from the diagnosis. Please note that the sum of the core time periods (+3) per class must not be higher than the total number of periods for this class.

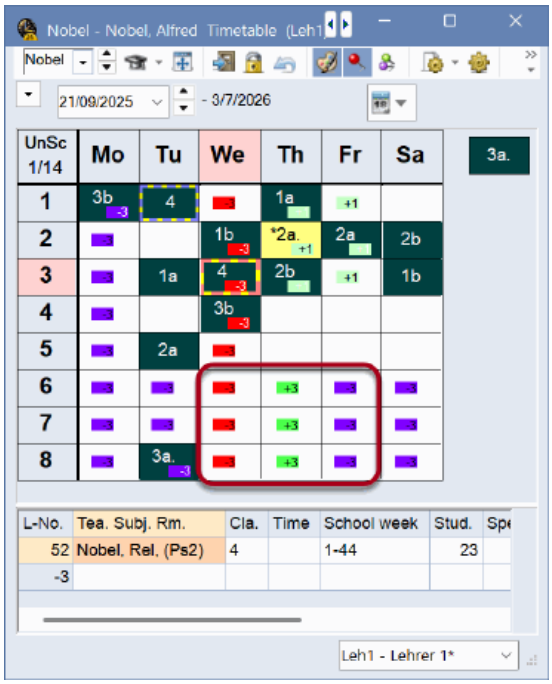


7.6.7 Color of the time requests

You can use this function to customize the colors in which the individual time requests are displayed, for example in the timetable or in the scheduling dialogue.



On one hand, this is extremely helpful for people who suffer from *dyschromatopsia* (red-green blindness); on the other hand, it allows you to differentiate between specific time requests and undefined ones.



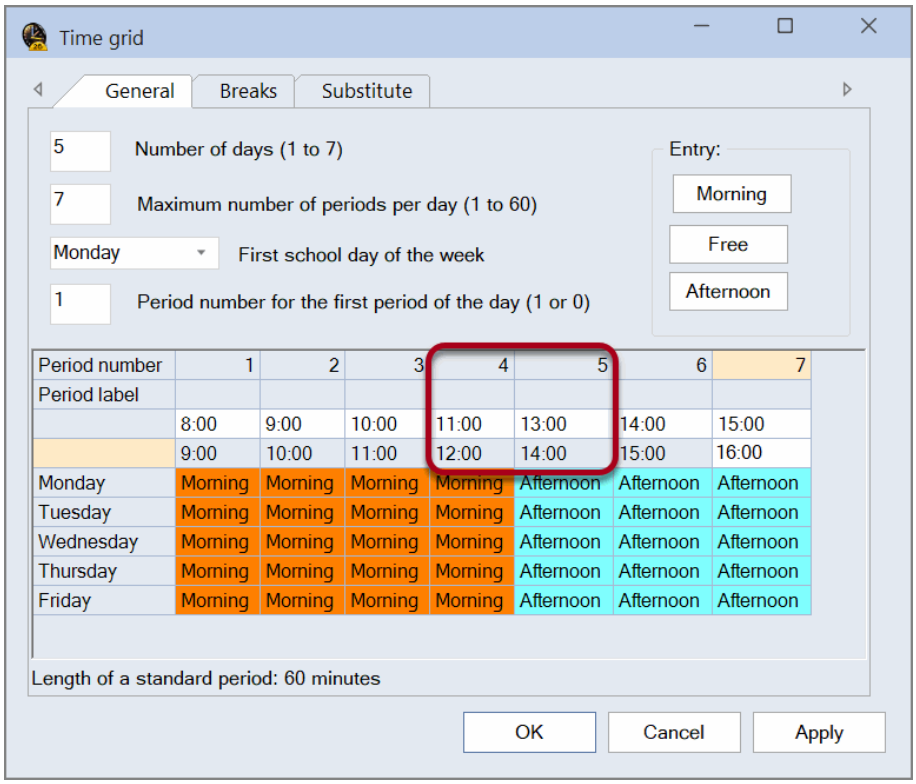
7.7 Lunch breaks

Classes and teachers can have a lunch break between morning and afternoon lessons (according to the timetable).

In principle, the following options are available for this:

The entire school has a uniform lunch break (e.g. 12:00 - 13:00).

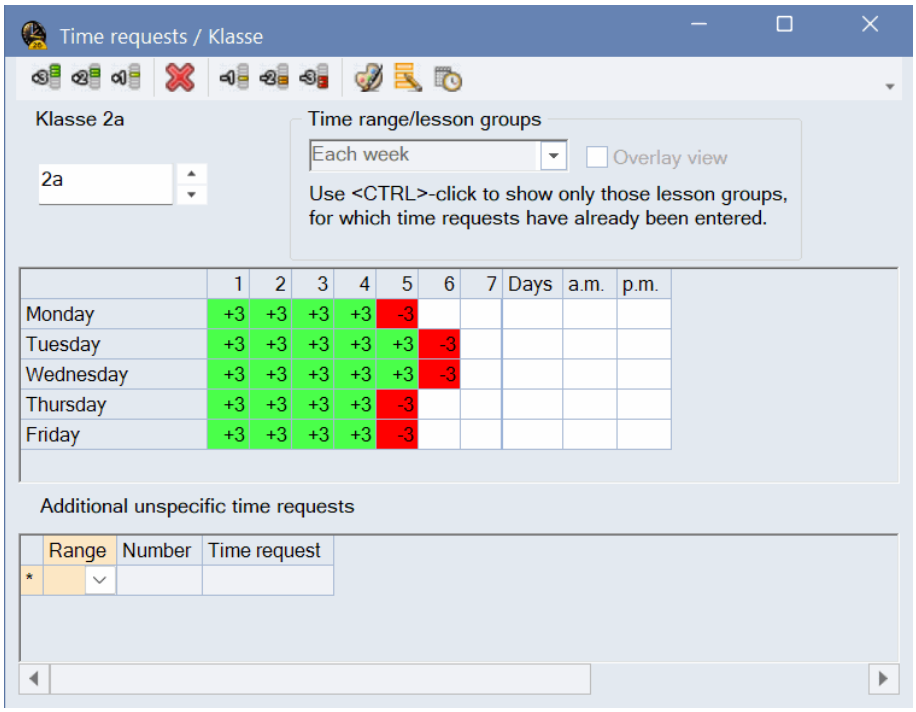
In this case, enter in the time grid that the last morning period ends at 12:00 and the first afternoon period begins at 13:00. The hour between 12:00 and 13:00 then does not correspond to any period in the time grid.



Period number	1	2	3	4	5	6	7
Period label							
	8:00	9:00	10:00	11:00	13:00	14:00	15:00
	9:00	10:00	11:00	12:00	14:00	15:00	16:00
Monday	Morning	Morning	Morning	Morning	Afternoon	Afternoon	Afternoon
Tuesday	Morning	Morning	Morning	Morning	Afternoon	Afternoon	Afternoon
Wednesday	Morning	Morning	Morning	Morning	Afternoon	Afternoon	Afternoon
Thursday	Morning	Morning	Morning	Morning	Afternoon	Afternoon	Afternoon
Friday	Morning	Morning	Morning	Morning	Afternoon	Afternoon	Afternoon

Individual element blocking of the lunch break (time request "-3")

For the desired elements, block the periods in which the lunch break is to be with the time request "-3".



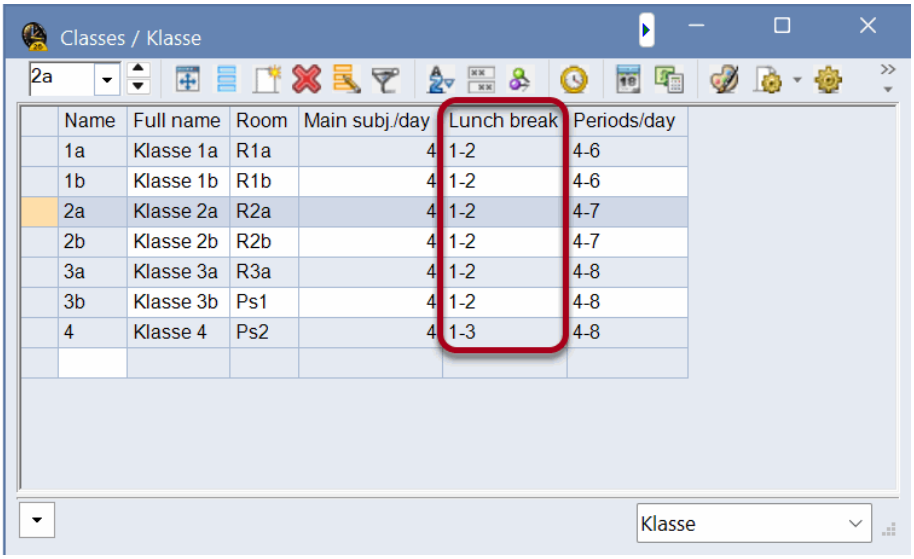
	1	2	3	4	5	6	7	Days	a.m.	p.m.
Monday	+3	+3	+3	+3	-3					
Tuesday	+3	+3	+3	+3	+3	-3				
Wednesday	+3	+3	+3	+3	+3	-3				
Thursday	+3	+3	+3	+3	-3					
Friday	+3	+3	+3	+3	-3					

Including the lunch break in the schedule creation

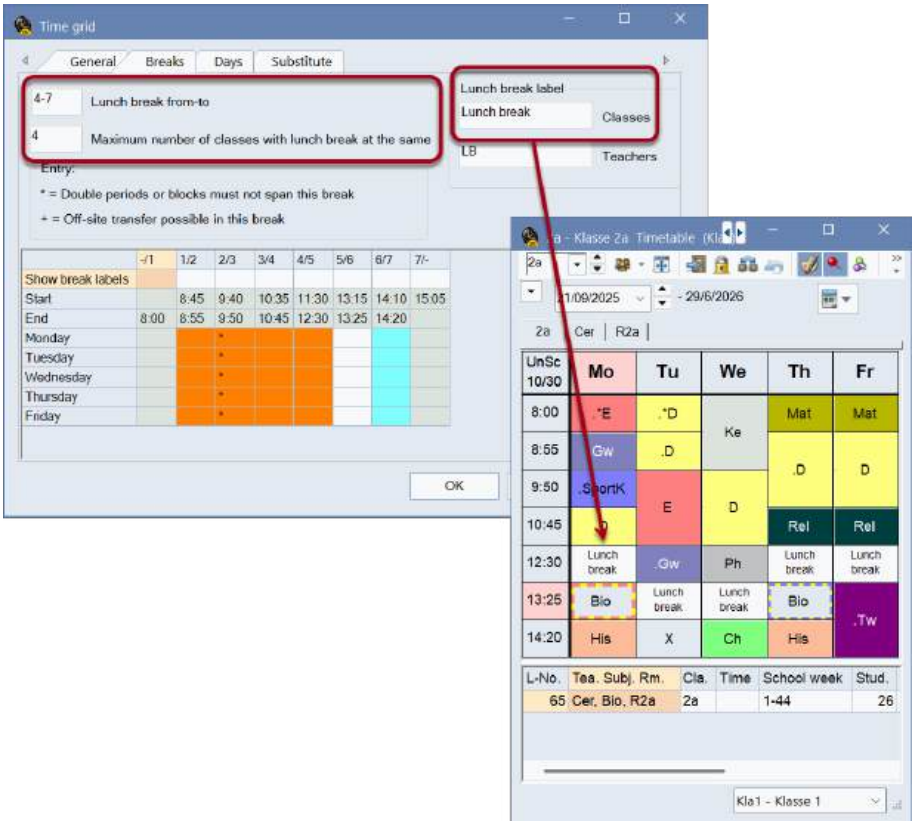
The latter type of lunch break scheduling leads to better utilization of the subject rooms. You can specify individually for both teachers and classes how long the lunch break should last. If you enter

"1-2" in the *Lunch break min,max* field, Untis will schedule either 1 or 2 periods of lunch break for the corresponding element.

The lunch break is scheduled for the last period of the morning and/or the first period of the afternoon.



You can also vary the range in which the lunch break may take place. To do this, enter the first and last period in which the lunch break is generally allowed in the *time grid* for breaks. However, the boundary between morning and afternoon must lie within the interval entered.



If your school kitchen/canteen has limited capacity, you can also use the same index card to specify the maximum number of classes that can have lunch at the same time.

Tip:
Please note that you can also enter a name for the lunch break on the Breaks tab. This name will then be printed in the respective timetables.

You can see violations of the specifications for lunch breaks in the diagnosis.

7.8 Couplings

The composition of *couplings* has a significant effect on the quality of the timetable. Unfavorable couplings can prevent a good timetable. The following criteria are important when putting together couplings:

- Teacher teams
- Class couplings

7.8.1 Teacher teams

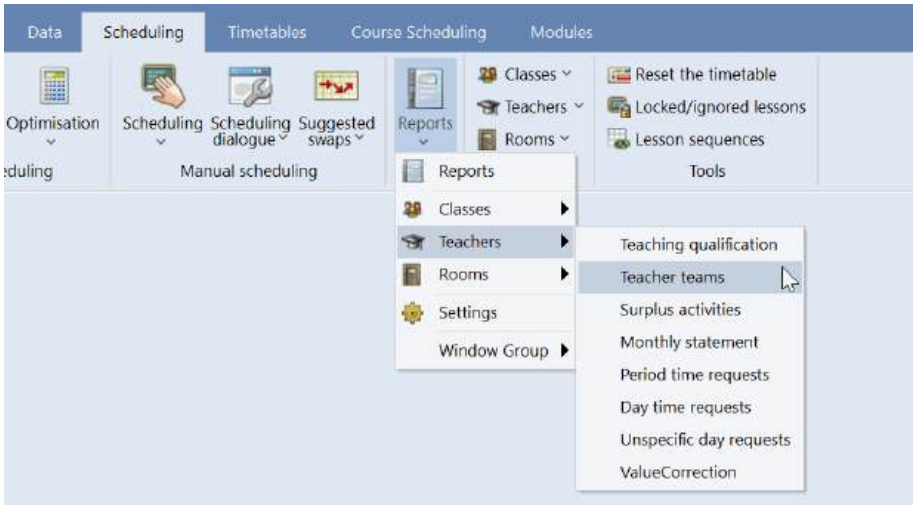
In the simplest case, a teacher team consists of two teachers who each teach a group of students in a class at the same time. This is the case, for example, with sports lessons when they are divided into a male and a female group. Each of these two groups needs its own teacher. Both teachers must always be scheduled together for the lesson in question.

In principle, the aim should be to keep the number of teacher teams as small as possible, whereby each teacher should also belong to as few teams as possible (see the example at the end of this chapter).

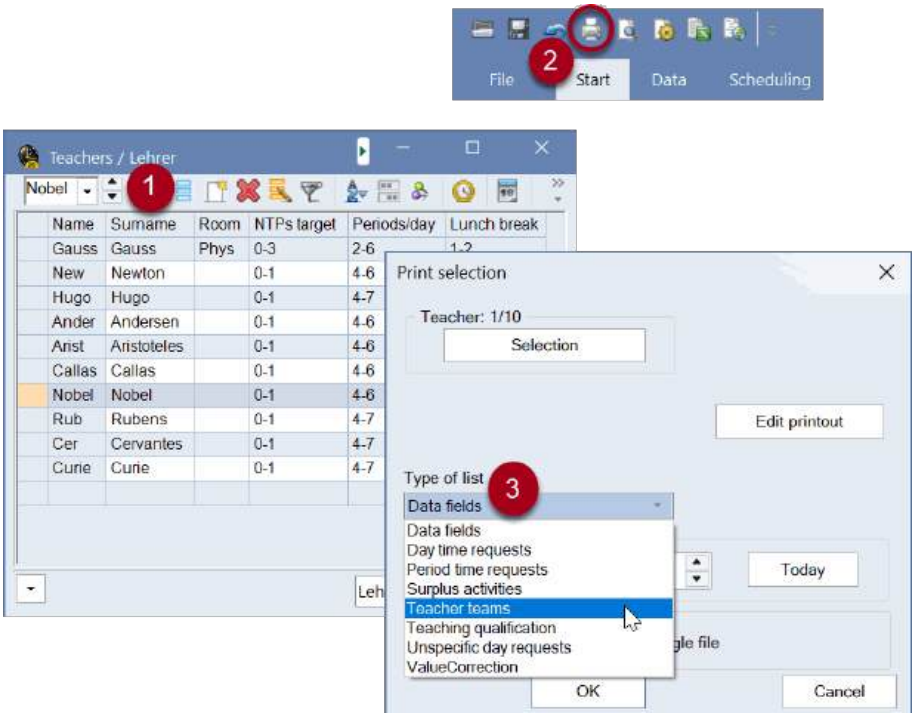
Untis offers you the opportunity to keep track of your teacher teams with the "Teacher teams" list.

You can open the list in two ways:

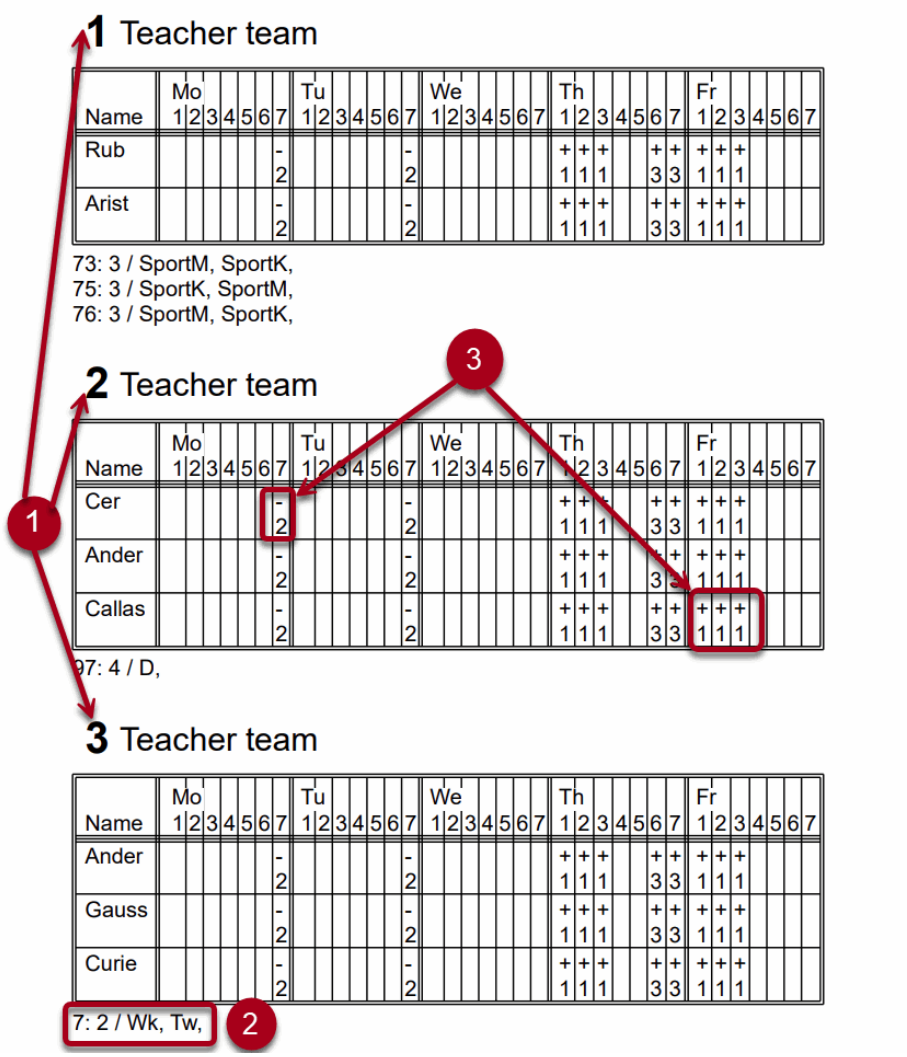
1. On the "Scheduling" tab under "Reports | Teachers | Teacher teams".



2. Open the "Teachers | Master data" window, then click on <Print> or <Page view> in the quick access list and then select the "Teacher teams" list type.



The following illustration shows you what such a list could look like.



The printout shows you:

1. The total number of different teams - the fewer the better.

2. The lessons (including details) in which the team is deployed together. The more, the better.

3. The time preferences of the teachers in the team. If the individual teachers have different time requests, poor lesson plan results are to be expected, as the team can of course only be deployed if all teachers are available.

In the previous illustration, the teachers *Rub* ("Rubens") and *Arist* ("Aristotle") form the teaching team with the number 1, which teaches PE.

Let's now assume that there is another team of teachers (let's give it the number 4) that teaches handicrafts and includes Rubens and Hugo. Any assignment of this team 4 would block the scheduling of team 1, as teacher Rubens belongs to both.

In this case, you could ask yourself whether this team of teachers is necessary at all (for example, there is already a team 3 for handicraft lessons) or whether Rubens' teammate Arist also has a teaching qualification for handicraft. If this is the case, the craft lessons could possibly also be taught by this team. Either way, an additional team that makes optimisation more difficult would be prevented.

The CCC analysis is a good tool for recognizing such problem constellations (see chapter " CCC analysis ").

Time requests and teacher teams
Time requests are also a sensitive issue in connection with teacher teams. The wishes of the individual teachers, but above all the *blocks*, should differ as little as possible from one another.

The following illustration shows a single team of teachers. Pay particular attention to the blocking (time requests "-3").

5 Teacher team

Name	Mo 1	2	3	4	5	6	7	Tu 1	2	3	4	5	6	7	We 1	2	3	4	5	6	7	Th 1	2	3	4	5	6	7	Fr 1	2	3	4	5	6	7
Hugo							-2	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	+1	+1	+1			+3	+3	+1	+1	+1				
Gauss							-2							-2								+1	+1	+1			+3	+3	+1	+1	+1				
Callas	-3	-3	-3	-3	-3	-3	-3	-1	-1	-1	-1	-1		-2								+1	+1	+1			+3	+3	-3	-3	-3	-3	-3	-3	-3
Ander							-2							-2								+1	+1	+1			+3	+3	+1	+1	+1				
?-1																																			

6: 1 / E, Mat, Ch, D,

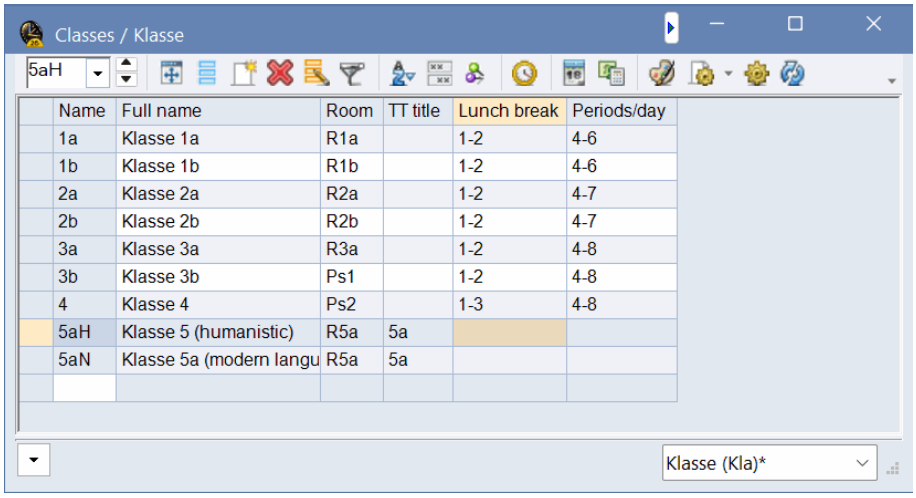
Due to the different time requests of the team teachers, Monday, Tuesday, Wednesday and Friday are blocked. Assume that this team of teachers is to teach three periods per week in individual periods. Then only one of the three periods could be scheduled on Thursday, but in order to schedule the second and third lesson, you would either have to violate two of the *blocks* (time request "-3") of a teacher - which Untis never does - or violate the condition that the subject should only be scheduled once a day (whether Untis violates this depends on your *weighting settings* ; please also read the chapter " Weighting").

7.9 Type-separated class parts

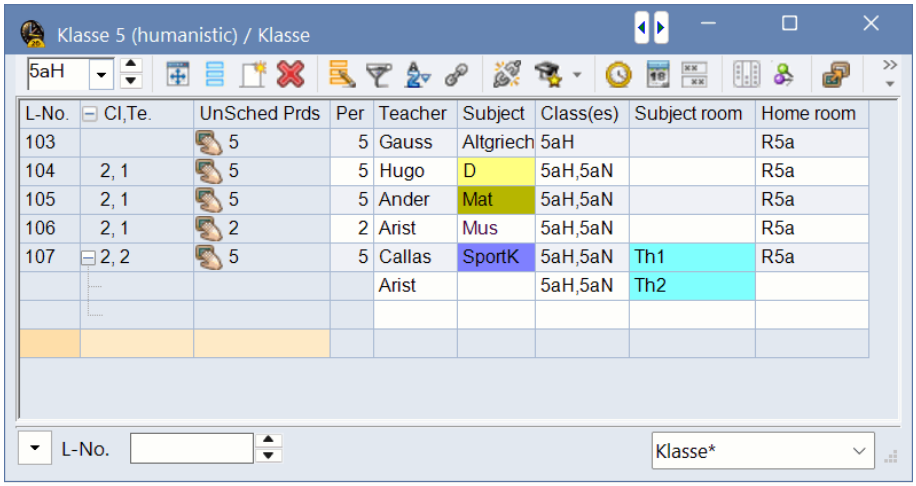
For organizational reasons, two separate class parts are sometimes combined in one class.

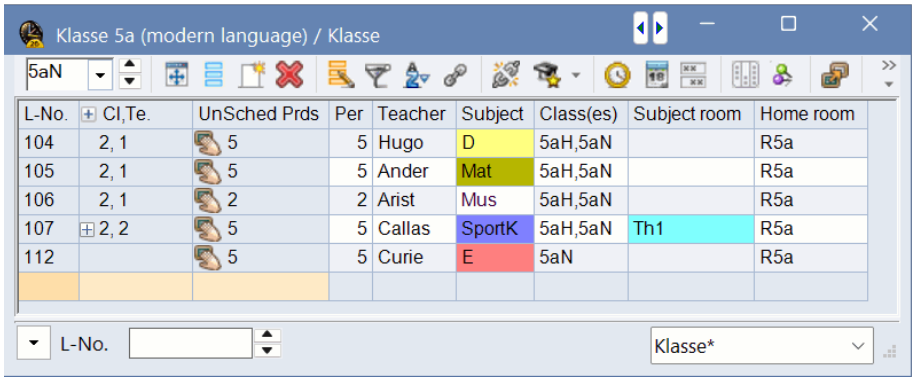
For example, if there is a modern languages and a humanities section in class *5a* , the "humanists" could attend Greek lessons while the "modern languages" pupils have Italian lessons. In this case, proceed as follows:

- Define two classes, 5aH for the humanistic class part, 5aN for the modern language class part. In order to get a correct display in WebUntis, it is also necessary to define class 5a, even if there are no lessons in this class.

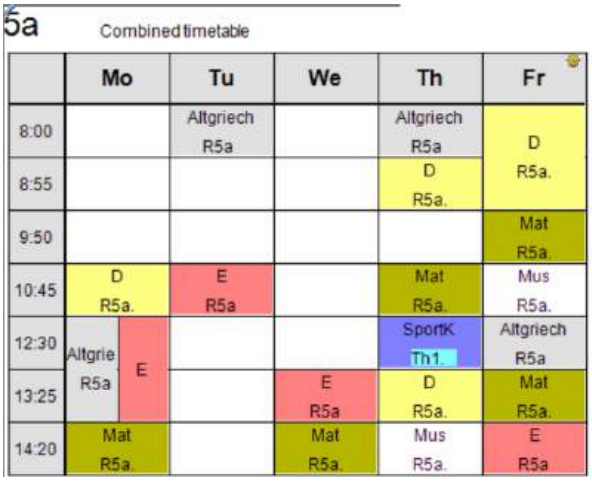


- Enter 5a in the *Master class* field ("TT title") in the master data of both classes.
- Couple both classes in all the lessons that pupils from both classes should attend.





- The printout of the timetable for both classes can then be combined in one view.


5a Combined timetable

	Mo	Tu	We	Th	Fr
8:00		Altgriech R5a		Altgriech R5a	D R5a.
8:55				D R5a.	
9:50					Mat R5a.
10:45	D R5a.	E R5a		Mat R5a.	Mus R5a.
12:30	Altgrie R5a / E			SportK Th1.	Altgriech R5a
13:25			E R5a	D R5a.	Mat R5a.
14:20	Mat R5a.		Mat R5a.	Mus R5a.	E R5a

Tip:
For individual timetable formats, you can switch off this behavior by ticking "Show master classes separately" on the "Layout 2" tab in the <Timetable settings>.

7.10 Class groups

Without additional input, the standard Untis package optimises timetables for schools with a class structure, meaning that each student is clearly assigned to a class and the lessons in which the student participates are completely determined by their class.

The other extreme is a system with a *free choice of courses*, in which students are free to choose their lessons (within certain statutory limits) and the class and class group no longer exist. In such school systems, each student chooses their own courses and is therefore at the center of the timetable work (and no longer their class). This scheduling situation is handled by the Untis *course scheduling* module.

However, in some school systems, such as German secondary schools, Austrian teacher training colleges or English secondary schools, there is a situation that lies between these two extremes: in addition to lessons in which the whole class participates (*core lessons, main subject lessons*), there are also so-called differentiation lessons (*specialization subjects, subsidiary subject lessons*) in which a fixed group of students, which does not correspond to a class, participates. Each student's lessons are therefore determined by their choice of main subject and subsidiary subject. The following section shows how you can deal with this scheduling situation with the help of class groups.

The principle of class groups will be illustrated using a simple example.

Class K1 should consist of 20 students, divided into 2 groups of 10 students each. In one group are all students with predominantly linguistic inclinations, in the other those with scientific interests. All 20 students are taught *together* in the subjects German, PE, history and geography. However, while English, French and Italian are taught in one group, physics, chemistry and mathematics are taught in the second group.

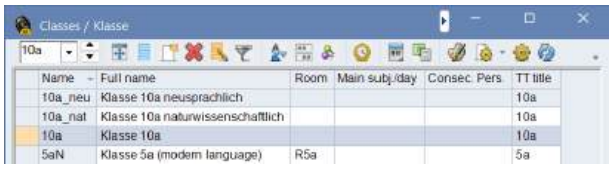
From the timetable planner's point of view, this means that English, for example, can be scheduled at the same time as chemistry or mathematics, as none of the students in the language group attend the lessons in the science group, but neither English nor chemistry or mathematics can be scheduled at the same time as German or PE, as *all* students in the class attend these core subjects.

With Untis you can solve this problem as follows:

7.10.1 Entering classes and lessons

Entering classes

Under "Classes | Master data" you define a master class 10a and two differentiation groups 10a_nat (science) and 10a_neu (modern language).



The information that the "classes" 10a_nat and 10a_neu actually consist of students from the master class 10a is entered in the "Class group" column: the entry "1" means that it is a master class, higher entries (2 - 9) indicate different class groups.

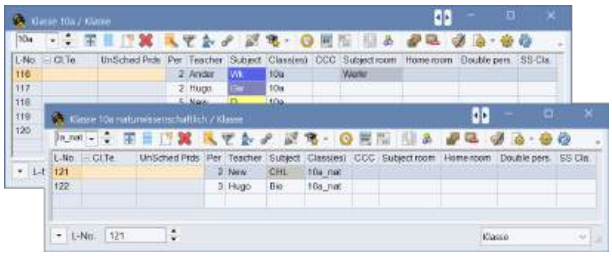
Attention: Sequence
Please note that when using the class groups, the order of the classes under "Classes | Master data" is not arbitrary. Master and differentiation classes of a year group must be directly below each other. If the class group number entered is smaller than that of the previous class, a new sequence begins that is independent of the previous entries.

Please note that the same class group number must be entered for the two differentiation groups 10a_nat and 10a_neu. Only use the higher class group numbers if the students at your school are allowed to choose more than one inclination group.

By entering the correct class group numbers, Untis now "knows" that the lessons of class 10a_nat may only be scheduled when class 10a (i.e. the master class) has no lessons. The same applies to class 10a_new.

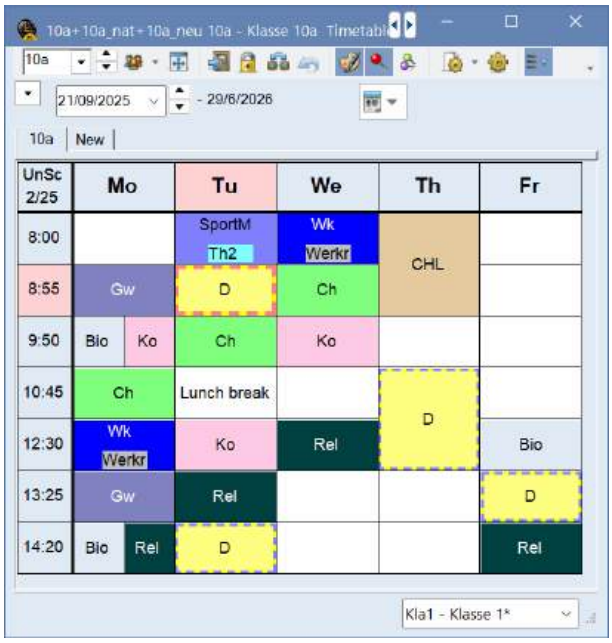
Entering lessons

In the master class 10a, the lessons that **all** students attend **together** are now created, in the respective differentiation "classes" the lessons that correspond to the respective inclination groups.

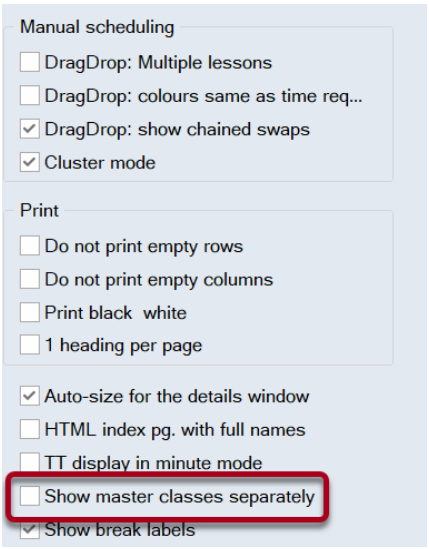


7.10.2 Presentation and printing

If you want to print the core and differentiation lessons of a class in a timetable, you can use the *master class* master data field for this purpose.



If you do not want to combine the classes in a certain format, you can suppress this in the timetable settings on the "Layout 2" tab with the option "Show master classes separately".



7.11 Lockings

Before the timetable optimisation is started, it is often necessary to *lock* certain lessons, classes or even entire master data elements such as teachers, classes or rooms so that Untis does not change the relevant timetables in the respective places.

7.11.1 Locking at timetable level

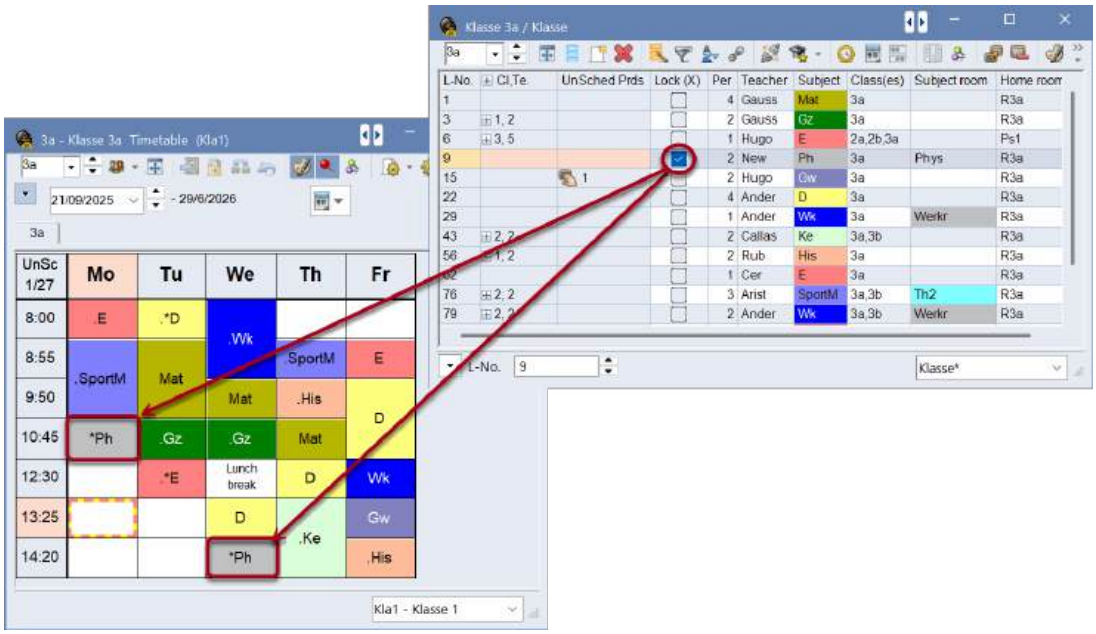
If one or more periods have already been set manually, they can be locked individually in the timetable by clicking on the <Lock period> button. This ensures that these periods will not be moved during an optimisation run. To indicate fixed periods, they are marked with an '*' in the timetable lesson and in the magnifying glass of the timetable (see illustration).

You can deactivate the marking in the timetable period by removing the check mark 'Mark locked periods with a *' on the 'Layout 2' tab under 'Timetable settings'.

Tip: Lock multiple periods
Hold down the <Ctrl> key to select multiple periods in the timetable and then lock them with a single click on the lock symbol.

7.11.2 Locking at teaching level

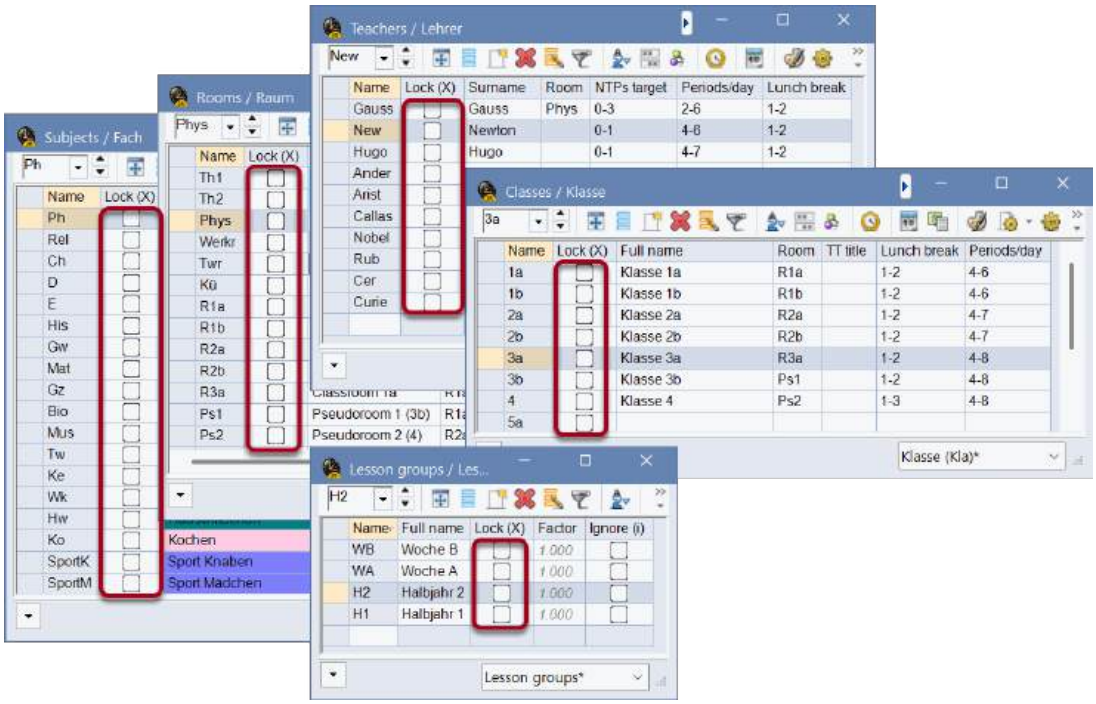
If all periods of a lesson are to be locked, activate the "Lock (X)" indicator for the corresponding lesson. The lessons locked in this way are also marked with an "*" in the timetable - please note that you cannot remove this locking with the <Lock period> button.



Attention:
If a lesson is locked for which not all periods have yet been scheduled, these missing periods are set at the beginning of the optimisation, but can no longer be moved (swapped) in the further course of the algorithm. The result is a significantly worse optimisation result! You should therefore only use this indicator for lessons that are fully scheduled.

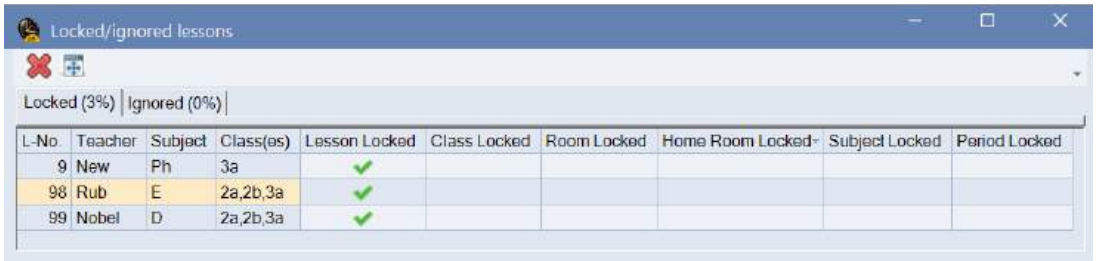
7.11.3 Locking at master data level

Individual elements can also be locked at master data level if, for example, the few periods of a part-time teacher are to be entered and locked manually. To do this, use the "Lock (X)" field, which is available in all master data windows. Periods locked in this way also cannot be removed again by using the <Lock period> button.

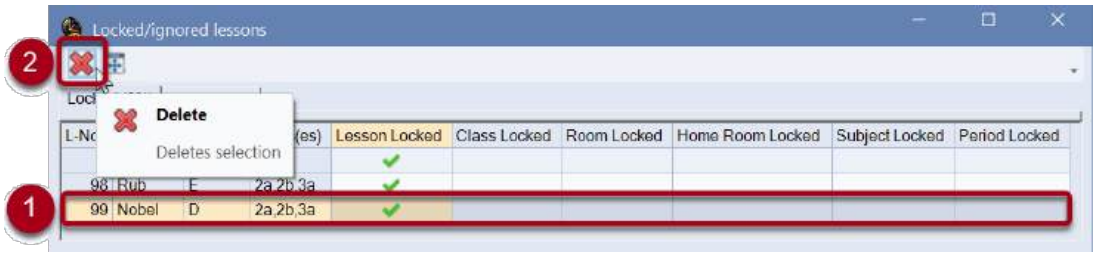


7.11.4 'Locked lessons' window

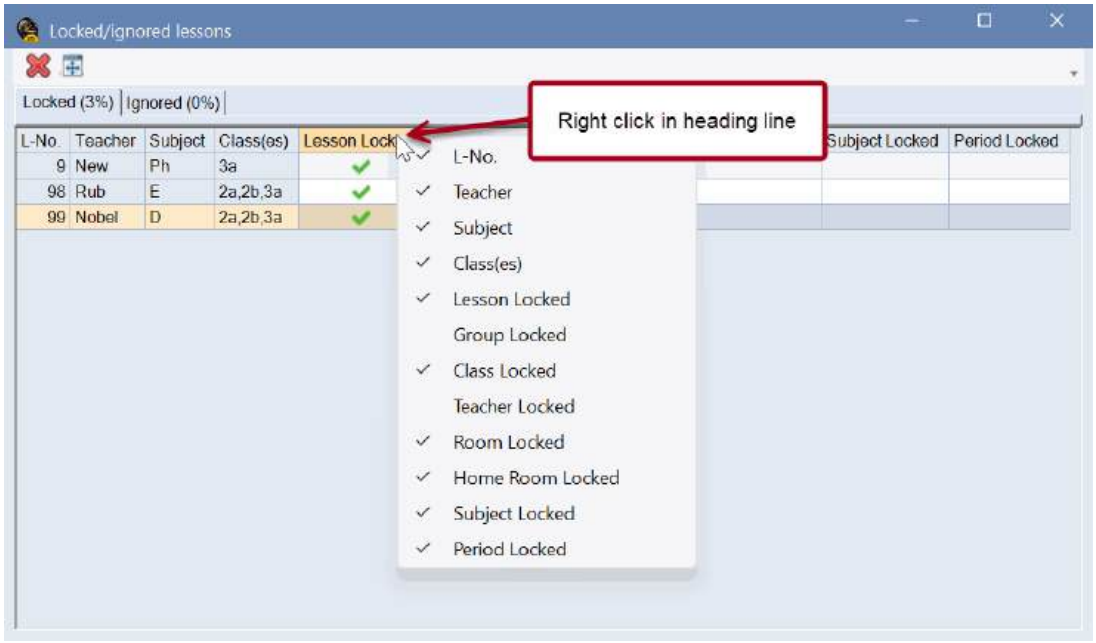
As explained in the previous chapters, lockings can be entered in Untis in various ways. To get an overview of all locked lessons in the school data, open the "Locked/ignored lessons" dialogue on the scheduling tab using the button of the same name. The rows show a list of all lessons that are currently locked, i.e. may not be moved by (the timetable optimisation of) Untis, the columns show you which level or which master data element is causing the locking.



You can use the <Delete> button to remove individual lockings by first clicking on the corresponding field and then on the <Delete> button.



Please also note that you can show and hide various columns using the context menu of the right mouse button. By default, the columns in which there is at least one entry are displayed.



7.12 The room logic

The following chapter is dedicated to the handling of rooms. It explains the difference between (subject) rooms and home rooms and explains when Untis assigns which room (during optimisation).

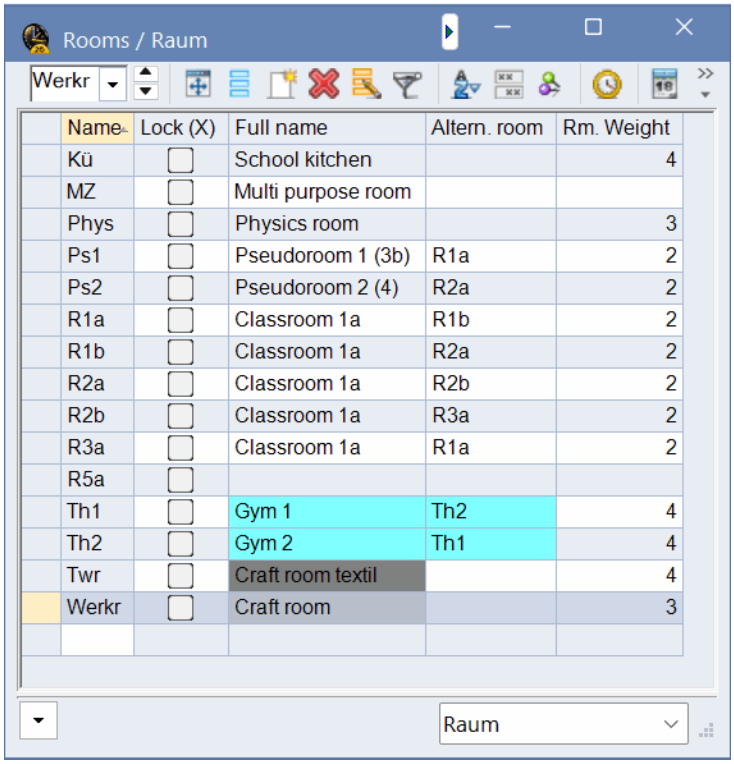
The following chapters are covered:

- Alternative rooms
- Room groups
- Room allocation
- Room capacity
- Room optimisation
- The role of subject rooms
- Dislocated rooms

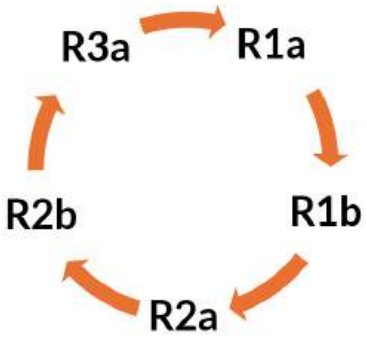
7.12.1 Alternative rooms

As rooms are usually among the scarce resources when creating a timetable, Untis gives you the option of assigning an alternative room to each room.

As you can assign an alternative room to each alternative room, you have the option of creating alternative room rings by entering the original room as the alternative room for the last room in the chain. The following illustration shows such a case.



Name	Lock (X)	Full name	Altern. room	Rm. Weight
Kü	☐	School kitchen		4
MZ	☐	Multi purpose room		
Phys	☐	Physics room		3
Ps1	☐	Pseudoroom 1 (3b)	R1a	2
Ps2	☐	Pseudoroom 2 (4)	R2a	2
R1a	☐	Classroom 1a	R1b	2
R1b	☐	Classroom 1a	R2a	2
R2a	☐	Classroom 1a	R2b	2
R2b	☐	Classroom 1a	R3a	2
R3a	☐	Classroom 1a	R1a	2
R5a	☐			
Th1	☐	Gym 1	Th2	4
Th2	☐	Gym 2	Th1	4
Twr	☐	Craft room textil		4
Werkr	☐	Craft room		3



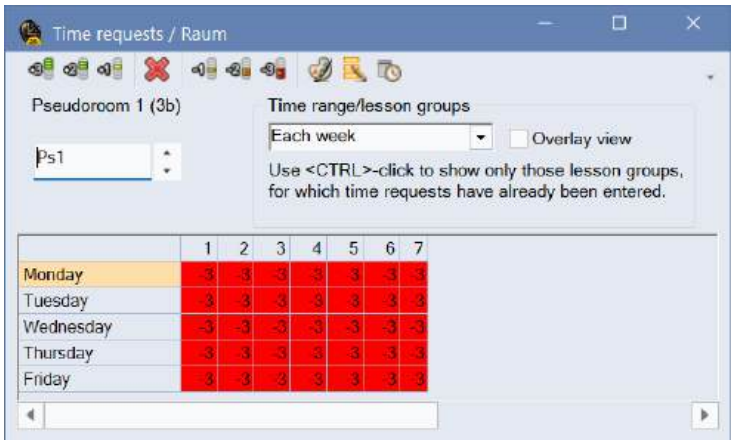
Untis can optionally use one of the five rooms here, which greatly improves the optimisation results. Both the optimisation and the room optimisation take the order of input into account. This can be important in two cases.

On the one hand, it can be used to simulate the "geographical" conditions of the school, in that the order of the alternative rooms roughly reflects the position of the individual rooms in relation to each other. This can save teachers and pupils long walking times. Neighboring rooms should therefore also be placed one behind the other in the alternate room ring.

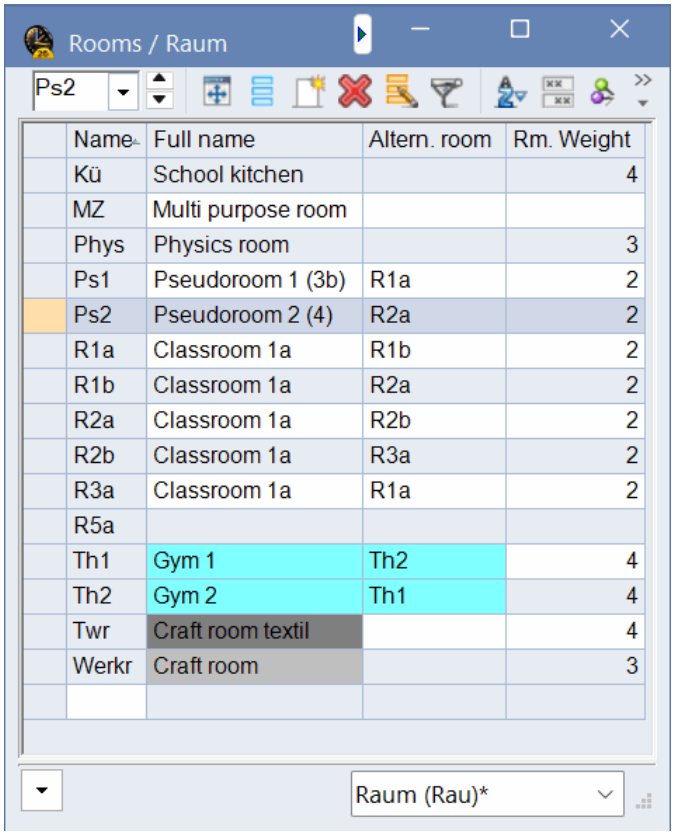
On the other hand, you can also use alternative room chains and rings to set the functionality of rooms in relation to each other. If you have assigned a capacity to the individual rooms in the master data, it makes sense to specify rooms of approximately the same size one after the other in the alternative room ring. The equipment of a room can also be a criterion for determining which room follows another in the alternative room ring.

Itinerant classes

If it is necessary to form *itinerant classes* at your school, use the technique of pseudo-rooms: simply assign a fictitious room, a pseudo-room, to each of the itinerant classes. Block these rooms with the time request "-3" for each period of the week.

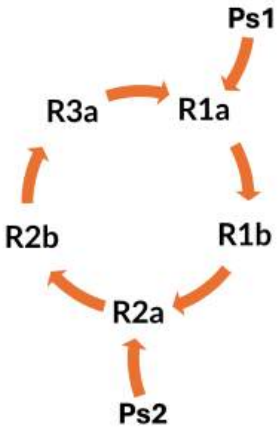


Specify a room in your classroom ring as an alternative room for each pseudo-room. Untis will now search for a suitable classroom for your itinerant class (see illustration).



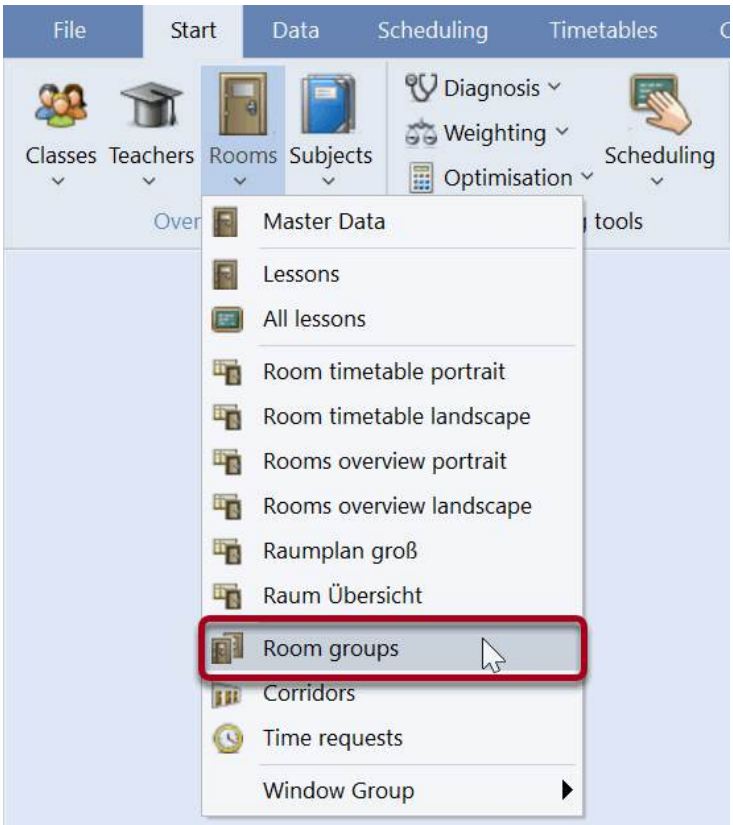
Name	Full name	Altern. room	Rm. Weight
Kü	School kitchen		4
MZ	Multi purpose room		
Phys	Physics room		3
Ps1	Pseudoroom 1 (3b)	R1a	2
Ps2	Pseudoroom 2 (4)	R2a	2
R1a	Classroom 1a	R1b	2
R1b	Classroom 1a	R2a	2
R2a	Classroom 1a	R2b	2
R2b	Classroom 1a	R3a	2
R3a	Classroom 1a	R1a	2
R5a			
Th1	Gym 1	Th2	4
Th2	Gym 2	Th1	4
Twr	Craft room textil		4
Werkr	Craft room		3

The integration of pseudo-rooms into an alternative room ring:

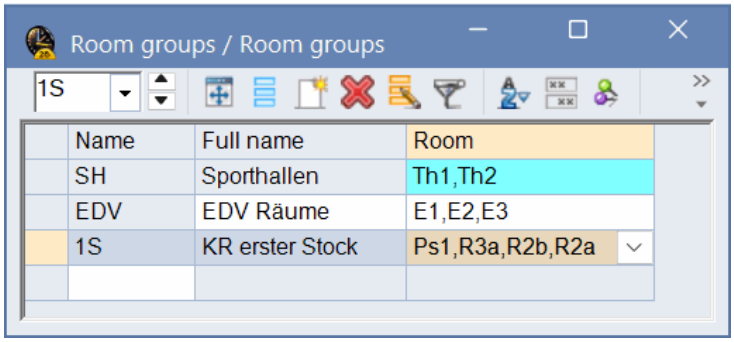


7.12.2 Room groups

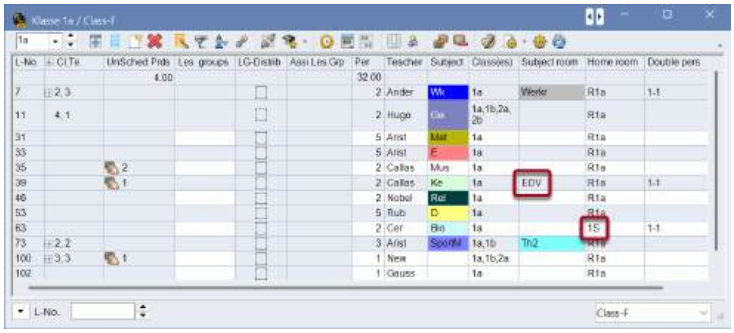
In addition to the alternative room logic described in the previous section, Untis also offers the option of creating room groups.



Room groups are entered in the same way as the usual master data: Each room group has a unique (short) name and a descriptive full name. In the Room column, you then enter all the rooms that should belong to the room group in question.



You can now use the room groups in the lesson windows in the columns "Subject room" and "Home room" in the same way as rooms.



In the example above, the optimisation will assign one of the rooms from the EDV room group for the Ke lessons. Biology lessons are scheduled in one of the rooms in group 1S.

7.12.3 Room allocation

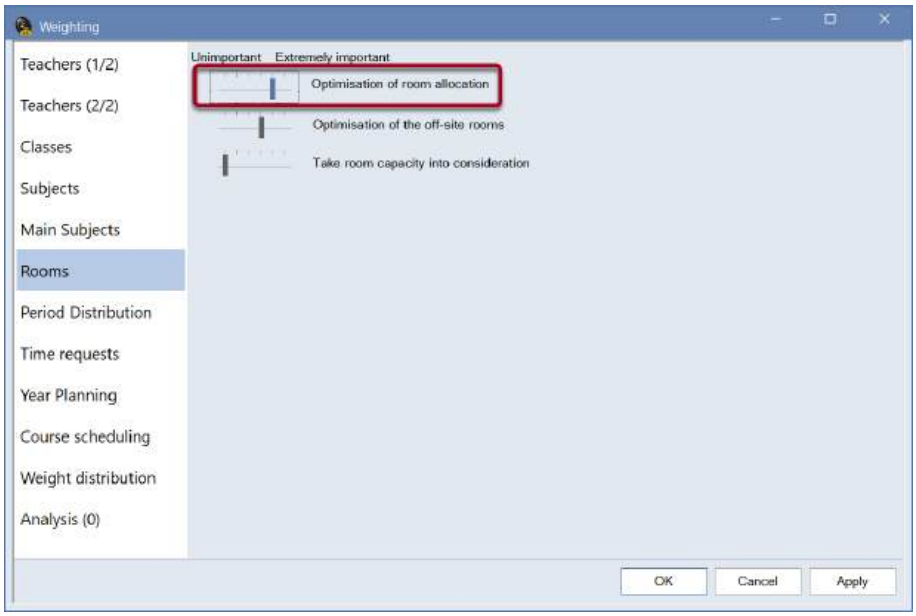
There are three ways to allocate rooms in Untis:

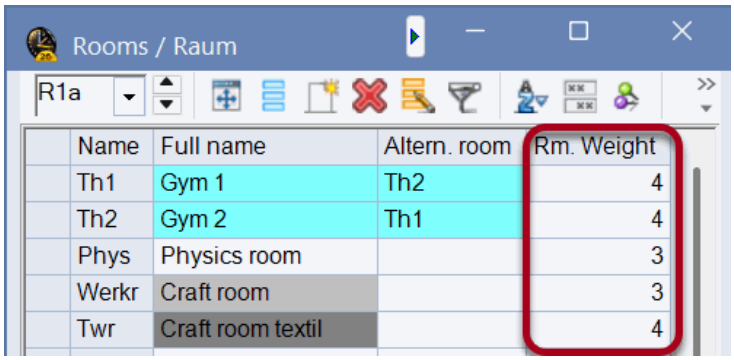
1. *automatic* room allocation during optimisation
2. *optimised* room allocation during room optimisation (see chapter " Room optimisation")
3. *Manual* room allocation in the scheduling dialogue, in the scheduling timetable or in the timetable (see chapter "Manual scheduling")

Room allocation during optimisation

Automatic room allocation during optimisation attempts to optimise not only the timetables from a class and teacher perspective, but also from a room perspective.

Untis may schedule lessons even if there is no suitable room available at that time. (You will find these lessons in the diagnosis under the heading "Subject room missing"). This behaviour can be prevented by setting the room weight of the subject room to "4" in the master data and by setting the slider for the weight "Optimisation of room allocation" to position 4 or position 5 ("very important" or "extremely important") in the weighting dialogue ("Scheduling | Weighting") in the "Rooms" section. In this case, a period for which the optimisation cannot find a suitable room remains unscheduled.





Tip:
Please note that deleting the home or subject room in the lesson window results in the room being unscheduled in the timetable. If you immediately enter a subject or home room in the lesson again, this room will only be scheduled if it is not already required by another lesson. If no alternative room is available, the period remains without a room.

7.12.4 Room capacity

If there are rooms of different sizes at your school and the number of students in the individual classes also differs greatly, it makes sense to take the capacity of the individual rooms into account during both optimisation and room optimisation. Otherwise, it may happen that one class occupies a room that is actually intended for twice as many students, while another class is forced to move additional chairs into the room so that all students have a seat.

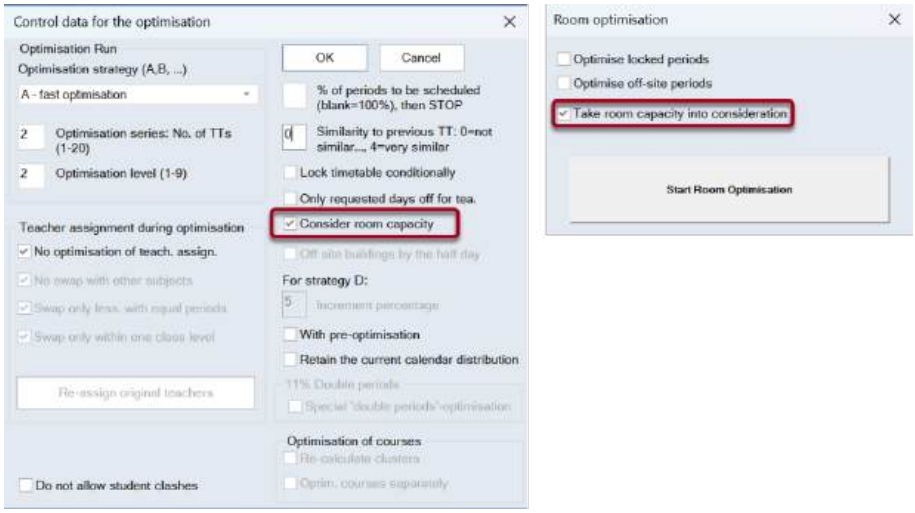
Preparation

Some entries are required for correct handling of the capacity (please also read the chapters "Master data" and "Teaching"):

- Under "Rooms | Master data": Room capacity
- Under "Classes | Master data": Students (male, female, x (inter))
- In the case of couplings under "Lessons": Students M. / Students F. / Students (third gender x)

Optimisation

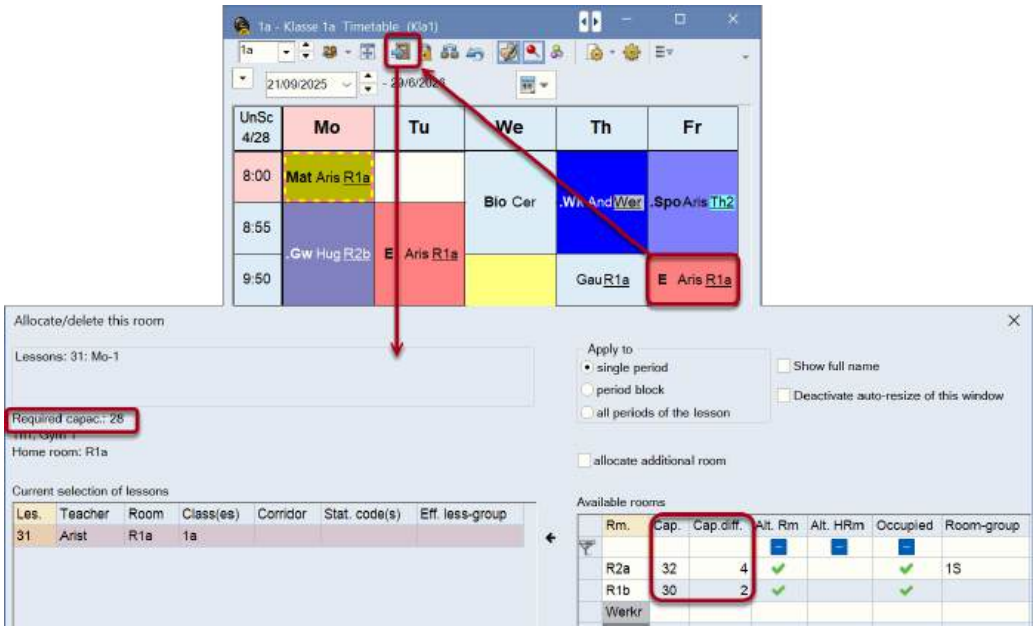
If you want to take the room capacity into account when optimising the timetable, you must explicitly specify this by selecting the corresponding field in the optimisation control data or in the room optimisation dialogue before an optimisation or room optimisation.



You can specify the importance of room capacity in the weighting dialogue ("Scheduling" tab | "Automatic scheduling" group | "Weighting" button) in the "Rooms" section with the weight "Take room capacity into consideration".

Timetable

If you want to change or enter a room in the timetable, you will see the capacity required for this lesson in the room allocation dialogue on the one hand and the capacities of the rooms listed and the capacity difference on the other. This shows you by how much the listed room is too large or too small.



7.12.4.1 Alternative room chain

If the room capacity is to be taken into account for the alternative rooms - but you do not want to record this - the alternative room ring must remain open, i.e. an alternative room chain must be formed. The following figure illustrates this.

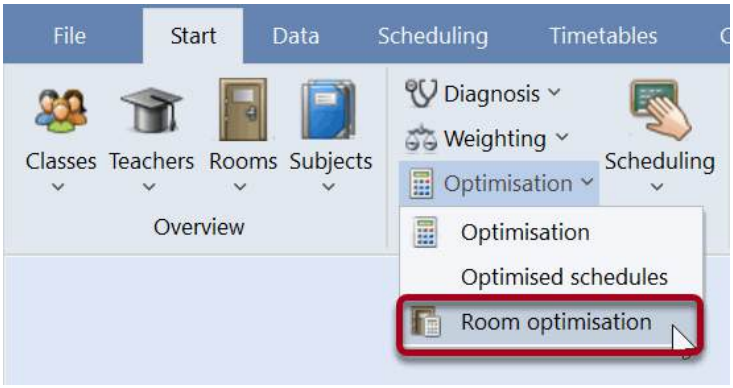
In this example, room R3a has a capacity of 22 people. If this room is not free, the next largest room R2a is suitable for these lessons, with R2b being the next. R1b is again suitable as an alternative room for R1a, but the chain ends with this room, as R3a cannot be used as an alternative room for R1b due to its insufficient capacity.

7.12.5 Room optimisation

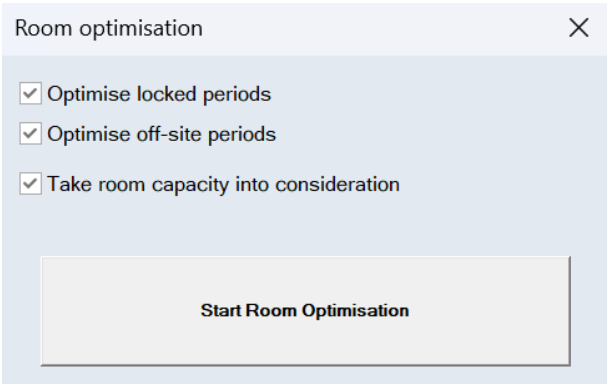
Room optimisation attempts to find the best possible rooms for the individual lessons in an already optimised timetable. The following aspects are taken into account:

- Periods are **not** moved **under any circumstances**.
- Double periods (or blocks of periods) are scheduled in the same room wherever possible.
- If it is not possible to schedule all subject periods of the class in the designated subject room, Untis will try to accommodate each class in the subject room the same number of times. (e.g.: 34 classes and only one physics room: Untis tries to schedule one period in the subject room for each class).
- If the desired (alternative) room is not available during the optimisation, the room optimisation ensures that the class is assigned to the home room.
- Classes or teachers are scheduled in the same (home) room for half days if possible. This is particularly important for itinerant classes which you schedule using pseudo-rooms.
- Rooms in the chain of alternative rooms that are close to the room in which periods are held are preferred.
- The room required for the lesson has priority over the use of an alternative room. This is important when scheduling rooms for itinerant classes. Under no circumstances may they displace other classes from their home room. They are only scheduled in other classrooms if these are currently free.
- If the "(r) - All prds. in the same room" indicator is activated for a lesson ("Teachers | Lessons" or "Classes | Lessons", both in the "Code(s) tab), room optimisation attempts to schedule all periods of the relevant lesson in the same room, also taking into account the room capacity. Rooms that are not home rooms are given priority. Lessons with double or block periods are given preference.

You can call up room optimisation either on the "Start" or "Scheduling" tab from the "optimisation" menu:



You have three further setting options in the room optimisation window.



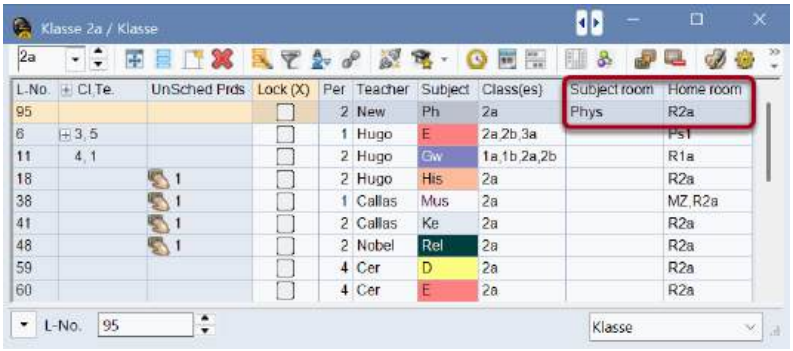
Tip: Do not optimise periods
If you do not want certain periods to be changed by the room optimisation, then lock these periods and remove the tick next to "Optimise locked periods".

7.12.6 The role of subject rooms and home rooms

The entries in the *Subject room* and *Home room* fields are decisive for room scheduling.

Let us first assume, as in the following example, that rooms are entered in both the *Subject room* field and the *Home room* field.

The room optimisation would now aim to schedule all periods of the physics lesson with the number 95 in the Physics room.



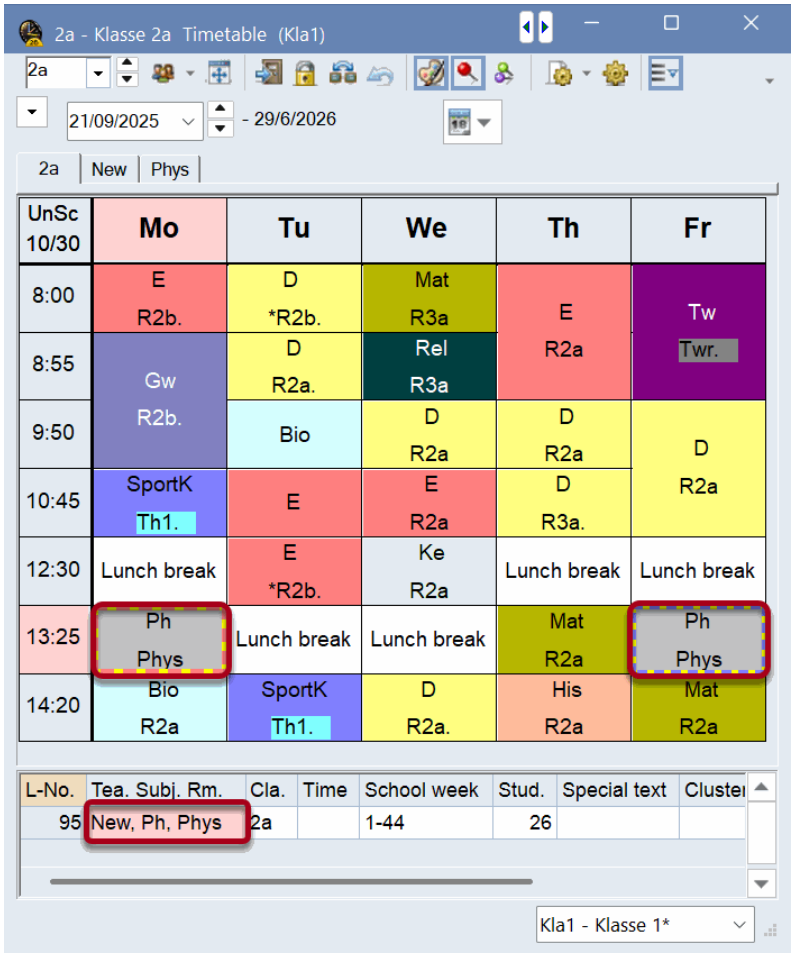
If this goal cannot be achieved, the optimisation tries to divide the physics room fairly among the physics periods of all classes.

Assuming that the physics room is not free in one of the two periods in which the optimisation wants to schedule the physics lesson, the room optimisation would schedule this period in the home room, i.e. R2a in our example.

In the magnifying glass of the timetable, you will then also see that room *R2a* has been assigned instead of the originally desired room *Phys* (in brackets).

The following therefore applies: If the desired subject room is not free, room optimisation ensures that the lesson in question is scheduled in the home room.

Please note that you could specify a (different) room *for each individual lesson* to which the lesson will be moved if the desired subject room is not available.

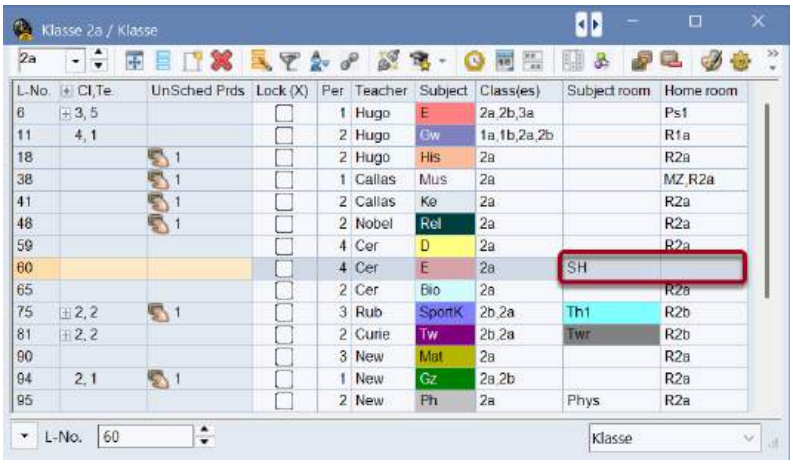


Tip:
If, for example, in a 5-period lesson, 3 periods are to be held in the subject room (i.e. not in the home room) in any case, enter a 3 in the "Periods in this subject room" field.

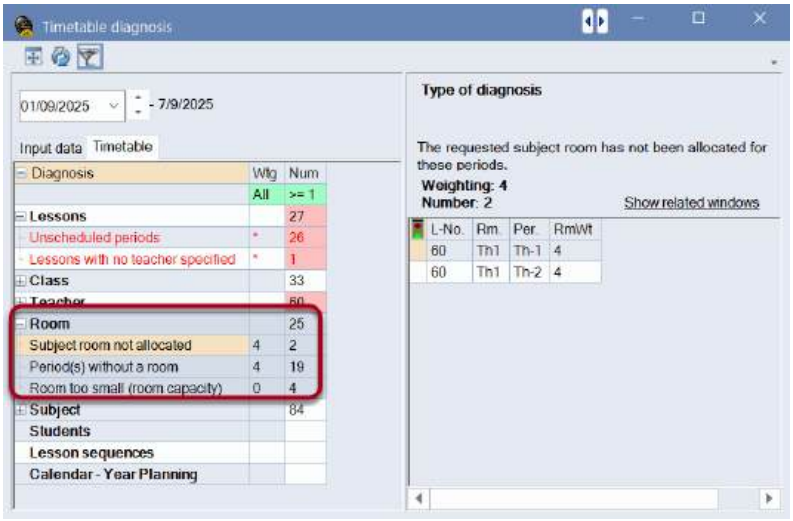
If it is absolutely necessary for a lesson to take place in a certain (subject) room and not in the home room under any circumstances, then you must

1. set the room weight of the room in question to 4 and
2. under "Scheduling | Weighting" on the "Rooms" tab, weight the "Optimisation of room allocation" parameter with 4 or 5.

Alternatively, you can simply delete the entry in the home room field for the lesson in question.



If you have only made an entry in one of the two fields *Subject room* or *Home room*, processing is the same in both cases:
Room optimisation first attempts to assign the desired room (or one of its alternative rooms) to all periods in the relevant lesson.



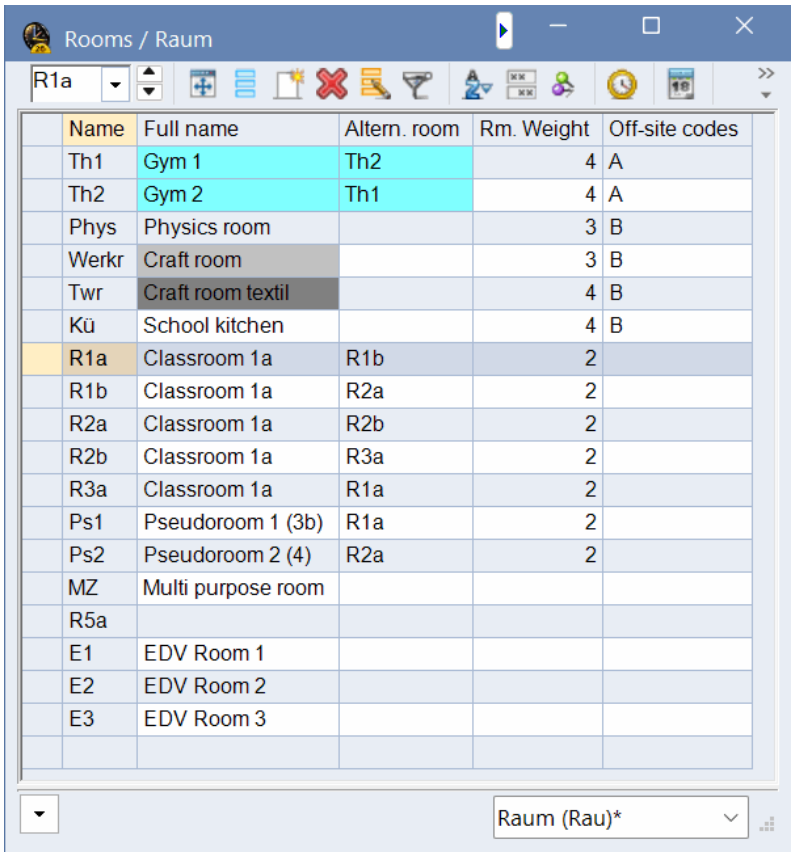
If this is not successful, what happens next depends on the weighting settings under "Weighting" on the "Scheduling" tab in the "Rooms" section: the periods either remain unscheduled or *no* room is assigned to them.

Periods without a room are displayed in the diagnosis in any case.

7.12.7 Off-site rooms

Off-site rooms are subject rooms or classrooms that are so far away from the main school building that students and teachers usually need a lesson-free period to get to these *off-site buildings*. Untis takes these travel times into account during automatic *optimisation* .

The displacements are entered under "Rooms | Master data" in the "Off-site codes" column.

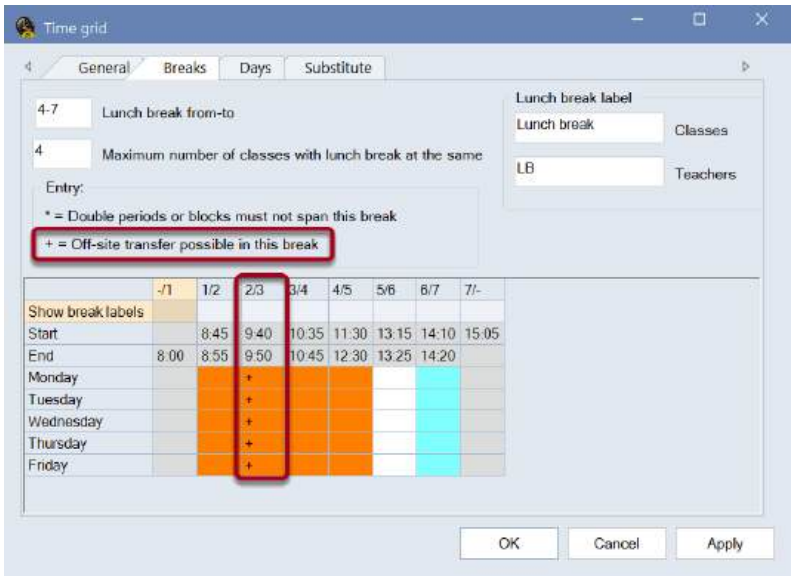


Name	Full name	Altern. room	Rm. Weight	Off-site codes
Th1	Gym 1	Th2	4	A
Th2	Gym 2	Th1	4	A
Phys	Physics room		3	B
Werkr	Craft room		3	B
Twr	Craft room textil		4	B
Kü	School kitchen		4	B
R1a	Classroom 1a	R1b	2	
R1b	Classroom 1a	R2a	2	
R2a	Classroom 1a	R2b	2	
R2b	Classroom 1a	R3a	2	
R3a	Classroom 1a	R1a	2	
Ps1	Pseudoroom 1 (3b)	R1a	2	
Ps2	Pseudoroom 2 (4)	R2a	2	
MZ	Multi purpose room			
R5a				
E1	EDV Room 1			
E2	EDV Room 2			
E3	EDV Room 3			

If a sports teacher is scheduled in the main building in the 1st and 5th periods and at the (off-site) sports field in the 3rd period, care is taken when creating the timetable to ensure that the 2nd and 4th periods remain free due to the travel time required.

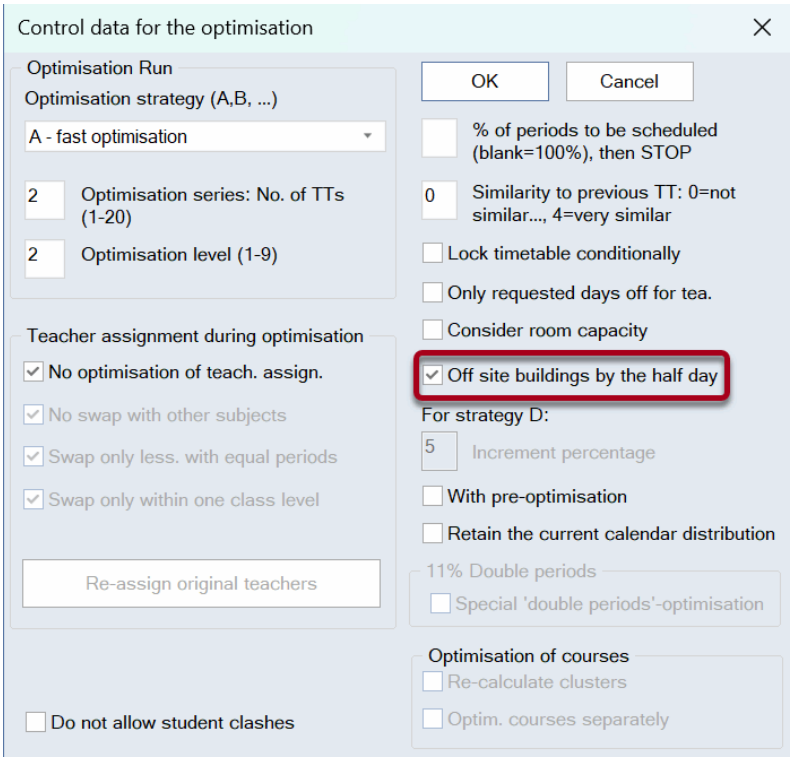
Breaks of different lengths

At many schools, not all breaks are the same length and so some breaks may be long enough to reach the off-site building. Such breaks can be marked in the *time grid* by entering a "+" in the corresponding break field.



The illustration above shows that the break between the 2nd and 3rd hour is sufficient to reach the off-site building. For our example from the beginning of the chapter, this means that Untis can also schedule the sports teacher in the main building during the 2nd period.

Off-site buildings by the half day
In the optimisation dialogue, the option "Off-site buildings by the half day" can be used to specify that teachers or students may not move between two buildings during a half-day. This minimizes the number of changes of location per day.



You can either use the displacements without start time staggering or with start time staggering . How this works is explained in the following chapters.

7.12.7.1 Displacement without time staggering

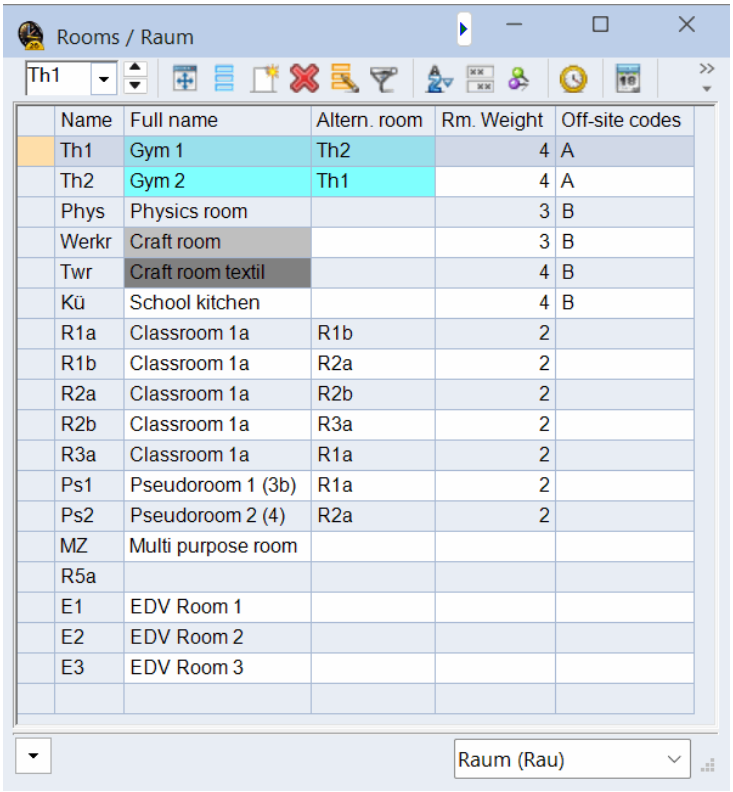
If the same time slots are used in the main building and in the off-sites, teachers and students must keep one period free for both the way to the off-site and the way back to the main building.

If you want to achieve this, use a letter from A to E as the off-site code for the respective off-site rooms.

The following entries are necessary for the correct handling of the off-site rooms during optimisation:

Rooms | Master data

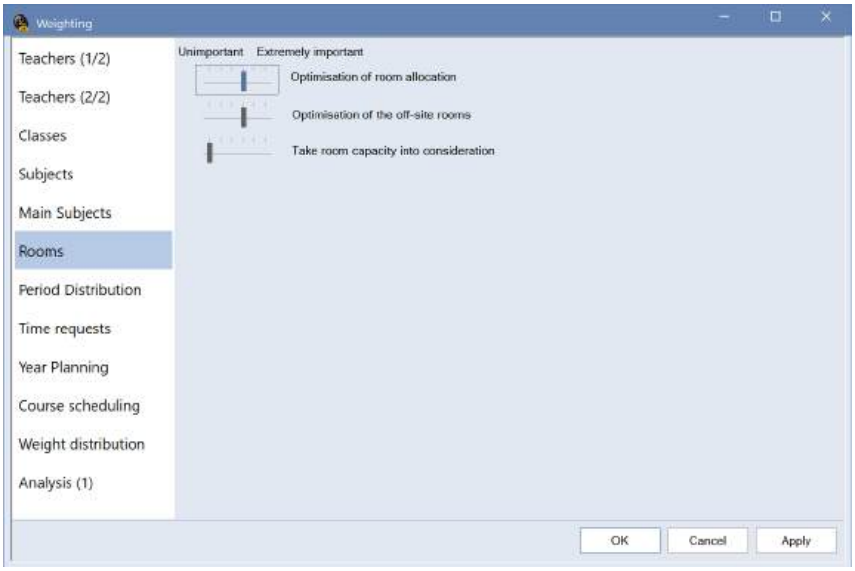
- Off-site codes
- Room weight



	Name	Full name	Altern. room	Rm. Weight	Off-site codes
	Th1	Gym 1	Th2	4	A
	Th2	Gym 2	Th1	4	A
	Phys	Physics room		3	B
	Werkr	Craft room		3	B
	Twr	Craft room textil		4	B
	Kü	School kitchen		4	B
	R1a	Classroom 1a	R1b	2	
	R1b	Classroom 1a	R2a	2	
	R2a	Classroom 1a	R2b	2	
	R2b	Classroom 1a	R3a	2	
	R3a	Classroom 1a	R1a	2	
	Ps1	Pseudoroom 1 (3b)	R1a	2	
	Ps2	Pseudoroom 2 (4)	R2a	2	
	MZ	Multi purpose room			
	R5a				
	E1	EDV Room 1			
	E2	EDV Room 2			
	E3	EDV Room 3			

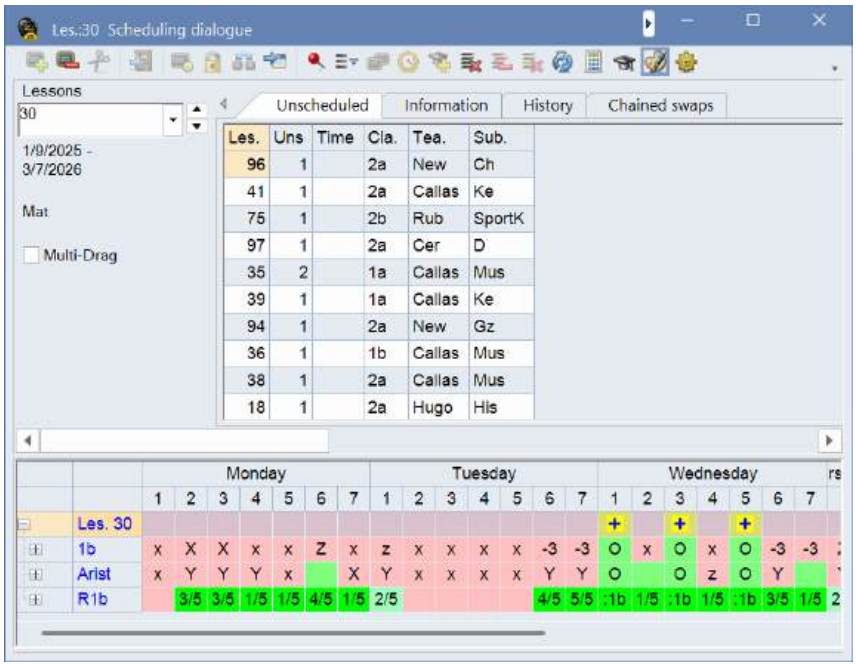
Scheduling | Weighting | Rooms

- Optimisation of room allocation
- Optimisation of the off-site rooms



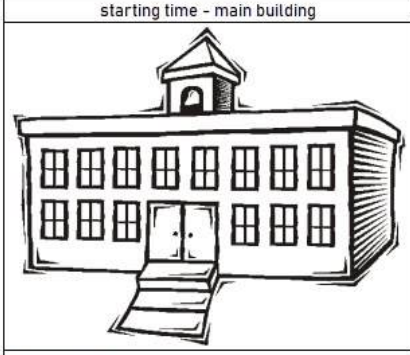
Scheduling dialogue

In the scheduling dialogue, periods that take place in rooms with off-site code "A" (or "1") are displayed with the markers "y" and "Y", all other off-site codes with the markers "z" and "Z" (the capital letters are for couplings).



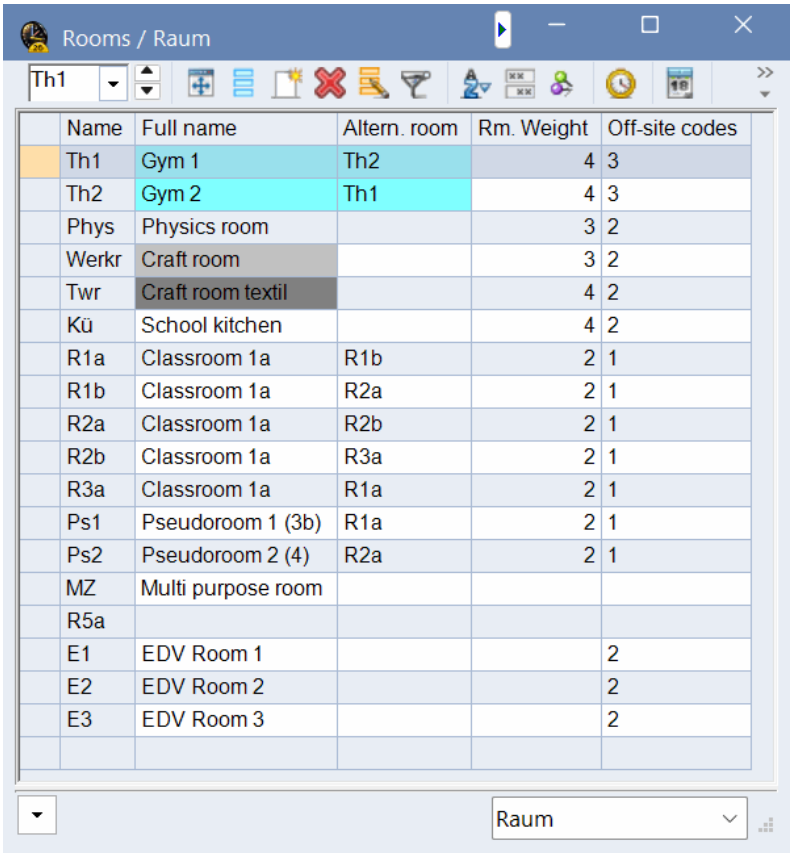
7.12.7.2 Displacement with time staggering

To avoid always having to schedule an entire period for the change from the main building to the off-side building, the periods can start at different times.

starting time - main building		starting time - off-site building
	travel time: 15 minutes	
1st period: **8:00**		1st period: **8:15**
2nd period: **9:00**		2nd period: **9:15**
3rd period: **10:00**		3rd period: **10:15**
etc.		etc.

With this approach, the PE teacher from the example at the beginning of this chapter can be scheduled in the 1st, 2nd and 5th period in the main building and in the 3rd period at the sports field. Untis only has to keep the 4th period free for the way back to the main building.

In the case of scheduling with *staggered start times*, give all rooms in the same building the same (numerical) off-site code. The permitted entries are between 1 and 9.



Name	Full name	Altern. room	Rm. Weight	Off-site codes
Th1	Gym 1	Th2	4	3
Th2	Gym 2	Th1	4	3
Phys	Physics room		3	2
Werkr	Craft room		3	2
Twr	Craft room textil		4	2
Kü	School kitchen		4	2
R1a	Classroom 1a	R1b	2	1
R1b	Classroom 1a	R2a	2	1
R2a	Classroom 1a	R2b	2	1
R2b	Classroom 1a	R3a	2	1
R3a	Classroom 1a	R1a	2	1
Ps1	Pseudoroom 1 (3b)	R1a	2	1
Ps2	Pseudoroom 2 (4)	R2a	2	1
MZ	Multi purpose room			
R5a				
E1	EDV Room 1			2
E2	EDV Room 2			2
E3	EDV Room 3			2

Two off-site buildings

Assume you have two off-site buildings, the first is 15 minutes away from the main building, the second 10 minutes from the first. With an entry like the example below, you enable Untis to schedule a teacher as follows:

1st period main building - 2nd period off-site building 1 - 3rd period off-site building 2

	main building	travel time	off-site building 1	travel time	off-site building 2
		15 minutes		10 minutes	
off-site code	none		1		2
starting time 1st period	8:00		8:15		8:25
starting time 2nd period	9:00		9:15		9:25
starting time 3rd period	10:00		10:15		10:25
starting time 4th period	11:00		11:15		11:25

Untis always keeps one period free for a return from one of the off-site buildings to the main building or from off-site building 2 to off-site building 1.

Untis therefore takes this into account:

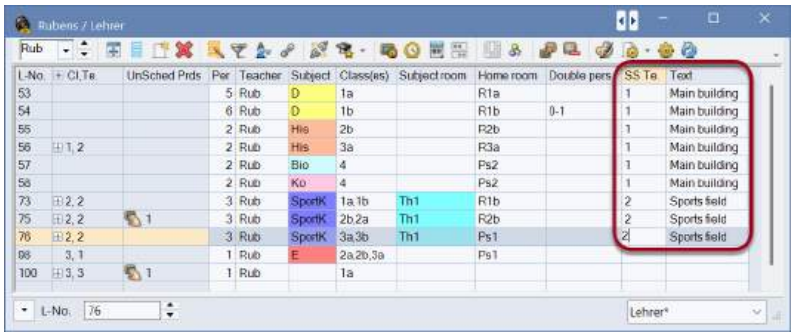
- travel times of teachers and students to off-site classrooms or subject rooms

- travel times of teachers and students from off-site classrooms or subject rooms to the main building

Support from subject teachers

A timetable solution in which teachers and students move as little as possible between external locations and the main building is always preferable. To achieve this, proceed as follows:

For lessons taught by teachers who teach both in the main building and in the off-site building, enter the number "1" in the *subject sequence teacher* for the lesson that takes place in the main building and "2" for the lesson that takes place in the off-site building.

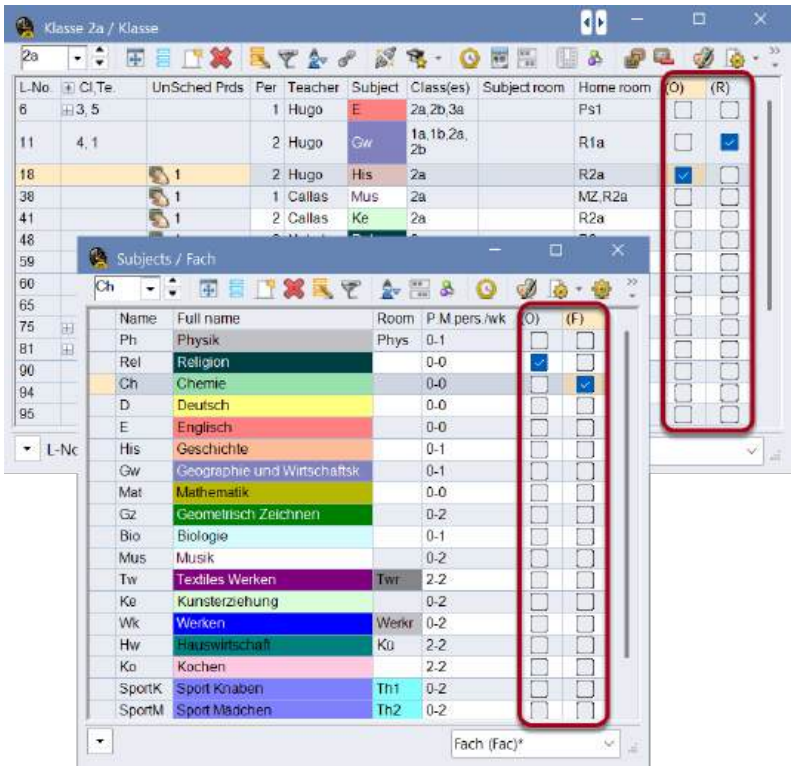


Untis then tries to keep the teachers in the same building for as many consecutive periods as possible.

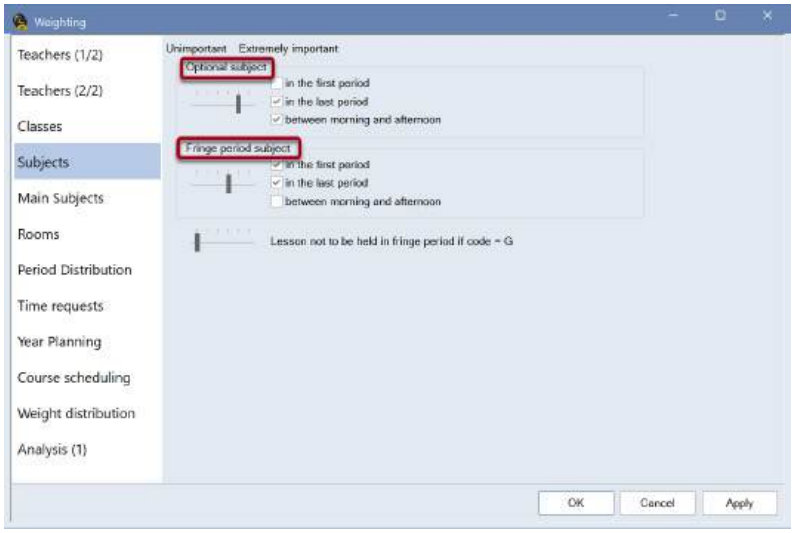
7.13 Optional subjects and fringe periods

If certain subjects are not attended by all students in a class, then it is desirable for these subjects to be at the beginning or end of a half-day, the so-called *fringe periods.* This means that those students who do not attend these lessons can either come to school later, leave school earlier or have a longer lunch break.

In order to enable automatic scheduling in fringe periods, the *Optional subject (O)* and *Fringe period (F) / Place in a fringe period (R)* indicators have been created in the subject master data and in the lessons (the indicator *Fringe period (F)* is used in the subject master data, whereas the indicator *Place in a fringe period (R)* is used in the lessons window). In principle, these indicators influence the optimisation in the same way, whereby you can set the specific differences via the weighting.



According to the following weighting setting, optional subjects are preferably scheduled in the *last period* of the day or *between morning and afternoon*, i.e. either in the last morning or first afternoon period, while fringe period subjects are scheduled either in the *first or last period of the day*.



The opposite, namely scheduling *outside* the fringe periods, is indicated by the "*(G) Not a fringe period"* indicator.

7.14 Main subjects

Subjects that are particularly demanding or important for the students can be marked with the *main subject (M)* indicator. In this way, the following criteria can be taken into account during optimisation:

- The maximum number of main subjects that may be taught per day in a class can be limited.

- The number of main subjects that can be taught in immediate consecutive order in a class can be limited.
- A boundary period can be defined and the number of main subjects after this boundary period can be limited.

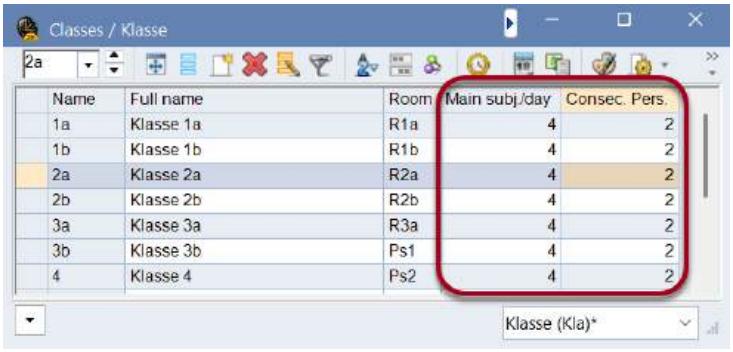
The following entries are necessary for the correct handling of the main subjects during optimisation:

"Subjects | Master data"

- Indicator (M) Main subject

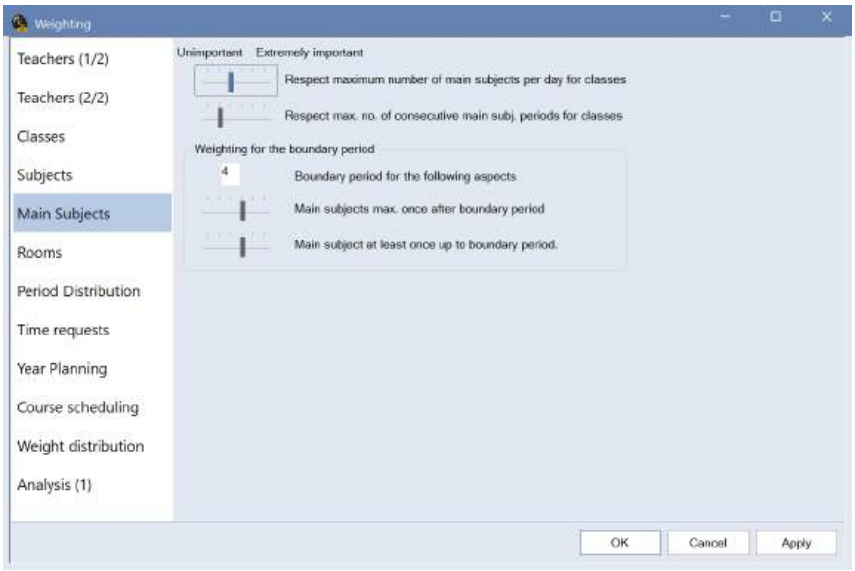
"Master data | Classes"

- Max. main subjects/day
- Max. consecutive main subjects



"Weighting | Main subjects"

- Respect maximum number of main subjects per day for classes
- Respect maximum number of consecutive main subject periods for classes
- Boundary period
- Main subjects max. once after boundary period
- Main subject at least once up to boundary period



The handling of the boundary period is discussed in detail in the chapter "Optimisation - The weighting parameters".

7.15 Subject sequences

Subject sequence references can be entered at the subjects and at the lessons. At the subjects, they apply to the entire school; at the lessons, they only apply to the classes or teachers involved in the respective lesson.

Tip:
The subject sequences are "soft" conditions for the algorithm, i.e. they can be broken in extreme cases. A weighting slider can be used to control the importance of these fields. If the subject sequence must be strictly adhered to, use fixed subject sequences (see chapter of the same name).

There are two different types of subject sequences:

- Positive subject sequence

- Negative subject sequence

7.15.1 Positive subject sequence

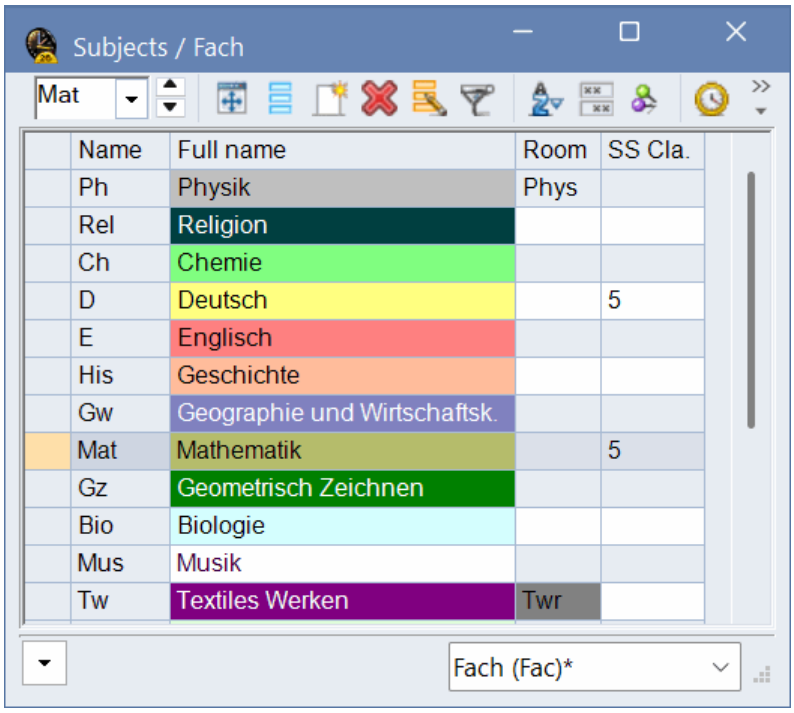
Classes

For pedagogical or organizational reasons, it may be important that certain subjects follow one another in a class.

In order to be able to hold double-period written tests, it is desired that the subjects German (D) and Mathematics (Mat) should follow each other. Whether the scheduling results in the sequence *D - Mat* or *Mat - D* is irrelevant.

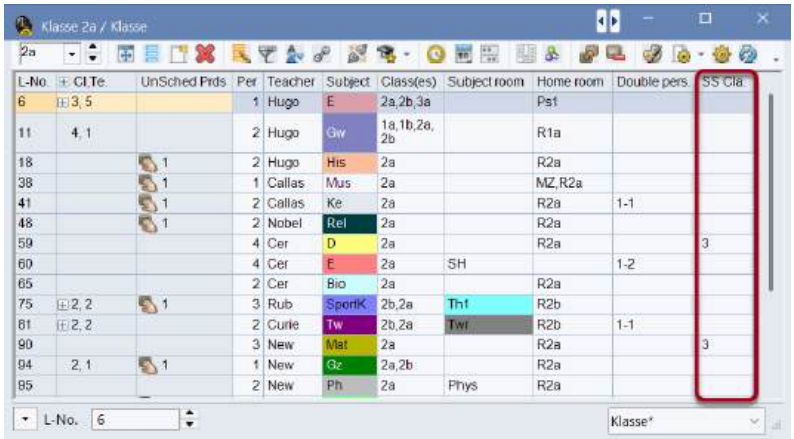
Whole school

Under "Subjects | Master data", enter the same numerical subject sequence reference for both subjects, e.g. "5" (see illustration below).



Only for a specific class

Under "Classes | Lessons", enter a numerical subject sequence reference, e.g. "3", in the relevant lesson lines for class 2a.

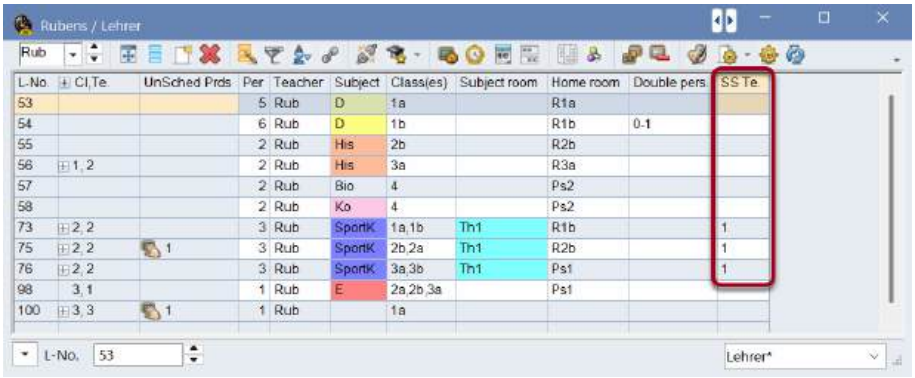


Teachers

Subject sequence requests can also be entered for teachers. This is useful, for example, if the teacher in question teaches three parallel physics classes in order to only have to set up experiments once and then show them to the three classes one after the other.

Or a teacher who teaches PE and maths wants to hold the PE periods one after the other if possible, as otherwise they would always have to change between periods.

In this case, enter the same number in the *Teacher subject sequence* column for the lessons that are to follow each other.



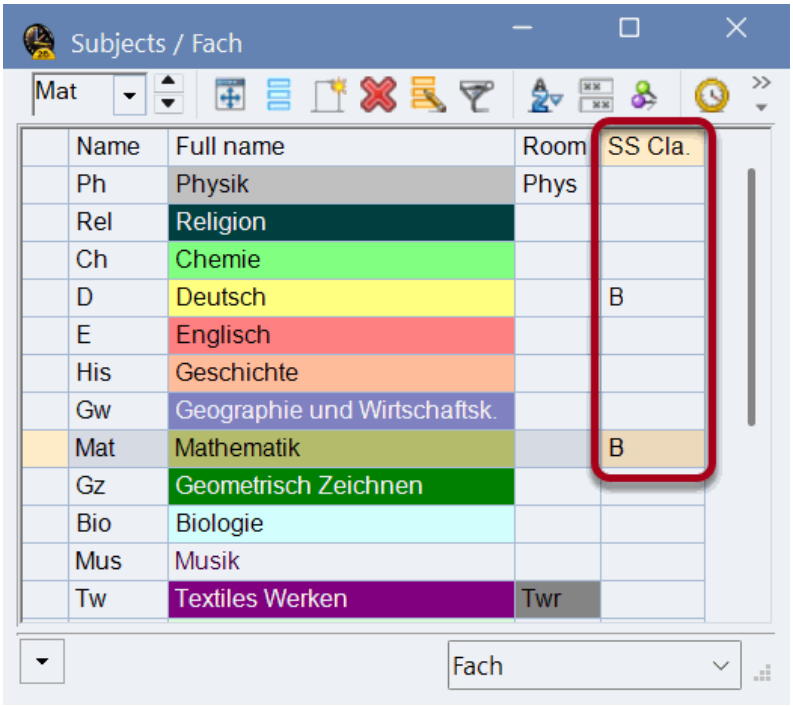
Tip: Displacements (off-site buildings)
You can also use positive subject sequences to support displacements.

7.15.2 Negative subject sequence

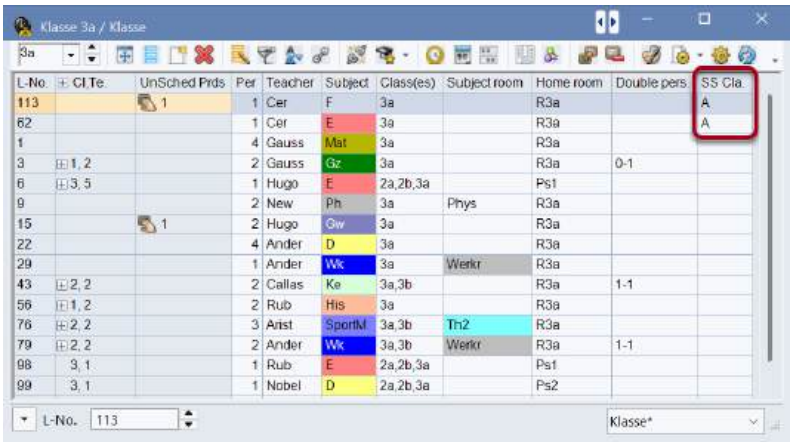
On the other hand, it may also be desirable to prevent certain subjects from following each other. In these cases, simply use one of the letters A to F as the subject sequence code. The optimisation of Untis then attempts to prevent periods with the same subject sequence code from being scheduled in consecutive periods according to the weighting you have set.

You can enter this indicator either in the subject master data (for the whole school) or in the lesson window either for classes or teachers (only applies to the individual class or teacher).

Whole school
German (D) and Mathematics (M) should not take place in consecutive periods.



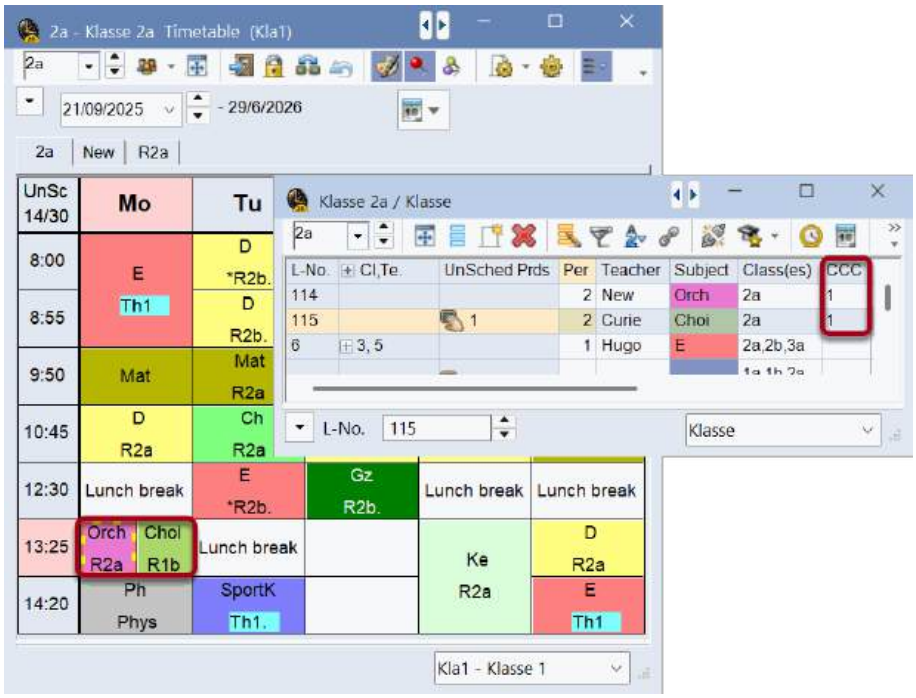
Individual class
For pedagogical reasons, the subjects English (E) and French (F) should not take place in consecutive periods in class 3a.



7.16 Class Clash Code (CCC)

Teachers, classes and rooms may not be assigned twice by the Untis optimisation algorithm. For classes, however, exceptions make sense if lessons in the class in question are sure to be attended by different students.

The pupils in 2a attend either choir **or** orchestra, no students attends both lessons. In this case, you can enter the same *numerical CCC* (permitted value range: 1-9) for both courses, e.g. "1". Choir and orchestra may now (but do not have to) be scheduled by Untis at the same time.



CCC for groups of lessons
Assuming there are three subject groups, each student chooses one of these groups and attends all courses in this group. In this case, collisions between the individual groups are permitted. Assign the *same alphabetical* CCC to those lessons that are not allowed to collide with each other and a different alphabetical CCC to those that are allowed to collide.

	CCC	
French and Italian	A	Group 1
Chemistry and physics	B	Group 2
Literature and Theater	C	Group 3

Please note that entering a CCC *allows*, but does not *force,* the collision of lessons. This means that the diagnosis will **not** display **a class NTP (non-teaching-period, "hole")** if the lessons with CCC A, B and C are **not at the same time** .

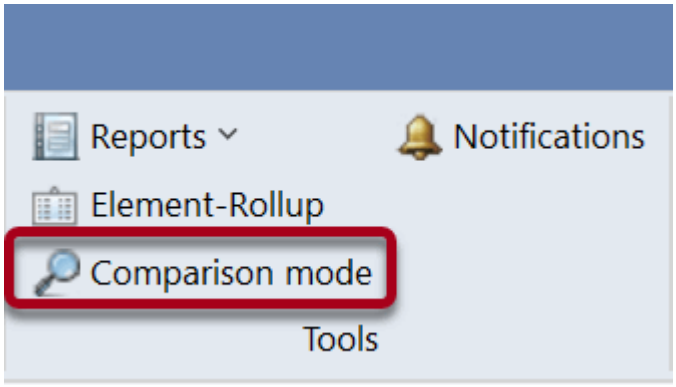
7.17 Comparison mode

The comparison mode allows you to compare and examine your database with another one. For example, you can quickly find out which colleagues are affected by a timetable change and output the corresponding plans.

You can compare timetables on the one hand and master data and lessons on the other. There are also a number of settings for how these differences should be displayed.

Opening the comparison mode

On the "Start" tab, you will find the button on the far right that allows you to switch to comparison mode.



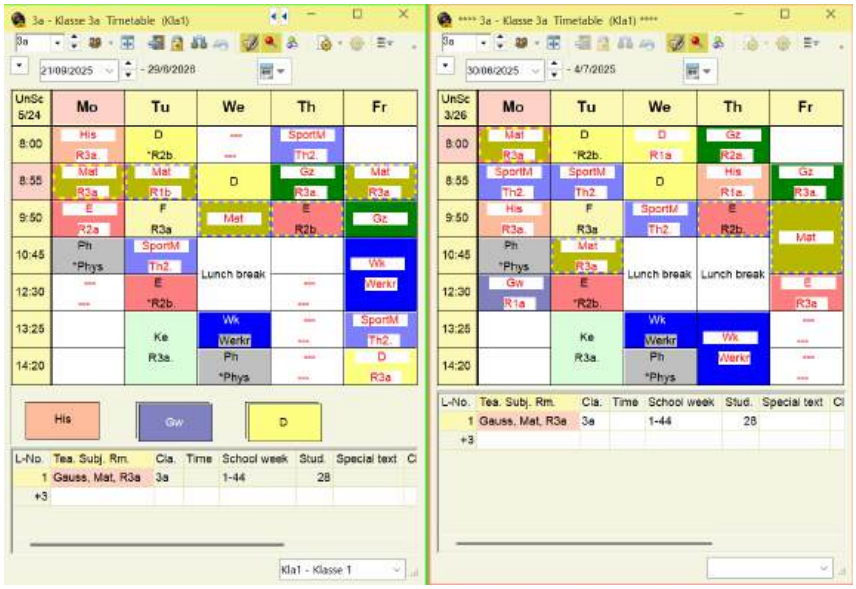
The current dataset is always compared with a dataset to be selected. There are three options for this:

1. Another file.
2. Another version or another school year in Untis MultiUser.
3. Another period of the same file.

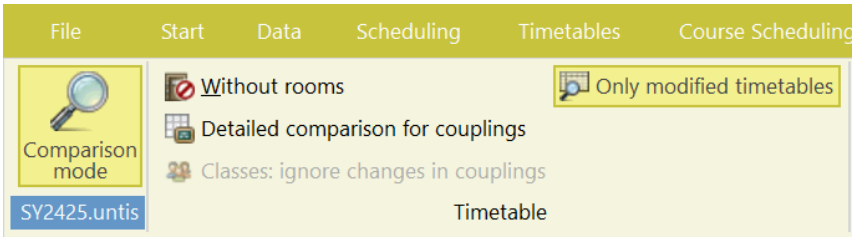
The data of the current dataset is displayed in green, that of the dataset to be compared in red.

7.17.1 Timetable comparison

If you have activated the comparison mode and open a timetable, it will be opened in duplicate, with a green border for the current dataset and a red border for the dataset to be compared.



There are a few settings here that should make it easier for you to find the desired differences quickly.



Only modified timetables
This option only selects the timetables where differences can be found. Only these timetables are then offered in the selection list and in the printout.

There are also further sub-functions:

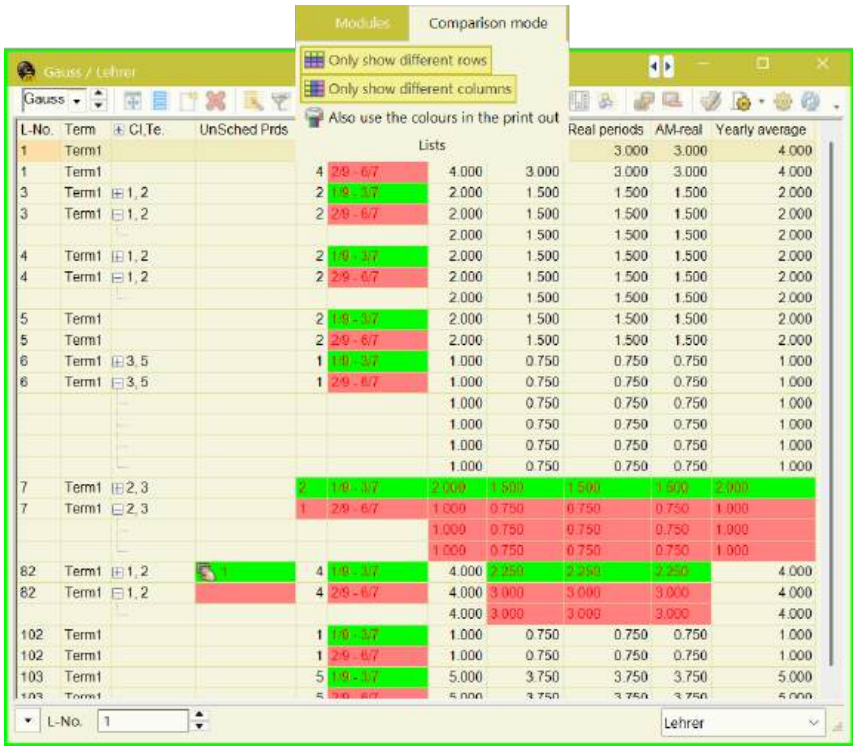
Without rooms
A room change is often not seen as drastically as the relocation of a period. You can therefore define here that the changed schedules are shown, excluding schedules in which only room changes have taken place.

Detailed comparison for couplings
If you select this option, lessons are also marked as changed if only another coupling line has been changed and not the displayed coupling line.

7.17.2 Master data and lesson comparison

If you open a master data or lesson window in comparison mode, it is only opened once - in contrast to the timetable.

However, if there are differences in an element or lesson, two lines are displayed here and the differences are shown in the corresponding colors.



There are also two options to make it easier for you to detect differences:

Only show different rows
This hides all rows of elements or lessons where no differences were found.

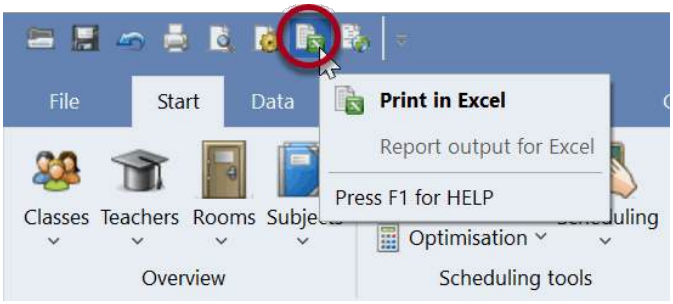
Only show different columns
All columns in which no differences were found are hidden.

7.17.3 Display options

In the right-hand section of the "Comparison mode" tab, you will find settings for how you can display the differences. In the example below, all options have been activated and the colors of the frame have also been changed.

7.18 Export to Microsoft Excel

Untis allows you to export most reports and the content of many master data and lesson entries to MS Excel. Whenever data export from a window to Excel is possible, the corresponding button in the Quick Access Toolbar is active.

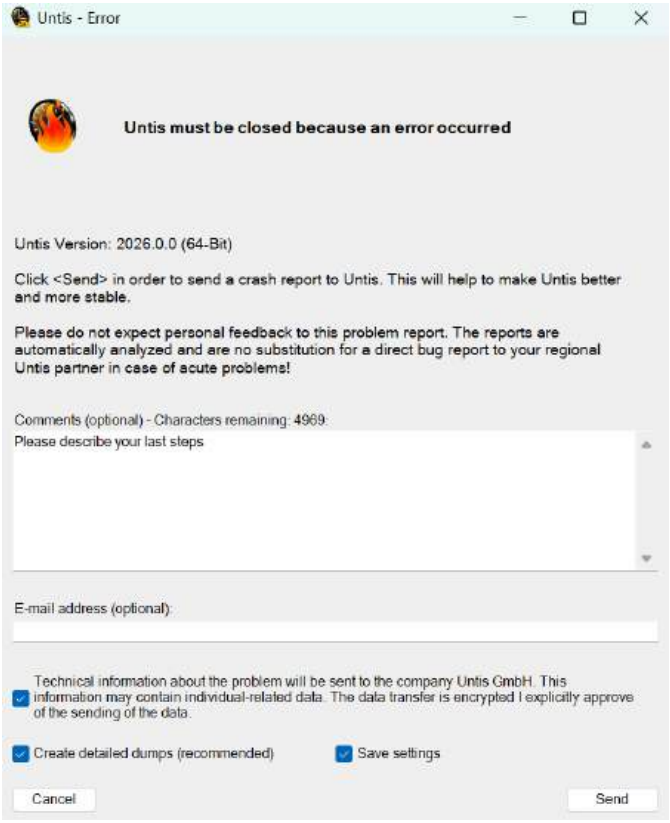


7.19 Crash dumps and quality monitoring

The stability of Untis is very important to us. We therefore try to continuously improve the quality of our program. We use the following functions for this purpose:

Crash dumps

Every time Untis crashes, a window appears in which we ask you to send us your data in the form of a so-called *crash dump* and thus help us to analyze and correct vulnerabilities in Untis.



Tip: Crash dumps in support data
Crash dumps are sent with the support data by default, which can lead to problems in some cases, as the file attachment can be too large for the mail system of some schools. For this reason, you can specify under < Settings | Logging and crash reporting > whether crash dumps are included in support data or not.

Quality monitoring

This function transmits various quality assurance data to Untis GmbH every time Untis is closed (if an Internet connection is available).

This data includes answers to the following questions:

- Was Untis terminated intentionally or unintentionally? (In other words, did Untis crash?)
- How long did the Untis session last? (In seconds)
- Which version of Untis was used? (E.G. UN2025.1.0)
- Which system architecture was used? (x86, x64)
- In which language was Untis used?
- Which Untis modules are active?
- Which country is set?

Neither personal data nor data from which conclusions can be drawn about the school are transmitted. You can also deactivate the transmission of this quality assurance data in <Settings | Logging and crash reporting>.


Settings
School data
General
Overview
Values
Miscellaneous
Reports
Substitution Planning
Course Scheduling
MultiUser
Logging und crash reporting
Tracing
WebUntis
Logging activated
Specify loglevel
Specify the level up to which incidents should be logged. All incidents with a log level equal to or higher than the one selected will be logged. The lower the log level, the more detail will be logged. As a consequence, the log files will be bigger with lower log levels.
3 - Warning
Activate special topics
Optimisation (Warning: this will significantly slow down the optimisation)
Crash Reporting
Create detailed dumps (increases the size and upload time of crash reports)
Include crash dumps in support data
3
Maximum number of dumps in the upload queue
5
Maximum number of dumps to be saved
Quality monitoring
Do not send data about the usage of Untis (e.g. the usage-time, the number of crashes, etc.) to Untis GmbH
Italic = locally stored settings (.ini files)
OK
Cancel

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- V -

- W -

- Z -