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KS4 INFORMATION

Separate Sciences

Students in Key Stage 4 can opt to study 'Separate Sciences'. This involves covering the content and controlled assessment (coursework) for separate Biology, Chemistry and Physics GCSEs in accordance with the stipulations of the AQA Separate Sciences Syllabus. Students complete Unit 1 (Core Science) in each science subject in year 10. Unit 2 (Additional Science) is studied in year 11. Unit 3 (Further Science) is split between year 10 and 11. New government assessment rules mean that we are moving towards a system where all Units are examined at the end of year 11. Students emerge with a Biology, Chemistry and Physics GCSE. Students can be entered at Higher (A*-E) or Lower (C-G) levels (tiers) dependent upon prior performance/attainment and consequent targets in the three Science subjects.

Dual Award

Students in KS4 can opt to study in the 'Dual Award' program. This involves covering the content and controlled assessment (coursework) for two 'Science' GCSEs. In this programme students are still taught separate Biology, Chemistry and Physics by specialist teachers, but their examination and coursework marks for each subject are amalgamated to give the two Science GCSEs. Students complete Unit 1 (Core Science) in each science subject in year 10. Unit 2 (Additional Science) is studied in year 11. New government assessment rules mean that we are moving towards a system where all Units are examined at the end of year 11.

Course Content

Year	Unit	Subject
10	Core Science	Biology Human Biology, Coordination & Control, Healthy Eating Drug Abuse, Controlling Infectious Diseases, Evolution & Environment, Adaptation for Survival, Variation, Evolution and How People Affect the Planet.
10	Core Science	Chemistry Products from Rocks, Rocks & Building, Rocks & Metals, Crude Oil., Oils, Earth & the Atmosphere, Products from Oil, Plant Oils and The Changing World.
10	Core Science	Physics Energy & Energy Resources, Heat Transfer, Using Energy, Electrical Energy Generating Electricity, Radiation & the Universe, Electromagnetic Waves, Radioactivity, The Origins of the Universe.
Year	Unit	Subject
11	Additional	Biology

	Science	Cells, How Plants Produce Food, Energy Flows, Enzymes, Homeostasis and Inheritance.
11	Additional Science	Chemistry Structures & Bonding, Structures & Properties, How Much?, Rates of Reaction, Energy & Reactions, Electrolysis and Acids, Alkalis & Salts.
11	Additional Science	Physics Motion, Speeding Up & Slowing Down, Work, Energy & Momentum, Static Electricity, Current Electricity, Mains Electricity, Nuclear Physics.

Separate Scientists only

Year	Unit	Subject
10 & 11	Further Science	Biology Exchange of Materials, Transporting Substances, Around the Body and Microbiology.
10 & 11	Further Science	Chemistry Development of the Periodic Table, More about Acids & Bases, Water and Energy Calculations.
10 & 11	Further Science	Physics Turning Forces, Light & Sound, Electromagnetism and Stars & Space.

Applied Science

Applied science students now study the BTEC Extended Certificate in Applied Science. There are currently two versions of this course running. The first course is being studied by year 11 students and began in September 2011. This course is based entirely on coursework, with no terminal examination. The content of this course is briefly described on page 3. Essentially, this course is aimed at students who do not perform well in examinations and would prefer to learn their Science through an extensive range of projects that are assessed against criteria grading them at Pass, Merit or Distinction level. The course is equivalent to 2 GCSEs with students gaining grade C if their portfolio of work is completed at 'Pass' level consistently.

The second BTEC course is the updated version of the above but incorporates an examined element which counts towards 25% of the final qualification. Again, the course is equivalent to 2 GCSEs with students gaining grade C if their portfolio of work is completed at 'Pass' level consistently and their examination performance is at this level. The content of this course is very similar to the original, using the same resources and textbooks.

BTEC Extended Certificate in Applied Science

The BTEC course.

Qualification	Credits	Guided-Learning Hours (GLH)	GCSE equivalent
Edexcel BTEC Level 2 Certificate in Applied Science	15	90	1 GCSE
Edexcel BTEC Level 2 Extended Certificate in Applied Science	30	180	2 GCSEs
Edexcel BTEC Level 2 Diploma in Applied Science	60	360	4 GCSEs

All year 10 and 11 Applied Science students are being prepared for the Edexcel BTEC Level 2 Extended Certificate in Applied Science, highlighted in green above. It is possible to make up the required number of credits from 22 units, of which three are mandatory (Units 1–3). These three units make up the Certificate. For the Extended Certificate or the Diploma, students can supplement the three mandatory units with any of the 19 optional units, provided the combination results in the correct number of credits for the chosen qualification.

Course units.

Year/Subject Status	Unit number & title	Credits	GLH	GCSE Equivalent
10 Chemistry Mandatory	Unit 1: Chemistry on our Earth	5	30	1 GCSE
10 Physics Mandatory	Unit 2: Energy and our Universe	5	30	
10 Biology Mandatory	Unit 3: Biology and our Environment	5	30	
11 Chemistry 'Optional'	Unit 4: Applications of Chemical Substances	5	30	1 GCSE
11 Physics 'Optional'	Unit 5: Applications of Physical Science	5	30	
11 Biology 'Optional'	Unit 6: Health Applications of Life Science	5	30	

As a department and in discussion with students, we have chosen to use the three optional units named in the table above because there is a comprehensive range of student support materials to go with these units. 'Optional' units are, therefore, only optional in that there is a relatively wide variety to choose from potentially. However, if sufficient numbers of students wish to follow alternative units, we will arrange for them to be able to do this. Teaching resources for these units include lesson plans, worksheets, assignments, help sheets, task sheets, checklists, technician sheets, matching charts and tracking documents. There is also a Student Book and an Interactive Book.

BTEC First Awards in Applied Science for teaching from September 2012

The new BTEC Firsts Level 2 in Applied Science consist of two 120-GLH (Guided Learning Hours) Awards, each containing 4 units.

The Principles of Applied Science Award (120GLH)

This Award is worth 1 GCSE and is designed to deliver the KS4 Programme of Study by covering key scientific principles. (I take this as meaning that it substantively covers the same concepts as GCSE Science – Unit 1 GCSE). That it covers these concepts in applied and vocational contexts and therefore leads to an understanding of how the principles are applied in practice.

The Application of Science Award (120GLH)

This Award is suitable for students who have covered the KS4 programme of study either by complete “The Principles of Applied Science Award” or “GCSE Science”. It is designed to develop student’s understanding of the key applications of science and builds both skills for the scientific workplace and for further study.

Possible pathways at Nidderdale.

Pathway examples	Year 10 (or years 9 and 10)	Year 11	For
Pathway 1	GCSE Science	BTEC first Award in Application of Science	Learners wishing to move to vocational Science in KS4. E.g. One of our DA2 students who is not coping with the academic awards of GCSE Science and Additional Science. Or a student from another school who completed GCSE Science in Year 10 and wishes to do a vocational course in year 11.
Pathway 2	BTEC First Award in Principles of Applied Science	BTEC first Award in Application of Science	Our current Applied Science/BTEC groups who are better placed learning Science through a vocational route.

In all circumstances students currently follow Pathway 2 in years 10 and 11 at Nidderdale High school.

Assessment.

These Awards contain 2 forms of assessment:

- Internal assessment (75%): teacher-led assessment is at the heart of BTEC Firsts.
- External assessment (25%): an externally marked examination supporting teacher-led assessment.

The BTEC First Award in the Principles of Applied Science qualification structure.

The Edexcel BTEC Level 1/Level 2 First Award in Principles of Applied Science has four mandatory units. Learners must complete all mandatory units.

Edexcel BTEC Level 1/Level 2 First Award in Principles of Applied Science			
Unit	Mandatory units	Assessment method	GLH
1	Principles of Science	External	30
2	Chemistry and Our Earth	Internal	30
3	Energy and Our Universe	Internal	30
4	Biology and Our Environment	Internal	30

The BTEC First Award in the Application of Science qualification structure.

The Edexcel BTEC Level 1/Level 2 First Award in Applications of Science has four mandatory units. Learners must complete all mandatory units.

Edexcel BTEC Level 1/Level 2 First Award in Principles of Applied Science			
Unit	Mandatory units	Assessment method	GLH
5	Application of Chemical Substances	Internal	30
6	Application of Physical Science	Internal	30
7	Health Application of Life Science	Internal	30
8	Scientific Skills	External	30

All students have been supplied with a memory stick to help them manage and store the coursework documents and detailed descriptions of unit content and requirements are available from the department by request.