



Untis

Lesson planning



untis.com

Table of Contents

I Introduction	5
II Overview	5
III Part 1: Lesson planning	6
1 Lesson planning wizard	7
2 Teachers' work	10
Target teaching lessons	10
Reductions	12
Temporary reductions.....	15
Reductions with negative values.....	16
Printing	16
Balance at year end.....	17
Migration of yearly counters.....	20
Lessons for Teachers	21
Teaching qualification.....	22
Subject groups	25
Explicit subject group.....	27
Implicit subject group.....	28
Displaying teaching qualifications.....	28
Change of school year.....	30
Previous year's teacher.....	30
Transfer automatically.....	32
Manual teacher assignment.....	32
Subject bottlenecks.....	33
Teacher suggestion.....	35
Lesson proposal.....	36
Teacher's yearly work	38
Lessons according to timetable.....	40
Reductions for yearly work.....	41
Reductions resulting from lessons held.....	41
Reductions from yearly target workload.....	41
Miscellaneous reductions.....	42
Reporting yearly work.....	42
Yearly work / teachers.....	43
Yearly work / overview	44
3 Scheduling tools	45
Lesson matrix	45
Lesson matrix short description.....	46
Settings	50
Entries in the lesson matrix.....	52
Toolbar functions.....	54
Lesson table (syllabus)	54
Creating lessons.....	57
Entering subjects in the lesson table.....	58
Allocating / deleting classes.....	58

Automatic teacher assignment	59
Assignment before optimisation.....	59
Teacher assignment.....	60
Team optimisation.....	60
Assignment during optimisation.....	62
Settings for teacher optimisation.....	63
Teacher groups.....	64
4 History mode	65
IV Part 2: Value calculation	67
1 Values	67
Entering values and factors	68
Teachers Master Data.....	68
Value correction	70
Subjects Master Data.....	72
Classes Master Data.....	73
Lesson values.....	73
Examples of lesson values.....	75
Factors for lesson groups.....	76
Weekly values	76
Weekly values for teachers.....	77
Lessons / periods.....	77
Lessons / values.....	78
Timetable / periods.....	79
Timetable / values:.....	80
Cover scheduling / periods.....	80
Cover plan / values.....	81
Statement	82
Weekly values for classes.....	82
Yearly average	82
Value calculation settings	83
Reports	85
Subject / periods reports.....	85
Classes	85
Teachers	87
Subjects / time report.....	87
Periods reports.....	88
Teachers/subjects report.....	88
Subjects / teachers report.....	89
Emergency list	90
School data	91
2 Examples of value calculation	92
Values from the teacher perspective	93
Teacher, class and subject factors.....	93
Line value	94
Yearly values.....	95
All w weeks	96
All w weeks excluding holidays.....	97
Calculating from individual days.....	98
Percentage factor (yearly value).....	99
Minute calculation.....	102
Values from the class perspective	104
Without factors.....	105

One teacher involved.....	105
Several teachers involved.....	106
With factors.....	107
3 Value calculation - multi-week timetable.....	107
Date time limitation on lessons	108
Value calculation w ith time limitations.....	109
The 'One week' option.....	110
Fixed values/factors - time limitations.....	111
Fixed value, time limitation counts.....	112
Fixed value, time limitation not count.....	112
Factor or summand.....	113
Several time limitations.....	113
Example of several time limitations.....	115
Yearly values w ith time limitations.....	116
Examples of yearly values w ith limits.....	116
Lesson groups	118
Lesson group w ithout factor.....	119
Lesson group w ith factor.....	120
Terms	121
Terms and time limitations	122

Index

131

1 Introduction

This chapter is not just intended as an introduction but also as a reference manual for the modules lesson planning and value calculation. It therefore contains a description of everything required for scheduling lessons and calculating values .

All Untis users will benefit from the first three sections of the [Teachers' work](#) chapter. They contain everything required by a timetable scheduler who also is responsible for planning the deployment of teachers. The '[Teacher's yearly work](#)' feature, described in the final section of this chapter, is currently used mainly in the Netherlands.

Many planning functions such as '[Lesson comparison](#)' or functions for the [automatic assignment of teachers](#) 'are certainly very useful but have been skipped in the initial section covering familiarisation with the system and are described later in the '[Planning tools](#)' chapter.

Lesson planning becomes really challenging when lessons are evaluated and weekly periods are not just counted. If you have (so far) managed without value calculations, you are in the fortunate position that you can omit the second part of this manual which is concerned with value calculation.

If, on the other hand, you require [value calculation](#) you are also in a lucky position, as you now have the valuable assistance that Untis provides. You will not require everything described here - [yearly percentage calculation](#) is, for example, something very special - but reading through the appropriate chapters will be extremely worthwhile.

The final chapter 'Value calculation with the multi-week timetable module' deals above all with those problems created by time-limited or other non-yearlong lessons when planning teacher deployment. These types of problem are likely to become increasingly important in the future.

2 Overview

One of the biggest administrative tasks when planning the new school year is the allocation of all the work among the teaching staff.

The following must be considered:

- The teachers must accomplish a certain workload. This [target value](#) depends on the type of school and the national school system, but also sometimes on the age and training level of the teacher. Usually the number of lessons to be held per week (e.g. 24 lessons per week for a full-time teacher and 12 for a teacher with a part-time contract) are entered. There are duties that do not appear in the timetable but which are part of the weekly working hours (school management, subject mentoring, library administration etc.). Such duties are taken into account in the form of [reductions](#) .
- A teacher must be found with the appropriate [teaching qualification](#) for every lesson that is to be held.
- In order to guarantee the students continuous education a teacher should if possible accompany a class over [several years](#) .
- The workload must be distributed among all the teachers fairly and evenly. This applies both to teaching as well as to those duties that are included in the working hours in the form of reductions.
- When scheduling, the task of calculating the workload is often complicated. The value of a lesson frequently depends on the [subject](#) , [class level](#) or even on the [teacher](#) 's contract of employment.
- Screen masks and reports should give insight into the details but at the same remain as clear and

comprehensible as possible.

The Untis 'Lesson planning and value calculation' module assists you with this task by providing the following functions:

- [Teaching qualification](#) : You can enter those (groups of) subjects for every teacher that he/she is allowed to teach.
- [Teacher suggestion](#) : For each lesson you can have Untis propose teachers who are eligible to teach it.
- [Teacher assignment](#) : You can also have Untis automatically perform the assignment of teachers .
- [Subject bottlenecks](#) : Subjects for which there are (too) few qualified teachers cause problems when planning lessons. The 'subject bottleneck' function determines possible bottlenecks in lesson planning.
- [Lesson matrix](#) : Allows an overview of how lessons are distributed in the form of a matrix.
- [Lesson table](#) (syllabus) : By defining the school type this view helps you to check whether each class of a certain school type has been allocated the prescribed number of weekly lessons in each subject.
- [Value calculation](#) : Lesson planning is always particularly difficult when lessons for different subjects are weighted differently, e.g. when a maths lesson is 'worth more' than a music lesson. Untis lesson planning allows you to enter the information you require for value calculation for the subjects, classes, teachers and lesson. You can find the total values for the whole school that are important for statistical purposes on their own index card.

3 Part 1: Lesson planning

This section explains in detail the following topics:

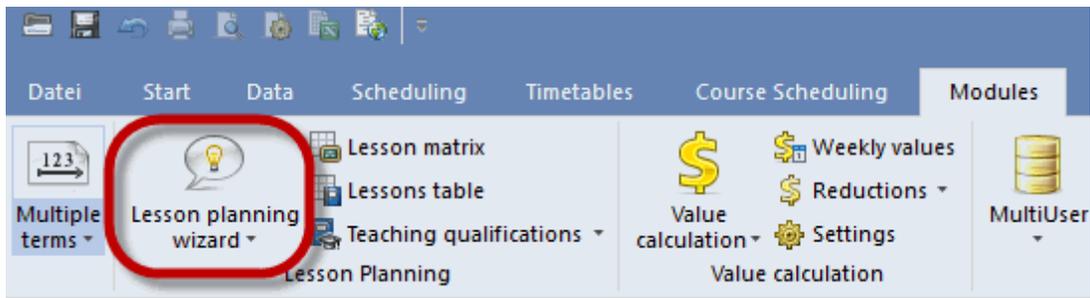
[Teachers' work](#)

- [Target teaching lessons](#)
- [Reductions](#)
- [Lessons for teachers](#)
- [Teachers' yearly work](#)

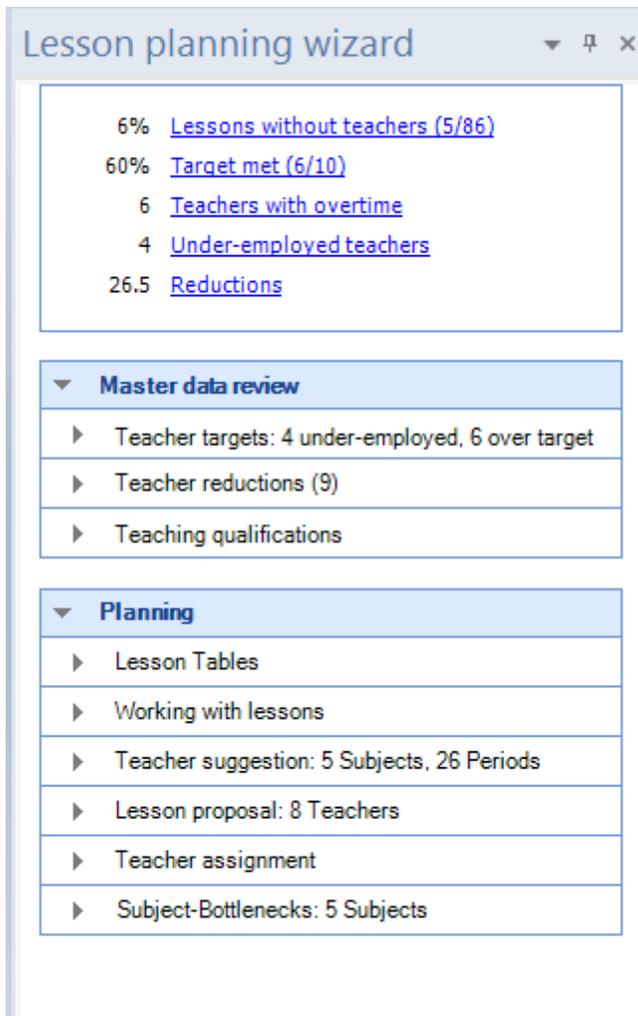
[Scheduling tools](#)

- [Lesson matrix](#)
- [Lesson table \(syllabus\)](#)
- [Automatic teacher assignment](#)

Lesson planning wizard



You also can get to the different topics via the lesson planning wizard. It assists you with window groups which have already been set up, in which respective columns are shown and appropriate filters have been set. You find the lesson planning wizard on the 'Module' tab in the section 'Lesson Planning'.

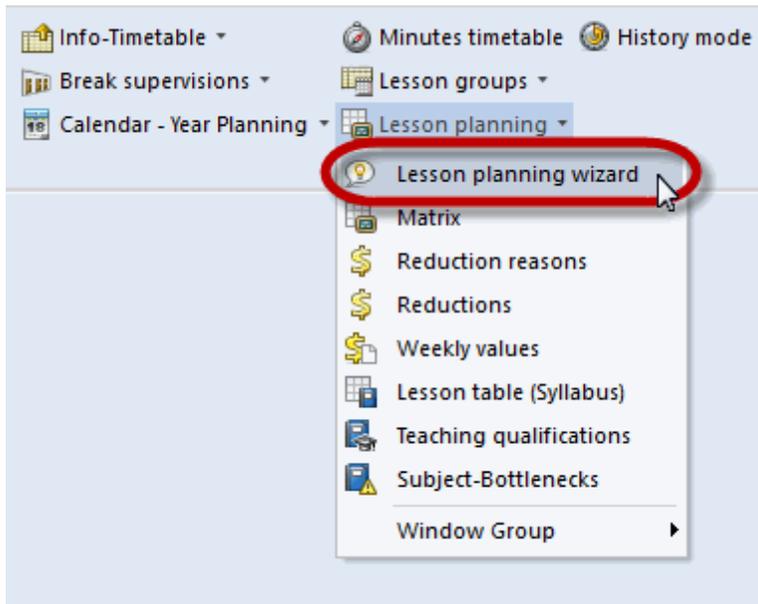


3.1 Lesson planning wizard

The lesson planning tools are manifold and powerful. We installed a wizard to assist you when

you plan your lessons, so that you can easily get to all the tools, data retrievals and all the information you need.

Just go to the 'Start' tab and click on 'Lesson planning | Lesson planning wizard'.



In the upper part you see links giving you a general overview on the teacher values situation. Via the main categories 'Master data review' and 'Planning' you can get to the respective tools.

Lesson planning wizard

0% [Lessons without teachers \(0/77\)](#)
100% [Target met \(10/10\)](#)
10 [Teachers with overtime](#)
0 [Under-employed teachers](#)
0 [Reductions](#)

Links to master data or lesson views.

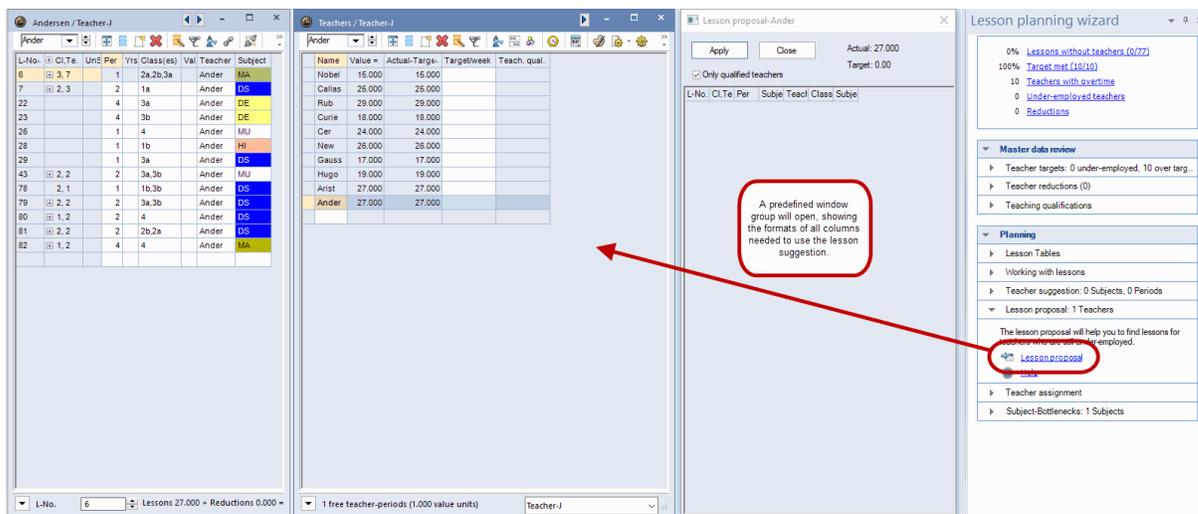
Master data review

- ▶ Teacher targets: 0 under-employed, 10 over targ...
- ▶ Teacher reductions (0)
- ▶ Teaching qualifications

Planning

- ▶ Lesson Tables
- ▶ Working with lessons
- ▶ Teacher suggestion: 1 Subjects, 1 Periods
- ▶ Lesson proposal: 0 Teachers
- ▶ Teacher assignment
- ▶ Subject-Bottlenecks: 1 Subjects

Next to the individual items there is a short description of their function, a help link and a recommended window arrangement for the use of the respective tool.



3.2 Teachers' work

This chapter describes how you can use Untis to manage a teacher's workload. This involves not just the lessons to be held but also the various additional duties that a teacher performs (e.g. supervision of teaching material or administration of the school library). Such duties are grouped under the term 'Reductions'.

- [Target teaching lessons](#)
- [Reductions](#) :
- [Lessons for teachers](#)
- [Teachers' yearly work](#)

3.2.1 Target teaching lessons

Open the view 'Teachers | Master data' from the file demo2.gpn, expand the form view and switch to the 'Values' tab.

Name	Surname	Target/week	Reductions	Value =	Val. Les.
Gauss	Gauss	25.00	9.52	23.42	13.90
New	Newton	25.00	-0.50	32.11	32.61
Hugo	Hugo	25.00	1.00	24.59	23.59
Ander	Andersen	15.00	2.10	5.02	2.92
Arist	Aristoteles	25.00	1.50	31.95	30.45
Callas	Callas	25.00	3.85	30.75	26.90
Nobel	Nobel	15.00	-0.11	14.57	14.68
Rub	Rubens	25.00		29.47	29.47
Cer	Cervantes	25.00		30.83	30.83
Curie	Curie	25.00	-1.90	15.11	17.01

5 23.42 Actual/week Value units with factor 1.000 8
 3 - 25.00 Target/week , maximum 28.00 4
 6 -1.58 Ist-Soll Difference (% of targ.: 93.7 %)
 Value units
 23.42 [Yearly average](#) 9
 13.0 [Weekly periods](#) 1
 0.00 [Yearly periods](#)
 9.52 [Reductions](#) 2
 13.90 [Value lessons](#)
 0.00 ValueCorrection
 Context-info
 2 [Suited open lessons](#) (factorised: 3.63)
 7 (Lessons for which the teacher is qualified)

The values entered and displayed in this window are principally concerned with value calculation and are described again in detail in the corresponding chapter.

If you do not use the value calculation part of the lesson planning module - that is, if you have not entered any factors for subjects, classes or teachers - the number of periods per week and the value units are equivalent for Untis.

At this point only the following input elements and displayed values are important:

1. Periods/week: Here you can see how many lesson periods have been scheduled for the teacher.
2. Reductions: The actual weekly value does not just include lessons held. This will be explained in more detail in the '[Reductions](#)' chapter.
3. Plan/week: Enter the desired workload for the teacher in periods per week (e.g. 25 periods per week).
4. Plan/week max: This value only plays a role if you intend using [automatic teacher assignment](#).
5. [Value units](#): The scheduled weekly periods for a teacher can differ from the actual weekly periods

as a result of [factors](#) or [reductions](#) .

6. Actual-planned: This indicates the difference between the teacher's target weekly periods and the actual scheduled workload. A negative value means that the teacher has not yet been allocated his/her target.
7. Free for teacher: This field displays the number of periods which have not yet been allocated a teacher and which the current teacher is qualified to take. You will find a more detailed description of the topic [teacher qualification](#) in the corresponding section.
8. [Factor](#) You can use this factor to adjust the values of a teacher. The value that you enter here will be multiplied with the number of periods per week.
9. [Yearly average](#) : The yearly average is the average lesson value taken over all terms.

3.2.2 Reductions

A teacher's workload is not restricted just to teaching - it includes other duties, e.g. school management, supervision of teaching materials, subject mentoring, library administration etc. Such duties can be taken into account by creating reductions.

Reduction reasons

You must first define reasons for reductions via the menu 'Reductions' on the 'Module' tab.

The figure below shows the reduction reasons from file Demo2.gpn.

The screenshot shows a window titled "Reduction reasons / Reduction reasons". At the top, there is a search bar containing "TC" and a toolbar with various icons. Below the toolbar is a table with three columns: "Name", "Full name", and "Description". The table contains the following data:

Name	Full name	Description
CT	Class Teach	
Dir	Director	ADM
YrIB	Yearly balance	SE
Lib	Library	ADM
PhC	Physics collection	Kust
ChC	Chemistry collectio	Kust
AR	Age reduction	SE
S	Secondment	
SWW	Shorter working we	GG
SchC	School counselor	
TC	Trainee care	

Reductions themselves are entered in the 'Modules | Value calculation | Reductions' window.

The screenshot shows a window titled "Reduction / Anrechnung". At the top, there is a search bar containing "Hugo" and a toolbar. Below the toolbar, there are tabs for "Teacher" and "Reduction reasons". The main area displays a summary of the reduction:

3.00 Reduction
 + 23.59 [Lessons](#) 25.00 [Target](#)
 = 26.59 Total = 1.59 Actual-Target

Below the summary is a table with the following data:

Nr.	Tea.	Reasor	Value	From	To	Text	Statistic	Less-	Descript
16	Hugo	CTe	2.00						
19	Hugo	PhS	1.00						

The figure shows the reductions for teacher Hugo. For his mentoring duty as class teacher ('CTe') he is credited with 2,000 value units (if you work without value calculation, the number of periods for the week are used). He is also credited with 1,000 value units for supervision of the physics collection (reduction reason:PhS).

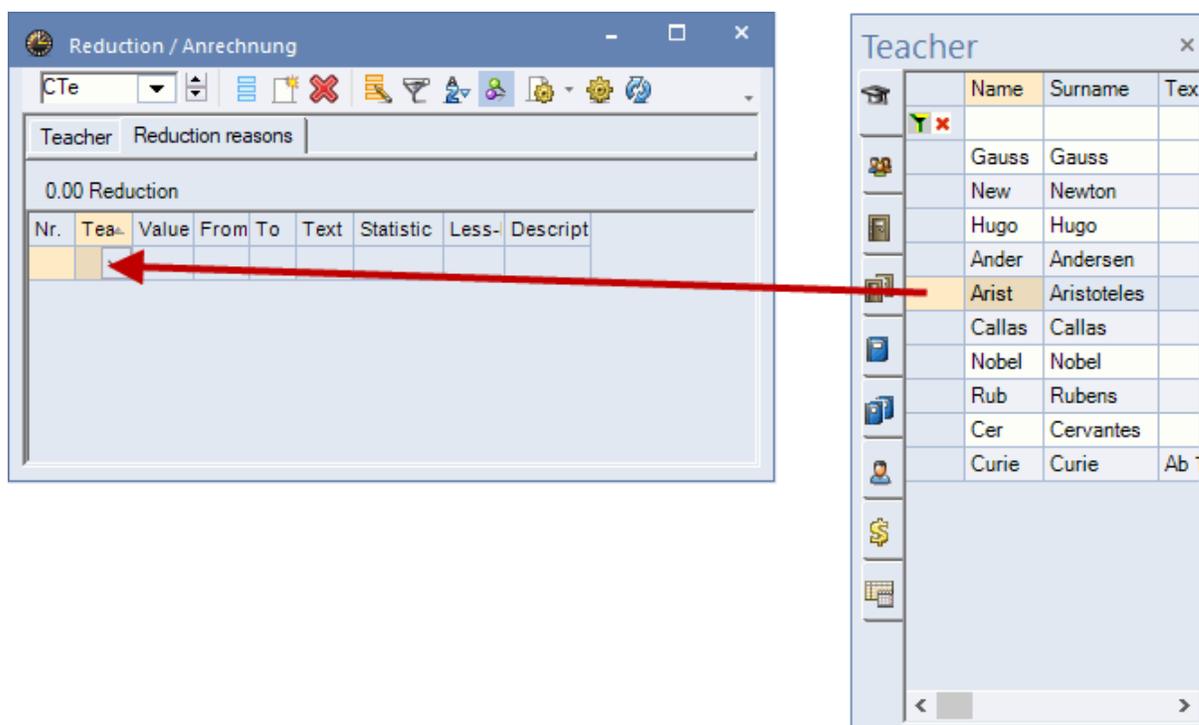
If you wish to display the reductions for individual teachers (as is the case in the figure) using the corresponding selection list, you will see how many value units have already been allocated to the teacher.

For teacher Hugo, 3,000 value units in the form of reductions and 23,591 value units of lessons have been assigned. This results in a total of 26,591 value units. He is thus 1,591 value units over his weekly target of 25.000.

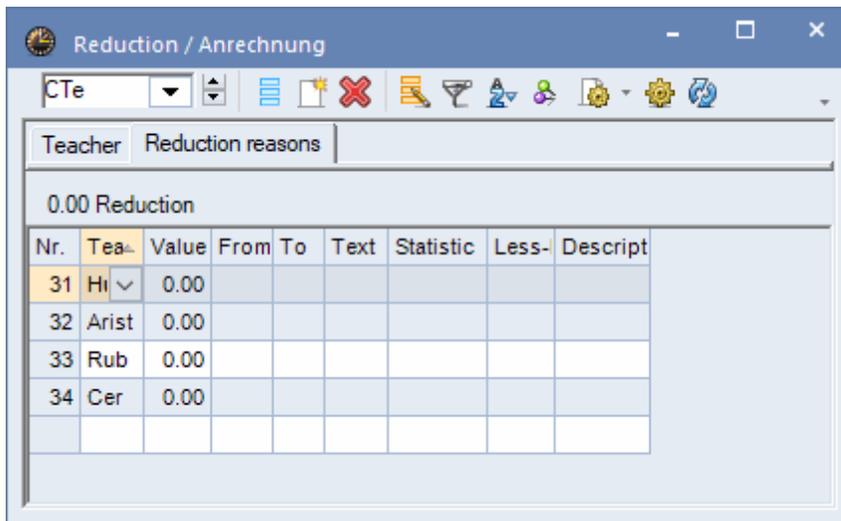
Using drag & drop with teachers and reduction reasons

You can use drag & drop to assign one reduction reason (e.g. mentoring) to several teachers by using the Element-Rollup. To do this, use <CTRL>+click to select the respective teachers and drag them into the reduction reasons window.

In the example, several teachers are assigned a reduction for mentoring as class teachers (CTe').



You will now find all the selected teachers under 'CTe' and you can enter values for them.



Reduction / Anrechnung

CTe

Teacher Reduction reasons

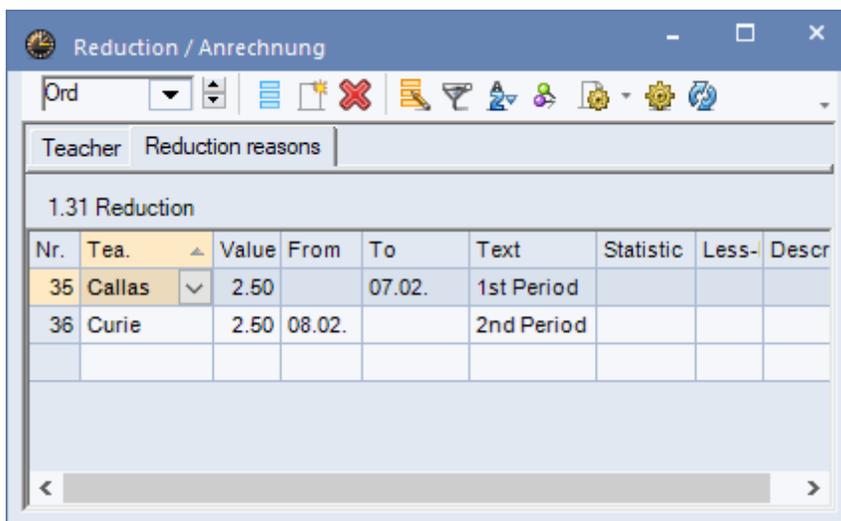
0.00 Reduction

Nr.	Tea.	Value	From	To	Text	Statistic	Less-	Descript
31	Hi	0.00						
32	Arist	0.00						
33	Rub	0.00						
34	Cer	0.00						

Conversely, several reduction reasons can be assigned to one teacher.

3.2.2.1 Temporary reductions

You can also limit the time for which reductions are valid. Let us assume that a teacher looks after the library for a semester and benefits from an appropriate reduction. In the following semester she hands over this task to another colleague. The reductions must be entered for both teachers together with the corresponding 'from' and 'to' dates.



Reduction / Anrechnung

Ord

Teacher Reduction reasons

1.31 Reduction

Nr.	Tea.	Value	From	To	Text	Statistic	Less-	Descr
35	Callas	2.50		07.02.	1st Period			
36	Curie	2.50	08.02.		2nd Period			

The time limitation distributes up the reduction value evenly in the comparison of the teacher's actual and target values (see ['Value calculation'](#)).

Warning:

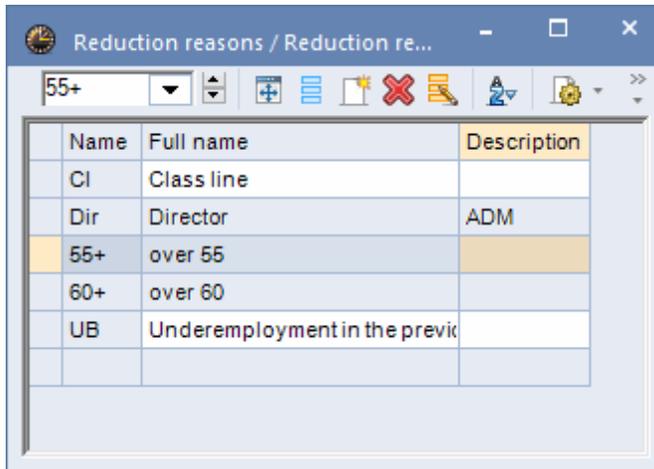
Reductions extend over term boundaries. If you wish to limit the proposal to one timetable period you must enter the corresponding 'from' and 'to' dates.

3.2.2.2 Reductions with negative values

Reductions can also have negative values.

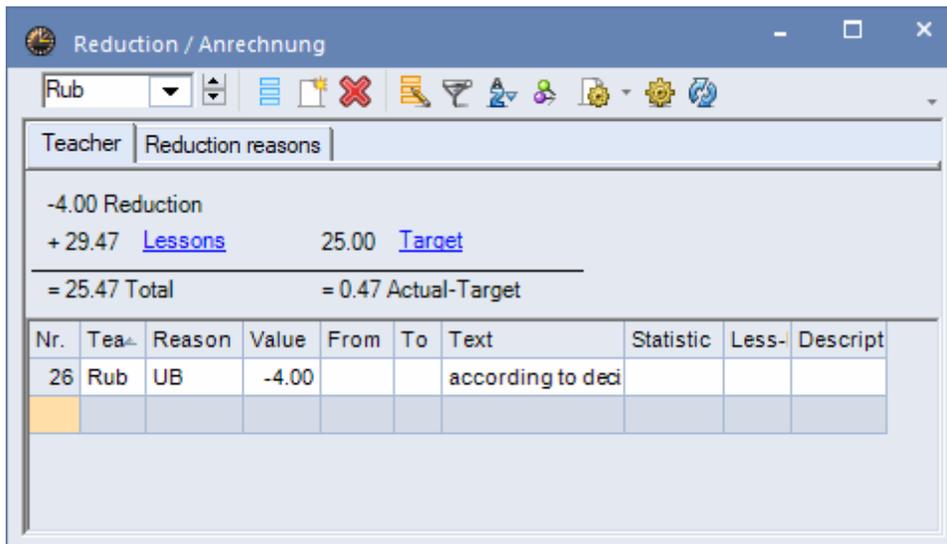
Let us assume that teacher Rubens took 21 weekly periods in the previous school year but that he was paid for his full contractual commitment of 25 periods. In order to compensate for this underemployment he should teach 29 periods this year but be paid for 25 periods as in the previous year.

First define a suitable reduction reasons, e.g. 'Underemployment in prev. year'.



Name	Full name	Description
Cl	Class line	
Dir	Director	ADM
55+	over 55	
60+	over 60	
UB	Underemployment in the previc	

You can now enter a reduction by simply assigning it a negative value



Teacher: Rub

-4.00 Reduction

+ 29.47 Lessons 25.00 Target

= 25.47 Total = 0.47 Actual-Target

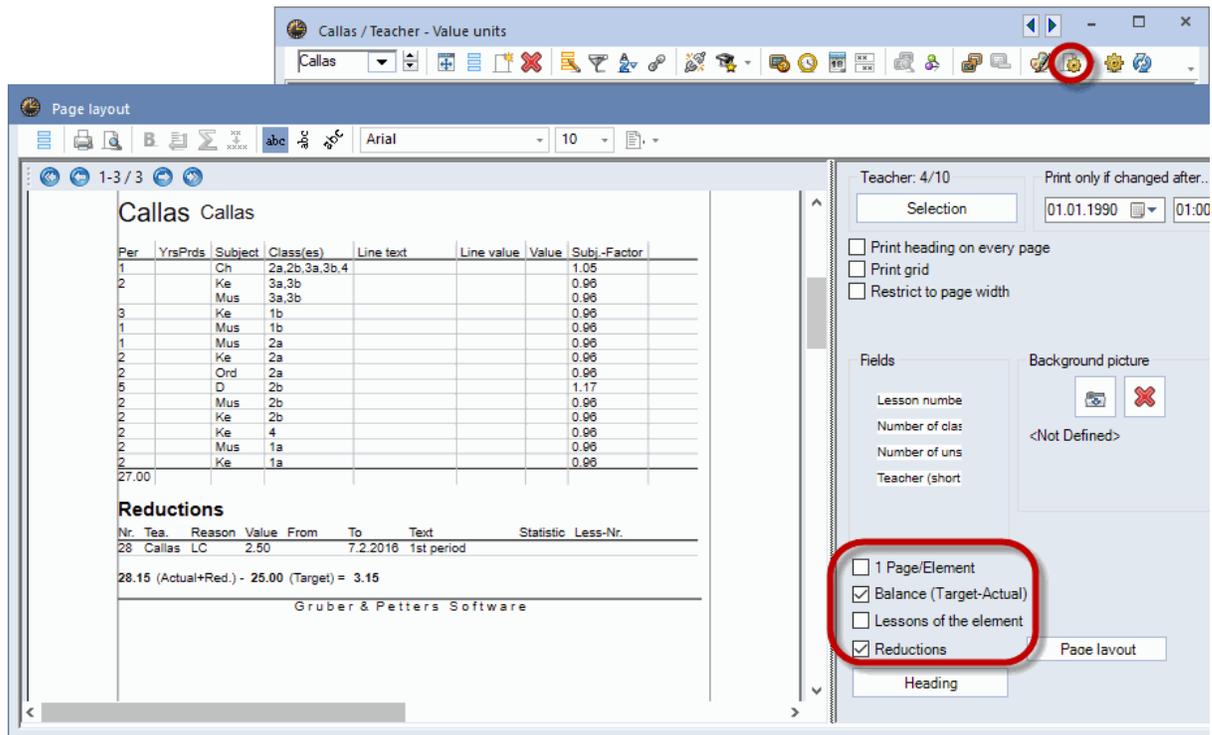
Nr.	Tea	Reason	Value	From	To	Text	Statistic	Less-	Descript
26	Rub	UB	-4.00			according to deci			

3.2.2.3 Printing

You can of course also print the list of reductions while you are in the reductions window. The printout or print preview is sorted either by reduction reason or by teacher depend on the settings in the reductions view.

Test school DEMO		Timetable 2020/2021		Untis 2020					
For demo and test only		Valid from: 10 October							
<h2 style="text-align: center;">Reductions</h2>									
Nr.	Tea.	Reason	Value	From	To	Text	Statistic	Less-Nr.	Description
9	Gauss	Dir	9.52						
28	Callas	CI	2.50		7.2.2016	1st Period			
29	Rub	UB	-4.00			according to decision			
30	Curie	CI	2.50	8.2.2016		2nd Period			
Gruber & Petters Software									

In addition, you can also make reductions visible in the printout of the window 'Teachers | Lessons'. Checking the 'Reductions' option in the page layout window prints out the reductions in the report below the lessons.



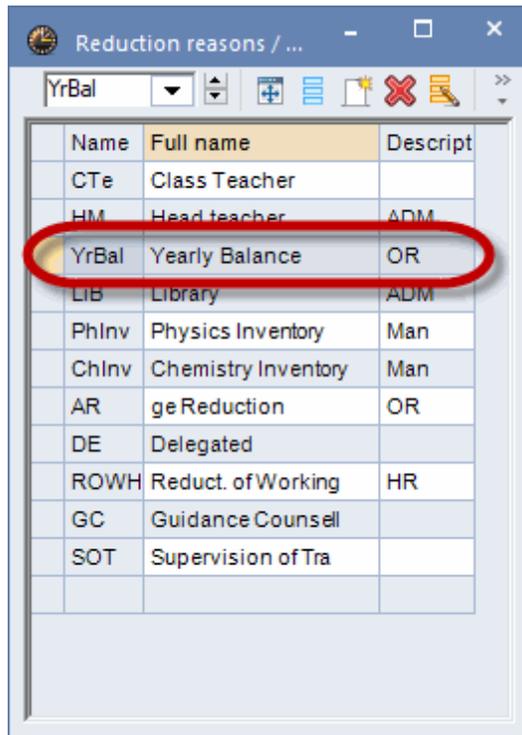
3.2.2.4 Balance at year end

You can have Untis automatically calculate and record the yearly balance as in the previous example.

We will illustrate this with a concrete example:

- Open the Demo2.gpn file and for the sake of clarity close all windows (CTRL + K).

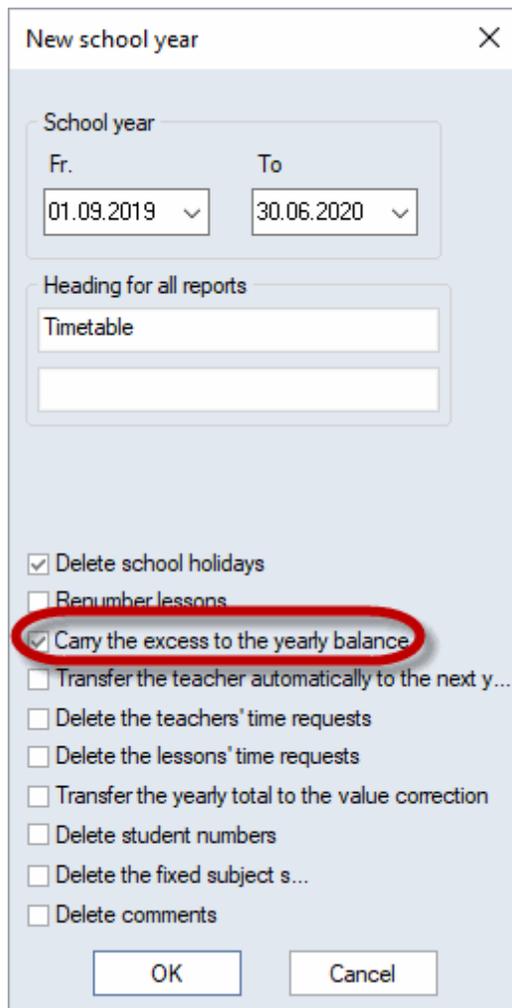
- We now want to create the file for a new school year and automatically calculate the yearly balance values.
- Please note that the reduction reason 'Balance at year end' already exists under 'Modules | Value calculation | Reduction reasons'.



The screenshot shows a window titled "Reduction reasons / ...". At the top, there is a dropdown menu set to "YrBal" and several icons. Below is a table with three columns: "Name", "Full name", and "Descript". The row for "YrBal" is circled in red.

Name	Full name	Descript
CTe	Class Teacher	
HM	Head teacher	ADM
YrBal	Yearly Balance	OR
LIB	Library	ADM
PhInv	Physics Inventory	Man
ChInv	Chemistry Inventory	Man
AR	ge Reduction	OR
DE	Delegated	
ROWH	Reduct. of Working	HR
GC	Guidance Counsell	
SOT	Supervision of Tra	

- Now invoke the <New school year...> function ('File | New school year...').



New school year

School year

Fr. 01.09.2019 To 30.06.2020

Heading for all reports

Timetable

Delete school holidays

Renumber lessons

Carry the excess to the yearly balance

Transfer the teacher automatically to the next y...

Delete the teachers' time requests

Delete the lessons' time requests

Transfer the yearly total to the value correction

Delete student numbers

Delete the fixed subject s...

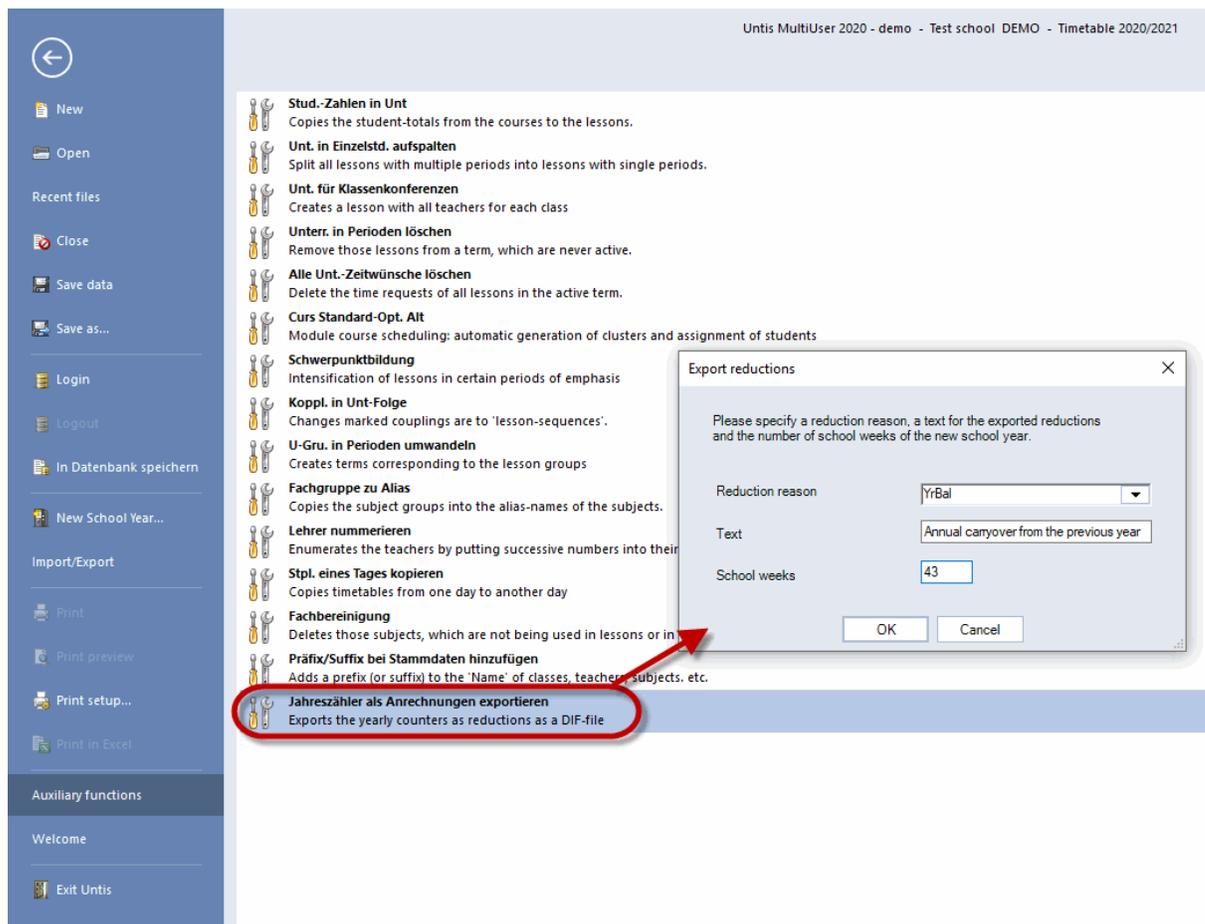
Delete comments

OK Cancel

- Select suitable start and end dates for the new school year with the help of the 'from' and 'to' date fields.
- Now check the option 'Carry the excess to the yearly balance' and confirm with <OK>. The window with the yearly balance will open.

reduction into the next year while working on the new school year. However, the problem was that the data for the new school year needed to be ready way ahead of the end of the current school year, i.e. the surplus values had not been the final ones. We therefore implemented an auxiliary function which you can access via 'File | Auxiliary functions | Export the yearly counters as reductions'.

In the dialogue you now only the reduction reason and define how many weeks the new school year will have. For calculating the balance the yearly counter of the substitution data are divided by the number of weeks and the outcome is then exported into a .txt file. You can import them in the new data set of the new school year via 'File | Import/Export | Import TXT file | Reductions'.



3.2.3 Lessons for Teachers

Untis provides a number of different tools for assigning teachers to lessons.

[Teaching qualification](#)

[School year change](#)

[Manual teacher assignment](#)

3.2.3.1 Teaching qualification

Information on which teachers can teach which subjects is very important for the 'lesson planning' module. On the basis of the teaching qualifications Untis can for example:

- [Propose alternative teachers](#) in the event of teacher shortages
- [Automatically assign](#) suitable teachers to any lesson before or during optimisation,
- [Optimise teaching teams](#) in the case of coupled lessons,
- [propose suitable periods](#) that a teacher with too few lessons can take

You can specify which subjects the current teacher may teach on the 'Teach. qual.' tab under 'Teachers | Master data'. Individual subjects can also be combined into [subject groups](#), with a difference being made between [implicit](#) and [explicit](#) subject groups.

In the upper part of the window (table at the top) the individual teaching qualifications can be shown, but not edited.

You can find the table with the individual teaching qualifications in the teachers' master data on the left of the 'Teach. qual.' tab.

Name	Surname	Room	Periods/day	Personnel No.	Title	First name	Alias name	Male	Female
New	Newton				Sir	Isaac		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nobel	Nobel	rch				Alfred		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pas	Pascal					Blaise		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Subject	Level	Per
Science		23.00
PE?		3.00
M*		13.00

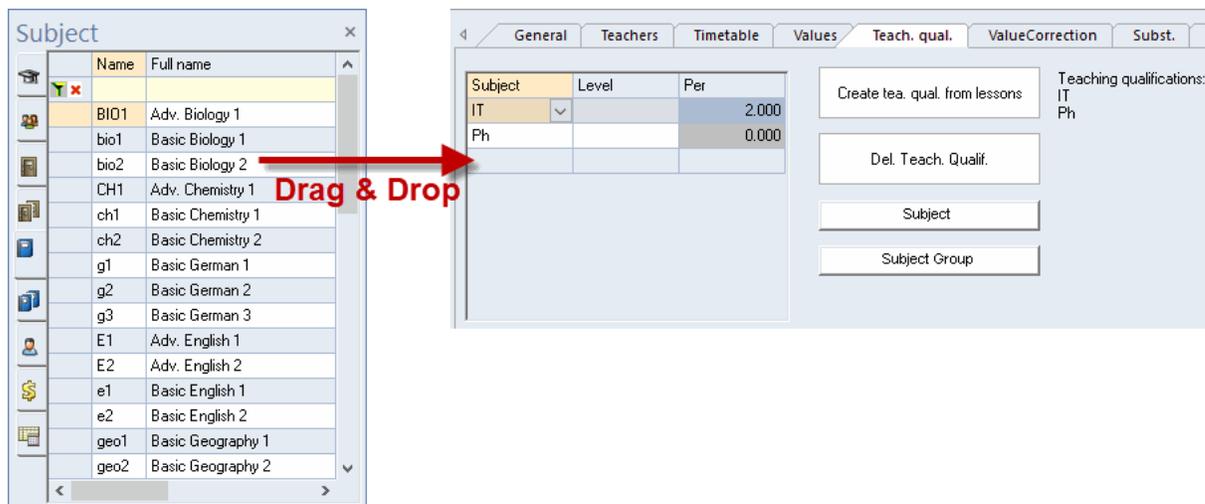
The table columns have the following meanings:

- Subject: In this column enter the subjects or [subject groups](#) that the teacher in question may teach. The figure shows that an [explicit](#) subject group ('Science') as well as two [implicit](#) subject groups ('PE?' for 'PEG' and 'PEB' as well as 'Ma*' for all subjects beginning with 'Ma') have been defined.

The input here is case-sensitive. An 'm' entered for 'Mathematics' or 'Music' would be interpreted by Untis as a new subject group 'm'.

Tip: Element-Rollup

Element-Rollup allows you to enter subjects using drag & drop.



- **Per:** This field shows how many periods per week the teacher already takes in this subject (or in subjects in the subject group). This column is purely informational; for this reason you cannot enter anything in it.
 - **Level:** Use this column to define the school levels in which the teacher may teach the subject concerned. For example, entering '1-2' would limit the teacher qualification for this subject for classes at school levels 1 to 2.
- You can enter the school level under 'Classes | Master Data' in the 'Level' column.

The image shows a window titled 'Classes / Class' with a table of class data. The 'Level' column is highlighted with a red circle. The table has columns: Name, Full name, Room, Female, Male, Students, Level, Time grid, Lunch break, (T), Codes, Factor, Value =, and Per.

Name	Full name	Room	Female	Male	Students	Level	Time grid	Lunch break	(T)	Codes	Factor	Value =	Per
1a		R1a				1	Main-Timegrid		<input checked="" type="checkbox"/>	T	1.000	113.000	79
1b		R1b				1	Main-Timegrid		<input checked="" type="checkbox"/>	T	1.000	93.000	70
2a		R2a				2	Main-Timegrid		<input type="checkbox"/>		1.000	0.000	0
2b		R2b				2	Main-Timegrid		<input type="checkbox"/>		1.000	0.000	0
3a		R3a				3	Main-Timegrid		<input type="checkbox"/>		1.000	0.000	0
3b		Ra				3	Main-Timegrid		<input type="checkbox"/>		1.000	0.000	0
4		Ps1				4	Main-Timegrid		<input type="checkbox"/>		1.000	0.000	0

If you delete a subject under 'Subjects | Master Data' for which a teacher qualification has been defined for a teacher, the qualification will also be deleted.

There are a number of buttons next to the teaching qualification table:

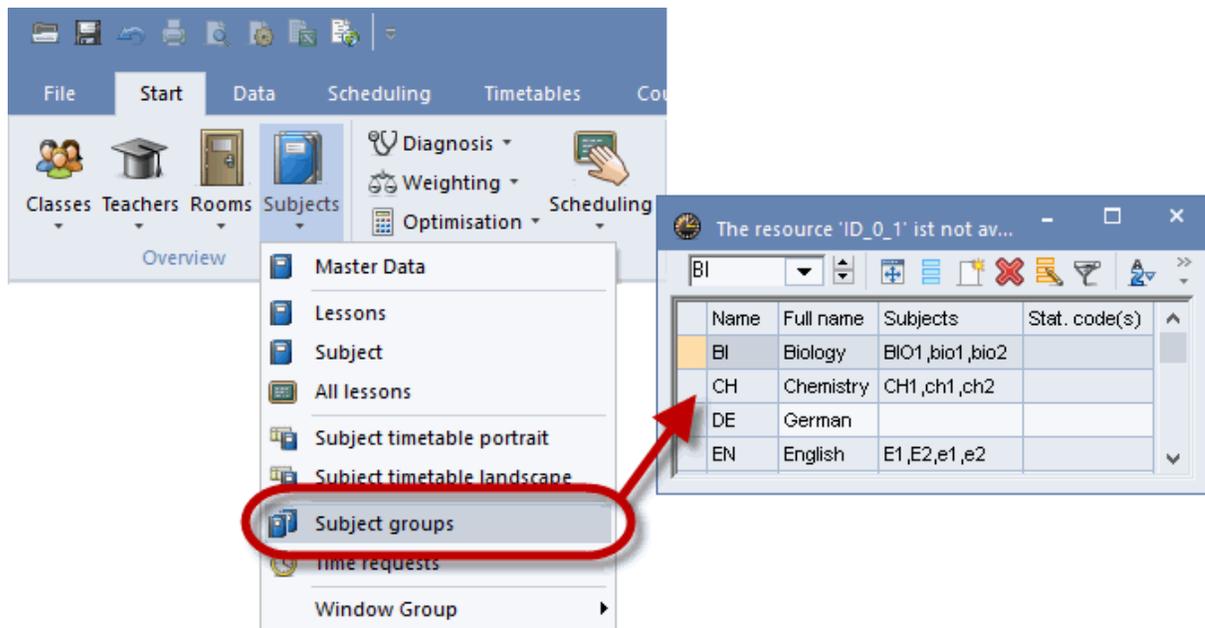
- **Create tea. qual. from lessons:** Clicking this button results in the list of teaching qualifications being automatically created from the lessons that have so far been entered. This assumes that a teacher is qualified to teach every lesson that he takes. Teaching qualifications that have already been entered will not be modified.
- **Del. teach. qualif.:** Clicking on this button results in the lists of teaching qualifications for **all** teachers being deleted. You can delete individual teaching qualifications by selecting the desired row and

pressing .

- Subject and subject group: You can select colours to differentiate more easily between subjects and [subject groups](#). This is especially useful when similar names are used. The setting has no effect outside the 'Teach qual.' tab.

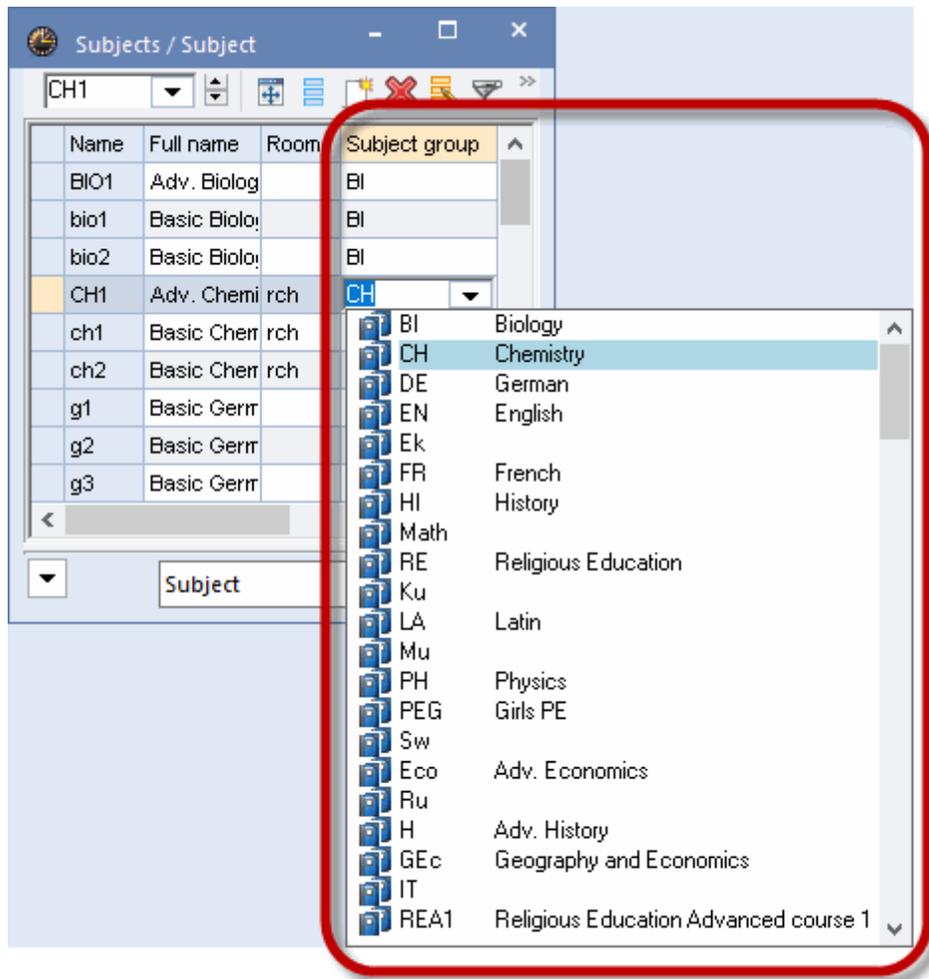
3.2.3.1.1 Subject groups

Go to the 'Start' tab, click on 'Subjects | Subject groups' and all subject groups are listed in one window. The advantage is that the field 'Subject group' in the subject master data now shows a selection list.



The screenshot shows the software interface with the 'Start' tab selected. The 'Subjects' menu is open, and the 'Subject groups' option is highlighted with a red circle. A red arrow points from this option to a window titled 'The resource 'ID_0_1' ist not av...'. This window displays a table of subject data.

Name	Full name	Subjects	Stat. code(s)
BI	Biology	BIO1 ,bio1 ,bio2	
CH	Chemistry	CH1 ,ch1 ,ch2	
DE	German		
EN	English	E1 ,E2 ,e1 ,e2	



Additionally, you now can filter not only by subjects in the teachers' overview plans but also by subject group.

	Monday								Tuesday								Wednesday					
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	
Gauss				3a.	3a.							3b.	4.			1b.	4.			4.	3a.	*2a.
New	4.	2b	2a	3b	3b				2b			2b	2a									
Hugo	3b	3b	4	4													1a.		2a		4	*2a.
Ander									4.		4	3a	4.			1a.		3a	4.	3b	*2a.	
Arist	1a	1b	3a.	1a.			4		1a	1a	2b.	1b					3a.	1a.	1a	1b		
Calla	2a	1a	2b		2b	4			2a		1a							2b	1b	2b	*2a.	
Nobel	2b	2a	1b						3b	3a	1b		1a					4	3b	2a	*2a.	
Rub	3a	4	3a.	1a.	1b				1b	2b.	4	2b					3a.	1a.	3a	1a	*2a.	
Cer	1b	3a	1a	2a	2a		3a		3a	3b	3a	2a										

There are two different types of subject groups: [explicit](#) and [implicit](#) subject groups.

3.2.3.1.1 Explicit subject group

An **explicit subject group** can be defined under 'Subjects | Master Data' by entering a group designation for all those subjects that you wish to group together. For example, in the Demo2.gpn file, subjects 'Ch' and 'Ph' have been assigned to subject group 'Science'.

Name	Full name	Text	Room	P.M.pers./wk	Subject group
RE	Religious Education			0-0	
CH	Chemistry	Science		0-0	Science
DE	German	Languages		0-0	Languages
EN	English			0-0	
HI	History			0-1	
GEc	Geography and Economics			0-1	
MA	Mathematics			0-0	
GA	Graphics	Science		0-2	Science
BI	Biology	Science		0-1	Science
PH	Physics	Science	PL	0-1	Science
MU	Music	Expressive Arts		0-2	Expressive Arts
TX	Textiles		TW	2-2	
AR	Art	Expressive Arts		0-2	Expressive Arts
DS	Design	Expressive Arts	WS	0-2	Expressive Arts
HE	Home Economics		KÜ	2-2	
CK	Cookery			2-2	
PEB	Boys PE		SH1	0-2	
PEG	Girls PE		SH2	0-2	

3.2.3.1.1.2 Implicit subject group

An **implicit subject group** is one where the subject description entered in the teaching qualification contains the wildcards '?' or '*'.

The wildcard '?' replaces an individual character while '*' stands for any character string. 'GE?', for example, could stand for GER (German) as well as for GEO (Geography) but not for the subject GRK (Greek). In contrast, "G*" would refer to all three subjects.

3.2.3.1.2 Displaying teaching qualifications

In the master data of the teachers the "Teach. qual." column can be displayed:

Name	Value	Teach. qual.
Ander	27.000	TX, DE (1), MA, GEc, MU
Arist	27.000	HE, EN
Callas	25.000	DS, CH
Cer	24.000	MU (1 - 2)
Curie	18.000	BI, GA
Gauss	17.000	PEB (1 - 2)
Hugo	19.000	DE, HI, GEc, CK (1)
New	26.000	PEG
Nobel	15.000	AR
Rub	29.000	MU (2), BI

1 free teacher-periods (1.000 value units)

If you want to also see the number of the weekly periods of every individual subject, open the master data window of the teachers and click on <Print> in the quick access toolbar. The print selection dialogue will open up and there you select 'Teacher qualification' as type of list. By clicking on the <Selection> button you can select those teachers whose teaching qualifications should be displayed.

Print selection

Teacher: 1/10

Selection Details

Type of list
Teaching qualification

Print only if changed after...

01.01.1970 01:00:00

PDF

PDF

OK

Test school DEMO Timetable 2020/2021
For demo and test only Valid from: 10 October

Gauss Teaching qualification

Subj. (Subj. Grp)	From level	To level	Per
NatW	1	2	0.0
Wk	1	2	0.0

New Teaching qualification

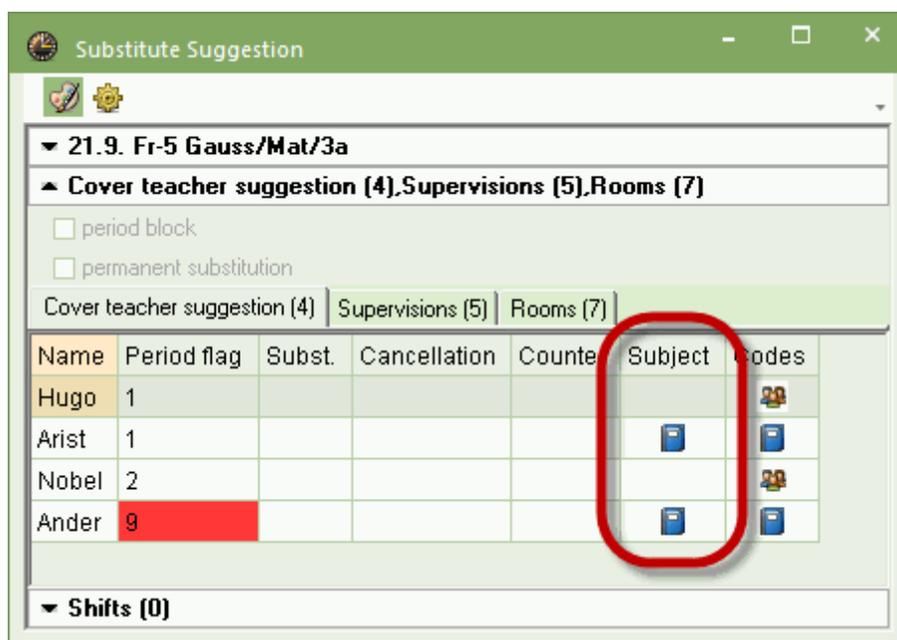
Subj. (Subj. Grp)	From level	To level	Per
NatW			0.0
Sport?			0.0
Ma*			0.0

Gruber & Petters

The figure above shows a list of teaching qualifications sorted by teachers. In a similar manner it is also possible to display and print teaching qualifications sorted by subjects via 'Subjects | Master Data'.

Teacher qualifications in cover scheduling

Teacher qualification definitions also affect the 'Cover scheduling' module. A substitution suggestion contains information on whether a proposed teacher who is to cover for a colleague may teach the colleague's subject.



The screenshot shows a window titled 'Substitute Suggestion'. It contains a table with the following data:

Name	Period flag	Subst.	Cancellation	Counter	Subject	Codes
Hugo	1					
Arist	1					
Nobel	2					
Ander	9					

The 'Subject' column is circled in red. The 'Ander' row has a red background in the 'Period flag' column.

3.2.3.2 Change of school year

You can use the lesson planning module to perform lesson allocation when a new school year begins.

Usually a teacher will accompany a class in a certain subject over several years. If teacher Newton gave mathematics to class 2b in the previous year, he will probably teach this subject to those students again - this time in class 3b.

You can transfer the teacher into next year's class either [manually](#) with the 'Previous year's teacher' function or [automatically](#).

3.2.3.2.1 Previous year's teacher

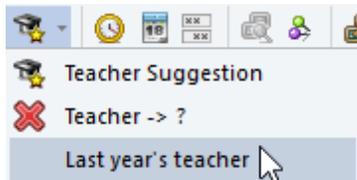
If you still have the gpn file from last year, you can allocate the previous year's teachers to a class with a few clicks.

For this, there must be a valid previous year's name entered in the master data for all classes. For example, in the figure below class 2a was class 1a last year.

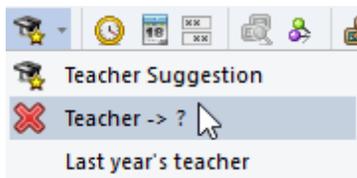
Name	Room	Level	Prev. yrs. name	Main subj./day	Lessons table	Factor
1a	R1a	1		4	1010	0.990
1b	R1b	1		4	1010	1.000
2a	R2a	2	1a	4		1.000
2b	R2b	2	1b	4	1010	1.000
3a	R3a	3	2a	4	33333	1.000
3b	Ra	3	2b	4	33333	1.000
4	Ps1	4	3a	4	33333	1.000

If previous year's names are entered, toolbar icon <Last year's teacher> will be active in class lessons under 'Classes | Lessons'. This results in every open lesson - i.e. every lesson where the ? teacher appears - being allocated the teacher who taught that subject to the previous year's class.

Please note that it is not the lessons as a whole that are copied from one class to another. It is only the previous year's teachers that are copied - the other lesson data for the class remain unchanged.



Function <Delete teachers> deletes the entries in the 'Teacher' column only for the currently displayed lessons and for **no other** lessons.



Warning:

When transferring teachers from the previous year the order in which you process the classes is important. You must begin with the senior classes and work your way back. Click first in the most senior class on <Delete teachers> and then on <Last year's teacher>. Then repeat this step for the next class down, and so on.

3.2.3.2.2 Transfer automatically

The prerequisite for transferring a teacher (accompanying a class over several years) is an entry in field '[Previous year's name](#)' in the master data for classes in order to determine which class forms the basis for the transfer. This transfer can be performed automatically at the change of the school year.

Access 'File | New school year ...' and check option 'Transfer teacher automatically'.

New school year

School year

Fr. 27.09.2021 To 29.06.2022

Heading for all reports

Timetable

Transfer the teacher automatically to the next y...

Delete school holidays

Renummer lessons

Carry the excess to the yearly balance

Delete the teachers' time requests

Delete the lessons' time requests

Transfer the yearly total to the value correction

Delete student numbers

Delete the fixed subject s...

Delete comments

OK Cancel

3.2.3.3 Manual teacher assignment

Allocating teaching tasks (subject allocation, teaching load), i.e. who should teach what subjects to which classes, is the most fundamental requirement of a timetable. Entering the lessons is the basis that determines whether the schedule puzzle can be 'solved' or whether difficult or insurmountable scheduling problems will occur.

You can modify and process all the data that you enter in Untis at any time. The application will frequently offer support by pointing out problems or displaying possible alternatives.

There are a number of such support functions for the allocation of subjects; these are described below.

[Subject bottlenecks](#)

[Teacher suggestion](#)

[Lesson proposal](#)

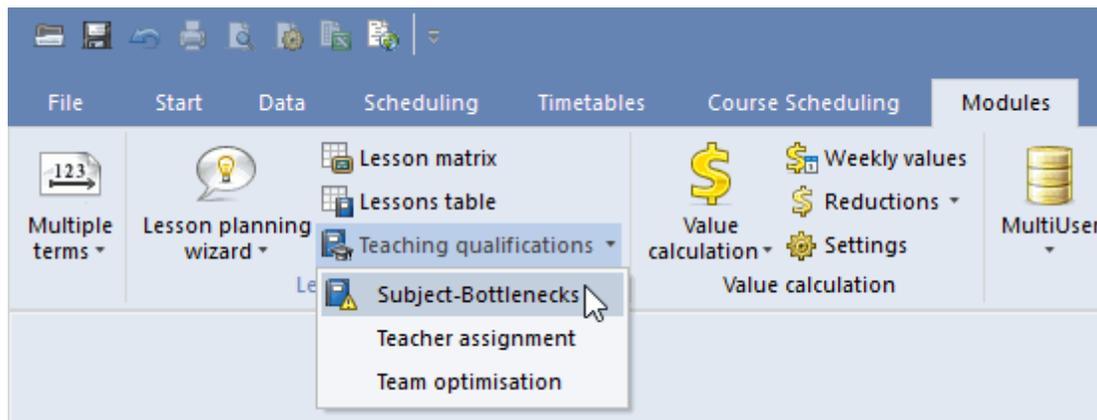
3.2.3.3.1 Subject bottlenecks

Problems can arise if not enough qualified teachers are available to teach certain subjects. Calculating subject bottlenecks makes sense when teachers are qualified to teach more than one subject, which is usually the case.

Let us assume that teacher Gauss is qualified to teach mathematics and physics. His school has quite a few maths teachers but only a few physics teachers. If teacher Gauss has already been allocated so many maths lessons that he has met his target number of periods there could be a bottleneck in physics as there are not so many qualified teachers.

In this case it would make sense to allocate teacher Gauss fewer maths and more physics lessons in exchange.

The 'Subject Bottlenecks' function can be found on the 'Modules' tab, section 'Lesson Planning', 'Teaching qualifications' icon.



this function is used to determine and display the following data for each subject:

- Name: Short name of the subject
- Per: Number of periods that the subject should be taught - for the whole school.
- Open: Number of periods that have no teacher entered - again for the whole school.
- Teachers: Number of teachers for whom a qualification for this subject has been entered.
- Max. available: The total number of vacant periods of all teachers with the qualification for the subject in question. 'Vacant' here means the number of periods that are missing to make up a teacher's target contractual hours.
- Available: This column displays the available periods of the qualified teachers distributed over the open lessons of those subjects for which they are qualified.
- Bottleneck . (Bottleneck index): This column displays a number between 0 (green tick) and 999 (red

X), with 0 indicating that there are no bottlenecks in the scheduling of this subject while 999 indicates that the number of available periods of the subject concerned is less than or equal to the number of vacant periods. In this case the available periods in the relevant subjects are highlighted in red. The greater the bottleneck index the tighter the situation is for this subject. It might still be feasible with the available periods, but it makes sense to schedule those subjects with a higher bottleneck index.

Name	Per	Open	Teache	Max. Av	Availabl	Bottle-N
RE	14.000	0.000	1	1.100	0.000	✓
CH	1.000	0.000	3	0.000	0.000	✓
DE	34.000	8.000	5	23.800	8.400	250
EN	15.000	0.000	2	0.000	0.000	✓
HI	11.000	0.000	3	23.800	0.000	✓
GEc	8.000	0.000	1	0.700	0.000	✓
MA	36.000	4.000	3	23.100	3.800	✗
GA	4.000	0.000	3	0.000	0.000	✓
BI	14.000	0.000	5	0.000	0.000	✓
PH	13.000	0.000	4	0.000	0.000	✓
MU	9.000	3.000	3	23.100	2.800	✗
TX	12.000	0.000	0	0.000	0.000	✓
AR	13.000	0.000	1	0.000	0.000	✓
DS	12.000	9.000	3	23.100	8.600	✗
HE	2.000	0.000	0	0.000	0.000	✓
CK	2.000	0.000	1	0.000	0.000	✓
PEB	12.000	0.000	2	0.000	0.000	✓
PEG	12.000	0.000	3	8.600	0.000	✓
CTe	14.000	2.000	0	0.000	0.000	✗
HM	9.000	0.000	0	0.000	0.000	✓

Checking selection box 'Only subjects with open lessons' results in only those subjects being displayed for which teachers must still be found.

Checking selection box 'Subject group' results in the subject groups rather than the subjects being displayed.

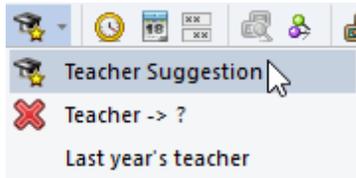
The list of subject bottlenecks can be printed out by clicking the <Print> button.

3.2.3.3.2 Teacher suggestion

If you are not sure which teacher is the most suitable for a certain lesson when you are entering data you can enter a ? as wildcard teacher instead of a normal teacher's name. The <Teacher suggestion> function will help you to find a suitable teacher later.

You can of course use this function to search for alternative teachers for lessons that have already been scheduled.

The teacher suggestion function is invoked by clicking the corresponding icon in a lesson window (e.g. 'Classes | Lessons') and is performed for the lesson that you click on with the mouse.



Additionally there are four fields available to make a selection:

Name	Target	Actual	Actual-Tai	Per	Val. Les.	Reduccion	Value corr
Ander	25.000	1.963	-23.037	2.000	1.963	0.000	0.000
Nobel	15.000	13.918	-1.082	14.000	13.918	0.000	0.000
Hugo	25.000	24.385	-0.616	22.000	22.475	1.910	0.000
Rub	25.000	26.320	1.320	28.000	26.320	0.000	0.000
Arist	25.000	27.211	2.211	29.000	25.301	1.910	0.000
Callas	25.000	29.528	4.528	29.000	27.618	1.910	0.000
Cer	25.000	31.976	6.976	28.000	30.066	1.910	0.000
New	25.000	34.705	9.705	28.000	32.604	2.101	0.000
(Curie)	25.000	16.431	-8.569	19.000	14.540	1.891	0.000
(Gauss)	25.000	32.268	7.268	22.000	22.748	9.520	0.000

- **Only qualified teach.** : Checking this box results in only those teachers being included in the selection who are qualified to teach the subject in question.
- **Yearly values** : Use this box to determine whether weekly or yearly values should be displayed in the 'Plan', 'Actual' and 'Actual-planned' columns.
Window in foreground Checking this box results in teacher suggestions always being displayed in the foreground.
- **Auto-refresh les. teach.** : If this box is checked you only need to click on a suggested teacher once to display the selected teacher in the lesson window as well.

Warning:

Please bear in mind that in the case of multi-teacher couplings, teaching teams have a direct effect on how lessons are scheduled.

Let us assume that teacher Curie belongs to two teams of teachers. She teaches design together with teacher Gauss and sport with teacher Newton.

For example, as soon as all sports lessons have been scheduled this constellation results in the period for design being blocked. If teacher Newton also belongs to a further team of teachers, its lessons are also blocked.

This means that chains of conflict can arise that lead to a large number of non-scheduled periods. (Please refer to the sections on 'CCC analysis' and 'Teaching teams' in the user manual for more information.)

For this reason the suggested teachers are displayed on a coloured background.

- **Green** means that the teacher already teaches in this team.
- **White** means that allocating this teacher would lead to the creation of a new team of teachers but that the suggested teacher still teaches fewer than nine periods in teaching teams.
- **Red** signifies those teachers who already teach nine periods or more in couplings with other teams.

Tip: Substitute ?-teacher

With the lessons view for teachers you can easily and systematically process all open teacher entries. Select the ?-teacher under 'Lessons | Teachers' and insert suitable teachers into the lessons row by row with the help of the teacher suggestion feature. The processed lessons disappear from the ?-teacher overview and are placed under the assigned teacher.

3.2.3.3.3 Lesson proposal

This function can be seen as the equivalent of the [teacher suggestion](#) for lessons

Untis can propose suitable lessons for teachers who do not have sufficient periods in order to meet their contractual teaching commitment. Select toolbar icon <Lesson proposal> under 'Teachers | Lessons'. A list of lessons will be displayed for which no teachers have been entered so far (? teachers).

The lesson proposal can be displayed taking into account the teaching qualification and - if you use the department timetable module - the departments.

The lessons displayed are either on a green, white or red background.

The screenshot shows the 'Curie / Teacher' window with a table of lesson proposals. A dialog box titled 'Lesson proposal-Curie' is open, displaying a table of lesson proposals. The dialog box includes buttons for 'Apply' and 'Close', and shows 'Actual: 16.431' and 'Target: 25.00'. There is also a checkbox for 'Only qualified teachers'. The table in the dialog box has the following data:

L-No.	Cl.Te.	Per	Subje	Teac	Class	Subje
100		2	CTe	✓	2b	
22		4	DE	✓	3a	Lang.
29		1	DS	✓	3a	Expre
23		4	DE	✓	3b	Lang.
26		1	MU	✓	4	Expre
82	1, 2	4	MA	✓	4	
43	2, 2	2	MU	✓	3a,3b	Expre

- **Green** denotes lessons that, when this teacher is allocated, do not cause a new teaching team to be created. This means lessons without teacher coupling or lessons with teachers who already form a teaching team with the current teacher.
- **White** denotes lessons that when allocated lead to the creation of a new teaching team, but where the teacher is not active in the team for more than eight periods.
- **Red** denotes lessons that, when allocated, lead to the creation of a new teaching team with the teacher already being active in teaching teams for nine or more periods. Allocating this lesson would lead to constraints on the optimisation of the timetable.

The figure above shows the lesson proposals for teacher Curie from the Demo2.gpn file. All lessons are displayed with a green background - except for the last one. There is no coupling for the first five lessons in the list - she would take the sixth (L-No 71) with teacher Gauss. As she already takes lesson number 48 with the same teacher (as you can see e.g. from the list of teaching teams lower down) there would be no new teaching team created; for this reason the lesson has a green background.

The last lesson in the list - No. 5 - has a red background. One of the two coupling teachers is teacher Callas with whom teacher Curie does not take any common lessons. Selecting this lesson would lead to the creation of a new team.

Teacher teams

You can print or display the teaching teams from the open teacher master data window by selecting <Print> or <Print preview>, list type 'Teaching teams'. This list also contains the time requests of the teachers concerned.

Print selection

Teacher: 1/10

Selection

Type of list

Teacher teams

From only if changed after...

01.01.1970 01:00:00

PDF

PDF

OK

Test school DEMO Timetable 2020/2021 **Untis 2020**

For demo and test only Valid from: 10 October

1 Teacher team

Name	Mo		Tu		We		Th		Fr		Sa		
	1	2	3	4	5	6	7	8	1	2	3	4	5
Rub													
Arist				-	-							-	-
				1	2							1	2

73: 3 / PEG, PEB,
75: 3 / PEB, PEG,
76: 3 / PEG, PEB,

2 Teacher team

Name	Mo		Tu		We		Th		Fr		Sa		
	1	2	3	4	5	6	7	8	1	2	3	4	5
Curie												-	-
?												3	3
												3	3

79: 2 / DS, HE,
80: 2 / DS, TX,
81: 2 / TX, DS,

3.2.4 Teacher's yearly work

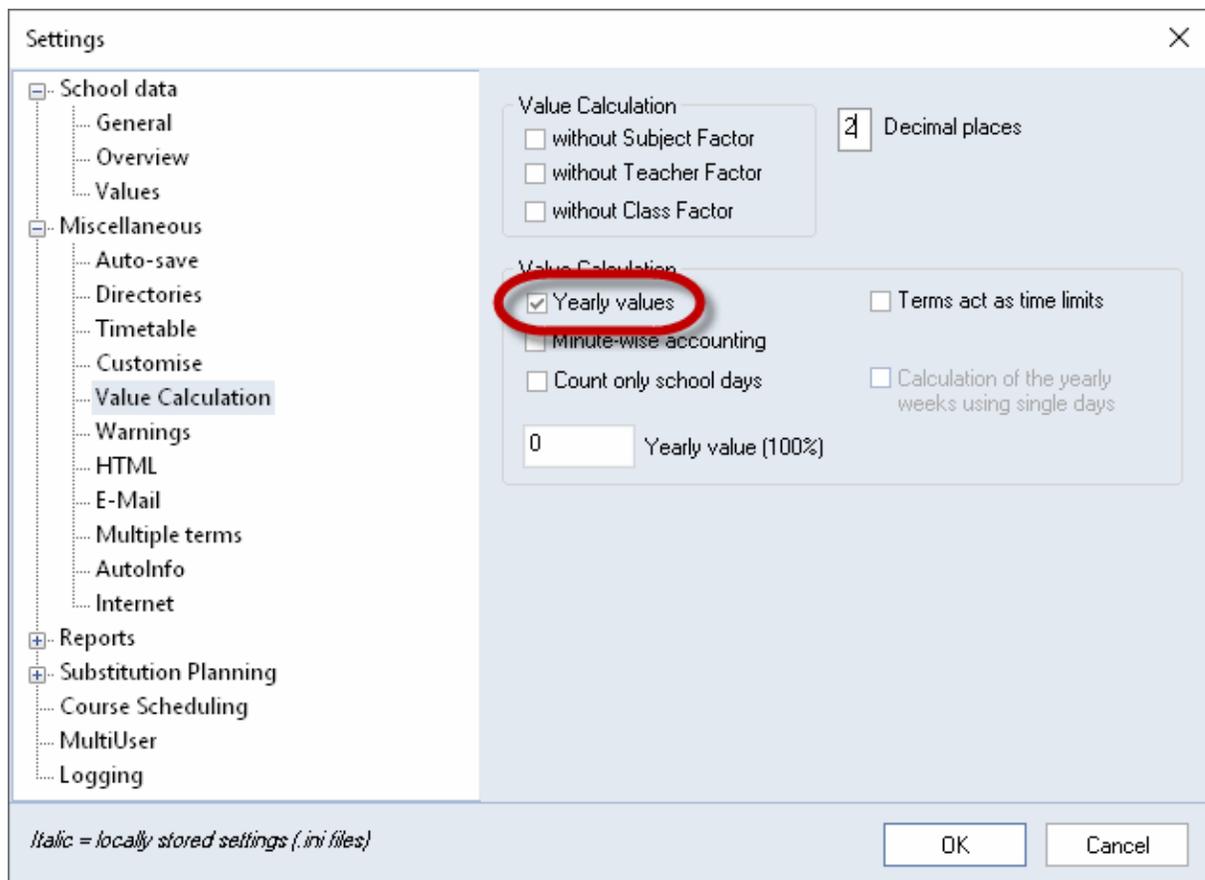
With the teacher's yearly work model, as the name suggests, the teacher's workload applies to the year as a whole and not as usual to one week. The following values can contribute to the yearly workload:

[Lessons according to the timetable](#)

[Reductions](#) , which can be classified as follows:

- [Reductions resulting from lessons held](#) such as preparation, follow-up work, corrections etc.
- [Reductions that depend on the teacher's yearly target workload](#) such as further training
- [Miscellaneous reductions](#) such as timetable scheduling, theatre group supervision etc.

Option 'Yearly values' on the 'Value calculation' tab under 'Start | Settings | Miscellaneous' must be checked. This causes the tab 'Yearly work' to be displayed in the teacher master data.



In addition, a value should be entered for every teacher in the 'Plan/year' field on the 'Values' tab under 'Teachers | Master data'.

Teachers / Teacher

Arist

Name	Surname	Target/year	Target/year max	Actual-Target	Factor	Value =
Ander	Andersen	1 800.00	2000.00	-1700.0	1.000	80.5
Arist	Aristotle	1 800.00	2000.00	-800.0	1.000	1037.3
Callas	Callas	1 800.00	2000.00	-700.0	1.000	1132.5
Cer	Cervantes	1 800.00	2000.00	-600.0	1.000	1232.7
Curie	Curie	1 800.00	2000.00	-1200.0	1.000	596.2
Gauss	Gauss	1 800.00	2000.00	-900.0	1.000	932.7
Hugo	Hugo	1 800.00	2000.00	-900.0	1.000	907.0
New	Newton	1 800.00	2000.00	-500.0	1.100	1336.7
Nobel	Nobel	1 800.00	2000.00	-1200.0	1.000	570.7
Rub	Rubens	1 800.00	2000.00	-700.0	1.000	1079.2

26 free teacher-periods (0.11 value units)

Teacher

3.2.4.1 Lessons according to timetable

The yearly lessons according to timetable are calculated automatically and displayed in the 'Value' field of the 'Teachers | Master data' window.

Teachers / Teachers - Value units

Curie

Name	Surname	Target/year	Target/year max	Reductions	Actual-Target	Value =
Gauss	Gauss	1 800.000	2000.000		-870.0	932.7
New	Newton	1 800.000	2000.000		-460.0	1336.7
Hugo	Hugo	1 800.000	2000.000		-890.0	907.0
Ander	Andersen	1 800.000	2000.000		-1720.0	80.5
Arist	Aristotle	1 800.000	2000.000		-760.0	1037.3
Callas	Callas	1 800.000	2000.000		-670.0	1132.5
Nobel	Nobel	1 800.000	2000.000		-1230.0	570.7
Rub	Rubens	1 800.000	2000.000		-720.0	1079.2
Cer	Cervantes	1 800.000	2000.000		-570.0	1232.7
Curie	Curie	1 800.000	2000.000		-1200.0	596.2

26 free teacher-periods (0.107 value units)

Teachers - Value units

3.2.4.2 Reductions for yearly work

When using the yearly work model a difference can be made between three types of reduction:

- [Reductions resulting from lessons held](#)
- [Reductions that depend on the teacher's yearly target workload](#)
- [Miscellaneous reductions](#)

3.2.4.2.1 Reductions resulting from lessons held

Some additional duties depend on the extent of the lessons held, e.g. corrections, preparation, follow-up work etc.

Definitions are made as follows:

- Open the reductions window by selecting 'Modules | Value calculation | Reductions'.
- Select the option 'Lesson planned' in the 'from basis' column.
- Specify a percentage for this reduction in the '%' column.

Nr.	Teacher	Reason	Value	From	To	Text	Statistic	Lesson	Description	%	of basis
9	Gauss	UZ	291.810							50.00	Lessons planned

In this example teacher Gauss is given a lesson overhead corresponding to 50% of the scheduled teaching time.

3.2.4.2.2 Reductions from yearly target workload

Many additional duties depend on the scale of the teacher's target workload such as further training.

Definitions are made as follows:

- Open the reductions window by selecting 'Modules | Value calculation | Reductions'.
- Select the option 'Yearly target' in the 'from basis' column.
- Specify a percentage for this reduction in the '%' column.

Reduction / Anrechnung

Gauss

Teacher | Reduction reasons

646.330 Reduction
 + 932.700 Lessons -3886.264 Target
 = 1 579.030 Total = 5 465.294 Actual-

Nr.	Tea.	Reason	Value	From	To	Text	Statistic	Less-Nr.	Description	%	of basis
9	Gauss		466.330							50.00	Lessons planned
11	Gauss	FT	180.000							10.00	Target for the year (periods)

In this example teacher Gauss is given a further training (FT) reduction corresponding to 10% of the yearly target.

3.2.4.2.3 Miscellaneous reductions

Some reductions do not depend on scheduled lessons or on the yearly target. They are specified as a fixed value.

Definitions are made as follows:

- Open the reductions window by selecting 'Modules | Value calculation | Reductions'.
- Enter an absolute value for this reduction in the 'Value' column

Reduction / Anrechnung

Gauss

Teacher | Reduction reasons

721.330 Reduction
 + 932.700 Lessons -3886.264 Target
 = 1 654.030 Total = 5 540.294 Actual-

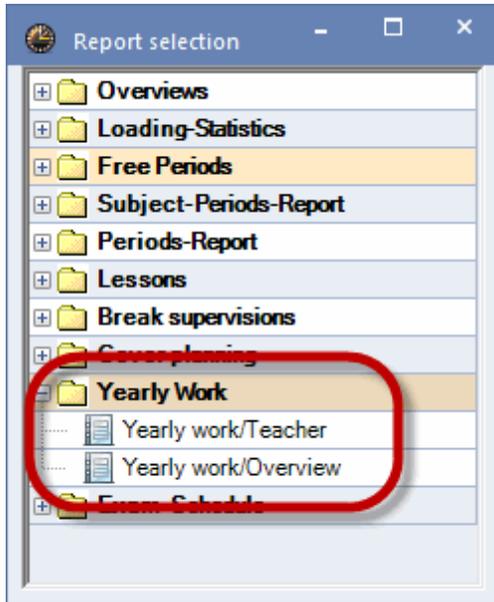
Nr.	Tea.	Reason	Value	From	To	Text	Statistic	Less-Nr.	Description	%	of basis
9	Gauss		466.330							50.00	Lessons planned
11	Gauss		180.000							10.00	Target for the year (periods)
12	Gauss	ChS	75.000							0.00	

In this example teacher Gauss is given a reduction for supervising chemistry equipment (ChS) corresponding to 75 value units.

3.2.4.3 Reporting yearly work

Reporting yearly work There are two reports available to output yearly work and these can be accessed via 'Reports' on the 'Start' tab.

- [Yearly work / Teachers](#)
- [Yearly work / Overview](#)



3.2.4.3.1 Yearly work / teachers

The 'Yearly work / teachers' report displays the values for the yearly target plan, the lessons, the reductions and the resulting value showing whether teachers are working too many or too few hours.

The print selection dialogue allows you to select whether a detailed list of reductions and a list sorted by lessons should be output.

Test school DEMO		Timetable 2020/2021
For demo and test only		Valid from: 10 October
Yearly Work 2020/2021		
Ander Andersen		
Target for the year (periods)	1 800.000	
Lessons planned	1 107.000	
Lessons scheduled	1 093.000	(79 %)
Reductions	287.720	(21 %)
Lessons + Reductions - Plan	-419.280	
Lessons		
MA : 2a, 2b, 3a	40.000	
DS : 1a	80.000	
DS : 1b, 3b	40.000	
DS : 2b, 2a	80.000	
MU : 3a, 3b	80.000	
DS : 3a, 3b	80.000	
HI : 1b	40.000	
DE : 3a	160.000	
DS : 3a	40.000	
DE : 3b	160.000	
MU : 4	40.000	
DS : 4	80.000	
MA : 4	160.000	
Total	1 080.000	
Reductions		
Annual Carry Over	120.00	
Substitute teacher	32.00	
Annual Carry Over	74.00	
Reduction of working hours	61.72	
Total	287.720	
Total	1 380.720	

3.2.4.3.2 Yearly work / overview

The 'Yearly work / Overview' report displays the values used to calculate the actual/planned values in condensed form. It also lists the number of substitutions and cancellations.

Test school DEMO		Timetable 2020/2021				
For demo and test only		Valid from: 10 October				
Yearly work/Overview 2020/2021						
Teacher	Target for the year (periods)	Reductions	Lessons scheduled	Actual-Target	Cancelltns.	Subst.
Gauss	1800.0	546.8	691.0	-562.2	0	0
New	1800.0	684.7	1049.0	-66.3	0	0
Hugo	1800.0	495.4	729.0	-575.6	0	0
Ander	1800.0	287.3	1093.0	-419.7	0	0
Arist	1800.0	639.5	1053.0	-107.5	0	0
Callas	1800.0	564.9	975.0	-260.1	0	0
Nobel	1800.0	308.3	611.0	-880.7	0	0
Rub	1800.0	618.9	1095.0	-86.1	0	0
Cer	1800.0	647.4	970.0	-182.6	0	0
Curie	1800.0	357.2	732.0	-710.8	0	0

Total	18000.0	5150.4	8998.0	-3851.6	0	0

3.3 Scheduling tools

The 'Lesson planning and value calculation' module provides you with a number of additional tools for workload planning.

- [Lesson matrix](#)
- [Lesson table \(syllabus\)](#)
- [Lesson comparison](#)

3.3.1 Lesson matrix

The lesson matrix, which you access via menu item 'Lessons | Matrix', gives you a clear at-a-glance overview of all the lessons at your school.

The key lesson data are class, teacher and subject. The rows and columns of the matrix display two of these three master data elements while the individual cells contain the third element together with an additional item of information (either the number of weekly lessons, the lesson value or the lesson number) that you can select yourself. (How this selection is made is described later.) Colour settings from the master data are adopted in the lesson matrix.

Teacher (11/11)	?	Gauss	New	Hugo	Ander	Arist	Callas	Nobel	Rub	Cer	Ci
Class(es) (7/7)	Σ	41.0	13.0	18.0	28.0	3.0	38.0	33.0	14.0	37.0	28.0
1a	39 Wk (2)			Gw (2)		SportM (3)	Mus (2)	Rel (2)	SportK (3)	Bio (2)	Tr
1b	41 E (3)	Wk (2)		Gw (2)	His (1)	Mat (6)	Ke (3)	Rel (2)	D (6)	Bio (2)	Tr
2a	37 Wk (2)		Gz (1)	His (2)		SportM (3)	Ch (1)	Rel (2)	SportK (3)	D (4)	Tr
2b	37 Wk (2)		Gz (1)	Gw (2)		SportM (3)	Ch (1)	Rel (2)	SportK (3)	Bio (2)	Tr
3a	39 Mus (2)	Mat (4)	Ord (2)	Gw (2)		SportM (3)	Ch (1)	Rel (2)	SportK (3)	E (3)	H
3b	38 Mus (2)	Gz (1)	Ph (3)	Gw (2)		SportM (3)	Ch (1)	Rel (2)	SportK (3)	Bio (2)	H
4	47 Mus (1)	Gz (2)	SportK (3)	Gw (2)		Ph (2)	Ch (1)	Rel (2)	Bio (2)	E (3)	H

L-No.	Per	Teacher	Subject	Class(es)	Room	Homeroom	Male	Female	Inter (X)	Line text	Stat-2	Line value
77		?	Wk	1a	Werkr	R1a		16		Metallarbeiten		
		Gauss	Wk	1b	Werkr	R1a		19		Holzarbeiten	G	
		Curie	Tw	1a, 1b	Twr			18		Textiles Werken	G	

Note: Copying to Excel

You can copy the contents of the lesson matrix to other applications such as Microsoft Excel via the Windows clipboard function by selecting the desired excerpt and using the <CTRL>+C / <CTRL>+V key combination.

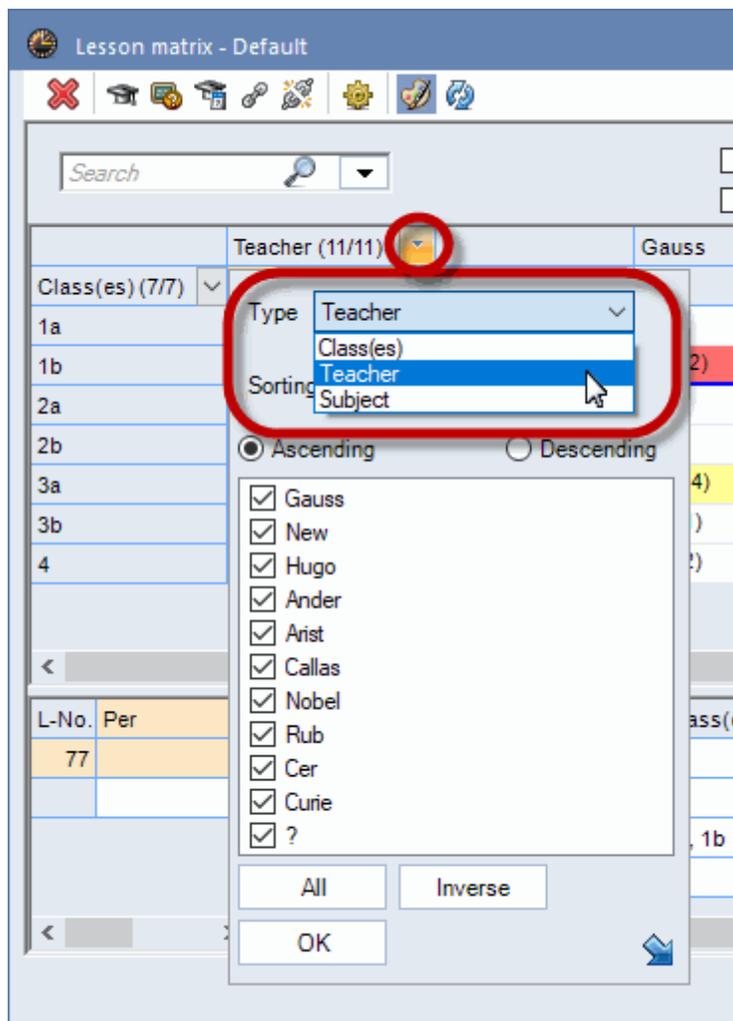
You can read more on the lesson matrix in the following chapters:

- [Lesson matrix short description](#)
- [Lesson matrix settings](#)
- [Lesson matrix entries](#)
- [Further lesson matrix functions](#)

3.3.1.1 Lesson matrix short description

Lesson matrix short description You can follow the example below yourself using the Demo2.gpn file.

In the upper part of the window you can set which master data element you wish to display in the rows, columns and the individual cells.



In the example below, the rows indicate the subject, the columns the classes and in the cells you can find the teacher and the weekly periods. In this way it is possible to recognise at a glance that teacher Hugo has two periods of 'GEc' with classes 1a, 1b, 2b and 2c.

Clicking on a cell in the matrix displays the corresponding lesson in the details window at the bottom of the screen.

Subject (19/19)	Class(es) (7/7)	1a	1b	2a	2b	3a	3b	4
	Σ	39.0	41.0	37.0	37.0	39.0	38.0	47.0
Rel	14	Nobel (2)						
Ch	5			Callas (1)				
D	34	Rub (5)	Rub (6)	Cer (4)	Callas (5)	? (4)	? (4)	Hugo (6)
E	24	Arist (5)	? (3)	Cer (4)	? (3)	Cer (3)	? (3)	Cer (3)
His	11		Ander (1)	Hugo (2)	Rub (2)		Hugo (2)	Hugo (2)
GEc	14	Hugo (2)	Hugo (2)	Hugo (2)	Hugo (2)			
Mat	27	Arist (5)	Arist (6)	New (4)		Gauss (4)		? (4)
Gz	6			New (1)	New (1)		Gauss (1)	Gauss (2)
Bio	14	Cer (2)	Rub (2)					
Ph	9				New (2)	New (2)	New (3)	Arist (2)
Mus	11	Callas (2)	Callas (1)	Callas (1)	Callas (2)	? (2)	? (2)	? (1)

L-No	Per	Teacher	Subject	Class(es)	Room	Homeroom	Male	Female	Inter (X)	Line text	Stat-2	Line value
76		Hugo	GEc	1a, 1b, 2a, 2b		R1a		16				

Changes can be made to the subject allocation in the details window of the lesson matrix.

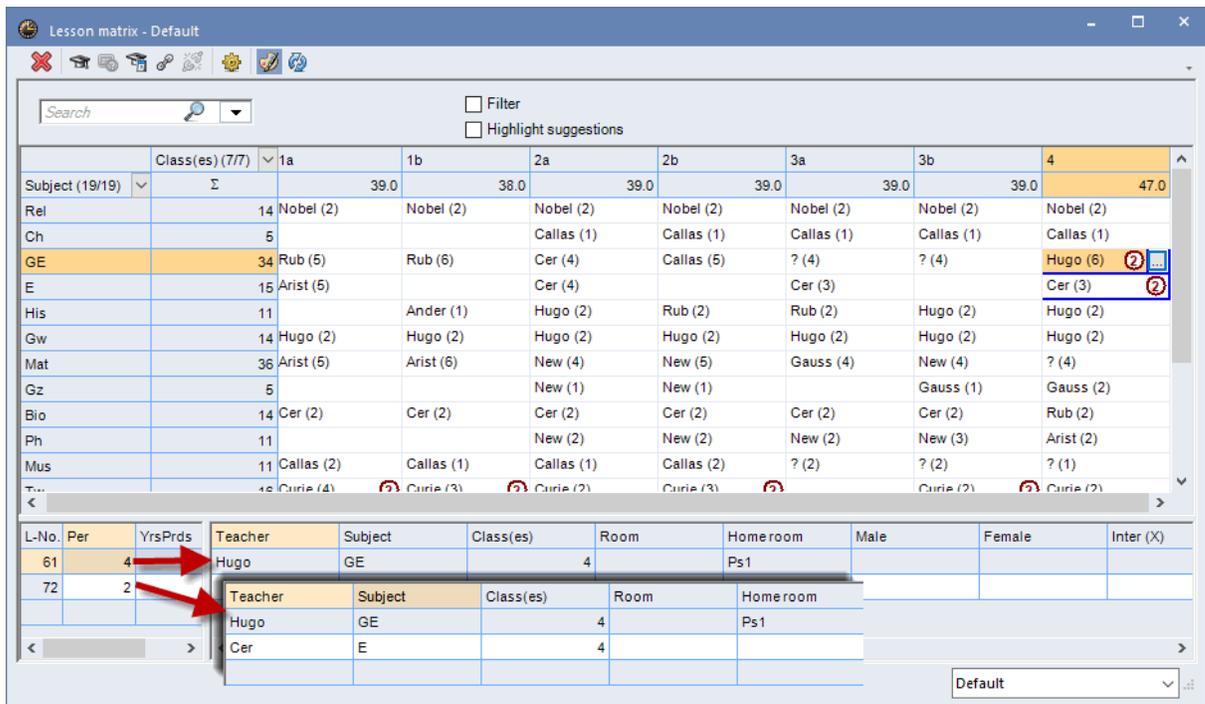
Couplings are highlighted in the lesson matrix. All those cells with elements of the coupling lesson are displayed with a blue border, as you can see in the figure with the example of teacher Hugo's geography lesson.

As in the timetable, couplings may also be marked with a full stop. To do this, click on the <Settings> button in the matrix and check the 'Mark couplings' option.

Several units forming one lesson

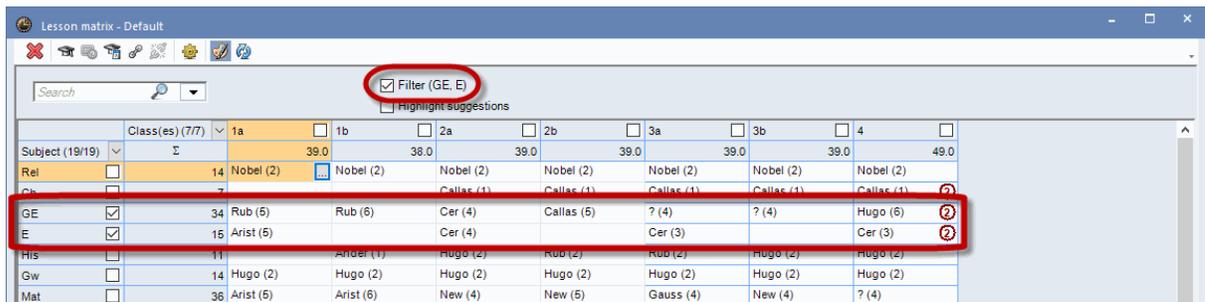
The lesson list ('L-no./per') in the upper section of the window displays the lesson number followed by the number of periods for a selected cell. If there are several entries here this means that the lesson is divided into several units. In the current example, this would be the case for teacher Hugo's German lesson in class 4. Four of the six periods are part of lesson number 61 while the remaining two are part of lesson 72.

By clicking on the relevant row in the lesson list you will see in the details window that teacher Hugo takes lesson 61 on his own while a coupling with English exists for lesson 72 with teacher Cervantes.



Filter

You can limit the entries in the matrix to those elements that interest you by marking one of the filter selection fields. For example, in the figure below the filter was set for the subject 'GE' (the subjects are displayed in the rows). This results in only those columns being displayed where the cell for subject 'GE' is not empty. This means that only those teachers are displayed who actually teach German.



This function can of course be used in the same way for column elements. When filtering cells, the display is reduced to just those cells containing the relevant element.

Highlight suggestions

This function helps you to make special lessons visible. Under [Settings of the matrix](#) you can choose from the following options:

Highlight if

Teacher is missing (?-teacher)

Qualified teachers available

Teachers with open periods available

The view below shows all lessons in which ?-teacher is still active

Lesson matrix - Default

Search Filter Highlight suggestions

Subject (19/19)	Teacher (11/11)	?	Gauss	New	Hugo	Ander	Arist	Callas	Nobel
	Σ	26.0	13.0	28.0	22.0	3.0	29.0	27.0	14.0
RE	14	...							1b (2) ⑦
CH	1							2a (1) 🔗	
DE	34	3a (4) ②			4 (6) ② 🔗			2b (5)	
EN	15						1a (5)		
HI	11				2a (2) ③	1b (1)			
GEc	8				3a (2) ④ 🔗				
MA	36	4 (4) 🔗	3a (4) ② 🔗	2a (4) ③			1b (6) ②		
GA	4		3b (1) ② 🔗	2a (1) 🔗					
BI	14								
PH	11			2a (2) ④			4 (2)		
MU	9	3a (2) ② 🔗						1b (1) ④	
TX	12								
AR	13							3a (2) ⑥ 🔗	
DS	12	2b (2) ⑤ 🔗	1b (2) 🔗			1b (1)			
HE	2								
CK	2								
PEB	12			4 (3) 🔗					
PEG	12						2b (3) ③ 🔗		
CTe	15	2b (2)		3a (2)	3b (2)	1b (1)	4 (2)	2a (2)	

3.3.1.2 Settings

By clicking on the <Settings> toolbar icon you open a window offering numerous display possibilities for the lesson matrix.

Elements of the matrix

Subject groups (instead of subjects): If the element type 'Subject' is in the rows or columns, subject groups can be displayed instead of subjects. If you have defined the element type 'Subject' for cells, this option will have no effect on the way in which the lesson matrix is displayed.

Group classes by

If you work with lesson tables or with the department timetable module, you can also group classes by these criteria.

Cells

You have the option to display weekly periods, value units or lesson numbers. A coupling can be indicated by a full stop.

Highlight in colour

These possibilities are described in the chapter [Lesson matrix short description](#) by using an examples.

Other setting

- **Selection of the week** : Lesson display will be limited to one week, i.e. only those lessons will be displayed that take place in the selected week. This option is only available with the multi-week timetable module.
- **Hide ignored lessons** : This option ensures that ignored lessons in the matrix are not displayed.
- **Considering couplings in totals: If you choose to display totals and also activate the selection box 'Consider couplings for the totals', periods belonging to the same coupling will only be counted once.**
- **display actual-planned balance of the teacher in the totals row: this function helps you to**

see immediately if a teacher has too much or not enough work load.

3.3.1.3 Entries in the lesson matrix

The lesson matrix is not just for display purposes; you can enter values into the individual cells. You can create, change and delete lessons.

Creating a new lesson

Click into the respective field of the matrix in order to create a new lesson. Enter in the left section at the bottom the weekly and the yearly periods. Now you can continue in the right section with required entries.

The screenshot shows the 'Lesson matrix - Default' application. The main window displays a grid of lesson entries. The columns represent different periods (1a, 1b, 2a, 2b, 3a, 3b, 4) and the rows represent different subjects. A search bar and filter options are visible at the top. A detailed view window is open at the bottom, showing fields for L-No, Per, YrsPr, Teacher, Subject, Class(es), Room, Homeroom, Male, Female, Inter (X), Line text, and Stat-2. A red arrow points to the 'Click' button in the details window.

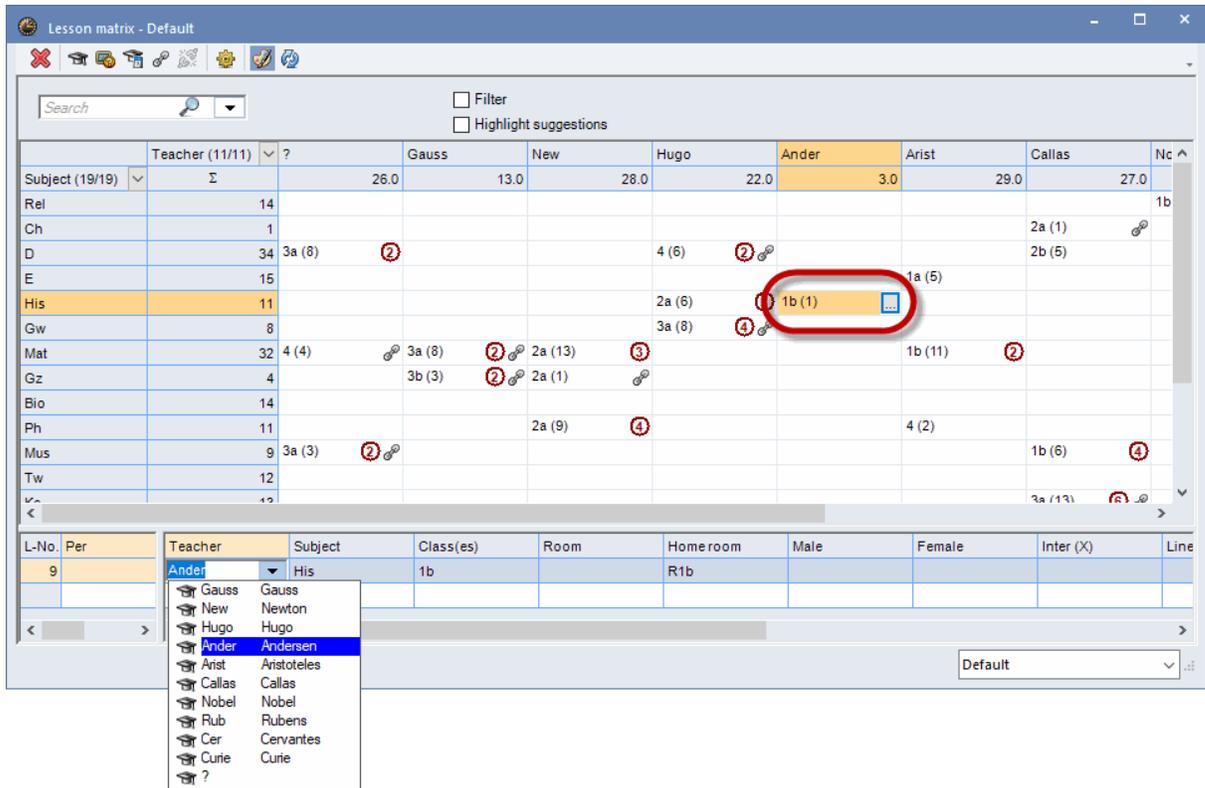
Subject (19/19)	Class(es) (7/7)	1a	1b	2a	2b	3a	3b	4
Rel	14	Nobel (2)						
Ch	7	Callas (1)						
D	34	Rub (5)	Rub (5)	Cer (4)	Callas (5)	? (4)	? (4)	Hugo (6)
E	16	Arist (5)		Cer (4)		Cer (3)		Cer (3)
His	11		Ander (1)	Hugo (2)	Rub (2)	Rub (2)	Hugo (2)	Hugo (2)
Gw	14	Hugo (2)						
Mat	36	Arist (5)	Arist (6)	New (4)	New (5)	Gauss (4)	New (4)	? (4)
Gz	5			New (1)	New (1)		Gauss (1)	Gauss (2)
Bio	14	Cer (2)	Rub (2)					
Ph	11			New (2)	New (2)	New (2)	New (3)	Arist (2)
Mus	11	Callas (2)	Callas (1)	Callas (1)	Callas (2)	? (2)	? (2)	? (1)
Tw	16	Curie (4)	Curie (3)	Curie (2)	Curie (3)	Curie (2)	Curie (2)	Curie (2)
Ke	16	Callas (2)	Callas (3)	Callas (2)				
Wk	16	? (2)	Ander (1)	? (2)	? (2)	? (3)	? (2)	? (2)
Hw	4					Curie (2)		
Ko	2							Rub (2)
SportK	21	Rub (3)	New (3)					
SportM	21	Arist (3)	Curie (3)					
Ord	15	Curie (2)	Cer (2)	Callas (2)	? (2)	New (2)	Hugo (2)	Arist (2)

Modifying a lesson

You can modify a lesson in two different ways:

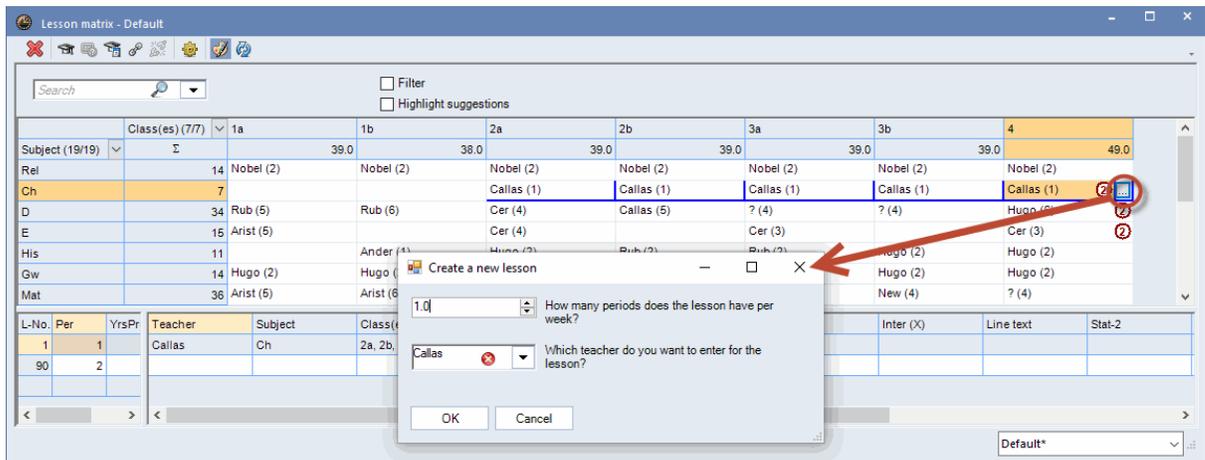
1) In the details window

In contrast to the timetable details window, you can modify in the matrix all entries you see in the details window exactly there.



2) Directly in the matrix

In the active cell of the matrix you see a little field with three dots. Click on it and a window will pop up where you can modify the lesson.



Deleting a lesson

Selecting a cell and clicking on the <Delete> button or pressing removes the entry from the matrix and deletes the lesson.

3.3.1.4 Toolbar functions

Additional functions of the lessons matrix You will find the following icons in the [lessons matrix](#) toolbar:



Delete lessons

Use this icon to delete individual lessons from the lessons matrix. Alternatively you can press on your keyboard..

Teacher suggestion

This function suggests a suitable teacher for the current lesson. Please refer to chapter ' [Teacher suggestion](#) ' for a more detailed description.

Last year's teacher

If the class is displayed in the columns/rows of the matrix, you can use this function to assign the previous year's teacher(s) to all lessons of the class that you have highlighted with the mouse. Please refer to chapter ' [Last year's teacher](#) ' for a more detailed description.

Couple

Use this function to create couplings for every lesson that you have selected in the matrix. Please refer to ' [Untis User Manual](#) ' for a more detailed description.

Extended de-coupling

Use this function to break couplings. Please refer to ' [Untis User Manual](#) ' for a more detailed description.

Lesson comparison

There is a separate section dealing with this function in this manual.

Settings

[Settings](#) have already been described earlier in this chapter.

3.3.2 Lesson table (syllabus)

The general description of the lesson table is followed by an explanation of the various functions:

- [Create lessons](#)
- [Add subjects to the lesson table](#)
- [Allocate classes](#)

General description

You can distinguish between different school types under 'Classes | Master Data' by entering lesson tables.

The screenshot shows a software window titled 'Classes / Class'. At the top left, there is a dropdown menu with '1a' selected. Below it is a toolbar with various icons. The main area contains a table with the following data:

Name	Room	Main subj./d	Consec. Per	Lessons	Factor	Prev. yrs. n
1a	R1a	4	2	1010	.000	
1b	R1b	4	2	1010	.000	
2a	R2a	4	2	1010	.000	1a
2b	R2b	4	2	1010	.000	1b
3a	R3a	4	2	33333	.000	2a
3b	Ps1	4	2	33333	.000	2b
4	Ps2	4	2	33333	.000	3a

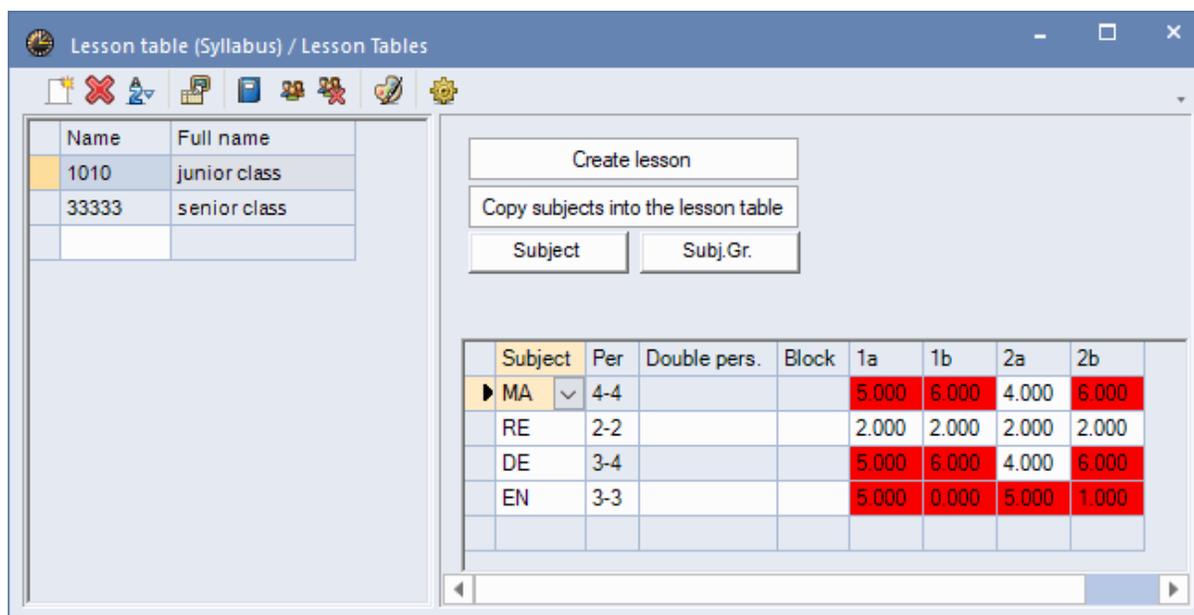
At the bottom of the window, there is a dropdown menu with 'Class (Class)' selected.

A lesson table is a list of subjects with an indication of the minimum and maximum number of periods that should be taught in the corresponding classes. On the one hand it serves to check whether the classes of one school type have the desired number of lessons in the subjects and subject groups defined, on the other hand you can use the lesson tables to create lessons automatically.

Not all subjects need to be entered in the lesson table - just those that you wish to check. The distribution of periods in accordance with the lesson table applies to all the classes for which you have entered this particular lesson table in the master data.

You can access the lesson tables via 'Modules | Lesson planning | Lesson table (syllabus)'.

The lesson table window is divided into two sections. On the left you can see a list of your lesson tables, on the right the table of subjects of the currently selected lesson table. The subject table consists of the following columns:



- **Subject** : This is where you can use both the subject short names as well as implicit or explicit [subject groups](#) . When subjects or explicit subject groups are entered, the system checks to see whether the element exists in the master data.

Tip: Elemen- rollup

You can use element rollups to include a whole list of subjects in one go by right-clicking on it and dragging it into the subject table.

- **Per** : In this column, enter the minimum and maximum number of periods per week - separated by commas - which should be taught for this subject in the classes in question. The entry '3,4' in the 'GE' row in the figure means that German should be taught to classes 1a, 1b and 2b for a minimum of 3 periods per week and a maximum of 4. If the minimum and maximum values are the same you only need enter the value once - entering e.g. '3' is the same as entering '3,3'.
- **Doub. per.** .: This is where you specify the minimum and maximum number of double periods that are to be formed from the previously entered periods. Entering '0-1' means that double periods need not be formed (minimum 0) but one may be formed (maximum 1).
This field is only important for the <Create lessons> function
- **Block**: Here you enter the size of the period block if you want to schedule this subject as a block. If you want to schedule this lesson as several blocks, then separate them by a comma.
This field is only important for the <Create lessons> function
- The subsequent columns tell you how many periods in the respective subject have been allotted for the corresponding classes. Fields with a **red background** indicate that the required **number of periods has not been reached or has been exceeded** .

Tip: Sorting

The table with the subjects for the lesson table can be sorted by each column just by clicking on the headings. You can also modify the order using drag&drop. Simply click on the grey field in front of the

subject name and, holding the mouse button, drag the row to the desired position.

Deleting subjects

Clicking on the toolbar icon <Delete> or pressing removes a subject from the table.

Copying subjects

You can use the clipboard (STRG+C / STRG+V) to copy the table of subjects from one lesson table to a new one. Click on the table that you wish to copy and press <CTRL>+C. Use <CTRL>+V key combination to insert the subject table.

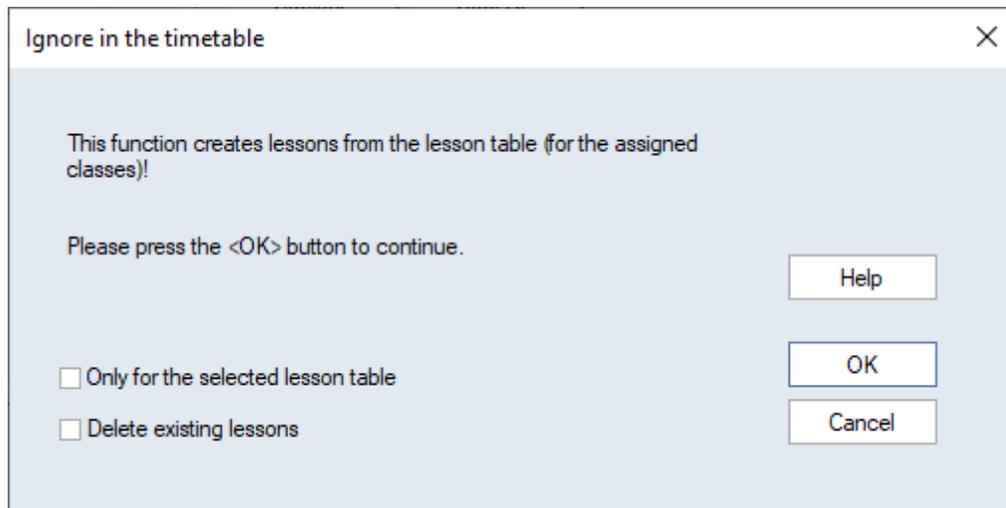
Warning:

If the lesson table where you wish to copy to already contains a subject table, this will be overwritten.

3.3.2.1 Creating lessons

Use this function to create lessons from the entries in the lesson table for all classes that are included in a school type, provided the corresponding combination of subject and class does not already exist.

After the <Create lesson> button is pressed, a window is displayed offering further two setting options:

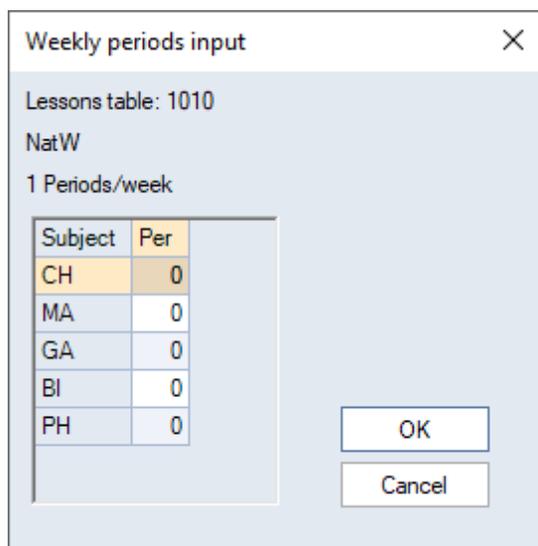


- **Only for the current time grid** : Checking this option limits the function to the current lesson table, otherwise lessons are created from the data in all lesson tables.
- **Delete the existing file** : If you have already created lessons you can delete them by checking this option.

When you confirm with <OK> Untis goes through the current lesson table (or all lesson tables) and creates weekly periods for all classes in the appropriate school types from the specified subjects.

If the program encounters a subject group, a special window is displayed in which you can specify how

many periods should be created for each subject.

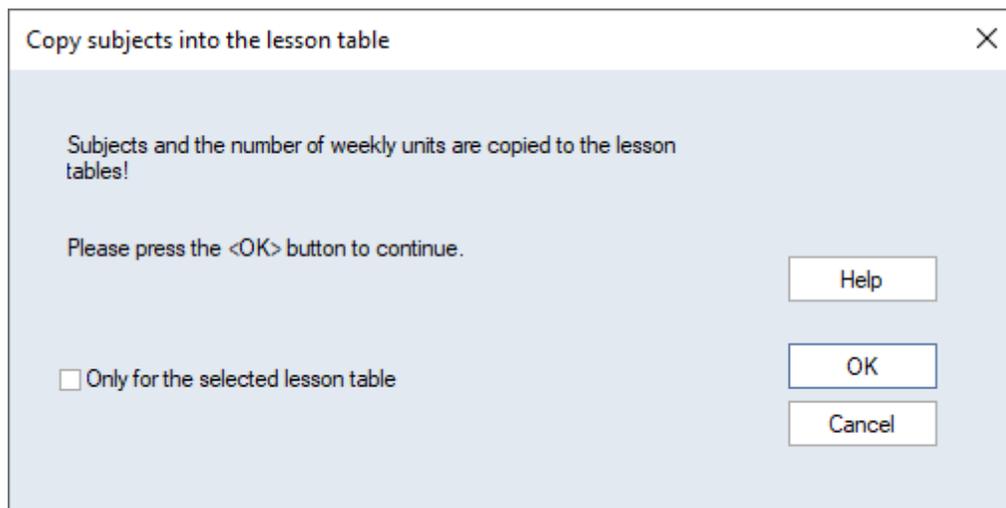


Subject	Per
CH	0
MA	0
GA	0
BI	0
PH	0

3.3.2.2 Entering subjects in the lesson table

If you have already created lessons for the classes you can use these to create a lesson table. The only condition is that you have already entered the lesson tables for the individual classes in the master data.

You can choose to enter subjects just for the currently selected lesson table or for all lesson tables.



Subjects and the number of weekly units are copied to the lesson tables!

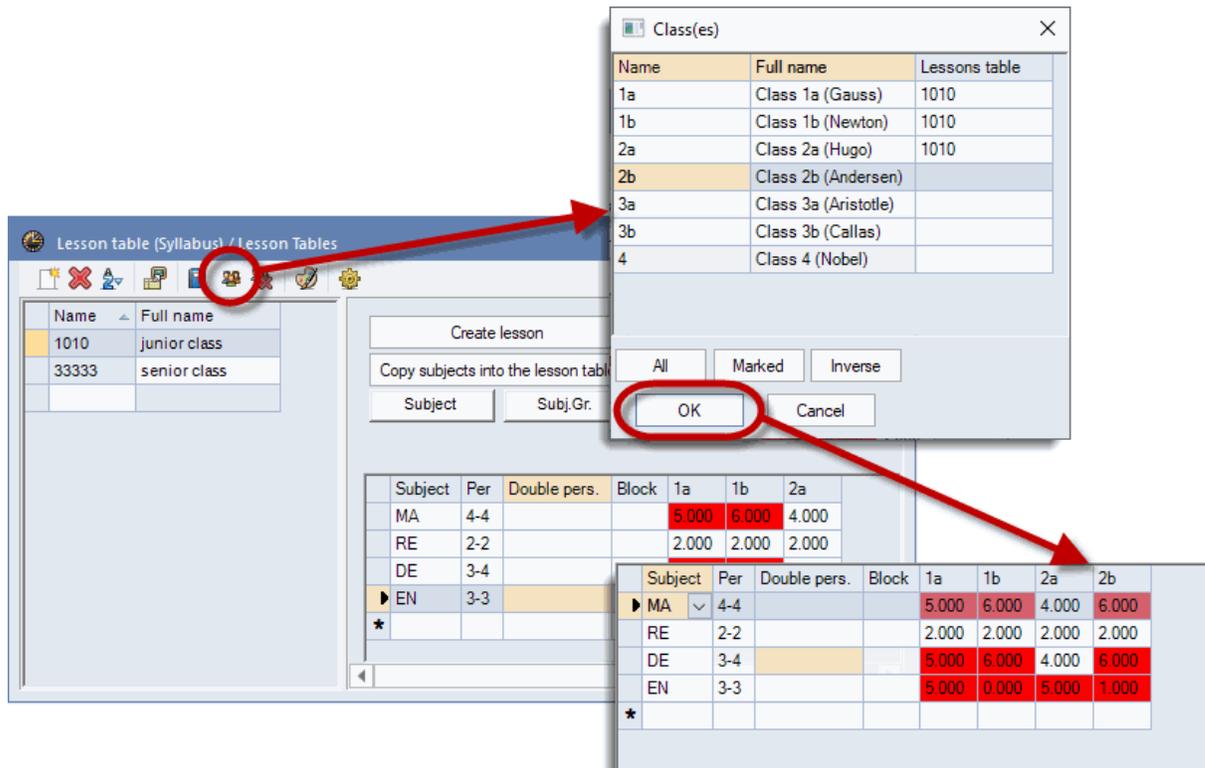
Please press the <OK> button to continue.

Only for the selected lesson table

3.3.2.3 Allocating / deleting classes

Allocating classes

Use this function to assign another class to a lesson table. In the figure, clicking on <OK> would allocate the 1010 (lower level) lesson table to class 2b, in addition to classes 1a, 1b and 2a.



Deleting classes



Use this function to remove a class whose column you have selected in the subject table from the lesson table.

3.3.3 Automatic teacher assignment

In some cases (new classes, certain subjects at vocational schools etc.) assigning teachers to lessons can be effected automatically, in accordance with pre-defined rules, of course. Assignment can be performed either before or during optimisation.

- [Teacher assignment before optimisation](#)
- [Teacher assignment during optimisation](#)

3.3.3.1 Assignment before optimisation

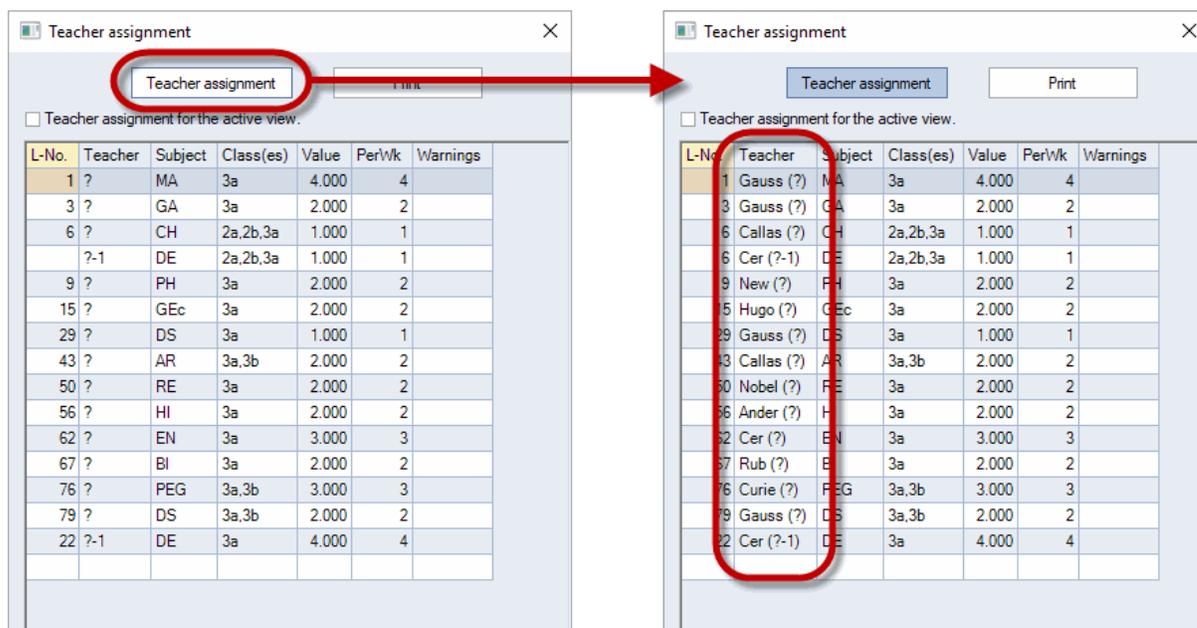
There are two ways of influencing teacher assignment before optimisation:

- [Automatic teacher assignment](#)
- [Team optimisation](#)

3.3.3.1.1 Teacher assignment

Teacher assignment With automatic teacher assignment ('Modules | Lesson planning | Teacher qualifications') lessons with a ?-teacher entry as teacher are automatically assigned a suitable teacher. Teacher suitability is determined on the basis of several factors:

- **Teaching qualification** : The teacher must be qualified to take the lesson (entry in teacher master data). If no qualifications have been entered, teacher assignment is aborted.
- **Teacher's weekly plan** : Automatic teacher assignment attempts to assign as many periods to each teacher as there are in his/her weekly plan. The weekly plan may only be exceeded if no other teacher is available to take the lesson. If no weekly plan has been entered, teacher assignment is aborted with an error message



Teacher assignment

The system first determines the subject that is the most difficult to assign on the basis of the number of open periods and the [teaching qualifications](#) available (please also refer to [Subject bottlenecks](#)' under 'Modules | Lesson planning | Teacher qualification' for more information). For this subject the system searches for the lessons with the most periods and assigns them the most suitable teacher. From the teachers who are qualified to teach the subject, the system assigns the one who needs most periods to fulfil his/her weekly plan.

If you have opened a class lessons windows ('Classes | Lessons') and check option 'Teacher assignment for the active view' the ?-teachers will only be replaced for this one class.

Note: Departments

If departments have been entered for the classes the application will ask if these should be taken into consideration. If there are multiple class couplings only the department of the first class in the coupling line will count. (Only with department timetable module)

3.3.3.1.2 Team optimisation

It is important to carefully consider how couplings and the formation of teaching teams should be modelled since the way lessons are planned can depend on this.

Planning becomes increasingly difficult the more teaching teams there are. It is easier if a teacher appears more often in fewer teams than if he/she teaches the same number of periods in a large number of different teams. Every additional teaching team that a teacher belongs to limits the extent to which he/she can be scheduled and conversely the extent to which a team can be scheduled.

For this reason team optimisation attempts to reduce the number of teams.

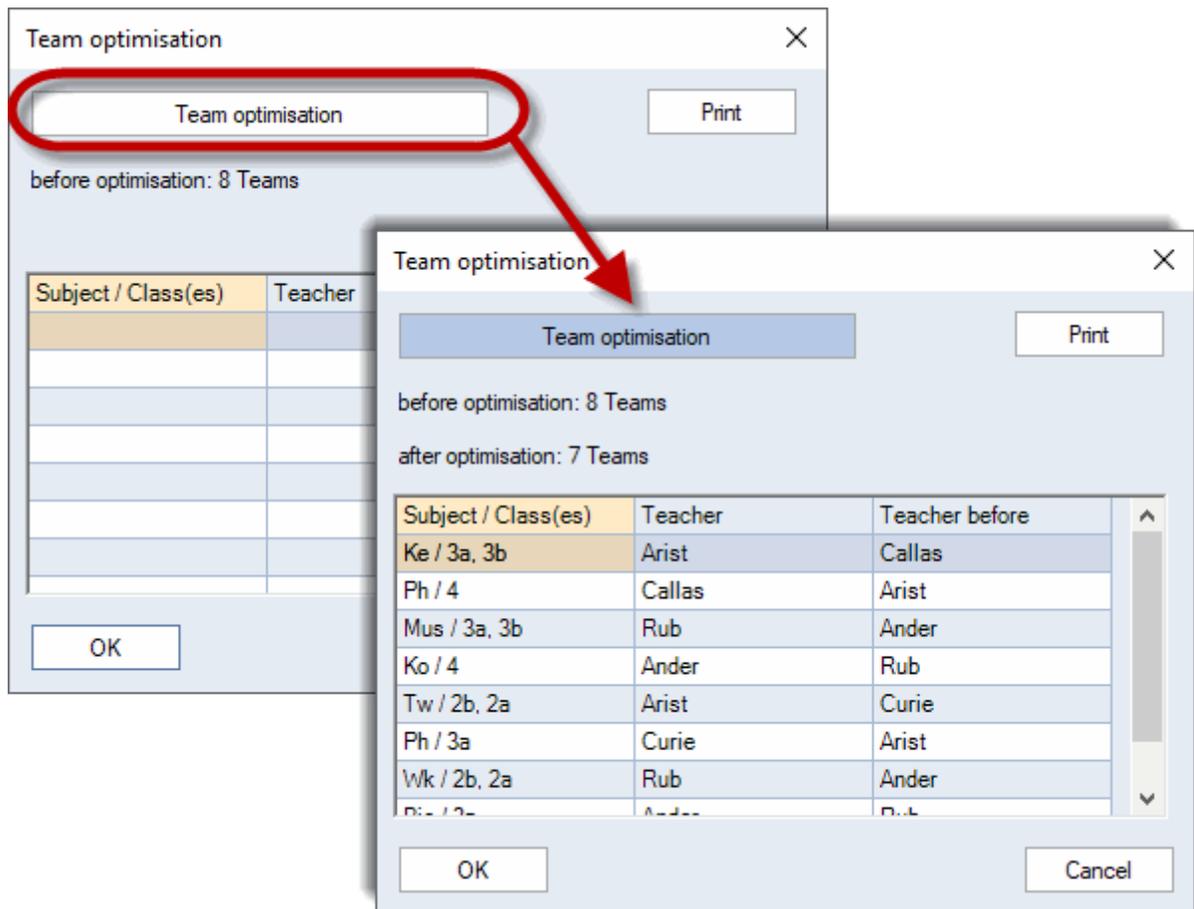
In the process the following is taken into consideration:

- The teacher's number of hours may not change.
- The teacher will only be assigned to lessons which he/she is qualified to teach.

Performing team optimisation

Team optimisation is invoked via 'Modules | Lesson planning | Teacher qualification | Team optimisation'. A window is displayed containing the current number of teaching teams ('before optimisation').

Clicking on the <Team optimisation> icon causes Untis to search for teachers who can be exchanged between the individual teams in order to reduce the total number of teams. When the search ends, all the exchanges found are displayed as well as the new number of teaching teams.



Clicking on the <OK> button accepts the team optimisation; clicking on <Cancel> retains the original teams.

Reducing the number of teaching teams results in more scheduling options being available for the optimisation process. This makes for better timetables.

3.3.3.2 Assignment during optimisation

Untis also allows teacher assignment to be changed during optimisation. This means that Untis may replace the teacher that you have entered for a lesson with another who is more suitable from the scheduling point of view. Such replacements will of course only be performed for lessons where you expressly wish this to happen (detailed explanations follow later).

Automatic teacher assignment during optimisation is also contained to a limited degree in the standard package. However, it is only with the 'Lesson planning' module and the associated possibility of entering [teaching qualifications](#) that it shows its full potential.

In order to be able to use the variable teacher assignment during optimisation at least one of the following conditions - in addition to the entered qualifications - must be met:

- There are lessons where the ?-teacher is assigned.
- There are lessons where the '(V) Variable teacher' code has been set.

Warning: Couplings

The 'V' code relates to all teachers of a particular lesson. If you do not wish to replace individual teachers in a coupled lesson, you must mark the relevant coupling line using the 'Fixed teacher assign.' box. This has the effect of suspending the 'V' code for this teacher.

L-No.	Cl,Te.	UnSched	Per	YrsPrds	Teacher	Teacher allocation locked	(V)	Subject	Class(es)	Subject room	Home room
53		5	5		Rub	<input type="checkbox"/>	<input type="checkbox"/>	E	1a		R1a
33		5	5		Arist	<input type="checkbox"/>	<input type="checkbox"/>	N	1a		R1a
31		5	5		Arist	<input type="checkbox"/>	<input type="checkbox"/>	MA	1a		R1a
73	2, 2	3	3		Arist	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EG	1a,1b	SH2	R1a
					Rub	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EB	1a,1b	SH1	R1b
7	2, 3	2	2		Ander	<input type="checkbox"/>	<input type="checkbox"/>	S	1a	WS	R1a
63		2	2		Cer	<input type="checkbox"/>	<input type="checkbox"/>		1a		R1a
46		2	2		Nobel	<input type="checkbox"/>	<input type="checkbox"/>	E	1a		R1a
11	4, 1	2	2		Hugo	<input type="checkbox"/>	<input type="checkbox"/>	Ec	1a,1b,2a,2b		R1a
35		2	2		Callas	<input type="checkbox"/>	<input type="checkbox"/>	U	1a		R1a

Whereas the standard package only allows those teachers to be exchanged who have the same subject with the same number of periods, the lesson planning module allows Untis to choose from all teachers who have an appropriate qualification and whose 'Targ/week max' value (to be found on the 'Values' tab under 'Teachers | Master Data') would not be exceeded in the event of an exchange.

The screenshot shows a software window titled "Teachers / Teacher" with a toolbar and a table. The table has the following data:

Name	Surname	Target/week	Targ/week max.	Actual-Target	Value =
Ander	Andersen	27.00	18.00	0.95	27.95
Arist	Aristotle	27.00	28.00	1.70	28.70
Callas	Callas	25.00	28.00	-0.09	24.91
Cer	Cervantes	24.00	28.00	-1.05	22.95
Curie	Curie	18.00	28.00	-0.05	17.95
Gauss	Gauss	17.00	28.00	0.95	17.95
Hugo	Hugo	19.00	28.00	-0.05	18.95
New	Newton	26.00	28.00	-2.00	24.00
Nobel	Nobel	15.00	18.00	-0.05	14.95
Rub	Rubens	29.00	28.00	-0.19	28.81

At the bottom of the window, there is a status bar showing "1 free teacher-periods (1.00 value units)" and a dropdown menu set to "Teacher".

Bottlenecks due to an unfavourable assignment of teachers to lessons will be avoided in the process of optimisation.

3.3.3.2.1 Settings for teacher optimisation

The figure below shows the settings in the optimisation dialogue ('Start | Optimisation') for automatic teacher assignment.

The individual settings have the following meaning:

- **No optimisation of teacher assign.** : Checking this box deactivates the teacher exchange. All '(V) Variable teacher' codes will be ignored.

With this setting ?-teachers will not be changed, either.

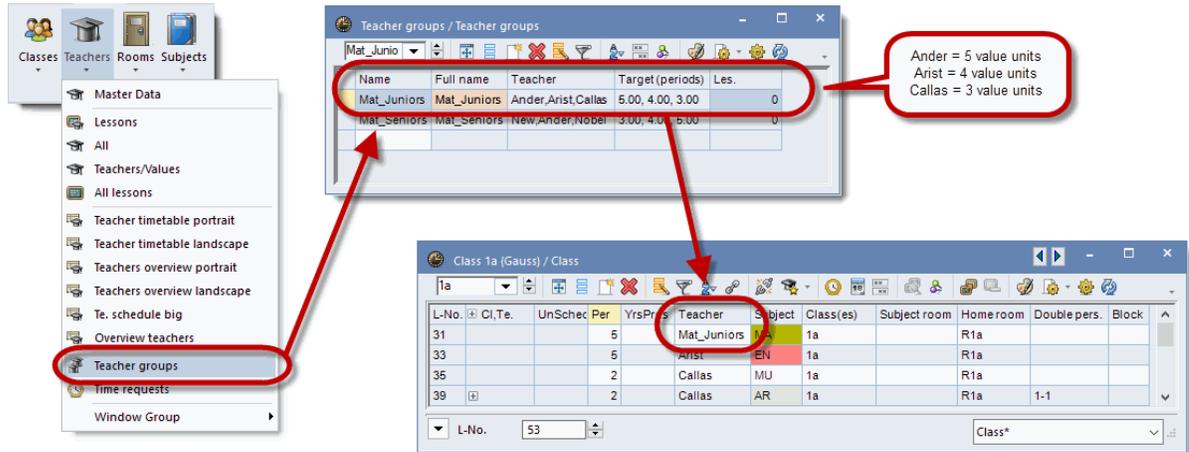
- **No swap with other subjects** : Exchanges will only be made with the same subject.
- **Swap only less. with equal periods** : Exchanges will only be made with lessons that have the same number of periods.
- **Swap only within one class level** : Exchanges will only be made with lessons that belong to the same class level (year). The class level (year) is defined with the corresponding entry under 'Classes | Master Data'.
- **Re-assign original teachers** : Clicking on this button results in all teacher exchanges performed in earlier optimisations being deleted. This means that every subject will be taught by the teacher entered for that lesson.

3.3.3.3 Teacher groups

You can access the teacher groups on the 'Start' tab via 'Teachers | Teacher groups'. Similar to room groups, you can define groups of teachers in this window, e.g. maths teachers for lower and

advanced levels. In the 'periods' field you can enter values.

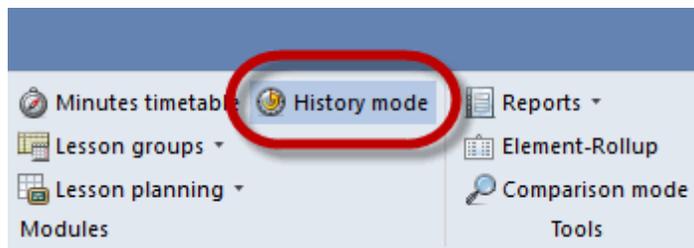
In the lessons you can enter these teacher groups now in the field 'Teacher'. When you subsequently start optimization, the most adequate teacher regarding target periods will be entered for this lesson.



3.4 History mode

Selection of data records

In the History mode you have the possibility to compare data records of several different school years. You can access it via the button of the same name on the 'Start' tab.



In this dialogue you can define which data should be compared. When using Untis MultiUser, the data set of the previous years will automatically be entered. When you click on 'Read all files', all data records will be saved in the memory and you can additionally choose, which term should be part of the comparison.

The image displays two screenshots of a lesson planning software interface. The left screenshot shows a weekly timetable for the week of 28.09.2020 to 3.10.2020. The right screenshot shows a weekly timetable for the week of 21.09.2020 to 25.9.2020. Both tables have columns for days of the week (Mo, Tu, We, Th, Fr, Sa) and rows for lesson periods (1-8). The tables contain lesson codes (e.g., 3b, 4, 2a, 1a, 3a) and numerical values (e.g., -2, -3, +3) indicating lesson values or constraints. The right screenshot also shows a value of -1 in the top right corner of the window.

4 Part 2: Value calculation

Here you find all information on Value calculation.

- [Values](#)
- [Examples](#)
- [Value calculation and multi-week timetable](#)

4.1 Values

Values It is often the case that lessons do not all contribute equally to a teacher's full complement of hours. For example, the subject or the class level (year) taught actually determines how much a lesson is 'worth'.

If you have the 'Multi-week timetable' module you can also take interruptions and time restrictions of the lessons into consideration, which also play an important role in value calculation.

As value calculation is relevant at a point in time when lessons have not yet been scheduled (e.g. when subjects are being allocated), it is not possible to know in advance whether the lessons will be scheduled for a day when there is no school (e.g. because of a public holiday).

Therefore the calculation of yearly values (or for example when periods are limited in the multi-week timetable module) it is assumed when counting the weeks that 'all or none' are included. A week in which lessons are held on only one day (e.g. before or after holidays) counts the same as a week with five

school days.

Warning:

The only important thing is that it is basically possible for a lesson to be scheduled in a particular week.

4.1.1 Entering values and factors

Each period automatically has a value of 1 unless you set a different value. You have various possibilities to change this default value if you wish, for example by specifying factors assigned to [subjects](#) , [teachers](#) or [classes](#). The following section explains the possibilities in more detail.

4.1.1.1 Teachers | Master Data

The most important parameters and entries for value calculation can be found on the 'Values' tab in the form view in the master data of the teachers.

The screenshot shows a software window titled 'Teachers / Teacher'. At the top, there is a search bar with 'Arist' entered and a toolbar with various icons. Below this is a table with the following columns: Name, Surname, Target/week, Targ/week max., Per, Val. Les., Reductions, Actual-Target, % of targ., Yearly average, and Factor. The table lists several teachers, with 'Arist Aristotle' highlighted in yellow. Below the table, there are tabs for 'General', 'Teachers', 'Timetable', 'Values', 'Teach. qual.', 'ValueCorrection', 'Subst.', and 'Break supervision'. The 'Values' tab is active, showing a detailed view for teacher 'Arist'. It displays 'Actual/week' as 26.70, 'Value units with factor' as 1.000, 'Target/week' as 27.00, and 'maximum' as 18.00. A red line indicates an 'Ist-Soll Difference (% of targ.: 98.9%)' of -0.30. Below this, there is a section for 'Value units' with a list of items: 26.70 Yearly average, 27.0 Weekly periods, 0.00 Yearly periods, -0.30 Reductions, 26.70 Value lessons, and 0.00 ValueCorrection. A 'Context-info' section shows '0 Suited open lessons (factorised: 0.00)' with a note '(Lessons for which the teacher is qualified)'. At the bottom right, there is a dropdown menu showing 'Teacher'.

Name	Surname	Target/week	Targ/week max.	Per	Val. Les.	Reductions	Actual-Target	% of targ.	Yearly average	Factor
Ande	Andersen	27.00	28.00	27	26.95		-0.05	99.81	26.95	1.000
Arist	Aristotle	27.00	18.00	27	26.70		-0.30	98.89	26.70	1.000
Calla	Callas	25.00	28.00	25	24.91		-0.09	99.64	24.91	1.000
Cer	Cervantes	24.00	28.00	24	23.95		-0.05	99.79	23.95	1.000
Curie	Curie	18.00	28.00	18	17.95		-0.05	99.72	17.95	1.000
Gaus	Gauss	17.00	28.00	17	16.95		-0.05	99.71	16.95	1.000
Hugo	Hugo	19.00	28.00	19	18.95		-0.05	99.74	18.95	1.000
New	Newton	26.00	28.00	26	26.00		0.00	100.00	26.00	1.000
Nobe	Nobel	15.00	18.00	15	14.95		-0.05	99.67	14.95	1.000
Rub	Rubens	29.00	28.00	29	28.81		-0.19	99.34	28.81	1.000

- **Plan/week** : This is where you enter the lesson value units that the teacher must take each week to fulfil his/her teaching commitment.
- **Targ/week max** : This field is important for variable teacher assignment during optimisation. When the optimisation process assigns this teacher lessons from another teacher, the system will check to ensure that his/her total value units do not exceed this value.
- **Per** : This is where the number of weekly periods is displayed.
- **Value lesson** : Here the value units are shown coming from lessons (i.e. not from reductions).
- **Reductions**: This is the total of reductions entered for the relevant teacher under 'Lessons | Reductions'.
- **Value units** : Here you can see how much the teacher's lessons are 'worth'. The next few pages

describe how this value is calculated.

- **Actual-planned** : This value is the difference between the teacher's (contractually) agreed workload and the currently assigned value units. A positive value therefore signifies overemployment while a negative value means that this teacher must take additional lessons in order to fulfil his/her teaching commitment.
Percent of target : This field indicates how much of the teacher's target has been met in percentage terms, i.e. you can see immediately whether the teacher is working below or above capacity.
- **Yearly average** : The yearly average is the average lesson value taken over all terms.
- **Factor** : Depending on the teacher's seniority the periods that he/she teaches are weighted. The value that you enter here will be multiplied with the number of periods per week.

4.1.1.1.1 Value correction

Value correction enables you to increase or reduce the value units of a teacher at a certain date.

To do this, open 'Master data | Teachers' and activate the 'Value correction' tab (or 'Modules | Value calculation | Value corrections').

Enter the desired date and for the type select '+' for an increase in the value or '-' for a reduction in the value.

You will see the changed values in the [weekly values](#) .

The screenshot shows a software interface with two windows. The top window, titled 'Teachers / Teacher', displays a table of teacher data. The bottom window, titled 'Weekly values', shows a weekly breakdown of lesson values for a specific teacher, with a red circle highlighting the 'V-corr.' column.

Nan-	Surname	NTPs target	Periods/day	Factor	Target/week	Targ/week max.	Actual-Target	Value =
Ande	Andersen	0-1	4-6	1.000	15.00	28.00	18.52	33.52
Arist	Aristotle	0-1	4-6	1.000	25.00	28.00	6.85	31.85
Calla	Callas	0-1	4-6	1.000	25.00	28.00	6.75	31.75
Cer	Cervantes	0-1	4-7	1.000	25.00	28.00	7.83	32.83
Curie	Curie	0-1	4-7	1.000	25.00	28.00	-4.47	20.53
Gaus	Gauss	0-3	2-6	1.000	25.00	28.00	0.49	25.49

Date	Type	Value =	Text
10.10.20	+	5.00	Increase
22.10.20	-	3.00	Decrease

Teacher	Lessons / values	Yearly average =
Ander	<input checked="" type="checkbox"/> Condensed view	33.56 (Lessons + Reduct)

Week	Fr. - To	Term	Target	Lesson	Red.	V-corr.	Actual	Actual-Ta
Total	21.9.-30.6.		570.00	1026.00	247.76	2.00	275.76	705.76
1-2	21.9.-4.10.	1	15.00	27.00	6.52		33.52	18.52
3	5.10.-11.10.	1	15.00	27.00	6.52	5.00	38.52	23.52
4	12.10.-18.10.	Holid:		0.00				
5	19.10.-25.10.	Holid:		0.00		-3.00	-3.00	-3.00
6-17	26.10.-17.1.	1	15.00	27.00	6.52		33.52	18.52
18	18.1.-24.1.	Holid:		0.00				
19-41	25.1.-30.6.	1	15.00	27.00	6.52		33.52	18.52

In the form view of the lesson windows you will now also see on the 'Values' tab how many value corrections have been assigned to the respective teacher.

Lesson	Timetable	Code(s)	Values	Coupling Line
Lesson value of 6		Teacher value of Ander		
<input type="text"/>	Value or Factor	33.32	Actual/week	
<input type="text"/>	Line value/factor	- 15.00	Target/week , maximum 28.00	
0.96	Value units	18.32 Ist-Soll Difference (% of targ.: 222.1 %)		
<input type="text"/>	Target per./yr	Value units		
Factors		33.43	Yearly average	
0.96	Subject : PEB	190.00	Weekly periods	
1.00	Class : 2a, (2b, 3a)	0.00	Yearly periods	
1.00	Teachers : Ander	6.52	Reductions	
1.00	Eff. time range : 225 Days	5.00	ValueCorrection	
0.960	Total	Context-info		
		38	Weeks of lessons	
		0	Suited open lessons (factorised: 0.00)	
		(Lessons for which the teacher is qualified)		

Note: Copy value calculation

If you want to copy a value correction from one teacher to another just click on the button right to the entry of the value correction.

4.1.1.2 Subjects | Master Data

You can display the main information and input options for value calculation using <Grid adjustment> in the 'Value calculation' section of subject master data.

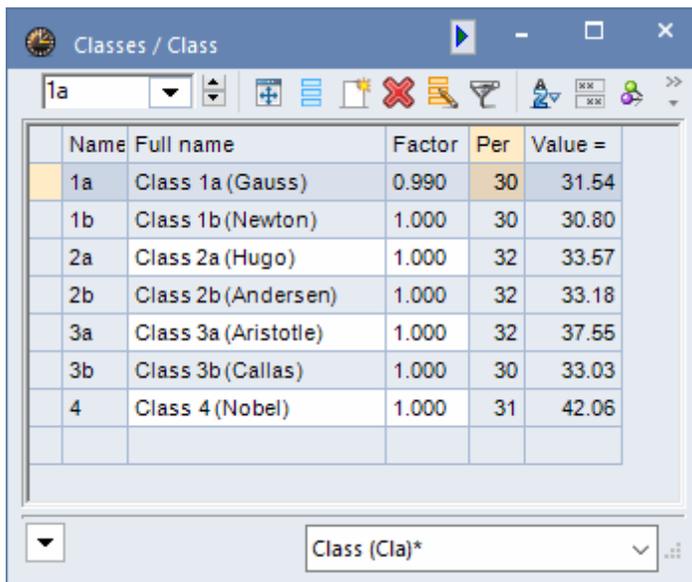
Name	Full name	Factor	Weekly periods	Weekly values
RE	Religious Education	1.050	14	14.70
CH	Chemistry	1.050	1	1.05
DE	German	1.167	33	38.51
EN	English	1.167	14	17.51
HI	History	1.050	11	11.55
GEc	Geography and Economics	1.050	8	8.40
MA	Mathematics	1.105	33	40.89
GA	Graphics	1.050	7	7.35
BI	Biology	1.050	14	14.70

Subject (Sub)*

- **Factor** : Use subject factors to specify how different subjects have different value 'ratings', i.e. some factors 'count more' than others. At Austrian high schools, for example, English is weighted with a value of 1.167 while biology has a value of only 1.050.
 - **Periods/week** Here you can see for how many periods per week this subject is taught at the school.
 - **Value units** : This value indicates what the periods displayed are worth at the school. Depending on whether you selected the 'Yearly values' option in the settings for value calculation or not, the value indicated here refers either to a week or to the whole school year.
- You can find these settings on the 'Value calculation' tab under 'Start | Settings | Miscellaneous' (please refer to chapter ' [Value calculation settings](#)').

4.1.1.3 Classes | Master Data

You can display the main information and input options for value calculation using <Grid adjustment> in the 'Value calculation' section of class master data.



Name	Full name	Factor	Per	Value =
1a	Class 1a (Gauss)	0.990	30	31.54
1b	Class 1b (Newton)	1.000	30	30.80
2a	Class 2a (Hugo)	1.000	32	33.57
2b	Class 2b (Andersen)	1.000	32	33.18
3a	Class 3a (Aristotle)	1.000	32	37.55
3b	Class 3b (Callas)	1.000	30	33.03
4	Class 4 (Nobel)	1.000	31	42.06

- **Factor**: Here you can specify how a lesson in this class should be weighted, e.g. lessons in the sixth form could be valued higher than in the lower grades. The class factors are often used to enhance the value of evening school lessons:
- **Value units**: The total value of the lessons taught in this class
- **Periods/week**: The number of periods per week that this class is taught..

4.1.1.4 Lesson values

As with the master data, you will find several columns referring to value calculation in all the individual lesson views (e.g. 'Classes | Lessons').

L-No.	CI	T	UnSc	Per	YrsPrds	Teache	Subject	Class(es)	Value =	Subj.-Factor	Cla.-factor
6	+	3, 7	1	1		Callas	CH	2a,2b,3a	0.35	1.05	1.000
8			2	2		New	PH	2b	2.00	1.00	1.000
11		4, 1	2	2		Hugo	GEc	1a,1b,2a,2b	0.52	1.05	0.990
34			5	5		Callas	DE	2b	5.84	1.17	1.000
37			2	2		Callas	MU	2b	2.00	1.00	1.000
42			2	2		Callas	AR	2b	2.00	1.00	1.000
49			2	2		Nobel	RE	2b	2.10	1.05	1.000
55			2	2		Rub	HI	2b	2.10	1.05	1.000
66			2	2		Cer	BI	2b	2.10	1.05	1.000
72			1	1		Curie	TX	2b	1.00	1.00	1.000
75	+	2, 2	3	3		Rub	PEB	2b,2a	1.44	0.96	1.000
81	+	2, 2	2	2		Curie	TX	2b,2a	1.00	1.00	1.000
93			5	5		New	MA	2b	5.53	1.11	1.000
94		2, 1	1	1		New	GA	2a,2b	0.53	1.05	1.000

L-No. Class*

- **Value** : You can enter an absolute value in this field, or a factor that overrides all other factors.

Input value	Meaning	Effect
4.50	fixed value	Overrides teacher, class and subject factors, but not time limitations
=4.50	absolute value	Overrides all factors and time limitations
*4.50	value factor	Does not override other factors or time limitations; additional factor that may e.g. enhance the value of certain lessons.
+4.50	summand	Does not override other factors or time limitations; additional summand that may e.g. enhance the value of certain lessons

Note: positive and negative

All values and factors can be entered as positive or negative numbers.

You will find examples in the next chapter [Examples of lesson values](#) and [Fixed values and factors for time limitations](#).

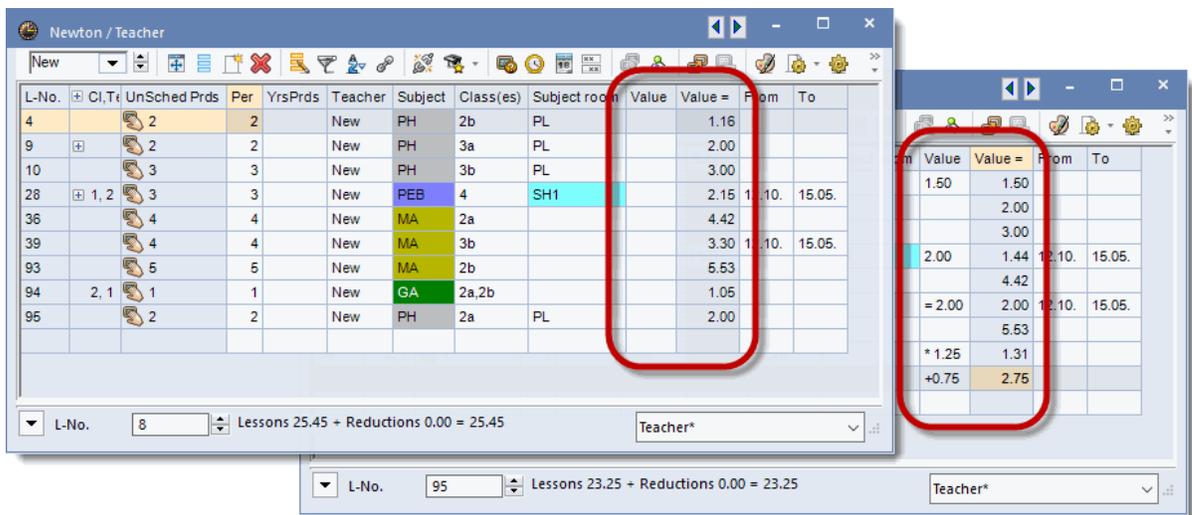
- **Line value/factor**: Whereas the first input field affects the whole lesson, you can enter values here that influence a single coupling line.
- **Value units**: This entry shows you the current total value for the lesson.
- **Subject factor**: This entry displays the factor for the subject.
- **Class factor**: This entry displays the factor for the class.
- **Target per./year**: You can use this field to specify how many periods of this lesson should be taught over the school year as a whole.

4.1.1.4.1 Examples of lesson values

You can influence the value of a lesson in several ways.

- **Directly** by entering a fixed value. This results in all other input values and factors that affect this lesson being overridden. If you precede the value with an additional equals sign '=', time limitations will also be ignored. (This will be illustrated later in the course of a another example.) Negative values are also valid.
- **Indirectly** , by preceding the existing value with a '+' or '*'. This defines either a summand that is added to the total value of the lesson or a further factor that is multiplied with the value.

The figure below shows you teacher Newton's lessons. The 'Value =' column displays the total value of the lesson in question.



- A fixed value of 1.50 has been entered in the second line (lesson number 4). The original value of this lesson - 1.16 - has been overwritten by this new value and the individual factors thereby overridden.
- In the fourth row you will see the entry 2.00 for lesson 28. However, the 'Value=' column contains the value 1,40 since the time limitation has been taken into account.
- Lesson 39 is very similar to lesson 26 However, in this case '=2.000' was entered under value. Prefixing the equals sign means that the time limitation is **not** taken into account.

The modifications and entries described always have an effect on lessons as a whole. For example, entering a fixed value for a coupled lesson that is held by two teachers can have an effect on both of them.

Note: Line values

Use the 'Line value' input field if the entry should only apply to one teacher. This field does not apply to the whole lesson. It only affects the coupling row in question. As with the 'Value' field, you can enter additional factors, summands or fixed values in the 'Line value' field.

The 'Examples of value calculation' chapter contains an example dealing with the [line value](#) .

You can find a more detailed description of how values are calculated in chapter ' [Examples of value calculation](#) .

4.1.1.5 Factors for lesson groups

If you have the 'Multi-week timetable' module, lesson groups give you a further possibility to influence the value of a lesson.

Name	Full name	From	To	Factor
Exe	Exercise	21.09.	30.09.	0.463
Spo	Sport	21.09.	30.09.	1.000
H1	First Half	21.09.	29.09.	0.500
H2	Second Half	01.02.	30.09.	0.500

A group factor that you define for lesson groups overrides a value reduction caused by lesson or group time limitations. Please refer to the 'Lesson groups' chapter for more information as well as an example.

4.1.2 Weekly values

It has already been mentioned that the number of weeks in which lessons can generally be scheduled is important for value calculation. Where a lesson is located in the timetable and whether it can or cannot take place in a certain week - for example due to a public holiday - is not taken into account.

However, the actual value units that are actually assigned to a teacher or to a class in a certain week can be important. For this purpose there exists the 'Weekly values' window that you can find under 'Modules | Value calculation | Weekly values'. While lesson scheduling does not play a major role in 'normal' value calculation - just the question of whether they can be scheduled in certain weeks - the values that you find in this table are based on actual timetables.

In the table you can select for which teacher or class (1) and how (2) the weekly values should be displayed. Below the two input fields you can find a brief explanation of the values displayed (3).

Week	Fr. - To	Term	Target	Lesson	Red.	V-corr.	Actual	Actual-Ta
Total	21.9.-30.6.		570.00	1 092.35	247.76	5.00	1 345.11	775.11
1	21.9.-27.9.	1	15.00	28.75	6.52		35.27	20.27
2	28.9.-4.10.	1	15.00	28.75	6.52		35.27	20.27
3	5.10.-11.10.	1	15.00	28.75	6.52	5.00	40.27	25.27

As an alternative to displaying lesson periods in the usual way, weekly values can display the total of lessons scheduled or held in terms of hours and minutes. This is particularly necessary when using different timetable grids or with periods of different duration during the day.

Weekly values can be displayed for [teachers](#) and for [classes](#).

4.1.2.1 Weekly values for teachers

You can choose between the following types of weekly value:

- [Lessons / periods](#)
- [Lessons / values](#)
- [Timetable / periods](#)
- [Timetable / values](#)
- [Cover plan / periods](#)
- [Cover planning / values](#)
- [Statement](#)

4.1.2.1.1 Lessons / periods

This displays the periods defined under 'Teachers | Lessons' that are active in the given week, irrespective of whether these periods have actually been scheduled or not. Each week begun counts as a full week, and public holidays are ignored. Weeks with no school day appear with a lesson value of '0' for both 'Plan' and 'Lesson'.

Weekly values

Teacher: Gauss Lessons / periods: [dropdown]

Condensed view

Refresh Planned lessons without reductions, bi-

Week	Fr. - To	Term	Lesson
Total	21.9.-30.6.		646.00
YrsPrds.			0.0
1	21.9.-27.9.	1	17.00
2	28.9.-4.10.	1	17.00
3	5.10.-11.10.	1	17.00
4	12.10.-18.10.	Holidays	0.00
5	19.10.-25.10.	Holidays	0.00
6	26.10.-1.11.	1	17.00
7	2.11.-8.11.	1	17.00
8	9.11.-15.11.	1	17.00

4.1.2.1.2 Lessons / values

This is where the values for scheduled lessons are output. This setting displays total value of lessons after the planned target, followed by [reductions](#) and any [value corrections](#). The sum of these three columns results in the 'actual' value.

The last column displays any difference between actual and planned.

The [yearly average](#) is displayed at the top of the screen.

Weekly values

Teacher: Gauss Lessons / values Yearly average = 18.25 (Lessons +
 Condensed view

Refresh Planned lessons including reductions. Bi-weekly lessons apportioned.

Week	Fr. - To	Term	Target	Lesson	Red.	V-corr.	Actual	Actual-Ta
Total	21.9.-30.6.		950.00	693.31	0.00	0.00	693.31	-256.69
1	21.9.-27.9.	1	25.00	18.25			18.25	-6.76
2	28.9.-4.10.	1	25.00	18.25			18.25	-6.76
3	5.10.-11.10.	1	25.00	18.25			18.25	-6.76
4	12.10.-18.10.	Holida		0.00				
5	19.10.-25.10.	Holida		0.00				
6	26.10.-1.11.	1	25.00	18.25			18.25	-6.76
7	2.11.-8.11.	1	25.00	18.25			18.25	-6.76
8	9.11.-15.11.	1	25.00	18.25			18.25	-6.76

4.1.2.1.3 Timetable / periods

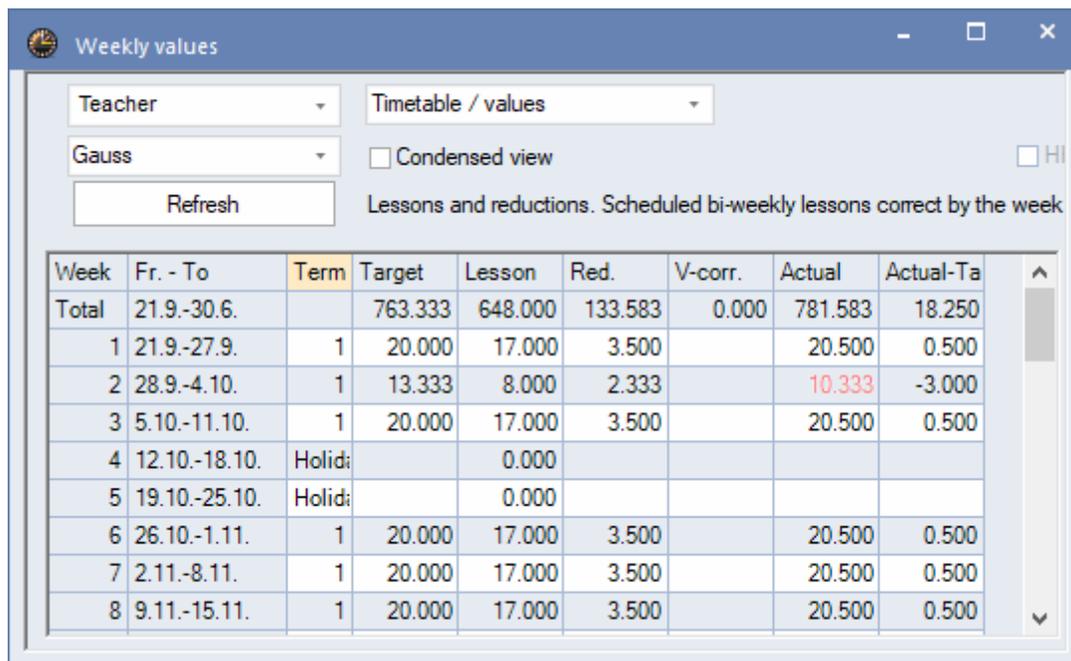
With this setting you can see - in the 'Lesson' column - how many periods this teacher has actually taught in the week in question. Holidays are taken into consideration. The 'HH:MM' column shows the duration of the lessons held in hours and minutes.

The screenshots show the 'Weekly values' window with 'Timetable / periods' selected. The 'Lesson' column in the weekly values table shows 18.25 lessons per week. The corresponding weekly timetables show lesson counts (e.g., 4 lessons on Wednesday, 3a on Thursday, 4 on Friday, 3a on Saturday) distributed across the days of the week. Red arrows indicate the mapping between the 'Lesson' column and the actual lesson counts in the timetables.

Warning: Public holidays
 On public holidays - defined as such under 'Start | Settings | Holidays' - the scheduled periods are counted as if having been held..

4.1.2.1.4 Timetable / values:

This is where the values for the **scheduled** periods are displayed in a similar way to ' [Lessons | Values](#) '. Values in columns 'Plan' and ' [Reduction](#) ' are calculated on a proportional basis. Thus the plan value for a six-day week with two holidays without lessons is reduced by one third (see week 4).



The screenshot shows a window titled 'Weekly values' with a dropdown menu for 'Teacher' set to 'Gauss' and another dropdown for 'Timetable / values'. There is a 'Refresh' button and a 'Condensed view' checkbox. Below the controls is a table with the following data:

Week	Fr. - To	Term	Target	Lesson	Red.	V-corr.	Actual	Actual-Ta
Total	21.9.-30.6.		763.333	648.000	133.583	0.000	781.583	18.250
1	21.9.-27.9.	1	20.000	17.000	3.500		20.500	0.500
2	28.9.-4.10.	1	13.333	8.000	2.333		10.333	-3.000
3	5.10.-11.10.	1	20.000	17.000	3.500		20.500	0.500
4	12.10.-18.10.	Holida		0.000				
5	19.10.-25.10.	Holida		0.000				
6	26.10.-1.11.	1	20.000	17.000	3.500		20.500	0.500
7	2.11.-8.11.	1	20.000	17.000	3.500		20.500	0.500
8	9.11.-15.11.	1	20.000	17.000	3.500		20.500	0.500

4.1.2.1.5 Cover scheduling / periods

If you work with the 'Cover scheduling' module, this option will display the number of cancelled and substituted periods.

Weekly values

Teacher: Gauss | Cover plan / periods

Condensed view: HH:MM

Given lessons including cover and 'Events'.

Week	Fr. - To	Term	Planned	Schedule	Held	Cancelltn	Subst.
Total	19.9.-30.6.		773.33	654.00	652.00	2.00	4.00
1	19.9.-25.9.	1	17.00	17.00	17.00		
2	26.9.-2.10.	1	8.00	8.00	6.00	2.00	1.00
3	3.10.-9.10.	1	17.00	17.00	17.00		3.00
4	10.10.-16.10.	1					
5	17.10.-23.10.	1					
6	24.10.-30.10.	1	17.00	17.00	17.00		
7	31.10.-6.11.	1	17.00	17.00	17.00		
8	7.11.-13.11.	1	17.00	17.00	17.00		

Gauss - Gauss

26.09.2011 - 1.10.2011

	Mo	Tu	We	Th	Fr	Sa
1						4.
2				3b	4	4.
3				3a	3a	
4	3a			3a		
5	3a					
6		27.9.2011	28.9.2011			
7						
8						

L-No.	Tea.	Subj.	Rm.	Cl.	Time
1	Gauss	Mat	R3a	3a	

4.1.2.1.6 Cover plan / values

Besides the values for normal lessons, this option also displays the values for substitutions, cancellations and value corrections in cover planning.

Weekly values

Teacher: Gauss | Cover plan / values

Condensed view: HH:MM

Cover planning values as in the 'Cover Overview'.

Week	Fr. - To	Term	Planned	Schedule	Red.	Held	Cancelltn	Subst.
Total	21.9.-30.6.		663.000	657.000	0.000	653.000	4.000	2.500
1	21.9.-27.9.	1	17.000	17.000		17.000		
2	28.9.-4.10.	1	17.000	17.000		15.000	2.000	1.000
3	5.10.-11.10.	1	17.000	17.000		15.000	2.000	1.500
4	12.10.-18.10.	Holiday						
5	19.10.-25.10.	1	17.000	17.000		17.000		
6	26.10.-1.11.	1	17.000	17.000		17.000		
7	2.11.-8.11.	1	17.000	17.000		17.000		
8	9.11.-15.11.	1	17.000	17.000		17.000		

Gauss - Gauss, Carl Friedrich Timetable

05.10.2020 - 10.10.2020

	Mo	Tu	We	Th	Fr	Sa
1			4			4.
2					4	4.
3		3b.	4	3a	3a	2b
4	3a	3b.	3a	3a	2b	
5	3a	4.	*2a.			
6						
7						
8		1b.				

Tea-V1 - Teacher 1

4.1.2.1.7 Statement

The statement shows all data for lessons and substitutions in value units.

The screenshot shows a window titled "Weekly values" with a dropdown menu for "Teacher" set to "Statement" and "Gauss". There is a "Refresh" button and a checkbox for "Condensed view". Below the controls, the text reads "Values for the yearly statement with regional differences." The table below contains the following data:

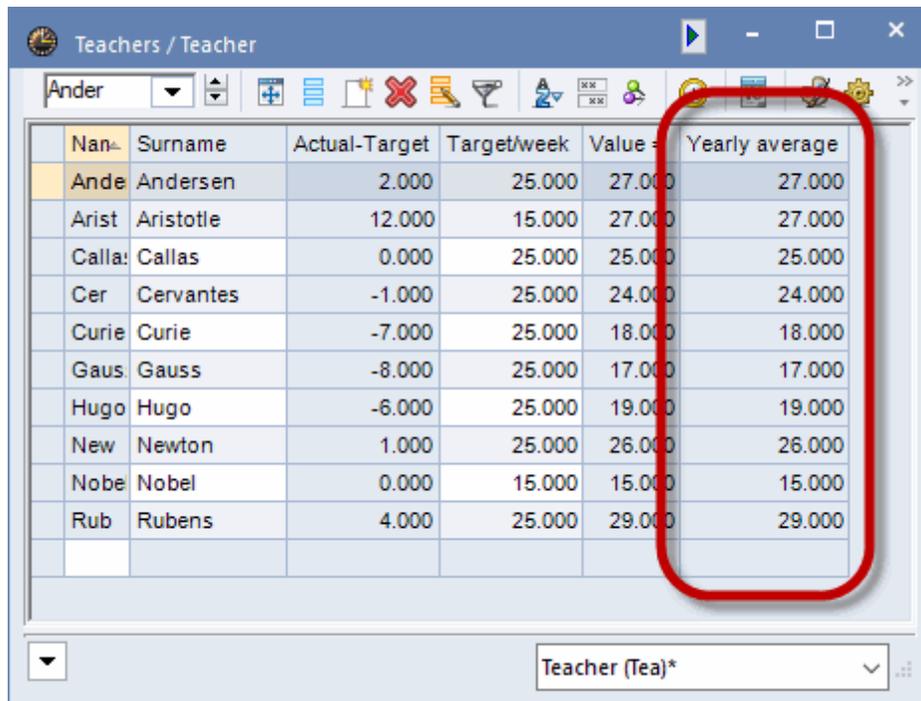
Week	Fr. - To	Term	Target	Red.	Lesson	Actual	Actual-Ta	Cancelltn	V-corr.	V-corr.-V	Subst.	Counter	Actual-Ta
Total	21.9.-30.6.		0.000	0.000	657.000	657.000	657.000	4.000	0.000	0.000	2.500	-1.500	655.500
1	21.9.-27.9.	1			17.000	17.000	17.000						17.000
2	28.9.-4.10.	1			17.000	17.000	17.000	2.000			1.000	-1.000	16.000
3	5.10.-11.10.	1			17.000	17.000	17.000	2.000			1.500	-0.500	16.500
4	12.10.-18.10.	Holid:											
5	19.10.-25.10.	Holid:											
6	26.10.-1.11.	1			17.000	17.000	17.000						17.000
7	2.11.-8.11.	1			17.000	17.000	17.000						17.000
8	9.11.-15.11.	1			17.000	17.000	17.000						17.000

4.1.2.2 Weekly values for classes

The class lists of weekly values have a very similar layout to those the [teacher lists](#). If you select views with values, they relate to the number of teacher value units that the class in question requires.

4.1.3 Yearly average

Teacher [master data](#) contain the field 'Yearly averages'. It shows the average lesson value taken over all terms. You will also find the same value in the ' [Lessons / values](#) ' category in the [weekly values](#) from the teacher's perspective.



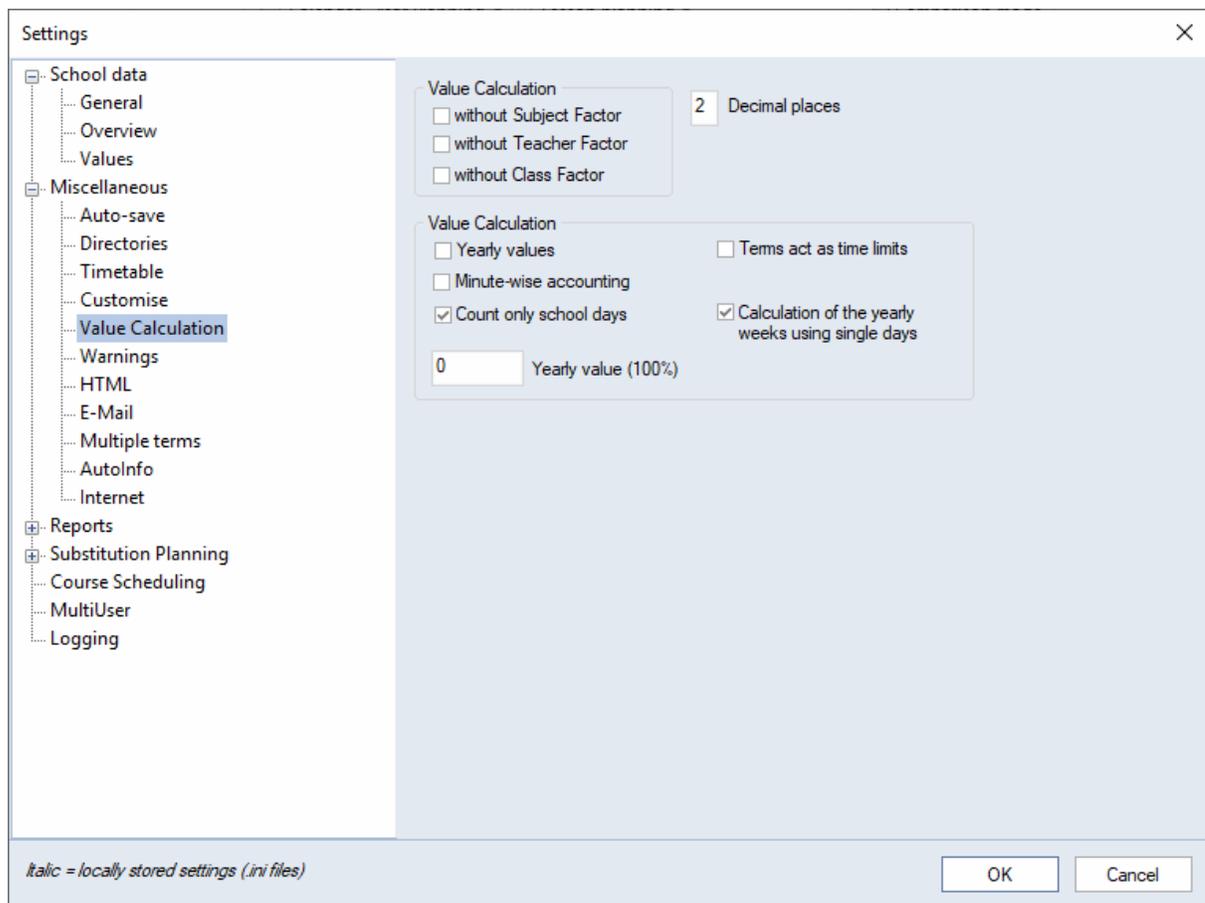
The screenshot shows a software window titled "Teachers / Teacher" with a table of teacher data. The table has six columns: Name, Surname, Actual-Target, Target/week, Value, and Yearly average. The data is as follows:

Name	Surname	Actual-Target	Target/week	Value	Yearly average
Ande	Andersen	2.000	25.000	27.000	27.000
Arist	Aristotle	12.000	15.000	27.000	27.000
Calla	Callas	0.000	25.000	25.000	25.000
Cer	Cervantes	-1.000	25.000	24.000	24.000
Curie	Curie	-7.000	25.000	18.000	18.000
Gaus	Gauss	-8.000	25.000	17.000	17.000
Hugo	Hugo	-6.000	25.000	19.000	19.000
New	Newton	1.000	25.000	26.000	26.000
Nobe	Nobel	0.000	15.000	15.000	15.000
Rub	Rubens	4.000	25.000	29.000	29.000

A red circle highlights the 'Value' and 'Yearly average' columns. At the bottom of the window, there is a dropdown menu showing 'Teacher (Tea)*'.

4.1.4 Value calculation settings

You can find various possibilities to set parameters for value calculation on the 'Value calculation' tab under 'Start | Settings | Miscellaneous'.



- **without [Subject Factor](#) , without [Teacher Factor](#) , without [Class Factor](#)** : You can use these options to override individual [factors](#) that you entered in the master data. This means that these factors will no longer be taken into consideration during value calculation.
- **Decimal places** : Here you specify the number of decimal digits (maximum three) with which the values and the various factors in the different views should be displayed.
- **Yearly values** : You can specify whether [weekly](#) or [yearly](#) values should be displayed.
- **Minute calculation** If you work with different period lengths you can choose to perform value calculation to the exact minute.
- **Count only school days** : Use this option to determine whether all the weeks of a school year should be included in value calculation or just those with at least one day of lessons (i.e. whether school holiday should be included or not).
- **Calculation of the yearly weeks using single days** : This option is only activated if you have checked the 'Count only school days' box. The option results in the number of school weeks in a school year being calculated according to the following formula: (number of school days in the school year) / (number of teaching days in the weekly grid)
- **Yearly value** : This is where you enter the yearly value corresponding to a full year's teaching commitment for a teacher. For example, a value of 900 means that a teacher should teach 900 periods in a year. This option allows you to view - in the teacher master data - the percentage of the teaching commitment that has already been assigned to the teacher. You will find more information on this in chapter ['Percentage factor \(yearly values\)'](#) .

4.1.5 Reports

Untis allows you to display and print numerous reports in connection with lesson planning and value calculation.

The reports and views described below are associated with the possible entries that are described in this chapter. You can access the reports via 'Start | Reports'.

- [Subject/periods report](#) :
- [Periods reports](#)

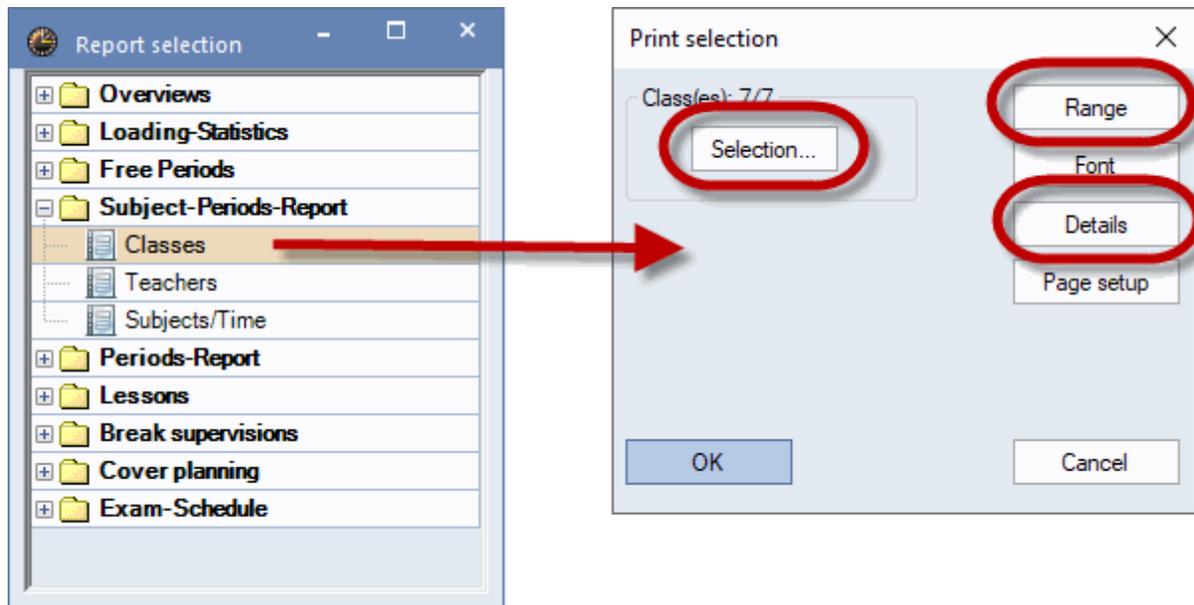
4.1.5.1 Subject / periods reports

Three reports are available in report selection ('Start | Reports') under 'Subjects-period reports' The first two ('Classes' and 'Teachers') are particularly interesting in conjunction with the 'Target per./yr.' option on the 'Values' tab under lessons.

- [Classes](#)
- [Teachers](#)
- [Subjects/time report](#) :

4.1.5.1.1 Classes

Open the list via 'Reports | Selection | Subjects/periods reports | Classes'. The three buttons in the print selection dialogue are explained below:



- **Selection** : this is where you choose the elements for which you wish to create the report.
- **Range** this option allows you to define the selection range according to several criteria:

Period number: e.g. only lessons from periods 1 to 8.

Periods/week: e.g. only Mo-1 to Sa-5, only periods on Monday to Saturday will be included

Date range: this is where you can select one or several weeks or output the report for the entire school year

Range (periods) ✕

Range (periods)

Fr.: To: Period Number

Periods/week

Date

Calendar week
 Total school year
 1 day

Monday: 39. Calendar week, 1. School week
 Wednesday: 26. Calendar week, 41. School week

- **Details** : besides parameters relating to the layout of the printed report, this option allows you to include an overview of the year.

1a Class 1a (Gauss)

Subject	LesNr /Term	Teacher	Periods per week		Time
			Targ.	Plan.	
AR	39	Callas	2	2	Tu-4, Tu-3
DS	7	Ander	2	2	Tu-8, Tu-7
MU	35	Callas	2	2	Th-1, Mo-2
Expressive Arts	Total	Subj. Gr.	6	6	
DE	53	Rub	5	3	Th-2, Fr-4, We-4
Languages	Total	Subj. Gr.	5	3	
BI	63	Cer	2	2	Sa-1, Mo-3
Science	Total	Subj. Gr.	2	2	
EN	33	Arist	5	5	Tu-2, Th-3, Fr-3 Sa-2, Mo-1
GEc	11	Hugo	2	2	Sa-4, We-1
MA	31	Arist	5	5	We-3, Th-4, Fr-1 Sa-3, Tu-1
PEB	73	Rub	3	3	We-2, Fr-8, Mo-4
PEG	73	Arist	(3)	(3)	We-2, Fr-8, Mo-4
RE	46	Nobel	2	2	Fr-2, Tu-5
TX	7	Curie	(2)	(2)	Tu-8, Tu-7
Total			30	28	

Print details ✕

Subject timetable (Layout 94)

With 'yearly totals' as well

Subject Full Name

Number of timetables per page

Number of times in a line

Headings

Horizontal
 Diagonal
 Vertical

Note: Yearly overview

You can display a detailed yearly overview as well.

4.1.5.1.2 Teachers

The functions and settings for the teachers report are the same as those for the [classes report](#) .

Gauss Gauss

Subject	LesNr /Term	Class	Periods per week		Time
			Targ.	Plan.	
DS	7	1b	2	2	Tu-8, Tu-7
Expressive Arts	Total	Subj.Gr.	2	2	
GA	3	3a	2	2	Th-3, Mo-4
GA	4	3b	2	2	Tu-4, Tu-3
GA	5	4	2	2	Fr-2, We-1
GA	Total		6	6	
Science	Total	Subj.Gr.	6	6	
MA	6	2a	1	1	We-5
MA	6	2b	(1)	(1)	We-5
MA	1	3a			We-4, Th-4, Fr-3
			4	4	Mo-5
MA	6	3a	(1)	(1)	We-5
MA	82	4			We-3, Sa-1, Sa-2
			4	4	Tu-5
MA	Total		9	9	
Total			17	17	

4.1.5.1.3 Subjects / time report

The subjects/time report shows you when each subject is taught, in which class, in which room and by which teacher.

BI Biology

Day	Time	Cl.	Rm.	Tea.	Text
Monday	8:00- 8:45	1b	R1b	Cer	
Monday	9:50-10:35	1a	R1a	Cer	
Monday	13:30-14:15	3a	R3a	Cer	
Tuesday	8:55- 9:40	3b		Cer	
Tuesday	9:50-10:35	3a	R3a	Cer	
Tuesday	10:45-11:30	2a	R2a	Cer	
Tuesday	10:45-11:30	4		Rub	
Thursday	9:50-10:35	2b	R2b	Cer	
Thursday	12:35-13:20	3b	R1a	Cer	
Friday	8:00- 8:45	4	R1b	Rub	
Friday	8:55- 9:40	2a	R2a	Cer	
Friday	9:50-10:35	2b	R2b	Cer	
Friday	13:30-14:15	1b	R1b	Cer	
Saturday	8:00- 8:45	1a	R1a	Cer	

4.1.5.2 Periods reports

You can access the periods reports under 'Reports| Selection | Periods-reports'. The periods reports offer you three options:

- [Teachers/subjects report](#)
- [Subjects/teachers report](#) :
- [Emergency list](#)

4.1.5.2.1 Teachers/subjects report

This report will display a list for each teacher showing how many subjects and the number of periods taught per week. The value units for the lessons are displayed in a separate column.

You can determine the following settings in the print selection dialogue:

- **Selection** : Clicking on this button allows you to select which elements should be displayed.

- **Don't print elements without data** : If you check this box only those elements will be displayed that are actually included in lessons. For example, if teacher Newton has not been assigned any lessons he will not be output in the teachers/subjects report. If, on the other hand, the box is unchecked, the teacher will appear in the report with 0 periods and 0 value units.
- **With ignored lessons** : On the 'Codes' tab under lessons you have the option of ignoring lessons. Ignored lessons are counted in the calculation but are not scheduled.
- **With classes** : Checking this option results in the report being extended to include classes. The teachers/subjects report will then additionally list for each subject the number of periods the teachers take and the relevant classes. The same applies to the subjects/teachers report.

	Per	Value units
Gauss Carl Friedrich	17.0	17.000
Mathematics	9.0	9.000
Class 3a (Aristotle)	5.0	5.000
Class 2a (Hugo)	1.0	1.000
Class 2b (Andersen)	1.0	1.000
Class 4 (Nobel)	4.0	4.000
Graphics	6.0	6.000
Class 3a (Aristotle)	2.0	2.000
Class 3b (Callas)	2.0	2.000
Class 4 (Nobel)	2.0	2.000
Design	2.0	2.000
Class 1b (Newton)	2.0	2.000

4.1.5.2.2 Subjects / teachers report

This report displays each subject together with the teachers and the number of periods taught. The value units for the lessons are displayed in a separate column.

The settings are similar to those of the [teachers/subjects list](#) . This is what the subjects/teachers list with classes looks like:

	Per	Value units
English	15.0	15.000
Rubens Paul	1.0	1.000
Class 2a (Hugo)	1.0	1.000
Class 2b (Andersen)	1.0	1.000
Class 3a (Aristotle)	1.0	1.000
Hugo Victor	1.0	1.000
Class 2a (Hugo)	1.0	1.000
Class 2b (Andersen)	1.0	1.000
Class 3a (Aristotle)	1.0	1.000
Aristotle	5.0	5.000
Class 1a (Gauss)	5.0	5.000
Cervantes Miguel	8.0	8.000
Class 2a (Hugo)	4.0	4.000
Class 3a (Aristotle)	3.0	3.000
Class 4 (Nobel)	1.0	1.000

4.1.5.2.3 Emergency list

The emergency list creates a list of all classes and teachers present at the system time and date:

The screenshot displays a school management interface. On the left is a class schedule grid for Monday, with dates 21.09.2020 and 26.9.2020. A red oval highlights the cell for class 1a at period 3, which contains the name 'Cer'. To the right is an 'Emergency list' dialog box with fields for Date (02.08.2019), Period (3), and Time (9:50-10:35). Below the dialog is a table titled 'Emergency list 22. 9.2020, Period 1: 8:00 - 8:45' containing two sections: 'Teachers' and 'Classes'.

Monday								
	1	2	3	4	5	6	7	8
1a	Arist	Callas	Cer	Arist.				
1b	Cer	Arist	Nobel		Rub			
2a	Callas	Nobel	New	Cer	Cer			
2b	Nobel	New	Callas		Callas			
3a	Rub	Cer	Arist.	Gauss.	Gauss			Cer
3b	Hugo	Hug		New	New			
4	Curie.	Rub	Hugo	Hugo				Callas

Emergency list 22. 9.2020, Period 1: 8:00 - 8:45

Teachers

Teacher	Class	Room	Reason	Text
Newton Isaac	2b,	R2b,	L-No. 93	
Andersen Hans Christian	4,	WS,	L-No. 80	
Aristotle	1a,	R1a,	L-No. 31	
Callas Maria	2a,	R2a,	L-No. 41	
Nobel Alfred	3b,		L-No. 51	
Rubens Paul	1b,	R1b,	L-No. 54	
Cervantes Miquel	3a,	R3a,	L-No. 62	
Curie Marie	4,	TW,	L-No. 80	

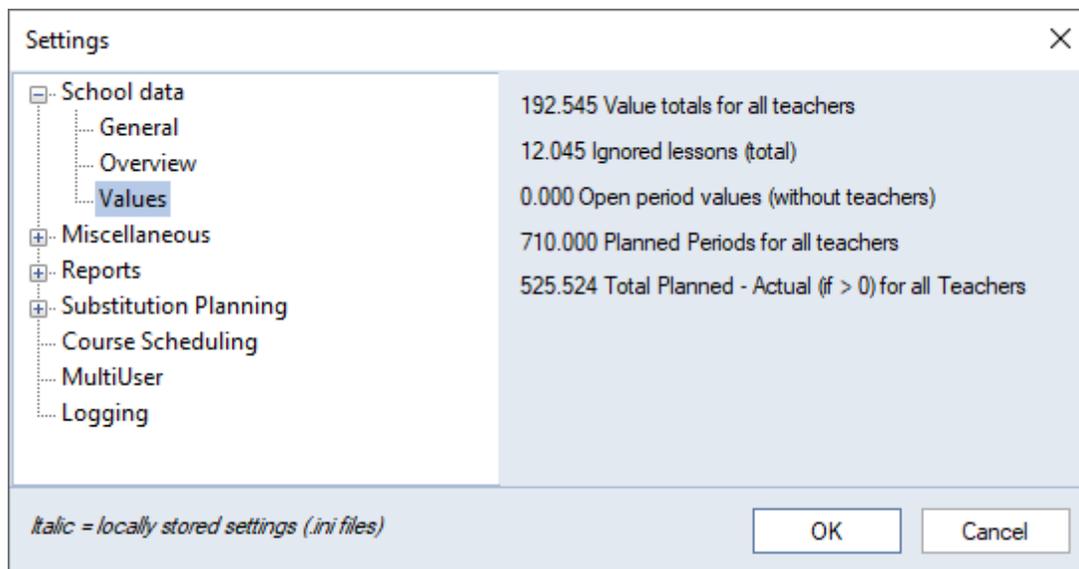
Classes

Class	Teacher	Room	Reason	Text
1a	Arist,	R1a,	L-No. 31	
1b	Rub,	R1b,	L-No. 54	
2a	Callas,	R2a,	L-No. 41	
2b	New,	R2b,	L-No. 93	
3a	Cer,	R3a,	L-No. 62	
3b	Nobel,		L-No. 51	
4	Ander,	WS,	L-No. 80	
	Curie,	TW,		

You can also call the emergency list direct via 'Start | Reports | Emergency list'.

4.1.6 School data

You can view the following information on the 'Values' tab under the menu option 'Start | Settings | School data':



- **Value totals for all teachers** : This is the total of weekly and yearly values of all teachers entered in the teacher master data.
- **Ignored lessons (total)** : This is the total of all ignored lessons.
- **Open period values (without teachers)** : This is the total of all lessons that have not been assigned a teacher.
- **Planned Periods for all teachers** : This figure represents the total of all planned periods for all teachers.
- **Total planned - actual (if >0) for all teachers** : If a teacher's planned-actual value is greater 0 this means that he/she has not yet fulfilled his/her teaching commitment. This is the total of the planned-actual values of all teachers where this is the case. If this value is 0 then none of your teachers has a workload below his/her contractual target.

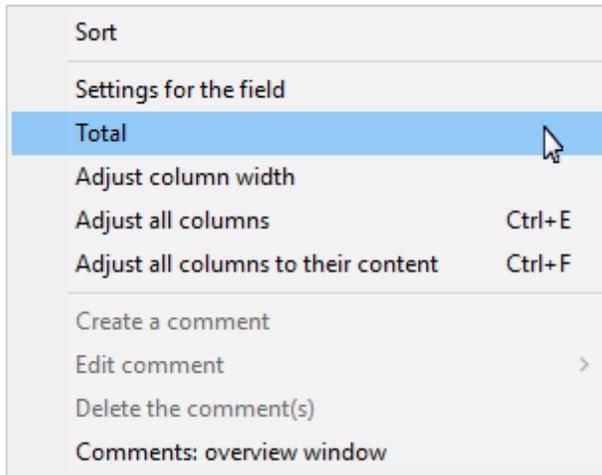
4.2 Examples of value calculation

Examples of value calculation The preceding chapters described the input possibilities associated with value calculation. The following chapters are intended to now use examples to explain how Untis actually calculates the values and how the factors you enter influence the calculation.

- [Values from the teacher perspective](#)
- [Values from the class perspective](#)

Totals row

If you right-click the column header in the grid display you will see a small menu giving you the option to display a total line.



Lessons: teachers

In the 'Lessons | Teachers' window, the total of the 'Value=' column results from adding the numbers in the coupling rows of the selected teacher.

Lessons: classes

In the 'Classes | Lessons' window, the total of the 'Value=' column results from adding the numbers of **all** coupling rows.

4.2.1 Values from the teacher perspective

Lesson values may be interpreted in different ways depending on the perspective. For example, a period with one teacher and two classes counts as 1 value unit for the teacher, but for each class only 0.5 value units are required for the lesson.

The following ways of influencing value calculation from the teacher perspective are described:

- [Factors](#) : You can use factors to rate different lessons in different ways.
- [Line value](#) : You can rate different parts of a lesson in different ways.
- [Yearly values](#) : You can calculate using absolute yearly values.
- [Percentage factor \(yearly value\)](#) : You can also represent the yearly values as percentages.

4.2.1.1 Teacher, class and subject factors

For each of the three elements - teacher, class and subject - you can define a factor that is multiplied with the value of a lesson. You can also display the subject and class factors in the lessons window.

Please open the Demo2.gpn file and select teacher 'Arist' under 'Teachers | Lessons' . Look at lesson number 79.

The lesson has 5.470 value units and is calculated using all the factors from master data.

Weekly periods (5) * teacher factor (1.000) * subject factor (1.105) * class factor (0.990) = 5.470.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Subj.-Factor	Cla.-factor	Value =
		7.00	27.00	0						28.423
2	2, 1	1	3		Arist	PEB	2b,2a	0.960	1.000	2.880
6	4, 7		3		Arist	PEB	3a,3b	0.960	1.000	2.880
10		1	6		Arist	MA	1b	1.105	1.000	6.630
73	3, 2		2		Arist	MU	4	0.960	1.000	1.920
78	2, 1	1	3		Arist	PEB	1a,1b	0.960	0.990	2.851
79	3, 2	1	5		Arist	MA	1a	1.105	0.990	5.470
80	2, 2	1	3		Arist	EN	1a	1.170	0.990	3.752

L-No. 79 Lessons 28.423 + Reductions 3.410 = 31.833 Teacher

If these factors are now ignored, the value for the lessons changes to 5 (number of weekly periods). For this, check the corresponding boxes on the 'Value calculation' tab under 'Settings | Miscellaneous'.

Settings

- School data
 - General
 - Overview
 - Values
- Miscellaneous
 - Auto-save
 - Directories
 - Timetable
 - Customise
 - Value Calculation**
 - Warnings

Value Calculation

- without Subject Factor
- without Teacher Factor
- without Class Factor

3 Decimal places

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Subj.-Factor	Cla.-factor	Value =
		5.00	27.00	0						27.000
2	2, 1	1	3		Arist	PEB	2b,2a	0.960	1.000	3.000
6	4, 7		3		Arist	PEB	3a,3b	0.960	1.000	3.000
10		1	6		Arist	MA	1b	1.105	1.000	6.000
73	3, 2		2		Arist	MU	4	0.960	1.000	2.000
78	2, 1	1	3		Arist	PEB	1a,1b	0.960	0.990	3.000
79	3, 2	1	5		Arist	MA	1a	1.105	0.990	5.000
80	2, 2	1	3		Arist	EN	1a	1.170	0.990	3.000

L-No. 79 Lessons 27.000 + Reductions 3.410 = 30.410 Teacher

4.2.1.2 Line value

A lesson with a lesson number is regarded as a coupling even when several teachers are involved in it. Nevertheless, you can rate the lessons of the teachers involved in different ways by entering fixed values or factors in the 'Line value' column.

Example

Please open the Demo2.gpn file and look at lesson number 69. Teachers Newton and Curie together

take class 4 for PE for three periods.

In this example, teacher Newton is a supply teacher and for this reason his lesson may only be valued with the fixed value of 1.5. Please enter the value 1.5 into the 'Line value' columns of the coupling row for teacher Newton.

You see that the lesson value for teacher Curie is 2.865 (which is the product of weekly periods and subject, class and teacher factors) while the fixed line value of 1.5 has been accepted for teacher Newton.

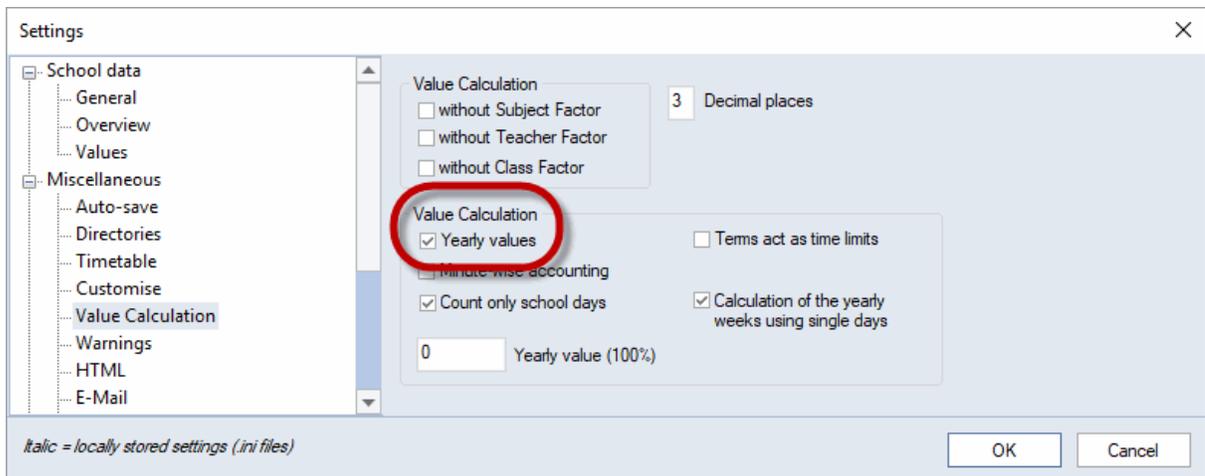
L.No.	Class	Periods	Factor	Subject	Class(es)	Line value	Subj-Factor	Class-factor	Value
69	1, 2	3	0	Curie	PEG	1.500	0.955	1.000	2.865
				New	PEB	1.500			1.500
70	1, 2	2		Curie	TX		0.913	1.000	1.826
77	2, 3	2		Curie	TX		0.913	0.990	1.808

L-No. 69 Lessons 17.011 + Reductions -0.009 = 17.002 Teacher

Note: Input in the line value column
 You can influence the line value using the same types of input (fixed value, factor or summand) that were described in the chapter on examples for lesson values.

4.2.1.3 Yearly values

As already mentioned, Untis can display not only the weekly values for a lesson but also yearly values. In order to do this, select the option 'Yearly Values' on the value calculation tab under 'Start | Settings | Miscellaneous'.



The values that now appear in the 'Value=' column are calculated as follows: (value=) = (factors) * (weekly periods) * (number of weeks in the year)

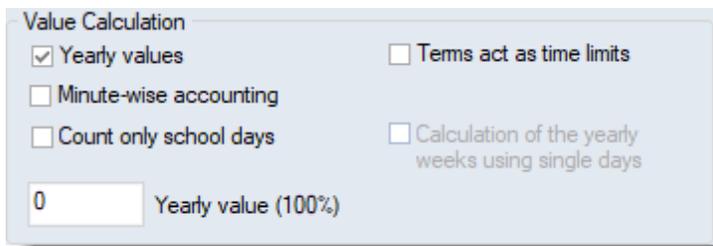
Warning:
It must again be stressed that for value calculation all weeks in which lessons can theoretically take place have the same value irrespective of whether they have school-free days or not.

There are three ways to calculate the number of weeks per year:

- [All weeks](#)
- [All weeks excluding holidays](#)
- [Calculate from individual days](#)

4.2.1.3.1 All weeks

The settings under 'Start | Settings | Miscellaneous' on the 'Value calculation' tab must be as follows:



All weeks in the school calendar will be counted, in this example 43.

School year	Number of days: 301	Number of weeks: 43	Number of school holidays: 2
Lessons	Number of days: 188	Number of weeks: 39	Number of free days due to school holidays: 37
			Number of public holidays: 1

The yearly value for Newton's one period, lesson number 4, is therefore also 43.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Value =
		6.00	20.00	0				844.8
4	2, 1	1	1		New	GA	2a,2b	43.0
25			4		New	MA	2a	156.1
28			2		New	PH	2b	65.1
39		2	2		New	PH	3a	65.1

L-No. 4 Teacher*

4.2.1.3.2 All weeks excluding holidays

The settings under 'Start | Settings | Miscellaneous' on the 'Value calculation' tab must be as follows:

Value Calculation

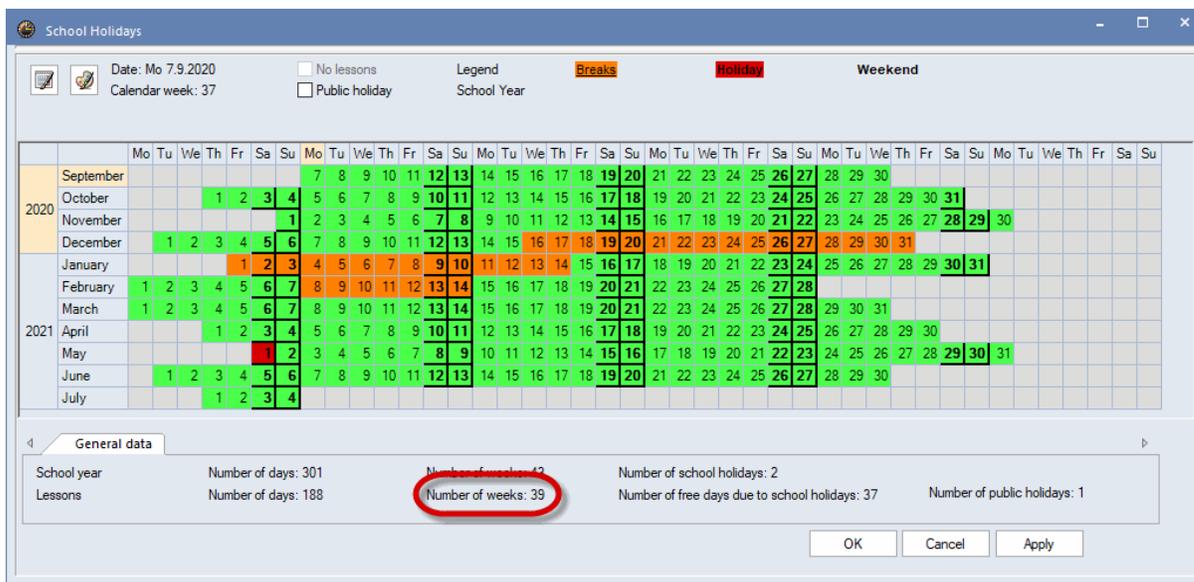
Yearly values Terms act as time limits

Minute-wise accounting Calculation of the yearly weeks using single days

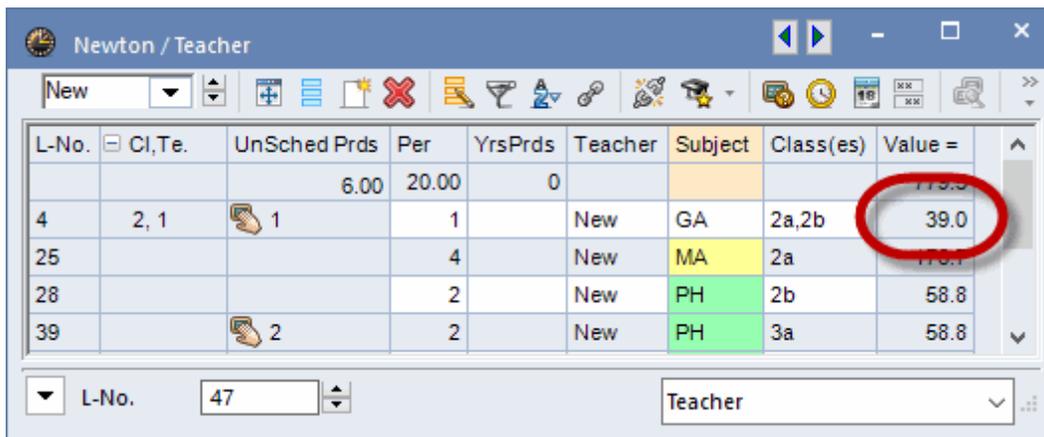
Count only school days

0 Yearly value (100%)

Only those weeks are counted in which lessons are held on at least one day per week. This excludes the four weeks of holiday in December, January and February I meaning that 39 weeks are counted.

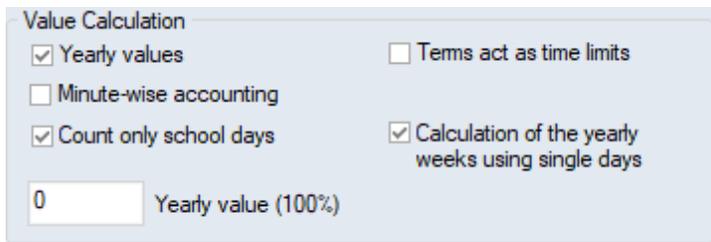


The yearly value for Newton's one period, lesson number 4, is therefore also 39.



4.2.1.3.3 Calculating from individual days

The settings under 'Start | Settings | Miscellaneous' on the 'Value calculation' tab must be as follows:

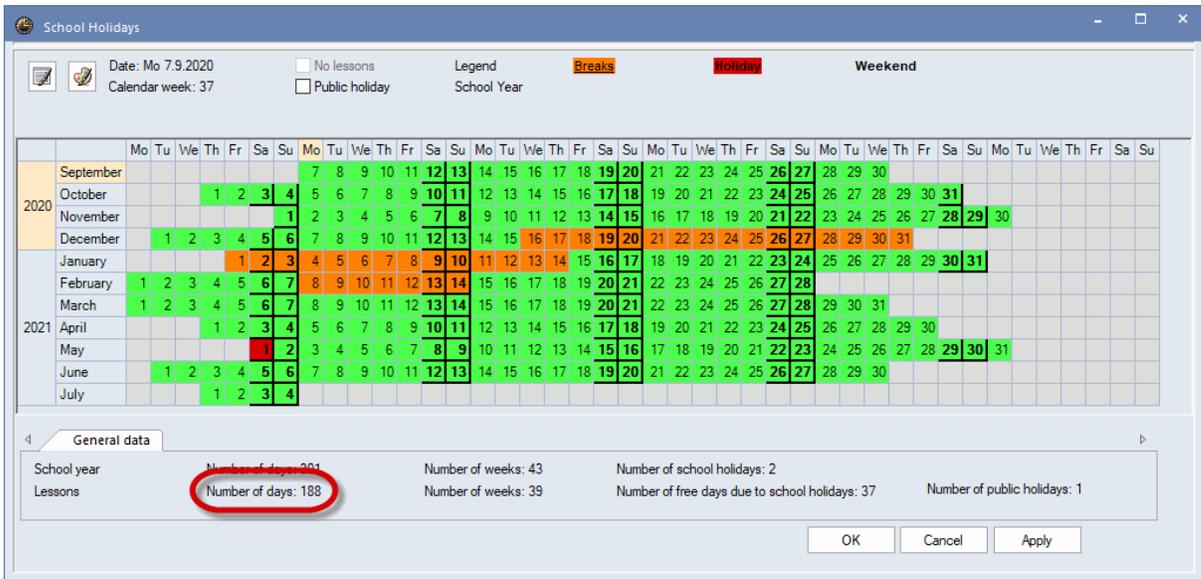


The number of weeks is calculated as follows:

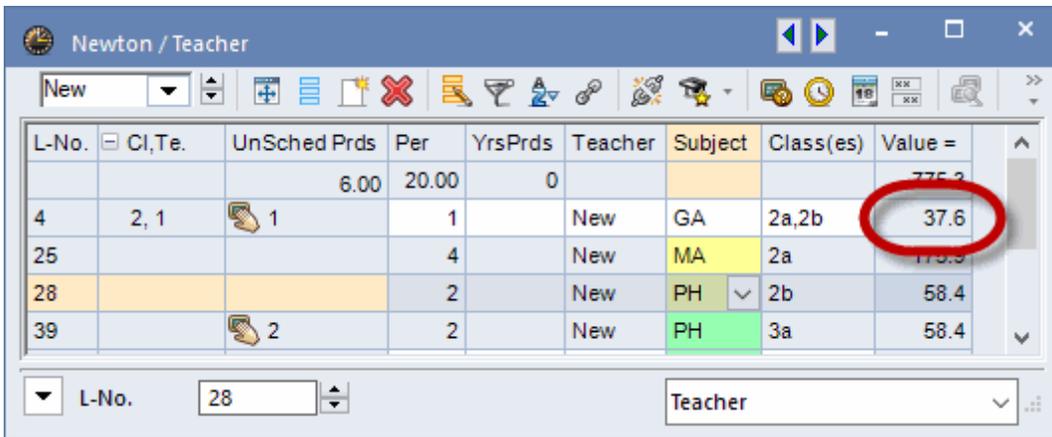
(number of days on which lessons are held) / (number of teaching days per week) = (number of weeks)

In this example lessons are held on 188 days of the school year and on 5 days per week, resulting in the following calculation:

$$188 / 5 = 37.6$$



The yearly value for Newton's one period, lesson number 4, is therefore also 37.6.



4.2.1.4 Percentage factor (yearly value)

Some schools are not so interested in how many periods a teacher takes but in the proportion of the planned lessons taught.

You can enter the value corresponding to a teacher's full teaching commitment, i.e. 100%, in the field 'Yearly value (100%)' on the 'Value calculation' tab under 'Start | Settings | Miscellaneous'. This value is

only used when the 'Yearly values' box has also been checked.

The lessons window now no longer displays the current yearly value; instead it displays the percentage of the current teaching compared with the yearly value.

You can easily see from the totals line whether a teacher is underemployed or overemployed

Note: Totals line

You can display the totals line by right-clicking on the table heading in the lessons window.

Example: Percentage factor (yearly value)

Teacher Newton achieves a yearly value of 925.8 with the lessons he takes.

The screenshot shows a software window titled 'Newton / Teacher' with a 'Value Calculation' dialog box open. The dialog box contains the following options:

- Yearly values
- Minute-wise accounting
- Count only school days
- Terms act as time limits
- Calculation of the yearly weeks using single days

Below the dialog box, the 'Yearly value (100%)' is set to 0. The main window displays a table with the following columns: L-No., CI,T, UnSc, Per, YrsPrds, Teach, Subject, Class, Value, Subj.-Factor, Cla.-factor, and Value =. The 'Value =' column for the totals row is circled in red and shows the value 925.8.

L-No.	CI,T	UnSc	Per	YrsPrds	Teach	Subject	Class	Value	Subj.-Factor	Cla.-factor	Value =
		6.00	20.00	0				0			925.8
4	2, 1	1	1		New	GA	2a,2b		1.05	1.000	49.7
25			4		New	MA	2a		1.11	1.000	209.1
28			2		New	PH	2b		1.05	1.000	71.6
39		2	2		New	PH	3a		1.05	1.000	71.6
47	(i)		2		New	CTe	3a		0.96	1.000	90.3
48	⊕ 1, 2		1		New	GA	3b		1.05	1.000	49.7
49		1	3		New	PH	3b		1.05	1.000	149.0
63			2		New	PH	4		1.05	1.000	99.3
69	⊕ 1, 2		3		New	PEB	4		0.96	1.000	135.5

If you now specify a yearly value of e.g. 850, you will see that the total number of lessons for Newton is now 108.92. This would mean that he would be teaching 8.92 % more than called for by his full teaching commitment.

The screenshot shows the 'Value Calculation' dialog box with the following options:

- Yearly values
- Minute-wise accounting
- Terms act as time limits
- Calculation of the yearly weeks using single days
- Count only school days

The 'Yearly value (100%)' field contains the value 850.

The table below shows the following data:

L-No.	CI,T	UnSc	Per	YrsPrds	Teach	Subject	Class	Value	Subj.-Factor	Cla.-factor	Value =
		6.00	20.00	0				0			108.92
4	2, 1	1	1		New	GA	2a,2b		1.05	1.000	5.85
25			4		New	MA	2a		1.11	1.000	24.60
28			2		New	PH	2b		1.05	1.000	8.42
39		2	2		New	PH	3a		1.05	1.000	8.42
47	(i)		2		New	CTe	3a		0.96	1.000	10.62
48	1, 2		1		New	GA	3b		1.05	1.000	5.85
49		1	3		New	PH	3b		1.05	1.000	17.53
63			2		New	PH	4		1.05	1.000	11.68
69	1, 2		3		New	PEB	4		0.96	1.000	15.94

Part-time teachers

If you now enter the teaching commitment as a percentage in the 'Target/year' field under 'Teachers | Master Data' (a full-time teacher commitment corresponds to 100%), the 'Actual-plan' entry (the difference between the actual and the desired value) will be updated.

In some Scandinavian countries it is usual to employ part-time teachers on the basis of a percentage of a full teaching commitment. The figure on the following page shows teacher Andersen defined as a part-time teacher with 20% commitment and teachers Gauss and Nobel with 50% commitments. The yearly percentage factor makes it possible to see at a glance what percentage of the target workload has been assigned.

Name	Target/year	Value =	Actual-Target
Ander	20.00	14.08	-5.92
Arist	100.00	136.78	36.78
Callas	100.00	129.76	29.77
Cer	100.00	148.68	48.68
Curie	100.00	82.05	-17.95
Gauss	50.00	61.96	11.97
Hugo	100.00	113.79	13.79
New	100.00	108.92	8.92
Nobel	50.00	70.80	20.80
Rub	100.00	142.18	42.18

37 free teacher-periods (187.04 value units) Tez

4.2.1.5 Minute calculation

Value calculation can be performed to the exact minute. To do this, check the option 'Minute calculation' under 'Start | Settings | Miscellaneous' on the 'Value calculation' tab.

Value Calculation

Yearly values

Minute-wise accounting

Count only school days

Terms act as time limits

Calculation of the yearly weeks using single days

Yearly value (100%)

The 'Target/week', 'Value=' and 'Actual-planned' fields in the teacher master data will not be filled with hours and minutes.

Warning: Unscheduled periods

Unscheduled periods will not be included in the calculation of minutes since they cannot be assigned a duration (since the time grid allows each lesson to have a different duration).

The screenshot shows a window titled 'Teachers / Teacher' with a toolbar and a table. The table has four columns: Name, Target/week, Value =, and Actual-Target. The 'Rub' row is highlighted in yellow.

Name	Target/week	Value =	Actual-Target
Gauss	12:00	07:04	-04:56
New	12:00	09:50	-02:10
Hugo	12:00	11:16	-00:44
Ander	12:00	01:23	-10:37
Arist	12:00	14:07	02:07
Callas	12:00	14:09	02:09
Nobel	00:00	09:54	09:54
Rub	12:00	16:15	04:15
Cer	12:00	14:45	02:45
Curie	12:00	09:12	-02:48

At the bottom of the window, there is a status bar showing '37 free teacher-periods (0.01 value units)' and a dropdown menu labeled 'Teac'.

Note:
 Any entries previously made in the 'Target/week' field will not be lost. The entries will be active once more when you uncheck the option 'Minute calculation'.

Reductions

Reductions will also be displayed exactly to the minute. The figure shows that teacher Gauss is given 10 fewer hours owing to his age. He also spends 50 minutes a week looking after the library.

The screenshot shows a window titled 'Reduction / Anrechnung' with a toolbar and a detailed view for teacher Gauss. It shows a summary of reductions and a table of reasons.

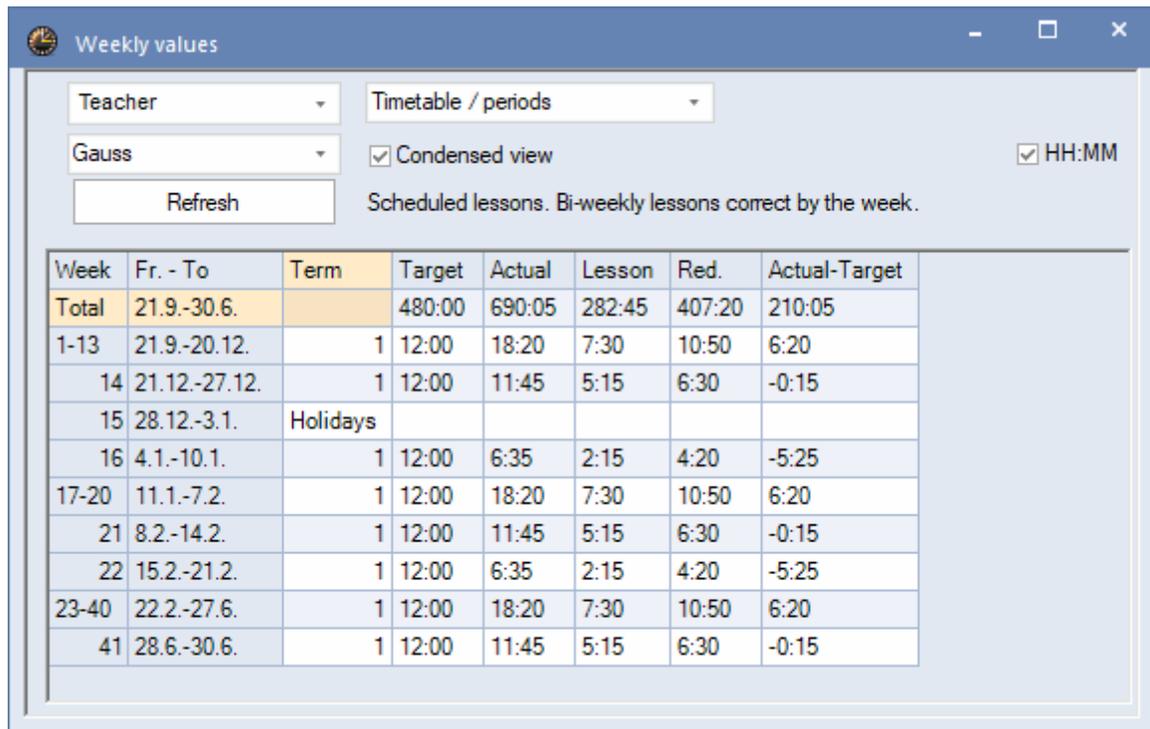
Summary:

10:50 Reduction
 + 7:04 Lessons 12:00 Target
 = 17:54 Total = 5:54 Actual-Target

Nr.	Tea.	Reason	Value	From	To
9	Gauss	ROWH	10:00		
32	Gauss	LIB	0:50		

Weekly values

It is possible to switch between 'Timetable | Hours' and 'Substitution plan | Hours' in the weekly values. All values will be calculated exactly to the minute.



The screenshot shows a window titled "Weekly values" with a blue header. Below the header, there are several controls: a "Teacher" dropdown menu set to "Gauss", a "Timetable / periods" dropdown menu, a "Refresh" button, a checked "Condensed view" checkbox, and a checked "HH:MM" checkbox. Below these controls is a text label: "Scheduled lessons. Bi-weekly lessons correct by the week." The main part of the window is a table with the following data:

Week	Fr. - To	Term	Target	Actual	Lesson	Red.	Actual-Target
Total	21.9.-30.6.		480:00	690:05	282:45	407:20	210:05
1-13	21.9.-20.12.	1	12:00	18:20	7:30	10:50	6:20
14	21.12.-27.12.	1	12:00	11:45	5:15	6:30	-0:15
15	28.12.-3.1.	Holidays					
16	4.1.-10.1.	1	12:00	6:35	2:15	4:20	-5:25
17-20	11.1.-7.2.	1	12:00	18:20	7:30	10:50	6:20
21	8.2.-14.2.	1	12:00	11:45	5:15	6:30	-0:15
22	15.2.-21.2.	1	12:00	6:35	2:15	4:20	-5:25
23-40	22.2.-27.6.	1	12:00	18:20	7:30	10:50	6:20
41	28.6.-30.6.	1	12:00	11:45	5:15	6:30	-0:15

4.2.2 Values from the class perspective

We have so far considered values from the teacher perspective. From the class perspective different values can result for coupled lessons depending on the configuration and extent of the coupling.

The value displayed in the grid view corresponds to the total of the values in all coupling lines of the lesson in question.

L-No.	Cl,Te.	UnSched Prds	Teacher	Subject	Class(es)	Value =
76	4, 1	1	Hugo	GEc	1a,1b,2a,2b	0.500
77	2, 3		?	DS	1a	2.000
			Gauss	DS	1b	0.000
			Curie	TX	1a,1b	1.000
78	2, 2	1	Arist	PEG	1a,1b	1.500

Lesson value of 78		Teacher value	
<input type="text"/>	Value or Factor	29.000	Act
<input type="text"/>	Line value/factor	- 25.000	Tai
3.000	Value units	4.000	Is
<input type="text"/>	Target per .lyr	Value units	
		29.000	Yea

Warning: Time limitations and lesson groups

Time limitations of classes or their membership in lesson groups that you can define using the multi-week timetable module have an effect on the values described below.

The values are first described [without factors](#) , and the [factors](#) are then included.

4.2.2.1 Without factors

We will be looking at the Demo2.gpn file and the two relevant possibilities for coupling:

- [Only one teacher involved](#) (class coupling)
- [Several teachers involved](#)

In both cases, all factors are deactivated ('Settings | Miscellaneous', 'Value calculation' tab).

4.2.2.1.1 One teacher involved

Teacher Hugo takes a total of four classes for lesson number 76. This means that each class 'uses' a quarter of the teacher. For this reason the lesson with two weekly periods has a value of 0.5 from the perspective of class 1a

The situation can be calculated as follows:

$$(\text{number of weekly periods}) / (\text{number of classes}) = (\text{value})$$

Using the example of lesson 76, this would be:

$$2 / 4 = 0.5$$

L-No.	Cl,Te.	UnSched Prds	Teacher	Subject	Class(es)	Value =
76	4, 1	1	Hugo	GEc	1a,1b,2a,2b	0.500
77	2, 3		Ander	DS	1a	2.000
			Gauss	DS	1b	0.000
			Curie	TX	1a,1b	1.000
78	2, 2	1	Arist	PEG	1a,1b	1.500

4.2.2.1.2 Several teachers involved

When several teachers share a coupled lesson, the value for each coupling line is calculated as for [one teacher](#), and these values are then added together.

Warning: Class not in coupling line

If the class in question is not in a coupling line, the value of the coupling line will be 0.

Example: Value of lesson 77 for class 1a

L-No.	Cl,Te.	UnSched Prds	Teacher	Subject	Class(es)	Value =
76	4, 1	1	Hugo	GEc	1a,1b,2a,2b	0.500
77	2, 3		Ander	DS	1a	2.000
			Gauss	DS	1b	0.000
			Curie	TX	1a,1b	1.000
78	2, 2	1	Arist	PEG	1a,1b	1.500

Lesson value of <u>77</u>		Teacher value of	
<input type="text" value="3.000"/>	Value or Factor	8.055	Actual
<input type="text"/>	Line value/factor	- 15.000	Target
		-6.945	Ist-S
<input type="text"/>	Value units	Value units	
<input type="text"/>	Target per./yr	8.055	Yearly

- First coupling line, teacher Ander

Two weekly periods for a class, the value is 2.000.

$$2 / 1 = 2$$

- Second coupling line, teacher Gauss

Class 1a is not included in this coupling line, the value is 0.000.

- Third coupling line, teacher Curie

Two weekly periods for two classes, the value is 1.000.

$$2 / 2 = 1$$

- Total value for lesson 77

The total value for the lesson is the sum of the coupling lines, i.e. 3.000

$$2 + 0 + 1 = 3$$

4.2.2.2 With factors

If you now wish to use teacher, class and/or subject factors, the values mentioned above will just change by being multiplied with the relevant factors.

Lesson number 76 will be used as an example to illustrate how class, teacher and subject factors are taken into account.

This results in the following value:

$$2 \text{ (weekly periods)} / 4 \text{ (number of classes)} * 1.050 \text{ (subject factor)} * 0.990 \text{ (class factor)} = 0.520$$

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Subj.-Factor	Cla.-factor	Value =
76	4, 1	1	2		Hugo	GEc	1a,1b,2a,2b	1.050	0.990	0.520
77	2, 0	2	2		Arist	EG	1a	0.910	0.990	1.800
78	2, 2	1	3		Arist	PEG	1a,1b	0.955	0.990	1.418
79		1	5		Arist	MA	1a	1.105	0.990	5.470
80		1	5		Arist	EN	1a	1.167	0.990	5.777

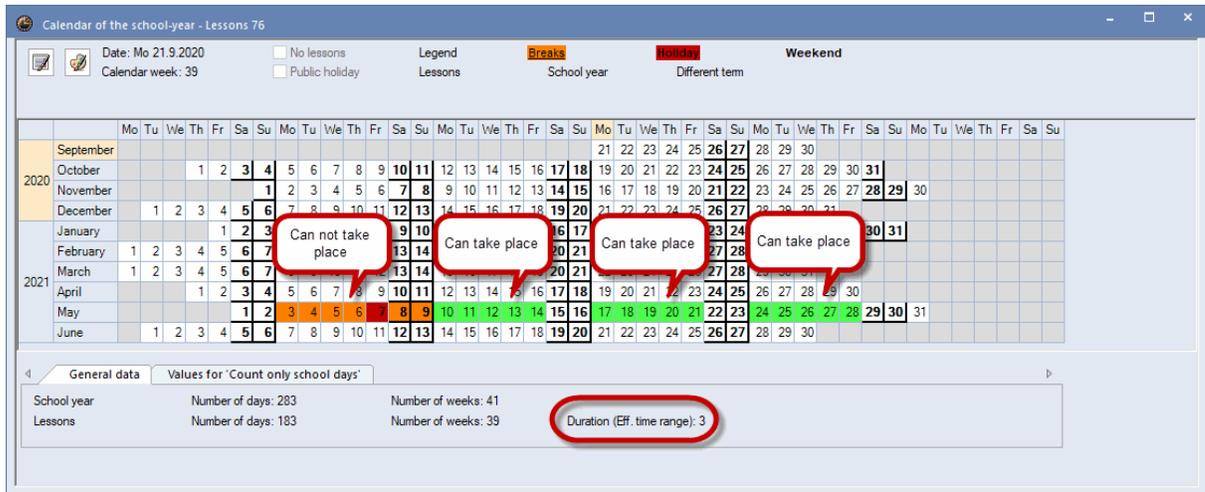
L-No. 76 Class*

4.3 Value calculation - multi-week timetable

The multi-week timetable module enables you to put date limits on lessons in a variety of ways. This has a considerable effect on value calculation, as the examples on the following pages demonstrate.

Warning: Calculation

Value calculation is relevant at a time when no lesson scheduling has taken place (e.g. when assigning subjects). Calculations use the number of weeks in which lessons can generally be scheduled, i.e. all weeks in which lessons can take place on at least one day. It is of no importance how many school-free days occur in such a week.



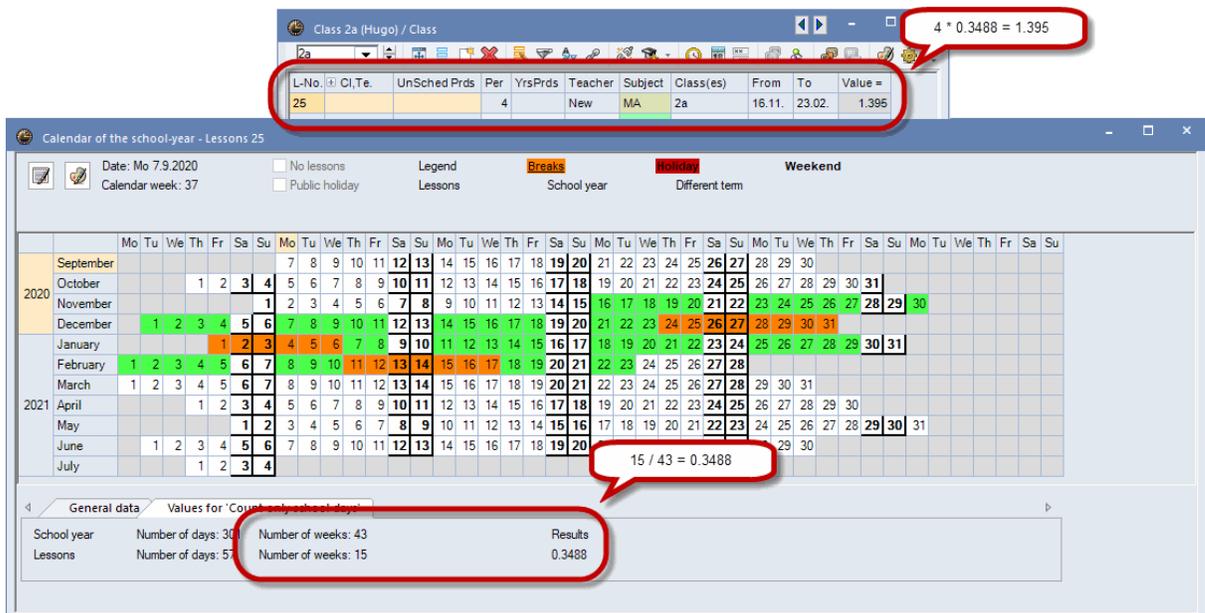
You can determine for yourself whether or not holiday weeks should influence value calculation by using the 'Count only school days' option on the 'Value calculation' tab under 'Start | Settings | Miscellaneous'.

The information on the tabs 'Value calculation' and 'Values for count only school days' in the school year calendar is useful for understanding the individual calculations.

4.3.1.1 Value calculation with time limitations

The following example shows how values are calculated if lessons are date-limited. Please look at lesson number 25 in the Demo2.gpn file. The [factors](#) in the master data should not be taken into consideration and lessons should take place between 19 November and 26 February.

In these circumstances a value of 1.395 results. Looking at the school year calendar you can recognise how this value was calculated.



The school year extends over a period of 43 weeks (including holidays). However, there are only 15 weeks available for lessons. Dividing one value by the other (total weeks / lesson weeks) gives a distribution time factor that is used to multiply the value of the lesson.

The following calculation is performed: $4 * 15 / 43 = 1.395$

School days only

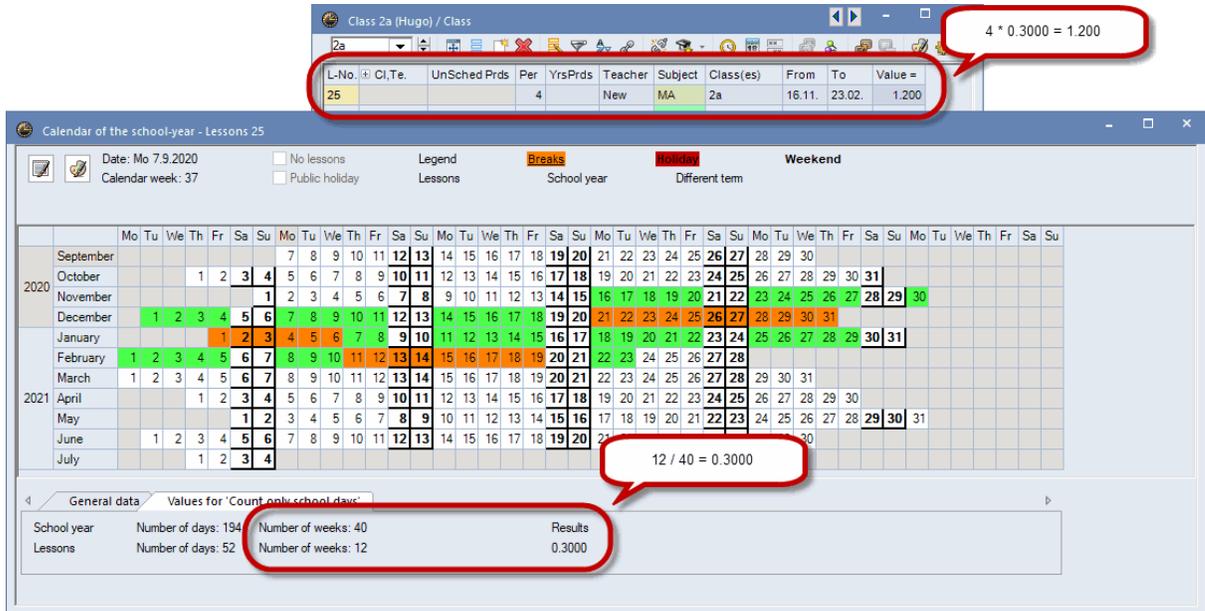
As already mentioned, this calculation included weeks with school holidays. If you wish to exclude this you can also activate the 'Count only school days' option on the 'Value calculation' tab under 'Start | Settings | Miscellaneous'.

Doing this means that only those weeks are included in the calculation in which lessons occur on at least one day.

If the 'Count only school days' option is activated, the value in this example will change from 1.395 to 1.200.

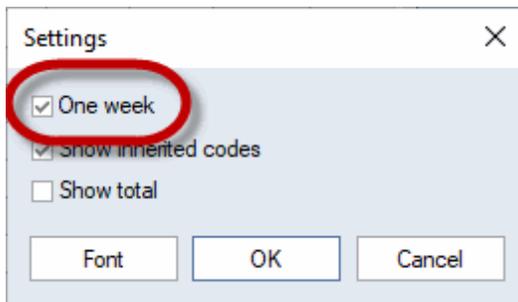
The 'Values for count only schooldays' tab in the calendar for the school year explains the changed value.

Deducting the school holidays from the school year leaves 40 weeks. There are 12 weeks available for lesson number 25. These two values are again divided, resulting in a distribution time factor of $12 / 400 = 0.300$. If this time factor is now multiplied with the number of weekly periods for lesson 25 the result is 1.200.



4.3.1.2 The 'One week' option

The lessons windows allow you to display how lessons and subjects are distributed for a certain week. For this, select the <Settings> toolbox icon and then the 'One week' option



Activating this option makes an field available in the centre of the lower section of the lessons view where you can select the week of the lessons to be displayed.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	From	To	Value =
32			2		Nobel	RE	2b			2.000
33			2		Rub	HI	2b			2.000
34			2		Cer	BI	2b			2.000
35			1		Curie	TX	2b			1.000
36			5		New	MA	2b			5.000
37	(i)		2		?	CTe	2b			2.000

Lesson number 33 is to be held in the period from 2 September - 8 November. The lesson will now only be displayed if a week is specified in which it actually occurs.

The value displayed only relates to the week set, i.e. time limitations are not included in this view.

When using the 'One week' setting it is not important for values referring to the week whether the 'Count only school days' option is activated or not. If the lesson can in principle be held in a certain week (according to the time limitation period or because the week is not in the school holidays) it is included in the value calculation, otherwise it is excluded fully.

Note: Only valid for the current window

The 'One week' setting only applies to the lessons window that is currently active. If, for example, you activate the setting in the teacher' lessons window, it will have no effect on the lessons view of the classes.

4.3.1.3 Fixed values/factors - time limitations

Fixed values and factors also influence date-limited lessons

The section on value calculation in chapter ' [Lesson values](#) ' described how you can in general change lesson values. Generally, a time limitation is always included in the calculation, but you can override it by entering a fixed value prefixed using an equals sign('=').

Input value	Meaning	Effect
4.50	fixed value	Overrides teacher, class and subject factors, but not time limitations
=4.50	absolute value	Overrides all factors and time limitations
*4.50	value factor	Does not override other factors or time limitations; additional factor that may e.g. enhance the value of certain lessons.
+4.50	summand	Does not override other factors or time limitations; additional summand that may e.g. enhance the value of certain lessons

The use of values and factors with time limitations is explained in the examples below:

- [Fixed value, time limitation is to count](#)
- [Fixed value, time limitation should not count](#)
- [Factor or summand](#)

4.3.1.3.1 Fixed value, time limitation counts

We will again be observing lesson number 25 in the Demo2.gpn file. Please set date limits for it for the period from 9 November to 26 February.

Enter the value '2' in the 'Value' column. Entering this number changes the value of lesson number 25 to 0.650.

The screenshot shows the 'Class 2a (Hugo) / Class' window. The main table lists lessons with columns: L-No., Cl,Te., UnSched Prds, Per, YrsPrds, Teacher, Subject, Class(es), Value, and To. Lesson 25 is highlighted with a value of 2.000. A red box highlights the calculation $2 * 0.3250 = 0.650$ in the 'Value' column. Below the table, the 'General data' section shows 'Values for 'Count only school days'' with '13 / 40 = 0.3250' highlighted in a red box. The 'Results' section shows '0.3250'.

The fixed value, 2 in this example, is multiplied with the time limitation factor 0.3250. You will find the data for value calculation in the yearly school calendar for the lesson.

4.3.1.3.2 Fixed value, time limitation not count

We will again be observing lesson number 25 in the Demo2.gpn file. Please set date limits for it for the period from 9 November to 26 February.

Enter an equals sign followed by 2 in the 'Value' column: '=2'. The time limitation is overridden and the entered value is se

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Value	Value =	From	To
25			4		New	MA	2a	= 2.000	2.000	09.11.	26.02.
26			2		New	PT	2a		2.150		
27	(i)		2		Callas	CTe	2a		1.815		
76	4, 1	1	2		Hugo	GEc	1a,1b,2a,2b		0.494		

4.3.1.3.3 Factor or summand

We will again be observing lesson number 25 in the Demo2.gpn file. Please set date limits for it for the period from 9 November to 2 February.

By entering a factor or a summand in the 'Value' column, you can upgrade or downgrade the value of the lesson. Teacher, subject and class factors as well as time limitations will be included in the calculation.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Value	Value =	From	To	Subj.-Factor	Cla.-factor
25			4		New	MA	2a	+0.500	2.080	09.11.	26.02.	1.105	1.000
24			2		Cer	BI	2a		1.995			1.050	1.000
23		1	4		Cer	EN	2a		4.435			1.167	1.000
22		1	4		Cer	DE	2a		4.435			1.167	1.000
21			2		Nobel	DE	2a		1.995			1.050	1.000

General data		Values for 'Count only school days'		Results
School year	Number of days: 193	Number of weeks: 40		0.3250
Lessons	Number of days: 60	Number of weeks: 13		

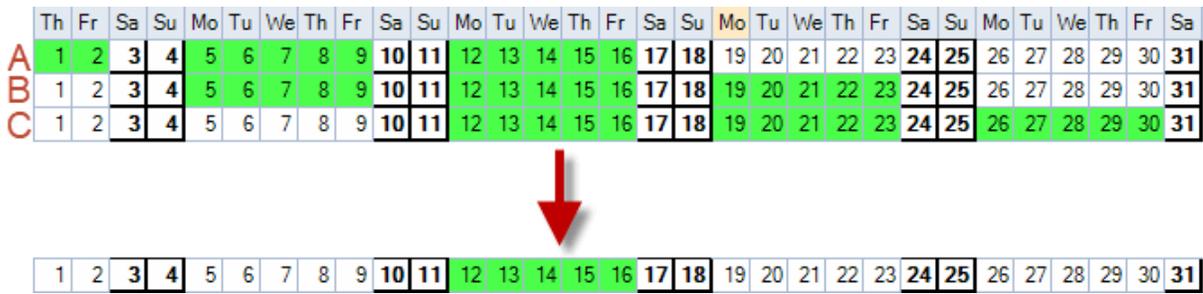
In this example:

(weekly periods) * (subject factor) * (class factor) * (time limitation factor) + (summand) = (value)

$$4 * 1.105 * 1.000 * 0.5116 + 0.500 = 2.761$$

4.3.1.4 Several time limitations

If the individual elements of a coupling are limited to certain dates, the shortest time limitations apply to the whole coupling. This could be a time limitation on an individual element or, if there are overlaps, the average of the overlaps, as shown in the figure.



Tip: Displaying time limitations in lessons
 The actual time limitations used for the lesson can be viewed either in the school year calendar or in the grid view of any lessons view via the <Grid adjustment> toolbar icon.

The source of each time limitation is indicated in parentheses:

- (l) means a time limitation arising from the lessons,
- (c) points to a time limitation due one of the classes and
- (g) means that a time limitation is due to a lesson group.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Value	From	To	Eff. time range	Value =
84		1	5		Rub	DE	1a				7.10. - 23.2. (c)	2.82
78	2, 2	1	3		Rub	PEB	1a,1b				7.10. - 23.2. (c)	1.39
67			2		Rub	CK	4			09.02.	3.9. - 9.2. (l)	0.98
66			2		Rub	BI	4				3.9. - 1.2. (g)	0.98
44			2		Rub	HI	3a				3.9. - 30.6.	2.10
33			2		Rub	HI	2b				3.9. - 30.6.	2.10
13		2	6		Rub	DE	1b				3.9. - 30.6.	7.00
6	2, 2		3		Rub	PEB	3a,3b				4.2. - 21.1. (c,g)	1.43

L-No. 6 Lessons 21.56 + Reductions 0.00 = 21.56 Teacher

The following table indicates which time limitations Untis can use if you wish to work with more than one time limitation:

C	L	LG	All-important for value calculation
X			C ; if several classes are time-limited or if time limitations overlap, the shortest limitation will apply
X	X		L
X		X	Shortest limitation or period of overlap
	X	X	L
X	X	X	L

- C Class
- L Lesson
- LG Lesson group

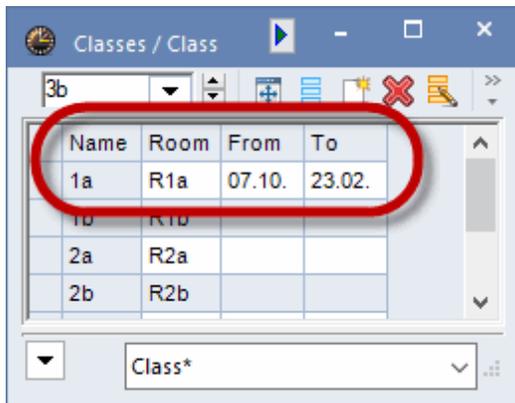
The [following example](#) is intended to illustrate how this works.

4.3.1.4.1 Example of several time limitations

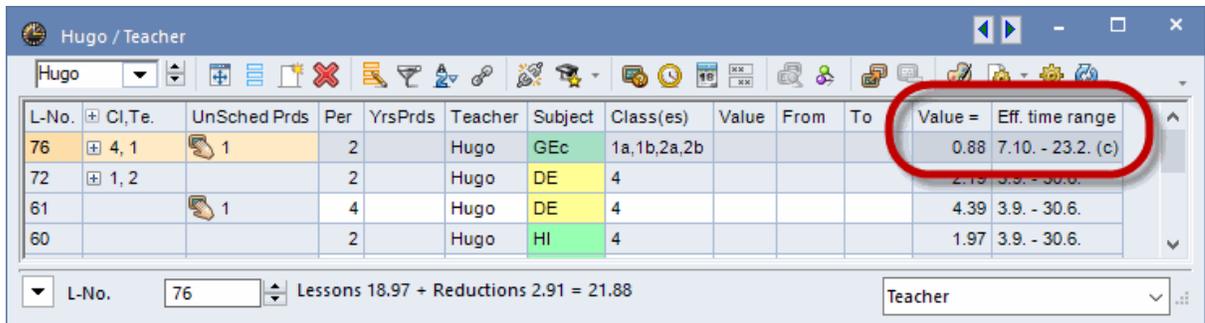
Lesson number 76 in the Demo2.gpn file is used here as an example. This is a coupled lesson with four classes (1a, 1b, 2a and 2b).

For the sake of simplicity [teacher, class and subject factors](#) are not considered in this example.

The following date limits are now entered for the classes under 'Classes | Master Data': for class 1a from 7 October to 23 February. This period is used in the calculation of lesson number 76 (limitation factor: 0.4390).



The value for the lesson is the product of weekly periods and time limitation factor: $2 * 0.4390 = 0.88$



If you now enter a time limitation for the lesson, e.g. 13 January to 27 April (15 weeks), it will apply to the entire coupling. **All other time limitations will be overridden.**

The limitation factor is now based on the new time limitation: 0.3659.

The new value for the lesson is the product of weekly periods and time limitation factor: $2 * 0.3659 = 0.73$.

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Value	From	To	Value =	Eff. time range
76	4, 1	1	2		Hugo	GEc	1a,1b,2a,2b		13.01.	27.04.	0.73	13.1. - 27.4. (I)
72	1, 2		2		Hugo	DE	4				2.15	3.9. - 30.6.
61		1	4		Hugo	DE	4				4.39	3.9. - 30.6.
60			2		Hugo	HI	4				1.97	3.9. - 30.6.

L-No. 76 Lessons 17.77 + Reductions 2.91 = 20.68 Teacher

4.3.1.5 Yearly values with time limitations

If lessons are limited to a certain period the calculation of [yearly values](#) changes inasmuch as the number of weeks in which they can take place is used instead of the distribution time factor.

The yearly value changes irrespective of whether you have selected the ' [Count only school days](#) ' or not on the 'Value calculation' tab under 'Start | Settings | Miscellaneous'. If you do check this option, the weeks containing only holidays will not be counted.

Value Calculation

Yearly values Terms act as time limits

Minute-wise accounting Calculation of the yearly weeks using single days

Count only school days

0 Yearly value (100%)

The following [example](#) shows how this is calculated differently.

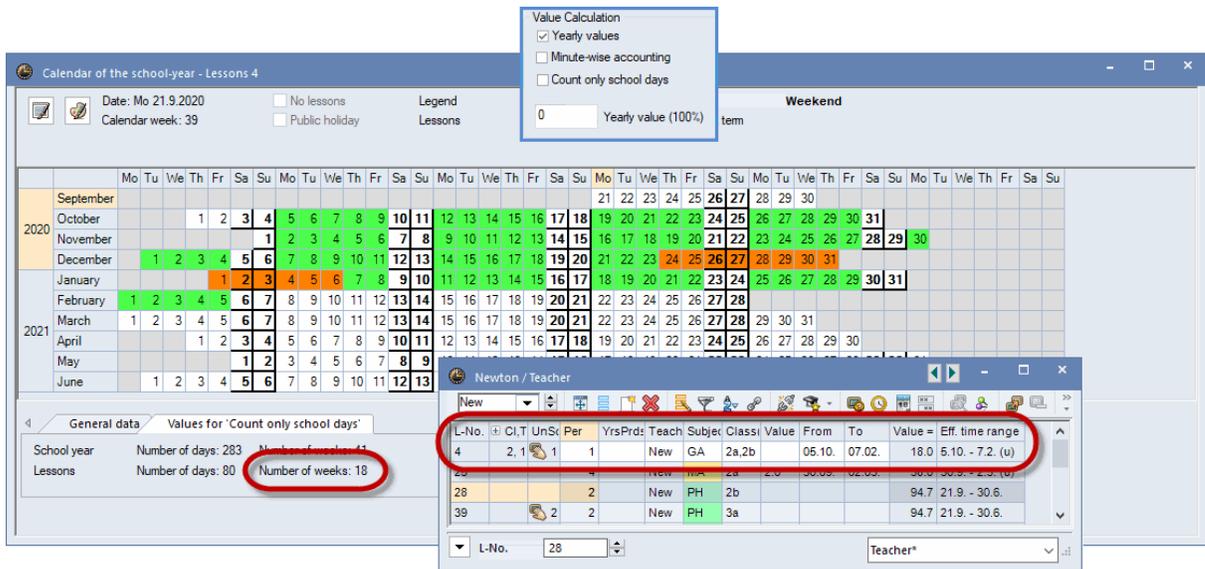
4.3.1.5.1 Examples of yearly values with limits

Lesson number 4 is used here as an example. It should take place between 5 October and 7 February. [Class, teacher and subject factors](#) are not to be included in the calculation.

'Count only school days' not active

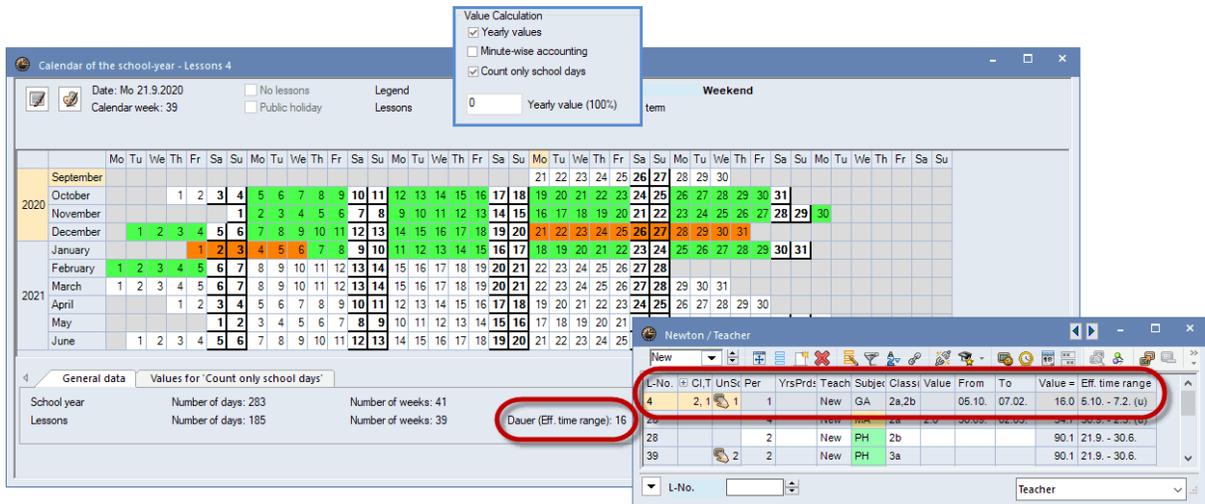
Not activating the 'Count only school days' option means that the calculation is based on 18 weeks. You can see the number of weeks in the school year calendar on the 'Value calculation' tab.

This results in a value of 18.0 for the one-period lesson 4.



'Count only school days' active

If you activate the 'Count only school days' option, the second week of the Christmas holidays will not be counted. This results in the following value: 1 (weekly period) * 16 (weeks) = 16.000.



Target periods / year

If you enter a value in the 'Target per. / yr.', which you can find in lessons on the 'Values' tab, this hour value will be used for value calculation, and in this case time limitations will no longer be taken into account.

L-No.	CI,T	UnSt	Per	YrsPrd:	Teach	Subje	Class	Value	From	To	Eff. time range	Target per./yr	Value =
4	2, 1	1	1		New	GA	2a,2b		05.10.	07.02.	5.10. - 7.2. (u	21	21.0
25			4		New	MA	2a				21.9. - 30.6.		90.1
28			2		New	PH	2b				21.9. - 30.6.		90.1
39		2	2		New	PH	3a				21.9. - 30.6.		90.1

4.3.2 Lesson groups

You can assign lessons to lesson groups which are limited to certain time periods and for which certain factors are valid for value calculation. There can also be interruptions within the time limitation of a group of lessons.

You can find lesson groups on the 'Start' tab very much to the right. For a detailed description please refer to the section 'Multi-week timetable | Lesson groups'.

Name	Full name	From	To	Factor
Exe	Exercise	21.09.	30.06.	0.463
Spo	Sport	21.09.	30.06.	<i>1.000</i>
H1	First Half	21.09.	29.01.	0.500
H2	Second Half	01.02.	30.06.	0.500

Note: Modified factor

If the factor has been modified manually it will be in black. If the factor has automatically been calculated by time limitations then it will be grey and in italics.

The following table indicates which time limitations are used for value calculation:

LG	L	C	All-important for value calculation
X		X	Shortest limitation or period of overlap
X	X		Lesson
X	X	X	Lesson

LG Lesson group
L Lesson

C Class

You can find general information on lesson groups in the multi-week timetable manual, chapter 'Lesson group'.

There are several ways to generate values for lesson groups:

- [Lesson group without factor](#)
- [Lesson group with factor](#)

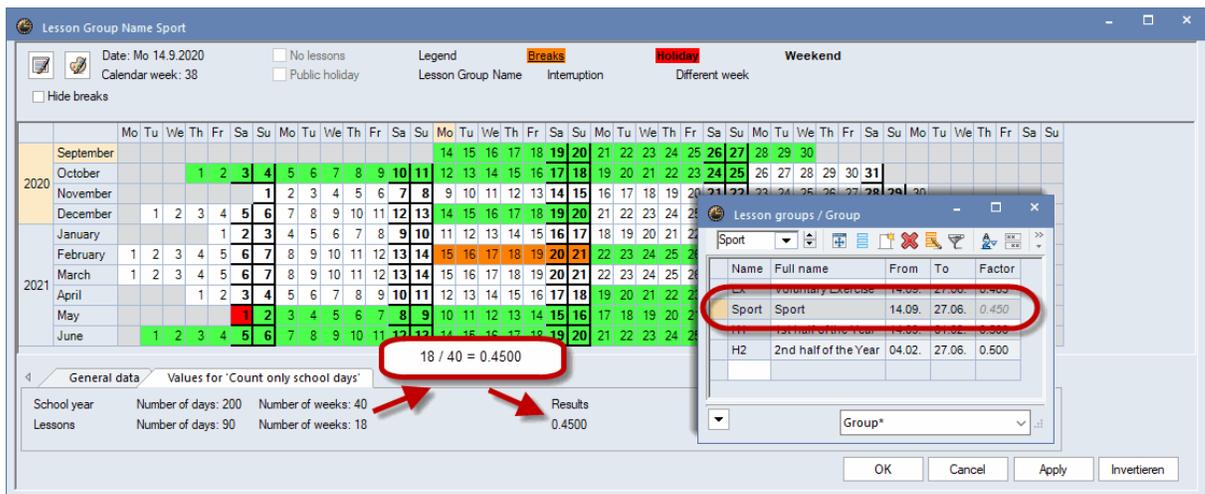
4.3.2.1 Lesson group without factor

If you do not enter any factor for the lesson group, the limitation factor will be calculated from the length of the time limitation and the number of school or teaching weeks in the same way as in chapter '[Value calculation with time limitations](#)'.

Example:

The time pattern below was assigned to lesson group 'Sports'.

The time limitation factor for this lesson group is $18 / 40 = 0.4500$.



Now open 'Lessons | Teachers' and look at lesson 2 of teacher Aristotle.

The lesson with number 2 of Aristoteles is assigned to the lesson group 'Sports' and the value is the product of weekly periods and time limitation factor for the lesson group:

(weekly periods) * (time limitation factor for the lesson group) = (value)

3 * 0.4500 = 1.350

L-No.	Cl,Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	Les. groups	LG-Distrib	Line-less_gr	Value	Value =
2	2, 2	1	3		Arist	PEG	2b,2a	Sport	<input type="checkbox"/>			1.35
6	2, 2		3		Arist	PEG	3a,3b	Sport	<input type="checkbox"/>			1.35
10		1	6		Arist	MA	1b		<input type="checkbox"/>			6.47
73	(i)		2		Arist	CTe	4		<input type="checkbox"/>			1.86
78	2, 2	1	3		Arist	PEG	1a,1b	Sport	<input type="checkbox"/>			1.35
79		1	5		Arist	MA	1a		<input type="checkbox"/>			5.34
80		1	5		Arist	EN	1a		<input type="checkbox"/>			5.64

L-No. 2 Lessons 23.35 + Reductions 3.41 = 26.76 Teacher*

Warning: Time-limited lessons
 If a lesson is time-limited and no factor is assigned to the lesson group, only the time limitation of the lesson will be included in the calculation and not the time limitation due to the lesson group.

4.3.2.2 Lesson group with factor

Lesson group with factor You can also define a factor for the lesson group in the 'Factor' column in the lesson group window, for example if each semester is to count the same even if they are not exactly the same length.

Example:

Please open the Demo2.gpn file and deactivate the teacher, class and subject factors. Lesson group H1 is time-limited to the period from 3 September to 31 January. This would in theory result in a factor of 0.5116. However, a value of 0.500 has been entered in the 'Factor' column in the lesson group window, and this factor is used for subsequent calculations

Lesson Group Name 1st half of the Year

Date: Mo 21.9.2020 Calendar week: 39

Legend: **Breaks** (No lessons, Public holiday), **Holiday** (Interruption), **Weekend** (Different week)

Month	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	
2020																													
September																													
October																													
November																													
December																													
January																													
February																													
March																													
April																													
May																													
June																													

General data Values for 'Count only school days'

School year	Number of days: 188	Number of weeks: 40	Results: 0.5116
Lessons	Number of days: 86	Number of weeks: 19	

If you assign lesson 10 to lesson group H1 the value of the lesson will now be calculated as follows:

(weekly periods) * (time limitation factor for the lesson group) = (value)

6 * 0.5 = 3

L-No.	CI,T	UnSc	Per	Yrs	Teach	Subject	Class	Subject	Home	Les. groups	Value =
		7.00	29.00	0							26.000
2	2, 2	1	3	Arist	PEG	2b,2a	SH2	R2a	Sport		3.000
6	2, 2		3	Arist	PFG	3a,3b	SH2	R3a	Sport		3.000
10		1	6	Arist	MA	1b		R1b	H1		3.000
63			2	Arist	PH	4	PL	Ps1			2.000
73	(i)		2	Arist	CTe	4		Ps1			2.000

L-No. 10 Lessons 29.000 + Reductions 3.410 = 32.410 Teacher'

Note: lessons every two weeks

If A and B weeks are not distributed equally over the school year, you can use the proceedings described above also for lessons being held every two weeks.

Warning: Time-limited lessons

If a lesson is time-limited and a factor is assigned to the lesson group, only the factor will be included in the calculation and not the time limitation of the lesson.

4.3.3 Terms

With time limitations the value of a lesson always depends on the length of the term in which it is held.

Warning: Terms

If terms are used, this is no longer the case: A term has the same value as a whole school year as far as value calculation is concerned. This means that a lesson that is held in a term is evaluated as if it were held for the whole school year.

The reason for this is that frequently at the beginning of a school year a short period, e.g. 4 weeks, is planned and its values are then taken as budget values for the remainder of the school year. This prevents for example a one-week ski course during the school year from disrupting the value calculation.

Terms like limitation

If you want to display the value of the lesson which it contributes through the limitation of the term, then go to 'Start | Settings | Miscellaneous' on the 'Value calculation' tab and activate the option 'Terms like limitation'.

The screenshot shows the Arist software interface. At the top, there are two term selection buttons: 'Term1 (21.9.-1.1.)' and 'Term2 (4.1.-30.6.)'. Below them is a toolbar and a table of lessons. The table has the following data:

L-No.	CI, Te.	UnSched Prds	Per	YrsPrds	Teacher	Subject	Class(es)	From	To	Value =
30		1	6		Arist	MA	1b			6.000
31			5		Arist	MA	1a			5.000
32			2		Arist	PH	4			2.000
33			5		Arist	EN	1a			5.000
73	2, 2		3		Arist	PEG	1a,1b			3.000

Below the table is a 'Settings' dialog box. The left sidebar shows a tree view with 'Value Calculation' selected. The main area of the dialog box contains the following settings:

- Value Calculation: 2 Decimal places
- without Subject Factor
- without Teacher Factor
- without Class Factor
- Value Calculation:
 - Yearly values
 - Minute-wise accounting
 - Count only school days
 - Calculation of the yearly weeks using single days
- 0 Yearly value (100%)
- Terms act as time limits (circled in red)

At the bottom of the dialog box, there are 'OK' and 'Cancel' buttons. A note at the bottom left of the dialog box reads: *Italic = locally stored settings (.ini files)*.

The values of Arist's lessons are limited to the time range of this period due to this option and thus significantly lower than weekly periods.

4.3.4 Terms and time limitations

Terms and time limitations

When the timetable is changed during the school year, in many cases it is recommended to open a new term and to carry out the changes in this term. In this respect, the calculation method changed for Untis 2019, which will be explained in the following segment.

Note

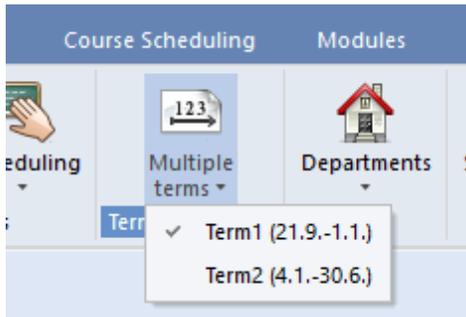
The calculation method described in the following is not valid for Austrian Federal schools (österreichische Bundesschulen ('UPIS-Schulen')).

Teacher balance in a term

A lesson taking place over the entire time of the term counts fully in this respective term so that the teacher balance of the this term can be calculated.

Example: Lesson

There are two terms in a 42-week long school year. Term 1 ends on 1 January and lasts for 20 weeks. Term 2 starts on 2 January and lasts for 22 weeks.



Teacher Fre has a target/week of 12.00 value units in term 1.

Name	Surname	Target/week	Target mean	Yearly average	Val-Targ Mean
Fre	Freitag	12.00	10.95	11.38	0.43
Rob	Robinson	10.00	10.00	10.98	0.98
Sis	Sisyphos	10.00	4.76	10.00	5.24

Teacher Fre teaches PE (L-No. 21) the entire term 1, the value of this lesson therefore is 1.00. the same is true for lessons 5-8 which are 100% included in the value calculation.

Multiple terms
Term1 (21.9.-1.1.)

Freitag / Teacher

Fre

L-No.	Cl,Te.	UnSched	Per	Teacher	Subject	Class(es)	From	To	Value =	Yearly average
		12.00	12.00						11.90	
5		3	3	Fre	FI	1E			3.00	3.00
6		3	3	Fre	FM	1E			3.00	3.00
7		2	2	Fre	JA	1E			2.00	2.00
8		2	2	Fre	WH	1E			2.00	2.00
10		1	1	Fre	KO	1E		11.12.	0.90	0.43
21		1	1	Fre	LE	1E			1.00	0.48

U-Nr 10 Lessons 11.90 + Reductions 0.48 = 12.38 Teacher

Lesson number 10, which is limited to 11 December, accounts for 0.90 value units with regards to the actual value of the respective teacher. This calculation is new and follows the logic that this lesson takes place only in 18 of 20 *possible* weeks, the calculation of the factor therefore follows the principle (number of active weeks of the term)/(numbers of weeks of the term), i.e.

$$18/20 = 0.90$$

The 'old' value, which was shown in this place up to Untis 2018 and which is a result of (number of active weeks of the term)/(number of weeks of the school year), i.e. $18/42=0.43$, is shown in the 'yearly average' column:

Freitag / Teacher

Fre

L-No.	Cl,Te.	UnSched	Per	Yrs!	Teacher	Subject	Class(es)	From	To	Value =	Yearly average
		12.00	12.00	0						11.90	
5		3	3		Fre	FI	1E			3.00	3.00
6		3	3		Fre	FM	1E			3.00	3.00
7		2	2		Fre	JA	1E			2.00	2.00
8		2	2		Fre	WH	1E			2.00	2.00
10		1	1		Fre	KO	1E		11.12.	0.90	0.43
21		1	1		Fre	LE	1E			1.00	0.48

L-No. 5 Lessons 11.90 + Reductions 0.48 = 12.38 Teacher

If we take the same lesson in term 2, where it is not taught, you see that its value is 0.00 for this term in the value calculation. The yearly average, however, remains unchanged.

L-No.	Cl,Te.	UnSched	Per	Yr.	Teacher	Subject	Class(es)	From	To	Value =	Yearly average
		11.00	11.00	0						10.00	
5		3	3	Fre	FI	1E				3.00	3.00
6		3	3	Fre	FM	1E				3.00	3.00
7		2	2	Fre	JA	1E				2.00	2.00
8		2	2	Fre	WH	1E				2.00	2.00
10		1	1	Fre	KO	1E		11.12.		0.00	0.43

Summary: L-No. 10 | Lessons 10.00 + | Reductions 0.48 = 10.48 | Teacher

Lesson no. 21 has a value of 1.00 in term 1 in the value calculation as mentioned above. In term 2, it is not available and therefore it is no longer relevant for the *value* of the teacher.

L-No.	Cl,Te.	UnSched	Per	Teacher	Subject	Class(es)	From	To	Wert =	Yearly average
		12.00	12.00						11.90	
5		3	3	Fre	FI	1E			3.00	3.00
6		3	3	Fre	FM	1E			3.00	3.00
7		2	2	Fre	JA	1E			2.00	2.00
8		2	2	Fre	WH	1E			2.00	2.00
10		1	1	Fre	KO	1E		11.12.	0.00	0.43
21		1	1	Fre	LE	1E			1.00	0.48

Summary: L-No. 10 | Lessons 11.90 + | Reductions 0.48 = 12.38 | Teacher

L-No.	Cl,Te.	UnSched	Per	Yr.	Teacher	Subject	Class(es)	From	To	Wert =	Yearly average
		11.00	11.00	0						10.00	
5		3	3	Fre	FI	1E				3.00	3.00
6		3	3	Fre	FM	1E				3.00	3.00
7		2	2	Fre	JA	1E				2.00	2.00
8		2	2	Fre	WH	1E				2.00	2.00
10		1	1	Fre	KO	1E		11.12.		0.00	0.43

Below the table, a summary bar shows: L-No. 10, Lessons 0.00 +, Reductions 0.48 = 10.48, Teacher.

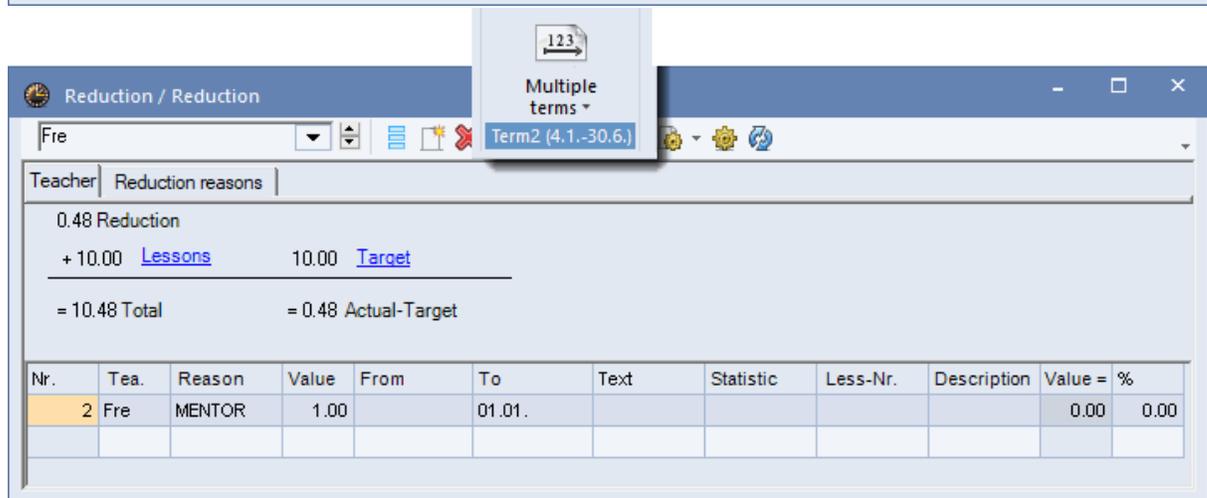
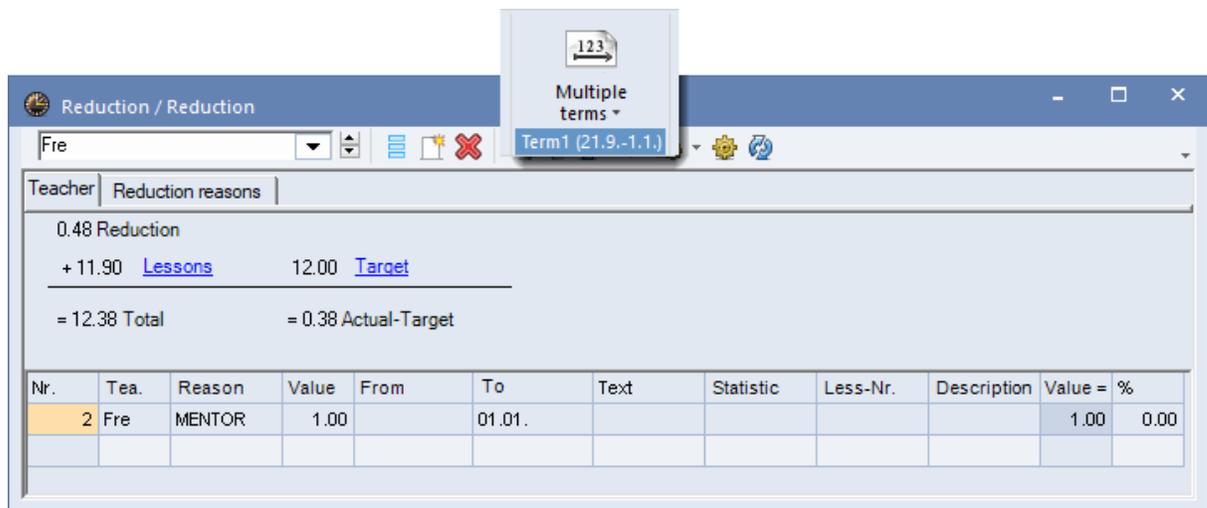
In total, the value of teacher Fre's given lessons in term 1 is 11.90 value units. The example above also describes why no sum total is shown in the totals row of the *yearly average* column: the sum total of the individual rows in the picture above does not result in the actual yearly average of 10.90, and would therefore only be confusing. The correct yearly average (lesson + reduction – for more information, please read the next section) is always shown in the 'Teacher' master data window.

Name	Surname	Target/week	Target mes	Yearly average	Val-Targ	Mea
Fre	Freitag	12.00	10.95	11.38		0.43
Rob	Robinson	10.00	10.00	10.98		0.98
Sis	Sisyphos	10.00	4.76	10.00		5.24

Below the table, a dropdown menu shows 'YEARLY AVERAGE'.

Reduction example

In addition to teacher Fre's discussed lesson, other activities such as reductions are included in the calculation of his lesson balance. He only teaches the respective lesson in term 1, this is why in Untis 2019, the value of 1.00 is shown for term 1, and 0.00 in term 2 since this is a limited lesson. Limited reductions behave the same way in the counting as limited lessons.



This is a novelty in Untis 2019. Up to Untis 2018, the mean value of 0.48 was displayed. This value is exclusively shown in the form view of the reduction window. This new display mode makes it possible to independently create actual-planned balances of the teacher for term 1 and term 2.

Teacher balance for term and school year

The balance is to be activated in the page layout of the lesson window.

Per	Subject	Class(es)	From	To	Value	Yearly average
4	Mat	3a			4.000	4.000
2	Gz	3a			2.000	2.000
	Tw	3a				2.000
2	Gz	3b			2.000	2.000
	Tw	3b				2.000
2	Gz	4			2.000	2.000
1	Ch	2a,2b,3a			1.000	1.000
	Mat	2a,2b,3a			1.000	1.000
	Mat	2a,2b,3a			1.000	1.000
	E	2a,2b,3a			1.000	1.000
	E	2a,2b,3a			1.000	1.000
	D	2a,2b,3a			1.000	1.000
	D	2a,2b,3a			1.000	1.000
2	Wk	1a			2.000	2.000
	Wk	1b			2.000	2.000
	Tw	1a,1b			2.000	2.000
4	Mat	4			4.000	4.000
12.90 (Actual+Red.) - 12.00 (Target) = 0.90 (Periode1)						
12.43 (Actual+Red.+V-corr.) - 12.00 (Target) = 0.43 (Total school year)						

In the first row the balance for the current term is shown. In the example above this therefore is 11.90 value units from the lesson plus 1.00 units from the reduction, which is a sum total of 12.90 value units.

The second row shows the balance of the entire school year and across all terms. In this example, teacher Fre therefore has a balance of + 0.90 for term 1 and a balance of +0.43 for the entire school year. Any limitations and any relevant changes of the target value of this term are taken into account.

Testschule DEMO		Stundenplan 2020/2021		Untis 2020		
Für Demo und Test		Gilt ab: 10. Oktober		2.8.2019 15:18		
Gauss Gauss						
L-No.	Subject	Class(es)	From	To	Yearly average	Value =
1	Mat	3a			4.000	4.000
3	Gz	3a			2.000	2.000
	Tw	3a			2.000	
4	Gz	3b			2.000	2.000
	Tw	3b			2.000	
5	Gz	4			2.000	2.000
6	Ch	2a,2b,3a			1.000	
	Mat	2a,2b,3a			1.000	1.000
	Mat	2a,2b,3a			1.000	
	E	2a,2b,3a			1.000	
	E	2a,2b,3a			1.000	
	D	2a,2b,3a			1.000	
	D	2a,2b,3a			1.000	
7	Wk	1a			2.000	
	Wk	1b			2.000	2.000
	Tw	1a,1b			2.000	
82	Mat	4			4.000	
	Mat	4			4.000	4.000
12.00 (Actual+Red.) -			12.00 (Target) =			0.00 (Periode2)
12.43 (Actual+Red.+V-corr.) -			12.00 (Target) =			0.43 (Total school year)
Gruber & Petters Software						

Term 2 shows a balance of 0.00 for teacher Fre, the balance row for the entire school year, however, always is the same regardless of the term.

Value correction

The *sum total of value corrections of a term* can now also be displayed in the master data of the teacher.

Name	Surname	Target/week	Reductions	Val. Les.	Value =	Actual-Target	L-VC	Yearly average
Gauss	Gauss			19.000	19.000	19.000	0.000	19.000
New	Newton			30.000	30.000	30.000	0.000	30.000
Hugo	Hugo			20.333	20.333	20.333	0.000	20.333
Ander	Andersen			29.000	29.000	29.000	0.000	29.000
Arist	Aristoteles			4.000	4.000	4.000	20.000	4.512
Callas	Callas			27.000	27.000	27.000	0.000	27.000

4.000 Actual/week Value units with factor 1.000
 - Target/week , maximum
4.000 Actual-Target Difference (% of targ: 100.0 %)

Value units

- 4.513 [Yearly average](#)
- 4.0 [Weekly periods](#)
- 0.00 [Yearly periods](#)
- 0.000 [Reductions](#)
- 4.000 [Value lessons](#)
- 20.000 [ValueCorrection](#)**

Context-info

- 0 [Suited open lessons](#) (factorised: 0.000)
(Lessons for which the teacher is qualified)

Please note that

1. only value corrections '+' and '-' are taken into account,
2. the sum total of value corrections is shown according to the respective term and that
3. the sum total of value corrections are included only in the *yearly average* .

The value correction of '20' in the example above contributes to the *yearly average* with the value '0.5' in 40 school weeks.

Index

- A -

Automatic teacher assignment 59

- B -

Balance at year end 17

- C -

Change of school year 30

Classes | Master Data 73

- D -

Date time limitation on lessons 108

- E -

Examples of lesson values 75

- F -

Fixed values/factors - time limitations 111

- L -

Lesson groups 118

Lesson matrix 45

Lesson planning wizard 6

Lesson proposal 36

Lesson table (syllabus) 54

Lessons for Teachers 21

Line value 94

- M -

Manual teacher assignment 32

Minute calculation 102

- P -

Part 1: Lesson planning 6

Part 2: Value calculation 67

Percentage factor (yearly value) 99

periods per week 10

Plan/week 10

Previous year's teacher 30

- R -

Reduction reasons 12

Reductions 12

Reductions for yearly work 41

Reports 85

- S -

School data 91

Several time limitations 113

Statement 82

Subject bottlenecks 33

Subject groups 25

Subjects | Master Data 72

- T -

Target teaching lessons 10

Teacher assignment 60

Teacher suggestion 35

Teacher, class and subject factors 93

Teachers | Master Data 68

Teacher's yearly work 38

Teachers' work 10

Teaching qualification 22

Team optimisation 60

Terms 121

Transfer automatically 32

- V -

Value calculation - multi-week timetable 107

Value correction 70

values 67, 111

- W -

Weekly values 76

- Y -

Yearly average 68, 82

Yearly values 95

Endnotes 2... (after index)