



# Sixth Form Options

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# Idea

To discuss the basic concepts and techniques underlying the offer of a mostly optional curriculum to a year group (typically Year 12) and the considerations necessary to create a flexible Year 12/13 synchronised offer

I will also discuss the functions of the original Sims Options module which (being an old-timer, I continue to use).

## Options Offer

### A Free Choice

G	Enrich U	1	A	Option A	9	B	Option B	9	C	Option C	9	D	Option D	9	E	Option E	9
36	Er <sub>1</sub>	1	42	As <sub>3</sub>	9	39	As <sub>3</sub>	9	42	Bb <sub>3</sub>	9	46	Bb <sub>3</sub>	9	39	Ar <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Bs <sub>3</sub>	9	39	Ch <sub>3</sub>	9	42	Bi <sub>3</sub>	9	46	Bi <sub>3</sub>	9	39	Bi <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Cm <sub>3</sub>	9	39	Cl <sub>3</sub>	9	42	Ch <sub>3</sub>	9	46	Go <sub>3</sub>	9	39	Ch <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Ec <sub>3</sub>	9	39	Di <sub>3</sub>	9	42	Ec <sub>3</sub>	9	46	Hi <sub>3</sub>	9	39	Ec <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	El <sub>3</sub>	9	39	El <sub>3</sub>	9	42	El <sub>3</sub>	9	46	Ma <sub>3</sub>	9	39	Hi <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Gg <sub>3</sub>	9	39	Hi <sub>3</sub>	9	42	Fr <sub>3</sub>	9	45	Ma <sub>3</sub>	9	39	Mi <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Hi <sub>3</sub>	9	38	Ib <sub>3</sub>	9	42	Go <sub>3</sub>	9	45	Ma <sub>3</sub>	9	38	Ms <sub>3</sub>	9
36	Er <sub>1</sub>	1	42	Pd <sub>3</sub>	9	38	Mn <sub>3</sub>	8	42	Ho <sub>3</sub>	9	45	Ma <sub>3</sub>	9	38	Pg <sub>3</sub>	9
36	Er <sub>1</sub>	1	41	Ph <sub>3</sub>	9	38	Mt <sub>3</sub>	9	41	Ms <sub>3</sub>	9	45	Ma <sub>3</sub>	9	38	Ph <sub>3</sub>	9
36	Er <sub>1</sub>	1	41	Py <sub>3</sub>	9	38	Ph <sub>3</sub>	9	41	Mu <sub>3</sub>	9	45	Sc <sub>3</sub>	9	38	Py <sub>3</sub>	9
35	Er <sub>1</sub>	1	41	Rs <sub>3</sub>	9	38	Pt <sub>3</sub>	9	41	Pt <sub>3</sub>	9	45	So <sub>3</sub>	9	38	Rs <sub>3</sub>	9
35	Er <sub>1</sub>	1	41	Sp <sub>3</sub>	9	38	Py <sub>3</sub>	9	41	Tx <sub>3</sub>	9				38	So <sub>3</sub>	9
35	Ma <sub>1</sub>	1				38	So <sub>3</sub>	9							38	Tu <sub>3</sub>	9

In the above curriculum diagram, you can see a typical structure for a Year 12 model spanning 46 lessons (with 4 lessons spare for flexibility). It contains:

- Compulsory Course - 1 lesson of Enrichment
- Optional Courses – Whole Year, five blocks containing a variety of courses scheduled for 9 lessons per block

Typical at this stage, students make a free choice of subjects with which to fill their time - most students will choose four courses leaving one block free for private study

Once (via an online application form) students have told me what courses they wish to study, it will be my responsibility to:

- Work with the Headteacher to see if we can staff the appropriate number of classes and
- Arrange the classes into blocks to allow the maximum number of students to follow their chosen combinations

*This free-choice method works best in schools when there is a sufficiently large number of teachers to offer the necessary subject staffing flexibility. Even then, it may not always be possible to satisfy all students*

## A Restricted Choice

*For schools with a smaller number of teaching staff (or when a timetabler wants to avoid surprises), it may be decided that the subjects in each option block will be pre-defined by the timetabler). In fact, I have seen some instances where a timetabler uses the same blocks every year!*

*In such cases, a school will publish the contents of each of the option blocks and then ask the students to choose their own combination, one subject (at most) from each of four blocks leaving one block free for private study.*

*The advantage of pre-defining the blocks is that you know you can staff the classes (unless a key teacher leaves!) but the cost is that, once the students have made their choices, you may have to suggest to some students (whose choices do not fit in with your plans) that they go elsewhere for their Sixth Form education*

## Options Implementations

### Sims Options Preparation

Class Name	Course	Code	Blocks	Min	Pref	Max	Mal	Fem	Tot
11A/Bb1	Business BTEC	1	11A	15	20	25	4	1	5
11A/Bi1	Biology AS/A2	1	11A	15	20	25	7	15	22
11A/Ch1	Chemistry AS/A2	1	11A	15	20	25	9	12	21
11A/Ci1	Classics AS/A2	1	11A	15	20	25	6	9	15
11A/Ei1	English Lit AS/A2	1	11A	15	20	25	4	4	8
11A/Hi1	History AS/A2	1	11A	15	20	25	13	4	17

*Although, out of necessity, I have written my own Excel-based **Options Utility**, if you have a licence for Sims, I would recommend using the Sims options module. I have been using it since its first incarnation and have found that I do not need to use the most recent enhancements to produce excellent solutions.*

*I do not intend to take you through the instructions for using this tool (you will find them in your Sims installation) but I will point out some important ideas not usually understood by users nor covered in the instructions.*

Firstly, you do not have to have set up the school's next academic year before you can use Sims Options. Yes, if you want the students' class memberships to transfer automatically and easily to next year's classes, you do indeed need to create the next academic year first. If, like me, you prefer to leave it late to set up the following academic year (after I'm absolutely certain of dates), you can still create an options implementation but you will have to transfer the outcomes manually to fill next year's option classes.

Whichever method you choose, you start an implementation by loading the curriculum followed by the students into Options from Nova-T6 and Sims respectively. The following lists the stages I go through next:

1. In Courses focus – remove all the courses I don't need, renaming some if useful and adding any extra courses I may need
2. In Bands focus – make sure you have the correct bands you use in the particular year group (11m, 11n for example)
3. In Block focus – add the required number of option blocks (I usually go for A, B, C, D etc) and ensure that each one is linked to all available bands
4. In Student focus - for each student, add all main and reserve choices to their record

## How Many Classes?

### Courses chosen and allocated

Code	Course Name	Main	Rsrv	Classes	Reqd.	Alloc	Capc.	Max
As	Applied Science 1 BTEC	7	0	2	1	7	40	50
Ar	Art AS/A2	18	0	1	1	17	20	25
Bi	Biology AS/A2	65	0	3	4	65	60	75
Bb	Business BTEC	10	0	2	1	10	40	50
Bs	Business St AS/A2	15	0	2	1	15	40	50
Ch	Chemistry AS/A2	62	0	3	4	61	60	75
Cl	Classics AS/A2	15	0	1	1	15	20	25

If your students had a free choice, it is now time to work out how many classes of each subject you will need to satisfy their requests. The following report will help:

**Reports – Course – Choices and Allocations** (see above)

Using the Max and Min class sizes which you can dictate, this table will offer some suggestions for how many classes you will require. This is the table to which you should refer when negotiating required staffing for next year.

Until you have a final decision as to how many classes you can offer, you should not waste any time experimenting with option block construction.

## Clashing Subjects

### Clash Table

	As	Ar	Bi	Bb	Bs	Ch	Cl	Cm	Dr	Ec	El	Fr	Mf	Gg	Go
As	[7]		1	2							2				
Ar		[18]	5			3		1		2	4			3	1
Bi	1	5	[85]		3	40	3	1	1	11	1		2	8	9
Bb	2			[10]		1			2	1	3				3
Bs			3		[15]	2			1	2	2			1	2
Ch	3	40	1	2	[62]	5	2	2	2	15	2		6	6	7
Cl		3				5	[15]		1	1	6		1	5	5
Cm		1	1			2		[11]		4			1		2
Dr			1	2	1	2	1		[10]	1	3				1
Ec		2	11	1	2	15	1	4	1	[39]	2	1	3	3	5

Once you have the final decisions on how many classes you will be offering, I recommend you take a look at the following report

#### Reports – Course – Clash Table

You can choose which courses to include. Initially, I like to include only my single class courses as these will tend to cause the most problems when deciding in which blocks they should be located.

The grid shows you how many students have chosen pairs of subjects. For example, in the above table, 2 students have chosen As and Bb, 5 students Ar and Bi.

A grid cell with no entry is good news as this means there are no students wanting to do both subjects (no clash). This creates the possibility that I can put both subjects in the same option block without causing problems for students.

From this point onwards, as long as you understand how the Clash table works, you can start experimenting with putting subjects into blocks. Be assured, every timetabler has an individual preference for the order in which to attack the problem. However, many timetablers miss the importance of the most useful aspect of the **Classes** menu.

## The Classes Menu

Class Name	Course	Code	Blocks	Min	Pref	Max	Mal	Fem	Tot
11A/Bb1	Business BTEC	1	11A	15	20	25	4	1	5
11A/Bi1	Biology AS/A2	1	11A	15	20	25	7	15	22
11A/Ch1	Chemistry AS/A2	1	11A	15	20	25	9	12	21
11A/Ci1	Classics AS/A2	1	11A	15	20	25	6	9	15
11A/Ei1	English Lit AS/A2	1	11A	15	20	25	4	4	8
11A/Hi1	History AS/A2	1	11A	15	20	25	13	4	17
11A/Mb1	Music Perf BTEC	1	11A	15	20	25	1	3	4
11A/Mn1	Mandarin Pre-U	1	11A	15	20	25	1	3	4
11A/Ms1	Media St AS/A2	1	11A	15	20	25	8	8	16
11A/Ph1	Physics AS/A2	1	11A	15	20	25	12	1	13

*In the Classes menu you can add, delete and move classes from block to block. I like to add my classes gradually by testing each one to see where (at present) it fits best. To test a class:*

*Click on the class and press F6 on the top of your keyboard*

Block	Others	Fits	MisFits
11A	0	28	4
11B	1	20	12
11C	0	27	5
11D	0	24	8
11E	0	25	7

  

Class	Pref
11A/Ms1	20

*This tells you in which block you could place it and how many problems doing so will create. In the above diagram, you can see that this class currently fits best in Block A. Additionally, by clicking on each block, you will see the names and choices of the students who would be presented with a problem should you decide to locate it here.*

*Although the latest menu to enhance the software (the Solution Editor) is a powerful tool, I still prefer to carry out my experiments within the Classes menu, using the F6 testing method.*

*After a period of testing a typical result for an implementation dealing with 240 students might be that I can achieve 230 perfect fits and 10 partial fits (meaning that 10 students may have to choose an alternative to one of their subjects)*

## A Synchronised Sixth Form

At this point, before we discuss finding the best solution, it is wise to take a step backwards and consider the added restrictions involved in producing a flexible Sixth Form curriculum that works for both Year 12 AND Year 13 students even when some Year 13 students may want to take a combination of Year 12 and Year 13 courses!

If a school wishes to offer all students the opportunity to take all Year 12 courses, all Year 13 courses OR a combination of Year 12 and Year 13 courses, the option blocks in both years must be carefully synchronised. Otherwise **hybrid course** students will find themselves having unresolved clashes on their timetables and hence not being able to attend all the necessary lessons for each course.

Let us look at an example where the school has ensured this synchronisation by adopting a system known in Sims manuals as a **Derived Curriculum** (see below).

F	Enrich L	1	G	Enrich U	1	A	Option A	9	B	Option B	9	C	Option C	9	D	Option D	9	E	Option E	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	As <sub>3</sub>	9	20	As <sub>3</sub>	9	20	Bb <sub>3</sub>	9	21	Bb <sub>3</sub>	9	20	Ar <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Bs <sub>3</sub>	9	20	Ch <sub>3</sub>	9	20	Bi <sub>3</sub>	9	21	Bi <sub>3</sub>	9	20	Bi <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Cm <sub>3</sub>	9	20	Cl <sub>3</sub>	9	20	Ch <sub>3</sub>	9	21	Go <sub>3</sub>	9	20	Ch <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Ec <sub>3</sub>	9	20	Di <sub>3</sub>	9	20	Ec <sub>3</sub>	9	21	Hi <sub>3</sub>	9	20	Ec <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	El <sub>3</sub>	9	20	El <sub>3</sub>	9	20	El <sub>3</sub>	9	21	Ma <sub>3</sub>	9	20	Hi <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Gg <sub>3</sub>	9	20	Hi <sub>3</sub>	9	20	Fr <sub>3</sub>	9	21	Ma <sub>3</sub>	9	20	Mf <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Hi <sub>3</sub>	9	20	Ib <sub>3</sub>	9	20	Go <sub>3</sub>	9	21	Ma <sub>3</sub>	9	19	Ms <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Pd <sub>3</sub>	9	20	Mn <sub>3</sub>	8	20	Hs <sub>3</sub>	9	21	Ma <sub>3</sub>	9	19	Pg <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Ph <sub>3</sub>	9	20	Ml <sub>3</sub>	9	20	Ms <sub>3</sub>	9	21	Sc <sub>3</sub>	9	19	Ph <sub>3</sub>	9
36	Er <sub>1</sub>	1	36	Er <sub>1</sub>	1	21	Py <sub>3</sub>	9	20	Ph <sub>3</sub>	9	20	Mu <sub>6</sub>	6	21	So <sub>3</sub>	9	19	Py <sub>3</sub>	9
35	Er <sub>1</sub>	1	35	Er <sub>1</sub>	1	21	Rs <sub>3</sub>	9	20	Pt <sub>3</sub>	9	20	Pt <sub>3</sub>	9	21	Ar <sub>3</sub>	9	19	Rs <sub>3</sub>	9
35	Er <sub>1</sub>	1	35	Er <sub>1</sub>	1	21	Sp <sub>3</sub>	9	20	Py <sub>3</sub>	9	20	Tx <sub>3</sub>	9	21	As <sub>3</sub>	9	19	So <sub>3</sub>	9
35	En <sub>1</sub>	1	35	En <sub>1</sub>	1	21	Bb <sub>3</sub>	9	20	So <sub>3</sub>	9	20	As <sub>3</sub>	9	21	Bs <sub>3</sub>	9	19	Tu <sub>3</sub>	9
35	Ma <sub>1</sub>	1	35	Ma <sub>1</sub>	1	21	Bi <sub>3</sub>	9	20	Bi <sub>3</sub>	9	20	Cm <sub>3</sub>	9	21	Ch <sub>3</sub>	9	19	Bi <sub>3</sub>	9
						21	Ch <sub>3</sub>	9	20	Bs <sub>3</sub>	9	20	Di <sub>3</sub>	9	21	Ec <sub>3</sub>	9	19	Bs <sub>3</sub>	9
						21	Cl <sub>3</sub>	9	20	Ch <sub>3</sub>	9	20	Ec <sub>3</sub>	9	21	El <sub>3</sub>	9	19	El <sub>3</sub>	9
						21	El <sub>3</sub>	9	20	Ec <sub>3</sub>	9	20	Fr <sub>3</sub>	3	21	Hi <sub>3</sub>	9	19	Go <sub>3</sub>	9
						21	Hi <sub>3</sub>	9	20	Gg <sub>3</sub>	9	20	Go <sub>3</sub>	9	21	Ib <sub>3</sub>	9	19	Ma <sub>3</sub>	9
						21	Mb <sub>3</sub>	9	20	Go <sub>3</sub>	9	20	Hi <sub>3</sub>	9	21	Mf <sub>3</sub>	9	19	Ma <sub>3</sub>	9
						21	Mn <sub>3</sub>	8	20	Hi <sub>3</sub>	9	20	Mu <sub>3</sub>	9	21	Ph <sub>3</sub>	9	19	Ma <sub>3</sub>	9
						20	Ms <sub>3</sub>	9	20	Hs <sub>3</sub>	9	20	Pg <sub>3</sub>	9	20	Py <sub>3</sub>	9	19	Ma <sub>3</sub>	9
						20	Ph <sub>3</sub>	9	20	Ms <sub>3</sub>	9	20	Ph <sub>3</sub>	9	20	Rs <sub>3</sub>	9	19	Ma <sub>3</sub>	9
						20	Pt <sub>3</sub>	9	20	Pd <sub>3</sub>	9	20	Pt <sub>3</sub>	9	20	Sp <sub>3</sub>	9	19	Pt <sub>3</sub>	9
						20	So <sub>3</sub>	9	20	So <sub>3</sub>	9	20	Py <sub>3</sub>	9	20	En <sub>6</sub>	6	19	Py <sub>3</sub>	9
						20			20	Tu <sub>3</sub>	9	20	So <sub>3</sub>	9				19	Sc <sub>3</sub>	9
																		19	Tx <sub>3</sub>	9

The diagram is a combined derived model for Year 12 and 13. It contains:

- Enrichment L – 1 lesson of Enrichment for Year 12 students
- Enrichment U – 1 lesson of Enrichment for Year 13 students
- Blocks A to E – 9 lessons each of a variety of subjects taught at different levels. The typical Year 13 courses appear first in alphabetical order followed by the Year 12 courses in alphabetical order

To make sure you understand how this works, look at Block A. It contains 12 A'Level courses (As to Sp) and 12 AS courses (Bb to So). Note that EI (English Literature) is offered at the same time at both A2 and AS Level in Block A

By having the Year 13 and Year 12 courses in the same option blocks, we ensure that we cannot produce any unwanted clashes between subjects for students doing a mixture of both types of course.

## Clashing Teacher Teams

Whether or not you choose to use a combined or separate model for your Year 12 and 13, you will need to take into account the skills of your teacher teams when arranging blocks.

Unfortunately, this makes the optimisation of Sixth Form blocks much harder than that for KS4. Therefore I employ a coloured grid in my **Staffing Book** to keep track of which teams of teachers are to be used in each block (see below)

Year 17/18 Curriculum Plan						
Year 13	Enrich (F)	Opt A (9)	Opt B (9)	Opt C (9)	Opt D (9)	Opt E (9)
	Er1	As	As	Bb	Bb	Ar
	Er2	Bs	Ch	Bi	Bi	Bi
	Er3	Cm	Cl	Ch	Go	Ch
	Er4	Ec	Dr	Ec	Hi	Ec
	Er5	EI	EI	EI	Ma	Hi
		Gg	Hi	Fr	Ma	Mf
		Hi	Ib	Go	Ma	Ms
		Mb	Mn	Hs	Ma	Pg
		Pd	Mt	Ms	Sc	Ph
		Ph	Ph	Mu	So	Py
		Py	Pt	Pt		Rs
		Rs	Py	Tx		So
		Sp	So			Tu
Year 12	Enrich (F)	Opt A (9)	Opt B (9)	Opt C (9)	Opt D (9)	Opt E (9)
	Er1	Bb	Bi	As	Ar	Bi
	Er2	Bi	Bs	Cm	As	Bb
	Er3	Ch	Ch	Ec	Bs	EI
	Er4	Cl	Ec	Fr	Ch	Go
	Er5	EI	Gg	Gg	Dr	Ma
	Er6	Hi	Go	Hi	Ec	Ma
	Er7	Mb	Hi	Mu	EI	Ma
	Er8	Mn	Hs	Pg	Hi	Ma
	Er9	Ms	Ms	Ph	Ib	Ma
	En	Ph	Mt	Pl	Mf	Pt
	Ma	Pt	Pd	Py	Ph	Py
		So	Rs	So	Py	Sc
			So	Tu	Sp	Tx
					Er	
Actual Classes		24	25	24	24	26

If a course is using teachers from a particular team, I will assign the class the same colour. Let us use Science (coloured bright blue) as an example:

In general (with occasional exceptions) the Year 13 option blocks must remain the same as the previous year otherwise students already on courses might not be able

to continue with them. Therefore, we are only filling the lower half of the table, the Year 12 part.

If I count the bright blue classes from top to bottom (Biology, Chemistry, Physics etc), I get the following:

- Block A contains 5 science classes
- Block B contains 5 science classes
- Block C contains 4 science classes
- Block D contains 5 science classes
- Block E contains 5 science classes

This is an excellent distribution of teachers from the same team (the scientists). If I overload a particular option block with too many teachers from the same team, I will invariably reach a timetabling impossibility when I ask a teacher to teach two classes at the same time.

When I create the Year 12 option blocks, I check constantly for such clashing teachers using this grid. The most extreme case here would be Turkish (Tu) where I only have one Turkish teacher. Therefore, it would be impossible to place the Year 12 Turkish course in Block E because the Year 13 course is already there!

**In general, I try to distribute all members of any team evenly across the five blocks.** This will give me the very best chance of producing a good quality timetable for both students and staff.

## Finding the Optimal Solution

As is the case with KS4 options, you will never be certain you have reached the optimal arrangement for Year 12 option blocks. However, if you use the Sims options module in combination with your coloured chart, you will eventually reach an arrangement which will satisfy the vast majority of your applicants and give you every chance of producing an excellent timetable for all.

In my experience, applications for Sixth Form places and courses are much more tentative compared to KS4 options as many students will have their minds changed by public examination results or they will have a change of heart about their chosen career.

In Sixth Forms popular with internal and external students, I tend to base my blocking on the applications gathered from students already at the school as external applications tend to be far more unreliable.

In 2016, I designed the blocks for a Sixth Form with 220 internal applications and 1200 external applications. Basing my blocking on the internal applications, using the methods described above, I satisfied perfectly 205 students with 15 having to re-think one subject. The school then published the blocks to external students so that they could decide if they wanted to confirm or change their applications.

## About the Author

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*Paul Vant worked for 35 years in secondary school as a Maths teacher, Senior Teacher, Timetabler and Systems Manager. He has acted as a consultant to many schools in timetabling and assessment. He designs software and web applications to solve problems relating to all his fields of expertise. In 2000 he designed the Student Sorting Kit (used for creating balanced groups of students, now in use in secondary schools throughout the UK and in other international institutions.)*