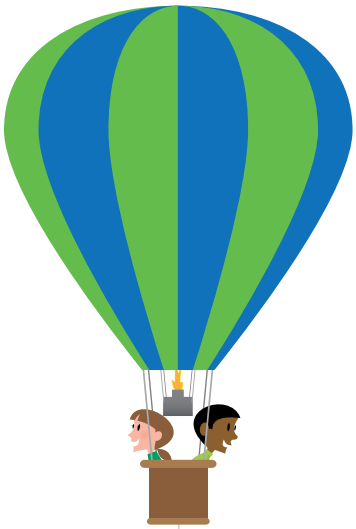

The National Strategies
Secondary

Curriculum provision in secondary science

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department for
children, schools and families

Curriculum provision in secondary science

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Introduction

This guide has been produced for senior and subject leaders in secondary schools to support the planning of provision in science.

When designing the aspects of the curriculum that deliver science it is important to consider how to cover both Key Stage 3 and 4 programmes of study to support pupil progress from 11 to 16 and beyond. This perspective is supported by the National Strategies' Framework for science with regard to processes, range and content. It is further reinforced by the primacy of the Key Stage 2–4 progress indicators for schools.

This guide explores the implications of making effective provision in terms of teaching and learning and meeting pupils' needs by the selection of appropriate courses to construct curriculum pathways.

It consists of the following sections:

1. What makes science a critical part of the curriculum?
2. The range of pathways possible in science
3. Curriculum provision in science placed in the context of the school
4. Considering particular pathways in science
5. A brief guide to the science specifications available for Key Stage 4
6. Positive and negative features of particular pathways in science, including particular considerations
7. Examples of how different schools have assembled curriculum pathways in science.

1. What makes science a critical part of the curriculum?

Science has a fundamental role, both in the National Curriculum and in the life and purpose of a school. This section considers the factors that give it this importance.

a) The benefits of science

The study of science fires pupils' curiosity about phenomena in the world around them and offers opportunities to find explanations. It engages learners at many levels, linking direct practical experience with scientific ideas. Experimentation and modelling are used to develop and evaluate explanations, encouraging critical and creative thought. Pupils learn how knowledge and understanding in science are rooted in evidence. They discover how scientific ideas contribute to technological change – affecting industry, business and medicine and improving quality of life. They trace the development of science worldwide and recognise its cultural significance. They learn to question and discuss issues that may affect their own lives, the directions of societies and the future of the world.

Programme of study for science at Key Stage 3[1]

Science is an exciting and engaging subject which has the potential to inspire interest in the physical world and stimulate the creative and enquiring qualities necessary to develop a problem-solving mind. Through the delivery of science pupils have the opportunity to develop as independent learners utilising

1 Extract taken from National Curriculum 2007, QCA, 2007, p207 http://curriculum.qcda.gov.uk/

personal learning and thinking skills and have opportunities to practise and develop functional skills in literacy, numeracy and ICT. However, not only can it be an attractive area of the curriculum for individual pupils, but the UK economy requires a supply of well-trained scientists:

To support the UK's ambition to move to a higher level of research and development (R&D) intensity, it is crucial to ensure that the UK has the right stock and flow of skilled scientists, technologists, engineers and mathematicians, as well as technicians and other R&D support staff, generated from within the UK and attracted from abroad. A highly skilled, diverse workforce will contribute to business productivity and innovation, enabling UK businesses to exploit fully new technologies and scientific discoveries, achieve world-class standards and compete globally.

Science & innovation investment framework 2004–2014[2]

The STEM agenda encourages schools to support progression to post-16 studies in science, technology, engineering and mathematics.[3] One aspect of this is encouraging young people to recognise the doors that are opened in future careers if they are successful in science and related subjects.

b) Statutory and non-statutory requirements

It is quite possible to provide a choice of pathways that offer pupils different ways of experiencing success and provide progression to further study in science and related areas; however it may not be immediately apparent which courses should be offered and to whom.

All pupils must have access to a course that covers the Key Stage 4 programme of study for science (there is no disapplication) and all maintained schools must offer any pupil who so wishes the opportunity to study *either* GCSEs in Science and Additional Science or GCSEs in Biology, Chemistry and Physics (Triple Science). Triple Science[4] GCSE provides a greater breadth of content for pupils who want it[5]. Schools can offer other science qualifications in addition to one or both of these but must include at least one of them[6]. Schools with a specialist status in science, technology or engineering (and mathematics from 2010) are required to offer Triple Science. See Appendix 1 for fuller details of requirements and performance indicators.

The following performance indicators may be used:

- The percentage of pupils attaining two or more grade Cs or higher in '2+ sciences' (National Indicator 84).[7]
- The percentage of pupils progressing to study Physics, Chemistry and Mathematics at A level post-16 (National Indicator 85).
- The percentage of pupils making at least three or more levels of progress in science from Key Stage 2 to 4.
- The percentage of pupils attaining at least one grade C or higher in any science GCSE.

It is important to note that science has a key role in strengthening the profile of pupil attainment and in many schools makes a significant contribution to the proportion of pupils attaining five or more good GCSE grades.

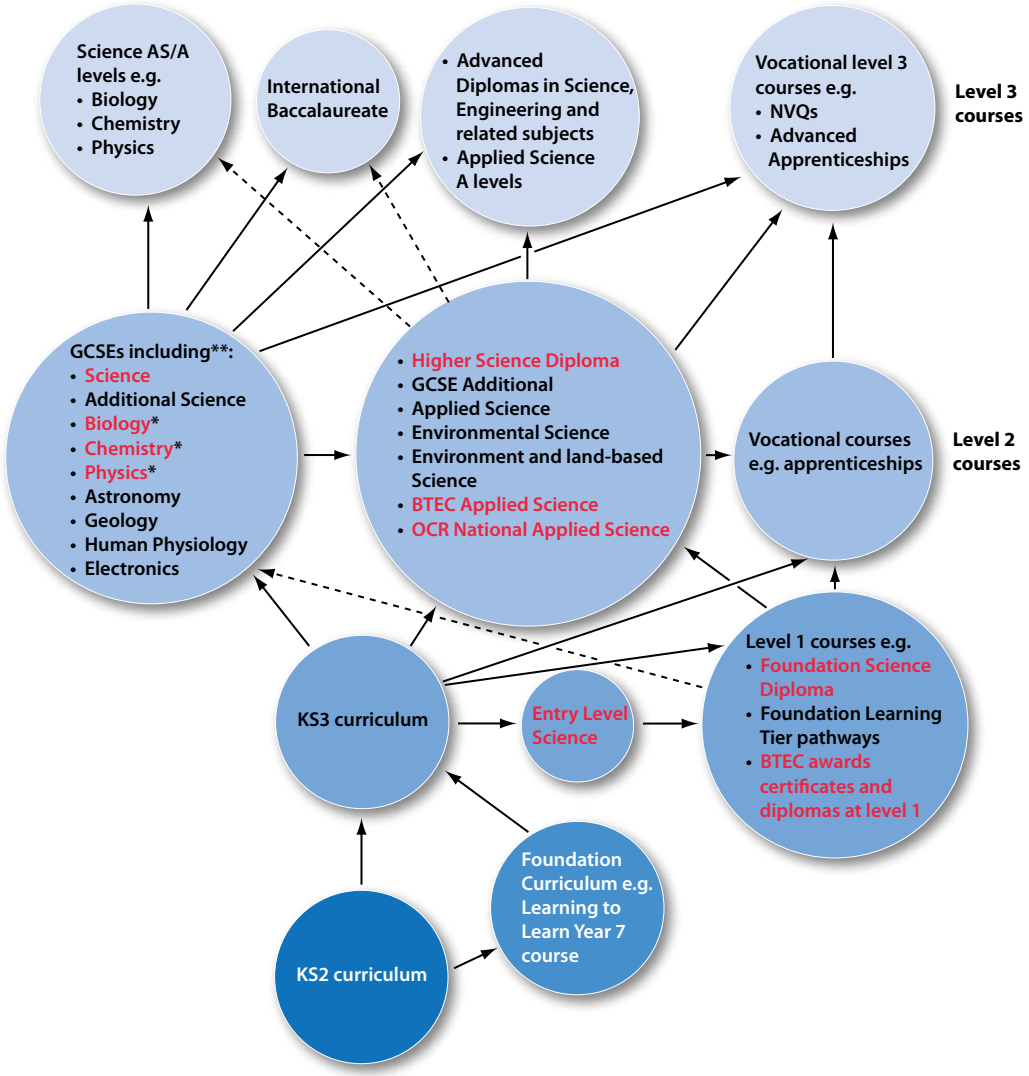
There are a number of changes taking effect from September 2011, including new GCSE Science specifications, the discontinuation of Double Award Applied Science and the introduction of the Science Diploma at levels 1 and 2. This is against a background of significantly increased uptake for Triple Science (for which the DCSF has set challenging targets for uptake) and for Applied Science courses. Furthermore pupils are being expected to stay on after the age of 16 to take advantage of further education and training (see Appendix 2).

2 Extract taken from Government policy statement, HM Treasury, www.hm-treasury.gov.uk/spending_sr04_science.htm
3 www.dcsf.gov.uk/stem/
4 www.legislation.hmso.gov.uk/acts/acts2002/ukpga_20020032_en_9#pt6-pb3-l1g84
5 www.triplescience.org.uk/
6 www.opsi.gov.uk/si/si2007/uksi_20072241_en_1
7 www.dcsf.gov.uk/performancetables/Final-Decisions-on-Changes-to-the-Content-of-the-2007-Achievement-and-Attainment-Tables.pdf

2. The range of pathways possible in science

This section presents an overview of the kinds of pathways available. There are a series of routes that pupils can choose to follow when studying science from 11 to 19 and when planning curriculum provision it is important to plan the routes most appropriate for the learners. To do this effectively it is essential that the teaching and learning styles inherent in the different pathways are not only understood but exploited so that pupils have a real choice. The provision of courses needs to be based on a clear understanding of the pedagogy of the specifications.

Stage not age pathways diagram



Courses highlighted in red cover the PoS for KS4 Science
*Biology, Chemistry and Physics cover POS for KS4 science only if *all* are taken.

This could be a progression route along a particular curriculum pathway. (Stage, not age pathways)

This could be a progression route however the pupils would require additional support.

**GCSE grades have to be C or higher to count as Level 2

3. Curriculum provision in science placed in the context of the school

School self-evaluation will provide evidence for the evaluation of existing provision and highlight strengths and areas for development in the science department.

- Timetabling and continuity: the curriculum should support the effective development of pupils' skills, processes and understanding, allowing them to progress through Key Stages 3 and 4 at the most appropriate rate. The allocation of time for Key Stage 3 science is important, both in terms of the percentage of curriculum time in each year and the length of the course needed to build effective foundations for the Key Stage 4 course. It may be seen as less significant than the Key Stage 4 course and be condensed to a degree that fails to allow for such development. However it is appropriate for pupils who are making a greater rate of progress and are ready for a Key Stage 4 course to be allowed to move onto that; a key aspect is the effective tracking of pupil progress so that 'readiness for Key Stage 4' is identified. Schools in which Assessment for Learning (AfL) practices are not only well established but used to inform lesson design and delivery and in which Assessing Pupil Practice (APP) is providing quality data will be more successful here.
- Good progression: it is important to build on prior learning from Key Stages 1 and 2 and to cover both Key Stage 3 and 4 programmes of study to support pupil progress from 11 to 16. The curriculum should effectively support access to the local range of post-16 science courses; the quality of the information and individual guidance provided to pupils should help them make informed choices regarding future courses and careers. This perspective is supported by the National Strategies Framework for science[8] with regard to both processes, range and content and by the primacy of the Key Stages 2–4 progress indicators for schools. Pupils need to be equipped for future success: following a course consisting of Science and Additional Science, or Triple Science, would be effective for pupils to access A level science courses in Biology, Chemistry and Physics, as well as Advanced Diploma and National courses. Applied Science courses such as GCSE Additional Applied, OCR Nationals and BTEC are suitable for pupils to progress to Applied Science A levels or Advanced diplomas. Vocational courses such as NVQ and apprenticeships are suitable for pupils wishing to access work-based learning. Pupils may need to change the pathway they are following as their study of science develops; this may be a challenge for schools to meet.
- Meeting pupils' needs: the curriculum offer in science should contribute to a broad and balanced curriculum, designed to meet the needs of individuals and groups of pupils and taking into account the local context, employment opportunities and post-16 provision. All GCSE science specifications on offer at Key Stage 4 give pupils access to a full range of grades; the differences are in the style of learning, the mode of assessment, the skills and processes developed and the onward progression routes possible. The progress made by pupils at each of the levels at the end of Key Stage 2 and 3 by the time they reach the age of 16 will reveal aspects of the quality of the current provision and whether all pupils are being challenged. It is also essential to review the progress made by vulnerable groups to judge the extent to which provision as well as delivery is effective for them.
- Quality of teaching and learning: the balance between developing new courses and ensuring the quality of provision is critical as the time and effort expended on exchanging one course for another may, in some cases, be better spent on developing the quality of delivery of an existing course. The profile of attainment and achievement in science is critical, including that of vulnerable pupils.

8 The National Strategies Framework for Science can be found at: **www.standards.dcsf.gov.uk/nationalstrategies** (Go to: secondary–secondaryframeworks–scienceframework)

- If more than one GCSE course is being taken in Key Stage 4 these may be delivered consecutively or concurrently. The former is simpler; teachers and pupils are working on one course at once and pupils may be motivated by getting a GCSE before the end of Year 11. However, it may be harder to provide variety in the curriculum this way; pupils studying, for example, Science and Additional Applied Science in parallel may enjoy a more varied experience and may find it easier to see the relevance of their studies.
- Each Key Stage 4 course has its own assessment regime which is determined by the awarding body. This will determine certain aspects of the scheduling of the units and needs to be allowed for when organising provision. Consideration needs to be given to matching the assessment regime to the particular needs of groups of learners; portfolio-based assessment, for example, may not be suitable for poor attenders.
- School ethos: pathways in science should reflect the way in which a school is developing overall, for example developing applied learning, or utilising links with local industries. Some science courses may develop the contribution pupils make to the school and wider community; the science curriculum may encourage the development of partnerships to promote learning.

4. Considering particular pathways in science

This section introduces a variety of pathways and suggests how choices can start to be considered. A science curriculum is likely to incorporate a range of courses, leading to supporting progression to appropriate study at level 3. It is unlikely that in a mainstream comprehensive school that only one of the pathways described will cater for the learning needs of all its pupils.

<table>
<tr><th>Pathway</th><th>Year 7</th><th>Year 8</th><th>Year 9</th><th>Year 10</th><th>Year 11</th></tr>
<tr><td>A</td><td colspan="3">KS3 Science</td><td>GCSE Science</td><td>Other science course, such as Additional or Additional Applied Science</td></tr>
<tr><td>B</td><td colspan="3">KS3 Science</td><td colspan="2">Triple Science</td></tr>
<tr><td>C</td><td colspan="3">KS3 Science</td><td colspan="2">Applied Science course, e.g. BTEC or OCR National, or Vocational science course, e.g. NVQ or apprenticeship.</td></tr>
<tr><td rowspan="2">D</td><td colspan="3" rowspan="2">KS3 Science</td><td colspan="2">GCSE Science</td></tr>
<tr><td colspan="2">Other science, e.g.Additional Science or Additional Applied Science</td></tr>
<tr><td>E</td><td colspan="2">KS3 science</td><td colspan="2">KS4 science</td><td>AS Level</td></tr>
<tr><td>F</td><td>Foundation Curriculum</td><td colspan="2">KS3 science</td><td colspan="2">Any of the KS4 science courses.</td></tr>
<tr><td>G</td><td colspan="3">KS3 science</td><td>GCSE Science</td><td>Non-science course</td></tr>
</table>

The letters in the left-hand column refer to the further detail on each of these pathways as provided in section 6.

Although years are indicated, these pathways can be customised by altering the point of transition from the Key Stage 3 programme of study to Key Stage 4. The pupils' reported Key Stage 3 level (from teacher assessment) will be in the year in which they finish their Key Stage 3 course. For example if they finish the Key Stage 3 curriculum in Year 8, the teacher assessment for Key Stage 3 has to be reported in that year[9].

A number of schools are focusing on making this transition a smooth one by looking at the units studied at the end of Key Stage 3 and at the start of Key Stage 4 (see Appendix 3); however it is worth noting that Key Stage 4 assessments may not be used as a basis for deriving Key Stage 3 Teacher Assessment (TA) levels[10]. Planning for pupils' progress is not only based on where their aspirations lie but also the preparation that is provided by the curriculum at Key Stage 3. For example, pupils with less secure academic language skills may initially be placed on an applied route; however, addressing these needs in Key Stage 3 can prepare them appropriately for a more academic Key Stage 4 course.

It is important at this stage to clarify some terminology:

- Specification: an awarding body's requirements for pupils to complete an accredited course.
- Course: the sequence of lessons and other learning experiences, based on the programme of study and at Key Stage 4 would normally lead to an external qualification.
- Pathway: a course, or combination of courses, that leads to appropriate recognition and the opportunity to access further study.
- Provision: the range of pathways a school provides through the 11–16 phase to provide an education in science.
- GCSE science is sometimes referred to as 'Core' science. However it is referred to here by its formal title.
- The 'two good sciences' indicator is referred to as '2+ sciences'; there is no desire to devalue grades lower than C that nevertheless may be good outcomes for the pupils being awarded them.
- *How science works* is the processes and skills that underpin science. *How science works* has a fundamental role in all courses and should be an integral part of lessons, reflecting its part in science as a domain of knowledge. Some, but not all, of these processes and skills are common to other subjects; there is a strong relationship between *How science works* and functional skills.
- Standard time allocations for GCSE courses are 120–140 guided learning hours for a single award and 240–280 for a double award.

9 http://testsandexams.qcda.gov.uk/libraryAssets/media/2010_key_stage_3_TARA.pdf
10 http://testsandexams.qcda.gov.uk/libraryAssets/media/2010_key_stage_3_TARA.pdf

5. A brief guide to the science specifications available for Key Stage 4

This section describes the courses that are available from which curriculum pathways may be constructed. The specifications available fall into three broad groups which are described here.

<table>
<tr><th>Course</th><th>Key features</th></tr>
<tr><td>GCSE Science</td><td>Covers the processes, skills and concepts in the Key Stage 4 Programme of Study. It addresses the role of science in society but does not (on its own) support progression towards the study of A level Science post-16. Pupils must either follow this course or another that covers the Key Stage 4 programme of study, such as Triple Science, BTEC or OCR Nationals in Applied Science.</td></tr>
<tr><td rowspan="2">GCSE Additional Science</td><td>This supplements GCSE Science and supports progression towards the study of A level Science post-16, counting towards the ‘2+ sciences’ indicator.</td></tr>
<tr><td rowspan="2">Additional Science, Biology, Chemistry and Physics are about the ways scientists work when testing and extending ideas and developing new explanations. They focus on the practice of science as a subject. Pupils who enjoy exploring and testing ideas and their possible applications are likely to get more out of this kind of course.</td></tr>
<tr><td>GCSE Biology, Chemistry & Physics – the ‘Triple Science’ route</td></tr>
<tr><td>This combination covers the Key Stage 4 programme of study, and supports progression towards the study of science post-16. Each subject is separately assessed and is intended to be taught in ‘one GCSE’s worth’ of curriculum time (typically 10%); if it is offered in less than 30% of curriculum time, thought will need to be given to how pupils can be supported. Pupils’ two best grades count towards the ‘2+ sciences’ indicator.</td></tr>
<tr><td>Other individual science courses, including Astronomy, Biology, Chemistry, Geology and Physics</td><td>It is only the Triple combination (see above) that covers the Programme of Study and the statutory requirements for Key Stage 4, so other combinations have to be offered with science. Offering other single sciences may support progression towards the study of science post-16 in certain areas, though they lack balance, and don’t count towards the ‘2+ sciences’ indicator.</td></tr>
<tr><td>GCSE Additional Applied Science</td><td>Additional Applied Science develops the explanations and applications from GCSE Science and is about how people use science in their work to achieve outcomes such as products or services. Pupils who enjoy putting science to practical use or find it easier to understand in a context are likely to get more out of this course. It supports progression to post 16-in areas of Applied Science and related subjects. Together with GCSE Science it counts towards the ‘2+ sciences’ indicator.</td></tr>
</table>

GCSE Double Award Applied Science	This course considers the kind of investigations that scientists undertake and the knowledge and understanding they need. It considers employment areas with significant science content. The last entry for this course is September 2010; it counts for the '2+ sciences' indicator.
Environment & Land-Based Science	The course combines practical activities (pupils build an e-portfolio of their work) with skills, knowledge and understanding supporting progression to further study and vocational opportunities in the Land and Environment sector. Offered by OCR; together with GCSE Science it counts towards the '2+ sciences' indicator.
BTEC Applied Science (Certificate or Diploma)	Edexcel's BTEC level 2 First Certificate and Diploma in Applied Science are designed to introduce learners to working in a range of industries and services or prepare them for further study. These have been re-organised for 2010 as follows: ● Level 2 BTEC Diploma, worth 4 GCSEs A* to C ● Level 2 BTEC Extended Certificate, worth 2 GCSEs A* to C (equivalent to the previous First Certificate). The above courses both count towards the '2+ sciences' indicator. ● Level 2 BTEC Certificate, worth 1 GCSE (this is new, covers the Programme of Study only but does not count towards '2+ sciences' indicator.)
OCR National Applied Science.	Pupils carry out a range of tasks that have been designed to develop their skills, knowledge and understanding in work-related contexts. They carry out a range of tasks in work-related contexts. This level 2 course supports progression to an NVQ and counts towards the '2+ sciences' indicator.
Science Diploma (from 2011, Advanced from 2012).	The Diploma in Science can be studied at three levels: ● Foundation level is equivalent to 5 GCSEs at grades D to G, ● Higher level is equivalent to 7 GCSEs at grades A* to C, ● Advanced level is equivalent to 3.5 A levels (launches September 2012) The Diploma will involve a mix of principal learning (which focuses on developing science knowledge and skills, with an emphasis on learning by doing), generic learning to give pupils the English, ICT and mathematics skills needed to deal with everyday life and additional and specialist learning which allows the student to choose extra subjects to study. The Higher Diploma will count towards the '2+ sciences' indicator.

See Appendix 1 for further clarification of which combinations of courses count towards the '2+ sciences' indicator (National Indicator 84).

6. Positive and negative features of particular pathways in science, including particular considerations

This section considers some of the main types of pathways and features associated with them. Science courses can be combined to form a range of different pathways: many schools offer a choice of pathways in order to cater for different learning needs and progression routes for post-16. Three important considerations when designing curriculum pathways in science are as follows:

- Are pupils going to be studying one, two or three GCSEs or a different course?
- If pupils are studying two or three GCSEs are these courses going to be delivered concurrently or consecutively? (These are often referred to as parallel and series modes of organisation).
- Are there other courses that need to be included apart from Key Stage 3 and 4 science?

This section shows how the courses may be combined to form curriculum pathways, each corresponding to one of the rows in the table in section 4. There is a commentary with each pathway indicating key features, advantages and disadvantages from the perspectives of pupils (**P**), teachers (**T**) and school (**S**) and points to consider. Case studies are included to provide illustrations of the pathways.

Studying one, two or three GCSEs or a different course

Curriculum Pathway A

Year 7	Year 8	Year 9	Year 10	Year 11
	KS3 Science		GCSE Science	'Other' GCSE Science

Description

In this pathway pupils take three years to develop the appropriate skills, processes and knowledge to be ready for GCSE courses. GCSE science is followed by an 'other' science, which might be Additional Science or Additional Applied Science, for example it could also be one of the 'separate sciences' such as Biology or another subject, such as Astronomy, which may offer a range of different experiences but not the same balance (or count towards the school's '2+ sciences GCSE' indicator).

Advantages of this pathway:	However:	Other aspects to consider include:
Allows for the effective development of processes and concepts in Key Stage 3 and for STEM enhancement and engagement activities. **P T** Contributes to the school's '2+ sciences' indicator. **S** Allows for good transfer to A level Science (and helps the 'progression to post-16' indicator). **P S** Allows for flexibility of choice at the end of Year 10. **P T** Is easy to organise and for other stakeholders to understand. **T S**	Two Key Stage 4 science courses sequentially may be seen by pupils as being completely separate; the progression in processes and concepts at Key Stage 4 may be weak. **P** GCSE Science 'on its own' in Year 10 may not be very challenging for some pupils. **P** Poor attainment in Year 10 could lead to lack of motivation in Year 11. **P** If offering Biology (or other single science courses, see Appendix 1) it needs to be understood that even if pupils get grades A*–C in both it won't count towards the school's '2+ sciences GCSE' indicator. Such a pathway may not provide a good route into studying science post-16, even in the same area of science as the second GCSE; post-16 courses often require a broader science education pre-16. **S** Could lead to Year 11 becoming a 'Year 10 re-sit year' for some pupils, distracting them from the Year 11 course. **P T S**	It is important that progression is planned for in this pathway; the two GCSE courses have different functions and pupils' experience may become disjointed. *How science works* can have a unifying function if its profile is strong and it is taught explicitly throughout each course. Some of the organisational advantages may be disadvantages from the perspective of planning for progression. Possibility of pupils being able to experience some innovative courses in Year 11, including shared provision between schools. GCSE regulations from 2011 mean that schools have to 'cash in' assessment components at end of Year 10 for first course.

Case study i: Designing and changing the flexible curriculum offer to meet the needs of all pupils.

The Harwich School, Essex LA, a comprehensive 11–18 specialist language college.

Pupils followed GCSE Science in Year 10; they were then given a choice from: Triple Science, Additional Science, Additional Applied Science, Electronics, Psychology and Environmental and Land-based Science. This meant that a wide range of options were open to pupils, who responded positively with an improvement in behaviour and attendance. Some who would have previously failed to complete any GCSE courses completed the Environmental and Land-based Science course successfully.

However, attainment in the second science courses was generally lower than in GCSE Science (and previously in double award science); some pupils chose inappropriate courses for their ability and interest and some of the GCSE combinations did not meet the school's reporting measure for 2+ sciences. Starting the second GCSE course after completing GCSE Science in Year 10 restricted the time to cover and develop the new course. For example, time allowed for plant growth on the Environmental and Land-based Science course would have been more comfortable if the course had started in Year 10. It was felt that pupils may have been distracted from their new courses by re-sitting modules from science and staff had to develop several new courses at the same time.

As a result of the difficulties arising from teaching this wide range of subjects, the school has now modified its provision:

- Pupils in Year 9 who are working at level 6 and beyond start Triple Science during that year to increase the curriculum time available.
- Pupils in Year 10 are provided with advice as to which courses may be appropriate for them. They are able to choose between Additional Science, Additional Applied Science, Environmental and Land-based Science, Triple Science and BTEC First Diploma in Applied Science (level 2).
- Pupils who have been less successful with GCSE Science have been given the option to complete the BTEC First Certificate in Applied Science.
- The school now offers a level 3 BTEC Applied Science course in the sixth form to provide a suitable progression route for those pupils following applied GCSE courses and for current pupils wishing to continue to study beyond Key Stage 4 who were awarded grade C or lower at GCSE.

As a result, pupils are more likely to choose a course suited to their ability and learning style in which they can achieve two science GCSEs at A*–C. Clear progression routes from Key Stage 4 to post-16 are in place and there is a flexible start time to the GCSE courses providing more time for Triple Science or more time at Key Stage 3 for developing skills and understanding needed for success on the GCSE courses.

However, pupils have a smaller choice of GCSE options and they have to choose their Key Stage 4 science pathway in Year 9 rather than the end of Year 10, when they may be less aware of their future direction.

Case study ii: Local schools working together to increase range of science enrichment options.

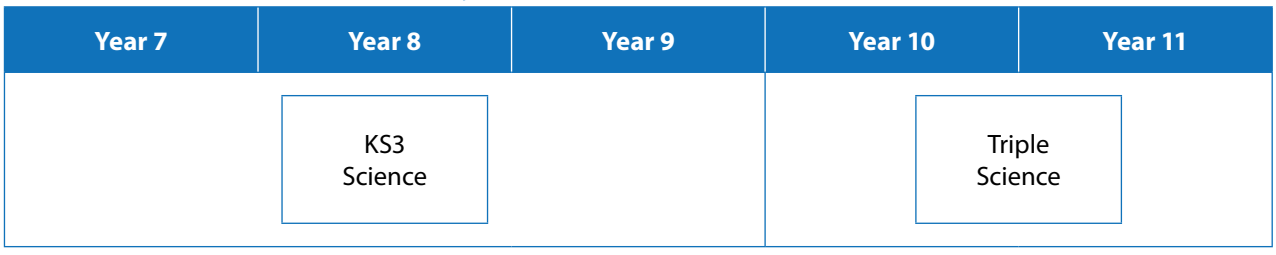
Colchester Royal Grammar School, Essex LA, a selective 11–18 specialist science and languages college, and **St Helena School, Essex LA,** a comprehensive 11–16 specialist media college.

In order to make use of the wide range of GCSE science options these two schools have paired up to offer additional courses for study after school. One school teaches GCSE Geology to a mixed group from both schools and the other offers GCSE Astronomy.

This has meant that more courses are open to pupils and that specialist teachers are available to teach the courses by sharing delivery. Pupils and staff benefit from working together and sharing experiences; science enrichment helps engagement and achievement in the pupils' other science courses.

However, lessons have to take place outside the normal timetable, which requires extra commitment from pupils and staff. Transport needs to be provided for the pupils between the two schools. Neither of these GCSEs currently count towards the schools' reporting measure for '2+ sciences'.

Curriculum Pathway B



Description

In this pathway pupils take three years to develop the appropriate skills, processes and knowledge to be ready for GCSE courses. During Years 10 and 11 pupils take three GCSEs covering three separate sciences.

Advantages of this pathway:	However:	Other aspects to consider include:
Allows for the effective development of processes and concepts in Key Stage 3 and for STEM enhancement and engagement activities. **P T** Supports progression to post-16 science. **P** Contributes to the school's '2+ sciences' indicator. **S**	The proportion of curriculum time given over to Triple Science; less than 30% allows less time than awarding bodies recommend but this is often balanced against squeezing out other subjects. **P**	This course is designed for pupils making better than expected rates of progress, i.e. at least 3–4 levels of progress between Key Stages 2–4, and particularly those that are interested in going on to post-16 sciences. The pathway can be modified by reducing the time allocated to Key Stage 3 if tracking data indicates pupils are ready to start their Key Stage 4 course; care will need to be taken to ensure that processes and concepts are sufficiently developed for pupils to succeed at GCSE. If less than 30% of curriculum time is allocated thought will have to be given as to how pupils can be supported to make good progress; if 30% is allocated this is likely to reduce the number of other subjects studied at Key Stage 4. Careful choice of courses is needed to allow for meaningful progression post 16. May have implications for staff expertise and CPD; the majority of topics are common with a 'GCSE+Additional' pathway but those which are not may need additional support. This needs to be identified and planned for. Thought needs to be given to provision for pupils who want to join or leave a Triple Science course after it has started. Various solutions to this have been developed, including the running of 'twilight' lessons; what is important is that such provision is effectively open to all pupils and is not overly taxing. Triple Science is sometimes offered as a way of increasing the challenge for higher-attaining pupils; it is important to bear in mind, however, that the grade range is the same as for other GCSEs. Provision is sometimes structured to give pupils access to specialist teachers in particular areas of science; it is important to bear in mind that whereas for some pupils this may be a stimulating and positive feature, for others it may reduce the consistency and continuity in a pathway. It has to be balanced by the need to reflect the overall nature of science, with its common core of processes and the need to draw on different areas of science to construct explanations.

Case study iii: Whole cohort following a two-year Key Stage 3 to increase time for Key Stage 4 courses, particularly Triple Science

Colchester Royal Grammar School, Essex LA, a selective 11–18 specialist science and languages college.

In order to enable sufficient curriculum time for all pupils to study Triple Science, or GCSE Science and Additional Science with other GCSE course options, without reducing the number of options open to pupils at GCSE, the school decided to start pupils on their Science GCSE courses at the beginning of Year 9. All pupils finishing Year 8 were already working beyond level 6 and therefore at a suitable stage in their development in science to begin studying GCSE.

This meant that there was no reduction in the total number of options available to pupils and that all pupils able to complete at least 2+ sciences at GCSE; most study Triple Science (86%). However there is a lack of flexibility for pupils not at a suitable stage of development at the end of Year 8.

Case study iv: Fitting Triple Science into the curriculum without restricting options.

Philip Morant School and College, Essex LA, a large 11–18 specialist technology college.

In order to enable increased curriculum time for Triple Science without reducing the number of options open to pupils at GCSE, the school grouped Triple Science together with an OCR National First Award in ICT, with the possibility of extending to the OCR National award, to occupy the Science and Additional Science time (20% allocation) and one option block (10% allocation). Each science GCSE was allocated 8% curriculum time (four one-hour lessons per fortnight) and ICT was allocated 6% curriculum time (three lessons per fortnight). Joint planning between the subject specialists provides opportunities for the development of ICT skills in science lessons and the ICT lessons can draw on science contexts, reducing the impact of the shortfall in curriculum time for each course.

This resulted in a significant increase in the total number of pupils taking Triple Science (from 55 to 110), an increase in the number of girls taking Triple Science and an Increase in the number of pupils opting for studying A level Science. There was no reduction in the total number of options available to pupils and cross-curricular links and the role of functional skills were strengthened. It was relatively easy to fit into the timetable. However, the range of option choices was slightly restricted and there was a reduction in teaching time for each individual subject. The cross-curricular planning takes more time to be effective.

Curriculum Pathway C

Year 7	Year 8	Year 9	Year 10	Year 11
	KS3 Science		Applied Science	

Description

In this pathway pupils take three years (Years 7–9) to develop the appropriate skills, processes and knowledge to be ready for GCSE courses. The Key Stage 4 course could be BTEC or OCR National Applied Science. Prior to 2011 Double Award Applied Science is available and from 2011 the Diploma in Science will be an option.

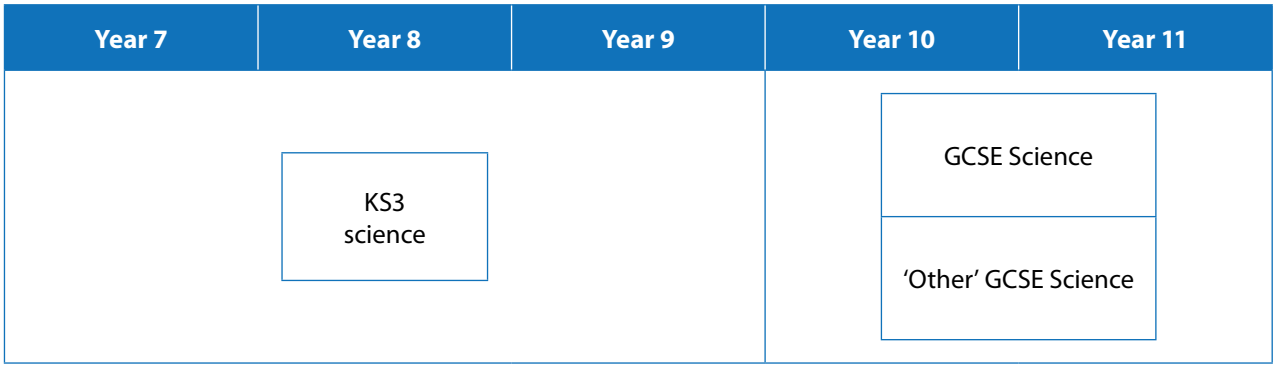
Advantages of this pathway:	However:	Other aspects to consider include:
Allows for the effective development of processes and concepts in Key Stage 3 and for STEM enhancement and engagement activities. **P T** Contributes to the school's '2+ science' indicator through an applied route. **S** Supports progression to post-16 Applied Science courses. **P**	Pupils may not find it easy to progress to A levels in Biology, Chemistry and Physics, which may affect the school's 'progression to post-16' indicator (NI85).	The availability of suitable post-16 courses as progression from Applied Science at Key Stage 4. Some Applied Science courses have key features that have implications for staff CPD.

Curriculum provision in secondary science: concurrent or consecutive courses

If pupils are following more than one course in Key Stage 4 it is useful to consider whether a concurrent mode of delivery might be appropriate. Such considerations are often driven by logistics but there are pedagogical aspects to this as well. Concurrent (or parallel) courses make it easier for pupils to gain a broader experience of science in the short term; it is also easier for teachers to plan for progression in courses that run over a longer period of time.

However, this approach needs careful planning to ensure that topics in the 'other' science course are not dependant on topics from the science course that wouldn't have been covered. If this is being considered it would be important to check with the awarding body whether they are designed to be delivered in this way.

Curriculum Pathway D



Description

In this pathway pupils take three years to develop the appropriate skills, processes and knowledge to be ready for GCSE courses. A variation of this approach for two sciences is to use an 'alternating' approach, in which pupils study a unit from one course followed by one from the other. This allows pupils to have a significant exposure to one course at once but has a greater variety over the year than pathway A allows.

Advantages of this pathway:	However:	Other aspects to consider include:
Allows for the effective development of processes and concepts in Key Stage 3. **P T** Enables concepts in each of the Key Stage 4 courses to be developed over two years, supporting progression routes in pupils' learning. **P T** Gives pupils a greater variety in learning styles in each year, enabling challenge and engagement. **P T**	Involves finishing both courses at the same time. **P T S** Certain other courses require GCSE Science to have been completed before commencing. **S**	Involves finishing both courses at the same time. **P T S** Only certain 'other' courses meet '2+ sciences' requirement for indicator. **S**

Case study v: GCSE Science and Additional Science delivered 'in parallel' in Year 10 and Year 11.

Unity College, Burnley, an 11–16 mixed comprehensive of around 1000 pupils.

Following BSF reorganisation in 2006, along with all the other schools in the town, Unity offers three examination courses in Key Stage 4; OCR 21st Century Science and Additional Science and OCR National Award. All pupils take either GCSE Science or the National Award over two years with Additional Science being an option in conjunction with GCSE Science. About 70 out of 190 pupils choose to do this. Classes are taught by two or three teachers teaching mainly within their specialism over seven periods of 50 minutes per week. The remaining pupils are split 70/50 between OCR GCSE Science and OCR National Award.

Modules from both GCSE Science and GCSE Additional Science are taught together in the same term, with modules from each being assessed in January and June. The Data analysis and investigation components are completed at the end of Year 10 and the case study and the unit 4 exam preparation, 'Ideas in context' in Year 11.

The opportunity to re-sit modules over the two years is a significant motivating factor, with results outperforming English and mathematics. Motivation continues throughout Year 11 influencing decisions relating to post-16 courses. Practical work is easier to incorporate through the Additional Science modules; there is a greater variety of lessons and more flexibility in terms of coursework time. The maturity of pupils in Year 11 leads to greater success in GCSE Science and there is easier access to shared departmental resources. However, if pupils leave school early in Year 11, they do so without any science qualification.

Curriculum provision in Secondary science: other courses being included

Curriculum Pathway E

Year 7	Year 8	Year 9	Year 10	Year 11
KS3 science		KS4 science		AS level

Description

Pupils following pathway E need less than three years to develop sufficient scientific skills, processes and understanding to be ready for their Key Stage 4 course. In Year 9, pupils start their GCSE science course and finish it by the end of Year 10; they take an AS level during Year 11. This pathway assumes that pupils can make a greater rate of progression; tracking and intervention are even more important.

Advantages of this pathway:	However:	Other aspects to consider include:
May assist in supporting progression to post-16 study of science. **P S** Allows for accelerated learning for more able pupils in science. **P** Some pupils (supported by parents and carers) may respond positively to the challenge implicit in this pathway. **P T S**	Analysis of data for pupils having a reduced time in Key Stage 3 indicates that they may be less likely to attain higher grades at GCSE or AS level. **P T S** The selection, resourcing and delivery of the AS level can be problematic. **P T S** A low AS grade might prejudice a subsequent UCAS application. However, not 'cashing in' (to avoid this) may be de-motivating for pupils. **P S** Pupils may not be mature enough or have a strong enough grasp of concepts and processes to benefit from the AS course. **P T**	What alternatives are there for pupils for whom this is not a suitable route or who don't wish to study AS Science? There may be progression issues if corresponding A2 courses are not available; effective liaison is essential. AS Chemistry or Physics may be harder for some schools to offer, so pupils may be steered away from these areas.

Curriculum Pathway F

Year 7	Year 8	Year 9	Year 10	Year 11
Alternative curriculum	KS3 science		KS4 science	

Description

Pathway F allows for an alternative curriculum to be incorporated in Year 7 enabling some catch-up when there are a lot of pupils not attaining level 4 in Key Stage 2 or utilising a 'learning to learn' course; it could be one that prioritises, for example, the delivery of Personal, Learning and Thinking Skills (PLTS). Any of the Key Stage 4 pathways above could be used in Years 10 and 11.

Advantages of this pathway:	However:	Other aspects to consider include:
Facilitate smooth transition from Key Stage 2 in terms of skill development, with opportunities to develop PLTS and SEAL. **P** Enables pupils to catch up on literacy and numeracy. **P S** Provides opportunities for enrichment and enhancement at Key Stage 3, with opportunities for cross-curricular links and STEM initiatives. **P** Opportunity to develop a 'primary practice' model with a themed curriculum in a single base. **P**	Lack of continuity in science from Year 6 unless explicit in alternative curriculum, with less time given over to development of scientific processes and concepts. **P T** Less opportunity to develop scientific processes and concepts in Key Stage 3. **P** Alternative curriculum may lack the challenge that some pupils need. **P**	With Key Stage 3 science being offered in less time there may be issues with pupils making good progress with respect to the development of scientific processes and concepts. Anecdotal evidence to suggest this assists more with getting pupils to level 5 than to level 6. Alternative curriculum may be a continuation from work started in Year 6. Alternative curriculum may continue in Years 8 and 9 with time from other subject areas. Planning and training implications for alternative curriculum.

Curriculum Pathway G

Year 7	Year 8	Year 9	Year 10	Year 11
	KS3 science		GCSE Science	Non-science course

Description

Pathway G shows what is possible if it is decided to strip provision in science down to the absolute minimum.

Advantages of this pathway:	However:	Other aspects to consider include:
Allows for the effective development of processes and concepts in Key Stage 3 and for STEM enhancement and engagement activities. **P T** Fulfils the legal requirements of delivery of the Key Stage 3 and 4 programmes of study. **S** Provides opportunities to study other curriculum areas. **P S** Offers an alternative for pupils not wishing to study science post-16. **P**	Does not meet '2+ sciences' indicator at Key Stage 4. **S** Significantly reduces progression opportunities in science post 16. **P S**	Likely to affect pupils' perception of science in the school. This pathway may also be offered in parallel, e.g. GCSE or Entry level science taught over two years with additional time spent on supporting literacy and numeracy development or providing access to other options such as diplomas or work-based learning.

7. Examples of how different schools have assembled curriculum pathways in science

This section shows how three schools have used the available courses to offer a range of curricular pathways that meet the learning needs of different pupils in the school. With the range of pathways available there is ample opportunity for a school to select and combine these to produce a curriculum offer that is challenging, engaging and appropriate.

Case study vi: Developing an effective range of curriculum pathways (1)

Carshalton Boys Sports College, London Borough of Sutton, a non-selective 11–18 boys' school in a selective borough.

There are 1150 pupils on roll (150 in sixth form) and the school curriculum has developed over several years to become broad, balanced and relevant to the pupils' needs. The change was initially gradual but more recently some radical decisions were made. BTEC courses and early entry to GCSE began first in PE and was then extended to other areas of the curriculum.

In Year 7 pupils have a baseline assessment to indicate gaps in knowledge and understanding. All pupils follow a common curriculum. In Year 8 the most able pupils begin GCSE Science while the remaining pupils complete Key Stage 3; in Year 9 pupils not studying GCSE start BTEC Applied Science. In Year 10 pupils who started GCSE early can opt to do Triple Science. Pupils who started BTEC Applied Science in Year 9 have the option to study the BTEC Diploma in Year 10 or continue studying the Certificate course. (Note that end of Key Stage 3 TA levels are reported in the year in which pupils have completed all of their Key Stage 3 courses.)

There is rigorous monitoring of pupil progress throughout Key Stage 3 to enable pupils to be appropriately matched to the courses according to need. As extensions to the normal curriculum, pupils have the opportunity to study other GCSE courses outside the normal curriculum (e.g. GCSE Psychology) as twilight sessions.

As a result of the changes there has been a significant increase in achievement (28% 5A*–C and 14% inc. E+M in 2006 to 88% 5A*–C and 36% inc. E+M in 2009). Behaviour and attitudes to learning have improved. Pupil surveys have shown improvement in attitudes towards science with many pupils participating in activities during lunch and after school. Interest in post-16 sciences has increased. This year sees the start of Physics AS and level 3 BTEC Applied Science. AS level Chemistry will start in 2010.

The changes have meant that the timetable is very complicated and there are increased costs for exam entries but these are outweighed by the benefits for the pupils. As one of the senior leaders said: 'Be creative…and don't be afraid to stretch the pupils…they may be able to achieve more than you think.'

Case study vii: Developing an effective range of curriculum pathways (2)

Chafford Hundred Campus, Thurrock LA, a business and enterprise college with applied learning as a second specialism; a mixed, non-selective 11–16 school.

Recent attainment: A*–C 93%, inc E+M – 65%, number of pupils on roll 823.

The pathway pupils follow is determined by the stage they are at in their learning rather than their age.

In Years 7, 8 and 9 pupils follow a Key Stage 3 science course, though G&T pupils can start Triple Science early and finish in Year 10 (then going on to either AS Mathematics or another subject, but further science is not yet available).

By the end of Year 10 all pupils complete GCSE Science apart from those either continuing with Triple Science from Year 9 or those who started in Year 10 to finish in Year 11. In Year 11 three groups exist. Higher-attaining pupils either finish Triple Science, or complete Additional Science GCSE. Foundation pupils complete the BTEC First Certificate Applied Science qualification.

The changes to the curriculum provision were agreed following a review of results, lessons observations and consultation between the head of science, line manager and headteacher regarding timetable and staffing. This has resulted in improved enjoyment of the subject by pupils and significant improvement in results. BTEC has made no impact on costs to the school in terms of staffing times, but has made a significant improvement to results. However, there are more science lessons with the same number of laboratories, so timetabling is difficult as is management of the different strands.

There has been a significant impact on attainment. The 2008 A*–C results were: Science 75%, Additional 65%, Triple 100% C (with 10% A+). In 2009 the results were: Science 87%, Additional 84%, Triple 100% (with 20%A+), BTEC 100% (two C grades for each of the 61 pupils who were predicted D grade or lower). Pupils taking BTEC now feel that they can achieve, so behaviour and attendance are both much improved and foundation pupils now discuss vocational college courses in a scientific field of study.

'It takes time, but go for it – I wish we had done this earlier; it would have made things much easier. We are now looking at introducing a Diploma, and also an AS level qualification for G&T pupils, although there is no sixth form at present', said a senior leader.

Case study viii: Developing an effective range of curriculum pathways (3)

Pendlebury Centre, Stockport, a Pupil Referral Unit receiving pupils in both Key Stages 3 and 4.

Currently there are eight pupils at Key Stage 3, five pupils in Year 10 and eleven in Year 11. At Key Stage 3 the intention is to integrate pupils back into school for Key Stage 4. Pupils entering in Key Stage 4 remain in the centre unless good progress is made, or there is a request to go back into school. Pupils can arrive at the centre as late as December in Year 11 having missed some of Year 10 and having worked on different GCSE courses; the centre therefore has to offer a common science course to pupils.

OCR Gateway GCSE Science is offered to Year 10 and 11 pupils, with three units completed in Year 10 and three in Year 11; the internal assessment 'Science in the News' is completed in Years 10 and 11. Pupils arriving in Year 10 follow the OCR Gateway course over two years, with Unit 1 taken in January of Year 11. For Year 11 pupils the OCR Gateway Unit 1 will be taken in January if the student arrived in sufficient time, if later, Units 1 and 2 will be taken in June. It is proposed that from 2010 Additional Science will be offered to those pupils who are able, using optional activity time. This is in response to a pupil voice activity carried out in the centre where pupils want the opportunity to study science post-16.

One pupil who arrived at the centre with a predicted GCSE grade C following the OCR 21st Century Science course was taught the OCR Gateway syllabus, obtained a grade A and was subsequently accepted at a local sixth form college to study sciences at A level. Another unmotivated Year 11 pupil was taught Entry Level Science, responded well and was entered for the GCSE science. Close links have been made with a high school with a science specialism and the centre has made use of their facilities, and physics equipment, to complete the 'Can do' tasks component of the internal assessment. Regular meetings between the centre and the science college have helped in the delivery of GCSE.

Appendix 1: Statutory coverage, entitlement of access and indicators

All pupils must access the Programmes of Study (PoS) for Key Stage 4 science (there is no provision for disapplication) and all maintained schools must offer any pupil who so wishes the opportunity to study either GCSE Science and Additional Science or GCSE Biology, Chemistry and Physics. Schools can offer other science qualifications in addition to one or both of the above but must include at least one of the above in their Key Stage 4 offer.

Science options	KS4 PoS statutory coverage?	Fulfils school's obligation under the Education Act 2002 (amended 2007)?	Counts towards the 2 good GCSE sciences indicator?	Counts towards % 5+ A*–C?	Notes
Entry Level Science	Y	N	N	N	Does cover the PoS
GCSE Science	Y	N	N	Y	
Entry level science + GCSE Science	Y	N	N	Y (1 GCSE)	Both courses cover the GCSE PoS for science so there is a danger of repetition
Entry level science + Additional or Additional Applied GCSE Science	Y	N	N	Y (1 GCSE)	
GCSE Science + GCSE Additional Science	Y	Y	Y	Y (2 GCSEs)	
GCSE Physics, Chemistry and Biology	Y	Y	Y	Y (3 GCSEs)	To count towards the 2+ science indicator pupils have to be entered for all three GCSEs; the best two are used so only need to have grades A*–C in two. Grade C and above in all three sciences will count as 3 GCSEs towards the 5A* to C indicators
Any two from GCSE Physics, Chemistry and Biology	N	N	N	Y (2 GCSEs)	Does not cover the PoS
GCSE Physics (or Chemistry or Biology)	N	N	N	Y (1 GCSE)	Does not cover the PoS

GCSE Science + Additional Applied Science	Y	N	Y	Y (2 GCSEs)	If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act
GCSE Science & GCSE Environmental & Land-based Science	Y	N	Y	Y (2 GCSEs)	If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act.
GCSE Applied Science Double Award	Y	N	Y	Y (2GCSEs)	If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act. Not offered from 2012 onwards
GCSE Science and GCSE Physics (or Chemistry or Biology)	Y	N	N	Y (1 GCSE)	Does not count towards the 2+ GCSEs science indicator (NI84). The overlap between qualifications means that these combinations count as only 1 GCSE towards 5 A*–C measures
OCR level 2 National Awards and National Certificates	Y	N	Y	Y	OCR level 2 National Award – 2 GCSEs OCR level 2 National Certificate – 4 GCSEs If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act
Level 2 BTEC First Certificates (Extended Certificate from 2010) and First Diplomas in Applied Science.	Y	N	Y	Y	BTEC First Certificate – 2 GCSEs, BTEC First Diploma – 4 GCSEs. From 2010: level 2 BTEC Diploma, worth 4 GCSEs A* to C and level 2 BTEC Extended Certificate, worth 2 GCSEs A* to C (equivalent to the previous First Certificate) *Also level 2 BTEC Certificate, worth 1 GCSE (this is new and covers the Programme of Study only).* If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act
GCE AS in Physics, Chemistry and Biology	N	N	Y	N	Pupils who have taken GCSEs and/or GCE AS levels in all three of Physics, Chemistry and Biology will also be counted, but need only have attained GCSE grades A*–C and/or GCE AS grades A–E in at least two of the disciplines
Higher Diploma in Science	Y	N	Y	Y	If this is the only combination available in the school's KS4 offer it does not on its own satisfy the amended (2007) 2002 Education act

Appendix 2: Young people continuing in education or training post-16

The Education and Skills Act 2008 means that from 2013 all young people will be required to continue in education or training post-16. The minimum age at which young people can leave learning will be increased in two stages, to the end of the academic year in which they turn 17 from 2013 and until their eighteenth birthday from 2015. The first cohort to benefit from these changes began Year 7 in September 2008; the Year 7 cohort started in September 2009 will be the first to all stay in education or training until 18. A booklet, 'Moving Up', is available on Teachernet **http://publications.teachernet.gov.uk** (search using the reference: DCSF-00826-2009) and outlines the changes they can expect in order to ease transition to secondary school, the choices of qualifications on offer and support available to them in the coming years.

Appendix 3: Transition between Key Stages 3 and 4

The situation sometimes arises in which development work in a science department on schemes of learning in Key Stages 3 and 4 has been intensive, but not necessarily coordinated. Pupils may find themselves studying a topic early in their Key Stage 4 course that is similar in nature to one they were working on towards the end of Key Stage 3. They may become demotivated if they perceive themselves to be repeating topics or activities. Therefore any curriculum should have at its heart the provision of learning activities that challenge the pupils at their individual level of achievement. This may be achieved by comparing schemes of learning for Key Stages 3 and 4 and considering where overlaps in range and content are. Units of work can be planned drawing on both key stages and at the appropriate level of demand.

For example, in topics on organisms and behaviour in the Key Stage 3 programme of study, pupils should be taught about conception, growth, development and behaviour, and how health can be affected by diet, drugs and disease.[11] At Key Stage 4 pupils should be taught how human health is affected by a range of environmental and inherited factors, by the use and misuse of drugs and by medical treatments.[12]

Appendix 4: Useful references

These aims may be achieved by ensuring the relationship between teaching, learning and assessment is clear in the schemes of learning and understood by members of the science team. In Key Stage 3 this needs to be with reference to:

- *National Strategies Frameworks – supporting planning for progression in science for pupils from 11 to 16* which is available from **www.standards.dcsf.gov.uk/nationalstrategies** (Go to: secondary–secondary frameworks–science framework)
- *Programme of study – indicating statutory requirements for pupil entitlement.* (**http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/science/keystage3/index.aspx**)
- APP – providing a periodic assessment system for assessing pupil progress in Key Stage 3 is available from **www.standards.dcsf.gov.uk/nationalstrategies** (Search using DCSF ref. 00036-2009).
- *Reporting requirements – indicating statutory requirements for schools reporting on pupil progress at the end of Key Stage 3.* (**http://testsandexams.qcda.gov.uk/libraryAssets/media/2010_key_stage_3_TARA.pdf**)

11 http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/science/keystage3/index.aspx#note4_8_a#note4_8_a
12 http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/science/keystage4/index.aspx#note3_2_a#note3_2_a

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In Key Stage 4 this will be with reference to:

- *National Strategies Frameworks – supporting planning for progression in science for pupils from 11 to 16*. which is available from **www.standards.dcsf.gov.uk/nationalstrategies**. (Go to: secondary–secondary frameworks–science framework)
- Examination Board specifications and assessment regimes – detailing the content and assessment arrangements for accredited courses.

There is much useful material applicable to curriculum planning from QCDA at: **http://curriculum.qcda.gov.uk/key-stages-3-and-4/index.aspx**.

For schools with pupils starting GCSE courses in 2010 and expecting to complete in 2013 (for example, doing the Key Stage 3 course in two years and Triple Science in three) there is an issue with the transition to the new specifications. Guidance from QCDA is at **www.qcda.gov.uk/6208.aspx**

The new GCSE courses starting in 2011 will be subject to the new rules for all GCSEs; these are available at: **www.jcq.org.uk/attachments/published/1209/Rules for new GCSE Specifications (Website).pdf**

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