# The Timetabling Consequences...
# of Recent Trends in Secondary Education

## Recent innovations

Over the last few years, there have been curricular initiatives for some parts of the secondary school curriculum which may have caused a detrimental effect on the timetable quality for the rest of the students in the school.

These initiatives include features like 'Sixth Form' cooperation in Years 12-13 (which range from 'Consortium Days' to 'Joint Sixth Forms' or 'Federated' Sixth Forms).
Or, perhaps in Key Stage 4, they are under the heading of 'Work-related Curriculum' and perhaps involve local companies and one or more local colleges.

Because they involve more than one institution, they have to be scheduled at agreed fixed times. So each of these is a 'glued down' piece of the jigsaw that the timetabler has to complete each year.
As the number of these glued-down pieces increases, so the compromises necessary to get a working timetable increase. For every curriculum action there is a timetabling consequence.

## Diplomas in Key Stage 4

One of the problems facing schools now is that there is pressure to introduce Diplomas in KS4. Schools are being encouraged to cooperate with other schools in the locality in order to provide a wide range of diploma courses in an area, rather than each school trying to provide all of these choices internally.

The result of this approach is to require the schools involved to synchronise their timetables with those of neighbouring schools. Many of them are already trying to synchronise their timetables with their partners in the 'Joint Sixth Form' or the local Sixth Form College and with the local providers of a 'Work-related Curriculum'.

The result of this increasing number of external constraints is that the school will probably have to cut back severely on the quality of provision for the rest of the school. This is simply due to the increased logistical complexity caused by linking timetables with other groups of establishments. This is exacerbated by :

- Institutions having different start times, break and lunch times and lesson lengths,
- Some having 1-week timetables, with others having 2-week timetables,
- Travel time between institutions is also a significant factor, depending on the distance apart.

It may be thought that a change of time-frame is part of the answer (ie. changing the number of lessons in the week/fortnight or the length of lessons).
However, this is not something to be undertaken lightly or in a hurry! It is always best to plan for the September after next! Everyone needs to be consulted.

For example: If start-time or end-time are to be changed then the local bus/taxi companies will need to be consulted as well as parents! The local transport authority may not be able to cope if several schools are synchronised.
If lunch time is to be moved then the caterers and lunch-time supervisors will need to be involved. Some extra-curricular activities may happen at lunch time and the new arrangements will possibly affect them.

Some aspects of changing the time-frame are discussed further in the Appendix on page 4.

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## Changes in Year 7

Yet another logistical pressure is being generated in the current changes being suggested for Year 7.

There is a move (again) to try to present the Year 7 curriculum more on the Primary model, with subjects being interwoven into 'projects' or 'themes', resulting in Year 7 pupils being taught by fewer teachers than the traditional 'new-start' secondary approach.
One teacher could perhaps provide all the History, Geography, PSHE, RE and maybe even some Art and Music, while another might perhaps provide the Science, Maths, Technology and even PE.

The potential social and pastoral benefits for many Year 7 students are clear, even if the academic benefits are less obvious. Secondary schools see their role as providing specialist teaching by experts in the usual subject disciplines. In order to do this effectively, secondary schools usually have their subject specialists working together in teams.
For example a team of Science teachers can deal with half of Year 9 at one time, dividing them up into groups so that the appropriate specialist can deliver their own specialist area of Science to that group. The same for Technology. In Maths or English it is often the case that as children move through secondary schools they are put into teaching groups according to their achievement in that subject ('setted' according to attainment levels). This again requires a team of specialist teachers to be available at the same time in order that the half-year or full-year can be divided into their attainment-level groups for that subject and be taught the subject at the same time.

And here we have the basic dilemma.
Secondary schools need their teachers working in subject teams most of the time, while the new proposal for 'generalist' teachers in Year 7 is taking people out of the specialist teams for a great proportion of their week.
The obvious consequence is that :

- either these 'generalists' should relinquish their role in their specialist team (a few may be willing to do this!),
- or the specialist teams have to limp along with one of their key players missing on occasions (split classes, with a group taught by a different teacher at different times of the week!),
- or both.

In any case there are pedagogical and curricular implications.
In recent years, because of the emphasis on exam performance, most secondary schools have attempted to increase the opportunities for departments to 'set'.
The current proposals for a 'primary' Year 7 will necessarily reduce the opportunity for ability 'setting' across Years 8 to 11. What effect will this have on the exam results in your school?

Some schools are interpreting the Year 7 suggestions in a slightly different way.
They wish to ensure that each Year 7 class gets their Literacy and Numeracy in the mornings, and in the afternoon groups of 'generalists' are intended to work with a group of Year 7 classes on a joint 'project' or 'theme'.
The consequences of this approach are even more severe.
If all of Year 7 are having Literacy and Numeracy in the morning it is likely to seriously deplete the school's English and Maths team so that it may well be impossible for any of Years 8 to 11 to have any Maths or English in the morning!
And for groups of 'generalists' to be available together as a team of joint afternoon projects, many subject departments or Option Blocks in Years 10, 11 and the Sixth Form (which of course could be linked to other institutions, as discussed above) will not be able to function in the afternoon!

The next page looks at some practical ways for a timetabler to investigate new proposals.

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## Practical ways forward for the Timetabler

1. If you are sharing your curricular ideas with colleagues in your school or in other (linked) schools, the only non-ambiguous way is to use a **Curriculum Diagram**.
   For more details of how to draw and present a Curriculum Diagram, click on:
   http://www.timetabler.com/SupportCentre/CurriculumDiagram.xls

2. One of the tensions caused by these new curricular structures is the interaction between teachers 'in parallel' in Upper school (ie. a teacher-team all teaching at the same time) and teachers 'in series' in Lower school (ie. a team of teachers teaching the same population at different times).
   This interaction can be examined and improved by using **Zarraga's Rule**. More details about this pre-scheduling test are given at: http://www.timetabler.com/zarraga.html ) but the results are not always easy to interpret.

3. A **Combing Chart** (see http://www.timetabler.com/inset.html ) is a useful pre-scheduling test which can indicate if a schedule will be impossible to schedule, and it may help you to identify the exact reason for scheduling impossibilities.
   It is best done for each department (or faculty) initially, and then extended to pairs of departments which have a member of staff in common, or are otherwise linked (for example by the option blocks in years 10-11).

4. A **Conflict Matrix** (see http://www.timetabler.com/inset.html ) is another pre-scheduling test which can help you to identify clashes which may make a schedule impossible.

5. A **Schematic Diagram** can help to clarify impossibilities in the structure and the staffing of that structure.
   It is often not necessary to draw a schematic diagram of the whole year. For example if you are investigating whether you have enough Music teachers to schedule the section involving Music, then you need only draw the schematic diagram for that part of the curriculum.

6. **'What if…?' investigations**
   With modern timetabling software it is easy to do **'What if…?'** trial runs, to see how difficult any new curricular proposals may be.
   If you have Keith Johnson's ***TimeTabler*** software then get the full details of how to do some 'What if…?' investigations by clicking on :
   http://www.timetabler.com/SupportCentre/What-if-investigations.pdf

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## Appendix : Changing the Timeframe

In order to help the process of synchronizing timetables across institutions, it may be necessary for one or more of the institutions involved to change their lesson length or the number of lessons in a timetable cycle, or both. If this process also requires changing the start time or end time of the day, more groups of people need to be consulted during the process.

**Sharing out the time** ('ppw' = periods per week, 'ppf' = periods per fortnight)

| | |
|---|---|
| 40 ppw | 1 lesson = 2.5% |
| 35 ppw | 1 lesson = 2.9% |
| 30 ppw | 1 lesson = 3.3% |
| 25 ppw | 1 lesson = 4% |
| 60 ppf | 1 lesson = 1.7% |
| 50 ppf | 1 lesson = 2% |
| 100 modules pw | 1 module = 1% |

**The effect of any changes :**

Of course when you change the timeframe, individual subjects gain or lose time in each year and may gain or lose time overall.

Some subjects are taught to small groups, others are taught to large, ...so any changes can affect your staffing levels.

Taking a Year focus :

If small-group subjects increase their time, average teaching group size goes down in that year, the number of staff used will go up. Check what the Staff Deployment Analysis looks like !

Looking at the Whole School :

If small-group subjects gain time overall, then the overall average group size goes down, and so the Contact Ratio goes up OR more staff are needed. Check the budget !

**Length of lessons**

You will need to consult with your colleagues, but typical reactions from different subject areas are:

| | |
|---|---|
| 35 mins | MFL like 1 period, Maths like 2, Science and Technology like 3 or 4 periods. |
| 40 mins | MFL like 1 period, Maths like 1 or 2, Science/Technology like 3 or 4. |
| 50 mins | MFL cope with 1 period, Maths like 1, Science/Technology like 2 or 3. |
| 60 mins | MFL want 0.5, Maths like 1, Science/Technology want 1 and 2 (depending on the KS). |
| 15 mins | MFL like 2 units, Maths like 3, Science/Technology like 5 units. |

**Planning for making the changes :**

As noted on page 1, any change of timeframe (lessons in the week/fortnight or length of lessons) is not something to be undertaken lightly or in a hurry! Always plan for the September after next !

Everyone needs to be consulted. If start-time or end-time are to be changed then the local bus/taxi companies will need to be consulted as well as parents! If lunch time is to be moved then the caterers and lunch-time supervisors will need to be involved. Some extra-curricular activities may happen at lunch time and the new arrangements will possibly affect them.

You may wish to visit www.mervynwakefield.co.uk and look at some of the case studies or talk to Mervyn Wakefield about some of the issues involved.