Curriculum Links

The Department for Education is conducting a review of the primary and secondary National Curriculum. The links in this document relate to the statutory programmes of study for science in the National Curriculum 2007 and specific sections of common science qualifications offered in UK schools. These qualifications include the GCSEs and iGCSE Certificates for teaching 2011, existing SQA Standard and Higher grades and revised A-levels in science subjects. Relevant links to broader topics such as global warming, fossil fuels and the carbon cycle are not routinely specified.

Key Stage 1

Sc1 Scientific Enquiry

Ideas and evidence in science
1 That it is important to collect evidence by making observations and measurements when trying to answer a question.
Investigative skills
Planning
b use first-hand experience and simple information sources to answer questions
Obtaining and presenting evidence
e follow simple instructions to control the risks to themselves and to others
f explore, using the senses of sight, hearing, smell, touch and taste as appropriate, and make and record observations and measurements
Considering evidence and evaluating
i compare what happened with what they expected would happen, and try to explain it, drawing on their knowledge and understanding
Sc3 Materials and their properties
Grouping materials
Breadth of study
Health and safety
b recognise that there are hazards in living things, materials and physical processes, and assess risks and take action to reduce risks to themselves and others.

Key Stage 2

Sc1 Scientific Enquiry

Ideas and evidence in science
1 That it is important to test ideas using evidence from observation and measurement.
Investigative skills
Planning
b consider what sources of information, including first-hand experience and a range of other sources, they will use to answer questions
Obtaining and presenting evidence
e use simple equipment and materials appropriately and take action to control risks
Breadth of study
Health and safety
b recognise that there are hazards in living things, materials and physical processes, and assess risks and take action to reduce risks to themselves and others.

Key Stage 3

1.1 Scientific thinking

1.2 Applications and implications of science
1.4 Collaboration
2.1 Practical and enquiry skills
3.1 Energy, electricity and forces
3.2 Chemical and material behaviour
3.3 Organisms, behaviour and health
3.4 The environment, Earth and universe

Key Stage 4

1 How science works

1.1 Data, evidence, theories and explanations
1.2 Practical and enquiry skills
1.3 Communication skills
1.4 Applications and implications of science
2.1 Organisms and health
2.2 Chemical and material behaviour
2.3 Energy, electricity and radiations
2.4 Environment, Earth and universe

Curriculum Links

Summary of links to Key stage 4 and 5 qualifications

Biogas generator

OCR Additional Science A and Biology A GCSE
Module B4: The processes of life B4.3 How do living organisms obtain energy?

AQA Biology GCSE
B3.4 Humans and their environment B3.4.3 Biofuels

OCR Gateway Science GCSE Biology B
Module B6: Beyond The Microscope Item B6d: Biofuels

Oil extraction

AQA Chemistry GCSE and Science GCSE
Unit C1.4 Crude oil and Fuels C1.4.3 Hydrocarbon fuels
C1.6 Plant oils and their uses C1.6.1 Vegetable oils

OCR Chemistry and Additional Science B Gateway GCSE
Module C3: Chemical Economics Item C3g

SQA Higher Chemistry

SQA Intermediate Chemistry

AQA Biology A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health Module 1 Biological Molecules

Oil viscosity

AQA Science B GCSE

SQA Intermediate Chemistry

OCR Chemistry A A-level
2.1.2 Alkanes Hydrocarbons from crude oil Hydrocarbons as fuels
How Science Works 6a, 7b:
4.1.3 Carboxylic Acids and Esters. Esters, triglycerides, unsaturated and saturated fats
How Science Works 7c:

OCR Chemistry B Salters A-level
Unit F331: Chemistry for Life Developing Fuels. Organic functional groups

AQA Biology B A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health Module 1 Biological Molecules

SQA Biology: Advanced Higher Course
Unit: Cell and Molecular Biology. Structure and function of cell components

SQA Chemistry Higher
Unit 2: The World of Carbon c) Reactions of carbon compounds

Biodiesel production

AQA Chemistry GCSE and Science GCSE
Unit C1.4 Crude oil and Fuels C1.4.3 Hydrocarbon fuels
C1.6 Plant oils and their uses C1.6.1 Vegetable oils

OCR Physics and Science A 21st Century GCSE
Module P3: Sustainable energy, P3.1 How much energy do we use?

Curriculum Links

Edexcel Chemistry A-level
Unit 4 General Principles of Chemistry I – Rates, Equilibria and Further 4.8 Further Organic Chemistry 4 Carboxylic acid derivatives

AQA Biology A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health Module 1 Biological Molecules

Extracting sugar from sugar beet

Edexcel Chemistry GCSE
Unit C3: Chemistry in Action Topic 5 Organic chemistry

AQA Chemistry GCSE and Science GCSE
Unit C1.4 Crude oil and Fuels C1.4.3 Hydrocarbon fuels

Carbohydrate testing

Edexcel Chemistry GCSE
Unit C3: Chemistry in Action Topic 5 Organic chemistry

AQA Biology A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health Module 1 Biological Molecules

SQA Standard Grade Biology

SQA Access Chemistry

SQA Intermediate Chemistry

Yeast fermentation

AQA Chemistry and Science A GCSE
C1.5 Other useful substances from crude oil
C1.5.3 Ethanol

OCR Biology Gateway GCSE
Item B6d: Biofuels

OCR Biology A 21st Century GCSE
Module B7: Further Biology
B7.5 New technologies

Edexcel Chemistry GCSE
Unit C3: Chemistry in Action Topic 5 Organic chemistry

Edexcel Biology GCSE
Unit B3: Using Biology Topic 3 Biotechnology

SQA Access and Intermediate Biology
Unit D024 09 Biotechnological Industries

SQA Access and Intermediate Chemistry

SQA Higher Biotechnology
Unit: D042 12 Microbiological Techniques

SQA Higher Chemistry

Curriculum Links

Plant Material Testing

SQA Standard Grade Biology

OCR Biology A-level
3.1 AS Unit F211: Cells, Exchange and Transport Module 1: Cells

WJEC Biology A-level

BY2 : Biodiversity and physiology of Body Systems. Adaptations for Transport

Hydrolysis of biofuel feedstocks

OCR Biology A 21st Century GCSE
Module B7: Further Biology B7.5 New technologies

SQA Intermediate Chemistry
AQA Biology A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health Module 1 Biological Molecules

SQA Higher Chemistry

Fermentation of lignocelluloses

OCR Biology A 21st Century GCSE
Module B7: Further Biology, B7.5 New technologies

AQA Biology GCSE
B3.4.3 Biofuels

OCR Biology and Additional Science B Gateway GCSE
Module B4: It's A Green World, Item B4b: Photosynthesis

SQA Access and Intermediate Biology
Unit D024 09 Biotechnological Industries

SQA Higher Biotechnology
Unit: D042 12 Microbiological Techniques

SQA Higher Chemistry

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health

Bacterial cellulase

Gateway science suite GCSE Biology B
Module B6: Beyond The Microscope Item B6e: Life in soil

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health

WJEC Biology and Human Biology A-level
Unit BY4: Metabolism, Microbiology and Homeostasis. 4.4 Microbiology

SQA Biotechnology Higher
Unit 1 Microbiology
Unit 2 Microbiological Techniques
Unit 3 Biotechnology

Curriculum Links

Cellulase enzyme activity

AQA Biology and Additional Science GCSE
B2.3 Photosynthesis

AQA Biology A-level
Unit 1 BIOL1 Biology and disease 3.1.3

OCR Biology A-level
3.2 AS Unit F212: Molecules, Biodiversity, Food and Health

SQA Higher Chemistry

Culturing Algae

AQA Biology and Science GCSE
B1.5.1 Energy in biomass
B1.6.2 The carbon cycle

AQA Biology, Science and Additional Science GCSE
B2.3.1 Photosynthesis

AQA Science B
3.3.2.3 The importance of carbon

OCR Biology A-level
Module 3: Photosynthesis

Algal photosynthesis

AQA Biology and Science GCSE
B1.5.1 Energy in biomass
B1.6.2 The carbon cycle

AQA Biology, Science and Additional Science GCSE
B2.3.1 Photosynthesis

AQA Science B
3.3.2.3 The importance of carbon

OCR Biology A-level
Module 3: Photosynthesis

Algae chromatography

OCR Additional Science B Gateway GCSE
Module C3: Chemical Economics Item C3g: Batch or continuous?

AQA Biology GCSE
B2.3 Photosynthesis

AQA Biology and Science GCSE
B1.5.1 Energy in biomass
B1.6.2 The carbon cycle

AQA Biology, Science and Additional Science GCSE
B2.3.1 Photosynthesis

AQA Science B GCSE
3.3.2.3 The importance of carbon