

# Science and Technology Progression Pathway

The Northern Ireland Curriculum sets out the statutory requirements to be taught across the 12 years of compulsory education here (ages 4 to 16). At all key stages, the curriculum has the same aim and objectives. It also emphasises developing the skills and capabilities that pupils will need for lifelong learning and for operating in society.

<b>Aim</b>	To empower young people to achieve their potential and to make informed and responsible decisions throughout their lives
<b>Objectives</b>	To develop learners as individuals and as contributors to society, the economy and the environment
<b>Whole-curriculum skills and capabilities</b>	Communication, Using Mathematics, Using ICT, and Thinking Skills and Personal Capabilities



Science



Technology and Design  
(Coming Soon)

## Science and Technology in the Curriculum

Science and Technology (and Design) are statutory in the curriculum until the end of Key Stage 3 (ages 4 to 14).

<b>Ages 4 to 11:</b> Foundation Stage, Key Stage 1 and Key Stage 2	Science and Technology is taught through <b>The World Around Us (TWAU)</b> Area of Learning. This allows pupils to develop knowledge, understanding and skills through four connected strands: interdependence, place, movement and energy, and change over time. Teachers can choose content that connects learning, supports the curriculum objectives, and brings meaning to pupil experiences in school and in the real world.
<b>Ages 11 to 14:</b> Key Stage 3	<b>Science and Technology</b> is an Area of Learning which has two subject strands: Science, and Technology and Design. Schools can teach the subject strands together, separately, or through connected learning.
<b>Ages 14 to 16:</b> Key Stage 4	While <b>Science and Technology</b> is not compulsory at Key Stage 4, schools do need to offer access to at least one course that leads to a qualification in this Area of Learning.

At post-16, young people can choose from a range of CCEA qualifications relating to Science and Technology.



## About this Resource

This progression pathway is for all those interested in education in Northern Ireland, including teachers, parents/guardians and learners. This section illustrates progression from pre-school to post-16 by:

- reiterating the key minimum requirements for Science in the **Northern Ireland Curriculum**;
- showing **examples of learning** relevant from pre-school to age 16; and
- highlighting **CCEA qualifications** that recognise and reward learning in Science.

## Science

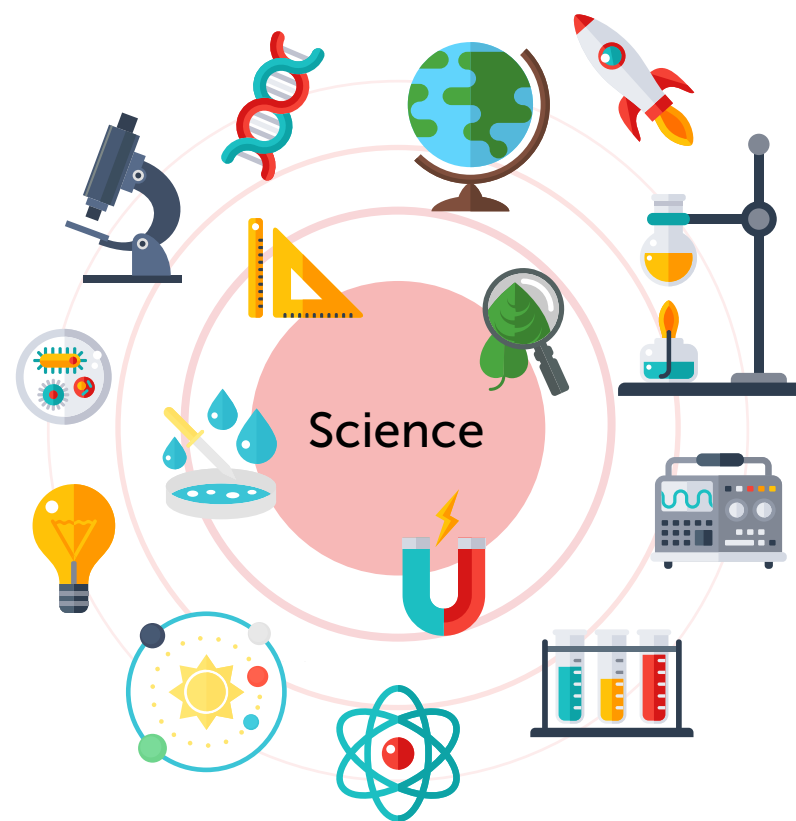
Science is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence ([www.sciencecouncil.org](http://www.sciencecouncil.org)).

In Science, learners develop and apply their skills in the areas of precise measurement, observation, practicals, modelling, enquiry, problem-solving and understanding in laboratory, field and other learning environments. They explore the relationships between hypotheses, evidence, theories and explanations. They develop their awareness of risk and the ability to assess potential risk and potential benefits.

Science is a practical subject area that helps learners to develop the cross-curricular skills of communication, mathematics, using technology, and thinking skills and personal capabilities in scientific contexts.

Science develops learners' knowledge and understanding of the biological, material and physical world and their importance to society, the economy and everyday life. Its branches include biology, chemistry and physics. All learners must study science as part of the curriculum from ages 4 to 14.

As science plays such a vital role in the medical, engineering, construction and chemical industries, to name but a few, it leads to a vast number of career pathways which are key to our Northern Ireland economy, environment and society.





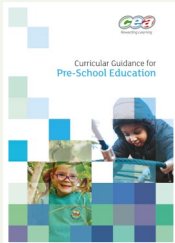
### Science in the Northern Ireland Curriculum

#### The World Around Us

##### Pre-School

From their earliest days, children try to make sense of their world. They are naturally curious about their environment and the people around them and frequently ask questions. Through a wide variety of activities and experiences in play, children begin to develop a range of skills and concepts such as observation and experimentation.

[More about The World Around Us in the Curricular Guidance for Pre-School Education\\*](#) (see page 32)



##### Foundation Stage

###### Age 4–6

Teachers should enable children to develop knowledge, understanding and skills in relation to:

- Interdependence
- Place
- Movement and Energy
- Change Over Time

[More about the requirements for The World Around Us in the Northern Ireland Curriculum \(NIC\) Primary](#) (see page 38)

##### Key Stage 1

###### Age 6–8

Teachers should enable pupils to develop knowledge, understanding and skills in:

- Interdependence
- Place
- Movement and Energy
- Change Over Time.

[More about the requirements for The World Around Us in the NIC Primary](#) (see page 86)

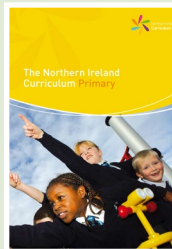
##### Key Stage 2

###### Age 8–11

Teachers should enable pupils to develop knowledge, understanding and skills in:

- Interdependence
- Place
- Movement and Energy
- Change Over Time.

[More about the requirements for The World Around Us in the NIC Primary](#) (see page 88)



#### Science and Technology: Science

##### Key Stage 3

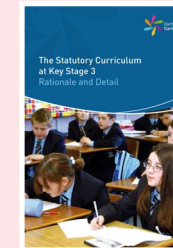
###### Age 11–14

Pupils should have opportunities to develop as:

- individuals;
- contributors to society; and
- contributors to the economy and the environment.

Pupils should demonstrate skills and application of knowledge and understanding of Science.

[More about the requirements for Science in The Statutory Curriculum at KS3](#) (see page 42)



##### Key Stage 4

###### Age 14–16

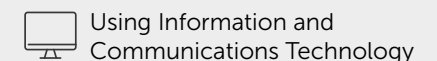
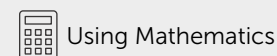
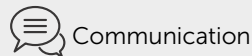
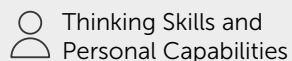
*There is no set content for all pupils in Science and Technology at Key Stage 4.*

*However, schools must offer access to at least one course that leads to a qualification in this Area of Learning.*

[More about Science and Technology at Key Stage 4 \(KS4\)](#)

#### Whole-Curriculum Skills and Capabilities

Through opportunities to engage in active learning contexts across all areas of the curriculum, pupils should progressively develop:



\* All settings that receive funding from the Department of Education as part of this programme should follow the curricular guidance.



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Human Body  
and Health

New Life

Atoms, Structures  
and Chemical  
Reactions

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Forces

Light and  
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Practical  
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## Examples of Learning

The examples of learning in this section show one way to organise existing curriculum and qualification content. They illustrate how knowledge, skills and understanding are supported and developed as each key stage builds on the one before, prepares for the one that follows, and aims to equip learners for the challenges they will face in the real world and throughout their lives.

These examples of learning:

- illustrate curriculum connections from pre-school (3–4 years) to Key Stage 4 (14–16 years);
- show how the CCEA qualifications reflect these curriculum connections; and
- suggest A level qualifications (GCEs) that students who enjoy these aspects of learning might find interesting at post-16.



Biodiversity



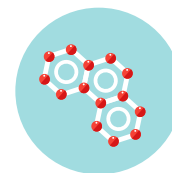
Human Body  
and Health



New Life



Atoms, Structures  
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Electricity



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## Biodiversity

### Pre-School

Age 3–4

Children may have opportunities to:

- show respect for living things and discuss the importance of handling them with care and sensitivity, *for example by helping to attend to indoor and outdoor plants or look after a wormery or bug box*;
- explore planting and growing throughout the year, *for example growing seeds and plants or bulbs in soil and water*;
- create stimulating areas of interest, which may include shells, and representations of the seashore, jungle or ice landscapes;
- take care of their own environment, becoming aware of environmental issues like litter and the use of paper and bottle banks;
- show interest in and care for their environment;
- care for and respect living things and handle them sensitively; and
- show an awareness of some environmental issues.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- What else is living?
- How do living things survive?
- Where do I live?
- What is in my world?
- How has this place changed?
- Why do animals move?
- Where do animals move to?

Children should be enabled to:

- show curiosity about living things and places in the environment;
- identify similarities and differences between living things and places;
- be aware of the local and built environment and their place in it; and
- understand the need to respect and care for plants, animals and the environment.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore:

- how plants and animals rely on each other within the natural world; and
- how place influences plant and animal life.

For example, learning about:

- The variety of living things in the world and how we can take care of them
- Some living things that are now extinct
- How animals use colour to adapt to their natural environment
- Animals that hibernate and the materials that they use
- Animals that migrate
- Changes in the local environment including how they can affect living things

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore how place influences the nature of life.

For example, learning about:

- The relationship between animals and plants in a habitat
- Plants and plant growth
- How animal or plant behaviour is influenced by seasonal change

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Interdependence of plants and animals**  
**The environment and human influences**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Carbon cycle
- Global warming
- Human activity and biodiversity.

### Key Stage 4

Age 14–16

[Entry Level Science](#)  
Plants and ecology

[GCSE Single Award Science](#)  
Biology

[GCSE Double Award Science](#)  
Cells, living processes and biodiversity

[GCSE Biology](#)  
Cells

Photosynthesis and plants

Ecological relationships and energy flow

Variation and natural selection

Osmosis and Plant Transport

[GCSE Agriculture and Land Use](#)  
Soils, crops and habitats

Animals on the land

### Post-16

A student who enjoys this aspect of science may also be especially interested in: [GCE Biology](#), [GCE Environmental Technology](#) and [GCE Life and Health Sciences](#).



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## Human Body and Health

### Pre-School

Age 3–4

Children may have opportunities to:

- talk about themselves and their body parts, *for example by talking to adults, engaging in role-play, and listening to appropriate stories, rhymes and songs;*
- talk about healthy eating and habits for life;
- discuss safe play indoors and outdoors;
- discuss road safety;
- discuss how to keep safe in the sun and the importance of wearing appropriate clothing;
- talk about the work of some people in the local community, such as a doctor, through role-play or arranging visits to or from the setting; and
- begin to name the parts of the body.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- Who am I?
- What am I?
- Am I the same as everyone else?
- How do living things survive?

Children should be enabled to:

- understand the need to respect and care for themselves and other people.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore 'me' in the world.

For example, learning about how we grow, move and use our senses, including similarities between ourselves and others

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore how they and others interact in the world.

For example, learning about:

- Where the major organs are located in the body
- That humans have skeletons to protect major organs, support their bodies and help them move

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Healthy body and mind**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Contraception
- The respiratory system, breathing and respiration
- The nervous system
- The circulatory system.

### Key Stage 4

Age 14–16

[Entry Level Science](#)

- Human biology and keeping healthy

[Entry Level Home Economics](#)

- Healthy eating

[GCSE Single Award Science](#)

- Biology

[GCSE Double Award Science](#)

- Body systems, genetics, microorganisms and health

[GCSE Biology](#)

- Cells
- Nutrition and food tests
- Health, disease, defence mechanisms and treatments

[GCSE Health and Social Care](#)

- Personal development, health and well-being

[GCSE Home Economics: Food and Nutrition](#)

- Food and nutrition
- Practical food and nutrition

[GCSE Hospitality](#)

- Diet and health in the hospitality industry
- Safe food handling in hospitality outlets

### Post-16

A student who enjoys this aspect of science may also be especially interested in: [GCE Biology](#), [GCE Health and Social Care](#), [GCE Life and Health Sciences](#) and [GCE Nutrition and Food Science](#).



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## New Life

### Pre-School

Age 3–4

Children may have opportunities to:

- explore the life cycle of, *for example, butterflies or frogs*;
- create stimulating areas of interest, which may include photographs and plants at different stages of development;
- talk about birthdays or the arrival of a new baby, using photographs, drawing or making models to record events, if appropriate;
- talk about where they live, the members of their extended family and events in their lives (both past and present); and
- show an awareness of time as they talk about seasonal and festive events and take part in daily routines.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- Who am I?
- How do living things survive?
- How have I changed over time?
- What else is living?

Children should be enabled to:

- understand that some things change over time;
- understand the need to respect and care for themselves and other people; and
- sequence familiar events.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore ways in which living things depend on and adapt to their environment.

For example, learning about:

- The variety of living things in the world and how we can take care of them
- Some living things that are now extinct

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore how living things rely on each other within the natural world.

For example, learning about:

- The main stages in the life cycle of some living things
- Obvious changes that occur in life cycles

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Cells, genes and reproduction**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Cells microscopy
- Reproduction and fertility.

### Key Stage 4

Age 14–16

**Entry Level Science**

- Human biology and keeping healthy

**Entry Level Home Economics**

- Family life

**GCSE Single Award Science**

- Biology

**GCSE Double Award Science**

- Body systems, genetics, microorganisms and health

**GCSE Biology**

- Reproduction, fertility and contraception
- Genome, chromosomes, DNA and genetics

**GCSE Home Economics: Child Development**

- Parenthood, pregnancy and the newborn baby
- The development of the child (0–5 years)

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Biology](#), [GCE Health and Social Care](#), [GCE Life and Health Sciences](#) and [GCE Nutrition and Food Science](#).



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## Atoms, Structures and Chemical Reactions

### Pre-School

Age 3–4

Children may have opportunities to:

- observe water, discussing and experimenting with how different objects behave in water, what happens when colour is added to water, the uses of water and importance of not wasting it, and water in the environment such as raindrops on windows and puddles;
- discuss changes in materials in real contexts such as cooking, freezing and making dough;
- explore materials in creative play, manipulating malleable materials such as dough and clay, becoming aware of how these materials behave when poked, rolled, squashed and pulled;
- observe what happens when colours are mixed; and
- talk about their observations and make simple predictions about things, *for example what would happen if water was added to sand.*

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- How do things change?
- What kind of changes happen, have happened or might happen?
- How can we make change happen?

Children should be enabled to:

- show curiosity about objects and materials; and
- understand that some materials change if kept under different conditions.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore ways in which change occurs in the natural world.

For example, learning about the effect of heating and cooling some everyday substances

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore ways in which change occurs over both short and long periods of time in the physical and natural world.

For example, learning about:

- How some materials can change or decay while others do not, such as fossil formation
- How waste can be reduced, reused or recycled and how this can be beneficial
- Changes that occur to everyday substances, *for example when dissolved in water or heated or cooled*
- Changes of state in the water cycle

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Atoms and chemical changes**  
**Elements, compounds and mixtures**  
**The environment and human influences**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Atomic structure
- Symbols, formulae and equations
- The Periodic Table
- Acids, bases and salts
- Tests for ions
- Metals and reactivity series
- Redox, rusting and iron
- Rates of reaction
- Gas chemistry
- Organic chemistry
- Electrochemistry.

### Key Stage 4

Age 14–16

[Entry Level Science](#)

- Chemical products and working safely

[GCSE Single Award Science](#)

- Chemistry

[GCSE Double Award Science](#)

- Structures, trends, chemical reactions, quantitative chemistry and analysis
- Further chemical reactions, rates and equilibriums, calculations and organic chemistry

[GCSE Chemistry](#)

- Bonding
- Transition metals
- Quantitative chemistry
- Preparation of soluble salts
- Equilibrium
- Electrochemistry
- Nanoparticles
- Transition metals

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Chemistry](#), [GCE Environmental Technology](#) and [GCE Life and Health Sciences](#).





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## Materials

### Pre-School

Age 3–4

Children may have opportunities to:

- explore the properties of wet, damp and dry sand, using sand to build and make models;
- explore a range of natural and man-made materials, using their senses to explore foliage, fruit and vegetables, foods made in the setting, metal objects and magnets;
- explore the properties of different materials and their appropriate uses, putting things together in a variety of ways, for example making models with natural and man-made materials, sticking, cutting and folding and, on occasion, taking things apart; and
- create stimulating areas of interest which include magnets.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- What is in my world?

Children should be enabled to:

- identify similarities and differences between objects and materials; and

- understand different materials behave in different ways, have different properties and can be used for different purposes.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore the interdependence of people and the environment.

For example, finding out about the range of materials used in their area

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore ways in which people, plants and animals depend on the features and materials in places and how they adapt to their environment.

For example, learning about why materials are chosen for their use

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Structures, properties and uses of materials**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Classification of structures
- The basic structure of the Periodic Table
- Organic chemistry.

### Key Stage 4

Age 14–16

[Entry Level Science](#)

- Materials and recycling

[GCSE Single Award Science](#)

- Chemistry

[GCSE Double Award Science](#)

- Metals
- Iron and rusting

[GCSE Chemistry](#)

- Structures

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Chemistry](#) and [GCE Life and Health Sciences](#).



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## Electricity

### Pre-School

Age 3–4

Children may have opportunities to:

- talk about keeping safe in the home; and
- ask questions about why things happen and how things work.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- How do things move?
- Why do things move?
- How do things work?

Children should be enabled to:

- identify similarities and differences between objects and materials;
- understand different materials behave in different ways, have different properties and can be used for different purposes; and
- be aware of the everyday uses of technological tools and know how to use some of these safely.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore sources of energy in the world.

For example, learning about the use of electricity as an energy source and the importance of using it safely

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore the causes and effect of energy, forces and movement.

For example, learning about:

- The uses of energy in a variety of models and machines and ways in which energy is used to create movement
- The effects of adding components to simple circuits

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Using electricity**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Energy
- Electricity.

### Key Stage 4

Age 14–16

**Entry Level Science**

- Electricity and renewable energy

**GCSE Single Award Science**

- Physics

**GCSE Double Award Science**

- Waves, light, electricity, magnetism, electromagnetism and space physics

**GCSE Physics**

- Ohm's Law
- Magnetism and electromagnetism

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Environmental Technology](#) and [GCE Physics](#).



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## Forces

### Pre-School

Age 3–4

Children may have opportunities to:

- observe water, discussing and experimenting with how different objects behave in water;
- talk about issues relating to safety in the pre-school setting and in the wider environment, *for example by playing with simple road maps and small vehicles and discussing road safety*; and
- explore materials in creative play, manipulating malleable materials such as dough and clay, becoming aware of how these materials behave when poked, rolled, squashed and pulled.

*[Curricular Guidance for Pre-School Education, pages 32–34](#)*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- How do things move?
- Why do things move?

Children should be enabled to:

- identify similarities and differences between objects and materials; and
- understand different materials behave in different ways, have different properties and can be used for different purposes.

*[The NIC Primary, page 38](#)*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore how and why people and animals move.

For example, learning about devices that push, pull and make things work

*[The NIC Primary, pages 86 and 87](#)*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore causes that affect the movement of people and animals.

For example, learning about:

- How humans have skeletons to support their bodies and help them move
- How forces can affect the movement and distance objects can travel, *for example the benefits of wearing a seatbelt, or rockets*
- The uses of energy in a variety of models and machines and ways in which energy is used to create movement, *for example pneumatics and hydraulics*

*[The NIC Primary, pages 88–90](#)*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Forces and energy transfer**

**Structures, properties and uses of materials**

*[The Statutory Curriculum at KS3, page 42](#)*

Topics might include:

- Motion
- Force
- Energy
- Pressure
- Heat transfer.

### Key Stage 4

Age 14–16

[GCSE Single Award Science](#)

- Physics

[GCSE Double Award Science](#)

- Motion, force, moments, energy, density, kinetic theory, radioactivity, nuclear fission and fusion

[GCSE Physics](#)

- Density and kinetic theory
- Atomic and nuclear physics

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Environmental Technology](#), [GCE Life and Health Sciences](#) and [GCE Physics](#).



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## Light and Sound

### Pre-School

Age 3–4

Children may have opportunities to:

- explore a range of natural and man-made sounds, using their senses to explore environmental sounds such as birds singing or traffic;
- create stimulating areas of interest, which may include magnifiers, mirrors and light boxes; and
- identify a variety of familiar sounds.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- What sources of energy are in my world?
- How and why are they used?

Children should be enabled to:

- identify similarities and differences between objects and materials; and
- understand different materials behave in different ways, have different properties and can be used for different purposes.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore sources of energy in the world.

For example, learning about:

- Sounds in the local environment
- The importance of light in our everyday lives
- Different sources of light, for example traffic lights, candles, or stars

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore the causes and effect of energy, forces and movement.

For example, learning about:

- How sound travels and light shines through some materials
- The formation of shadows and how they change

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**Sound and light**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- Waves
- Light.

### Key Stage 4

Age 14–16

**Entry Level Science**

- Light and sound

**GCSE Single Award Science**

- Physics

**GCSE Double Award Science**

- Waves, light, electricity, magnetism, electromagnetism and space physics

**GCSE Physics**

- Critical angle and total internal reflection

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Life and Health Sciences](#) and [GCE Physics](#).



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Biodiversity

Human Body and Health

New Life

Atoms, Structures and Chemical Reactions

Materials

Electricity

Forces

Light and Sound

Space

Practical Skills



## Space

### Pre-School

Age 3–4

Children may have opportunities to:

- talk about the weather and the seasons at appropriate times during the year;
- show an awareness of time as they talk about seasonal and festive events and take part in daily routines; and
- talk about issues relating to safety by discussing safe play indoors and outdoors, how to keep safe in the sun and the importance of wearing appropriate clothing.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

Children should be enabled to explore:

- What is beyond my world?
- What sources of energy are in my world?

Children should be enabled to:

- show curiosity about objects in the environment; and
- understand the need to respect and care for the environment.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Pupils should be enabled to explore ways in which change occurs in the natural world and sources of energy in the world.

For example, learning about:

- Different sources of light, *for example stars*
- The importance of light in our everyday lives
- Animals that hibernate

*The NIC Primary, pages 86 and 87*

### Key Stage 2

Age 8–11

Pupils should be enabled to explore our place in the universe.

For example, learning about:

- Technology challenges of living in Space, *for example how to survive in Space*
- How forces can affect movement and distance objects travel, *for example rockets*
- How sound travels and light shines through some materials
- How knowledge in science supports technological inventions, *for example robots in Space*
- The formation of shadows and how they change
- How animal or plant behaviour is influenced by seasonal change

*The NIC Primary, pages 88–90*

### Key Stage 3

Age 11–14

Pupils should have opportunities to learn about:

**The Solar System and Universe**

*The Statutory Curriculum at KS3, page 42*

Topics might include:

- The Earth and Solar System.

### Key Stage 4

Age 14–16

**Entry Level Science**

- Space science

**GCSE Single Award Science**

- Physics

**GCSE Double Award Science**

- Waves, light, electricity, magnetism, electromagnetism and space physics

**GCSE Physics**

- Space physics

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Environmental Technology](#) and [GCE Physics](#).



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## Practical Skills

### Pre-School

Age 3–4

Young children learn and develop through using their senses to explore their immediate indoor and outdoor environments.

Adults promote learning by commenting, asking open-ended questions, and encouraging children to experiment and evaluate.

Children will have the ability to:

- observe, explore, investigate and select materials and equipment in a range of situations;
- ask questions about why things happen and how things work; and
- talk about their observations and make simple predictions about things.

*Curricular Guidance for Pre-School Education, pages 32–34*

### Foundation Stage

Age 4–6

In Foundation Stage children will have opportunities to investigate the world they live in. These experiences are likely to include:

- asking questions about why things happen;
- looking closely at similarities, differences, patterns and change;
- talking about topics which arise naturally from the children's own experiences;
- exploring and examining photographs, objects and other items; and
- developing an awareness of aspects of the environment.

*The NIC Primary, page 38*

### Key Stage 1

Age 6–8

Teaching should provide opportunities for pupils as they move through Key Stages 1 and 2 to progress:

From	To
Making first hand observations and collecting primary data	Examining and collecting real data and samples from the world around them
Identifying similarities and differences	Investigating similarities and differences, patterns and change
Recognising a fair test	Designing and carrying out fair tests
Using everyday language	Increasingly precise use of subject specific vocabulary, notation and symbols

*The NIC Primary, page 82*

### Key Stage 2

Age 8–11

### Key Stage 3

Age 11–14

Pupils should have opportunities to:

- develop skills in scientific methods of enquiry to further scientific knowledge and understanding;
- develop creative and critical thinking in their approach to solving scientific problems;
- research scientific information from a range of sources; and
- develop a range of practical skills, including the safe use of science equipment.

They should be able to:

- demonstrate a range of practical skills, including appropriate mathematical calculations;
- use investigative skills to explore scientific issues, solve problems and make informed decisions;
- research and manage information effectively;
- demonstrate initiative when developing ideas and following them through;
- work effectively with others;
- demonstrate self management by working systematically, persisting with task, evaluating and improving own performance;
- communicate effectively showing clear awareness of audience; and
- demonstrating Using Mathematics and Using ICT, where appropriate.

*The Statutory Curriculum at KS3, page 42*

### Key Stage 4

Age 14–16

[GCSE Biology](#), [Chemistry](#), [Physics](#), [Double Award Science](#) and [Single Award Science](#)

Practical Skills

- Planning an investigation
- Carrying out an experiment
- Analysing experimental data
- Drawing conclusions from an experiment

[GCSE Agriculture and Land Use](#)

Controlled Assessment:  
Contemporary Issues in Agriculture and Land Use

- Practical Task
- Research Report

[GCSE Home Economics: Child Development](#) and [GCSE Home Economics: Food and Nutrition](#)  
Investigative Task

- Analysis and Justification
- Secondary Research and Analysis of Own Viewpoint
- Conclusions and Evaluation
- Planning and Outcome
- Evaluation of Planning and Outcome
- Presentation

### Post-16

A student who enjoys this aspect of science may also be especially interested in [GCE Biology](#), [GCE Chemistry](#), [GCE Environmental Technology](#), [GCE Life and Health Sciences](#) and [GCE Nutrition and Food Science](#). Pg 14



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### CCEA Qualifications

CCEA's range of qualifications offers many routes that learners can choose to take through their curriculum journey to work or further study. All CCEA qualifications build on the skills that learners develop across the curriculum.

#### Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

[GCSE Agriculture and Land Use](#)

[GCSE Biology](#)

[GCSE Chemistry](#)

[GCSE Double Award Science](#)

[GCSE Health and Social Care](#)

[GCSE Home Economics: Child Development](#)

[GCSE Home Economics: Food and Nutrition](#)

[GCSE Hospitality](#)

[GCSE Physics](#)

[GCSE Single Award Science](#)

#### Post-16 Qualifications

[GCE Biology](#)

[GCE Chemistry](#)

[GCE Environmental Technology](#)

[GCE Physics](#)

[GCE Health and Social Care](#)

[GCE Life and Health Sciences](#)

[GCE Nutrition and Food Science](#)

Please note: CCEA also offers the following qualifications linked to **Learning for Life and Work** that include content which could have a **Science** focus:

- **Entry Level Life Skills and Extended Life Skills** – for example the **Healthy, Active Lifestyle** unit
- **Entry Level Occupational Studies and Extended Occupational Studies** – for example the **Keeping Children Healthy** and **Growing Food from Seeds** units
- **Level 1 and Level 2 Occupational Studies** – for example the **Animal Care** and **Horticulture: Growing Plants in a Sustainable Way** units.



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## Entry Level Science

gives learners the opportunity to:

- develop literacy, numeracy and ICT skills where appropriate;
- become aware of the importance of accurate experimental work to scientific method;
- apply their learning in a practical context;
- develop an understanding of the social and economic contribution of science to everyday life;
- discover that applications of science may be both beneficial and detrimental to the individual, the community and the environment; and
- develop employability skills.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Human Biology
Unit 2	Plants and Ecology
Unit 3	Chemical Products and Working Safely
Unit 4	Materials and Recycling
Unit 5	Electricity and Renewable Energy
Unit 6	Light and Sound
Unit 7	Space Science

*Specification Section 3*



### Prior learning and progression

Learners do not need to have prior knowledge of any of the subject areas. Those who successfully complete this qualification can progress to other qualifications at Entry Level, Level 1 or Level 2, GCSE qualifications, or related training courses.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about Entry Level Science



### Other Key Stage 4 Qualifications

Entry Level Home Economics

GCSE Agriculture and Land Use

GCSE Biology

GCSE Chemistry

GCSE Double Award Science

GCSE Health and Social Care

GCSE Home Economics: Child Development

GCSE Home Economics: Food and Nutrition

GCSE Hospitality

GCSE Physics

GCSE Single Award Science





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## Entry Level Home Economics

gives learners the opportunity to:

- enjoy the experience of learning and take pride in their achievements;
- apply their learning in a practical context; and
- develop employability skills.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Basic Food Preparation	Unit 10	Foods around the World
Unit 2	Safety and Hygiene in the Kitchen	Unit 11	Learning through Play
Unit 3	Using Cooking Equipment	Unit 12	Child Development (0-5 years)
Unit 4	Food Safety and Storage	Unit 13	Keeping a Young Child Safe
Unit 5	Healthy Eating	Unit 14	Living in a Family
Unit 6	Following a Recipe	Unit 15	Managing My Money
Unit 7	Making a Simple Meal	Unit 16	What's on the Label?
Unit 8	Planning and Preparing Food for a Special Occasion or Event	Unit 17	Shopping Options
Unit 9	Fast Food	Unit 18	Reduce, Reuse, Recycle

*Specification Section 3*



### Prior learning and progression

Learners do not need to have prior knowledge of any of the subject areas. Those who successfully complete this qualification can progress to other qualifications at Entry Levels 1, 2 or 3, GCSE qualifications, or other related training courses.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* and *Learning for Life and Work* Areas of Learning.



### More about Entry Level Home Economics



### Other Key Stage 4 Qualifications

Entry Level Science

GCSE Agriculture and Land Use

GCSE Biology

GCSE Chemistry

GCSE Double Award Science

GCSE Health and Social Care

GCSE Home Economics: Child Development

GCSE Home Economics: Food and Nutrition

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## GCSE Agriculture and Land Use

aims to encourage students to:

- develop their scientific knowledge in relevant, enjoyable and work-based contexts;
- appreciate how knowledge of science can enhance productivity in the land-based and environmental sector;
- develop their awareness of complex relationships between humans and the environment in which they engage in agricultural activity;
- acquire core knowledge about the land-based and environmental sector and the skills required to work in it;
- develop a critical and analytical approach to problem-solving within the context of work-related scenarios; and
- make informed decisions about further learning opportunities and career choices in the land-based and environmental sector.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Soils, Crops and Habitats
Unit 2	Animals on the Land
Unit 3	Controlled Assessment – Contemporary Issues in Agriculture and Land Use

*Specification Section 3*



### Prior attainment

This specification builds on the knowledge, skills and understanding developed through the Northern Ireland Curriculum for science at Key Stage 3. Students are not required to have any prior experience of land-based and environmental activities/industries, but they may find such experience useful in their study of this specification.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about GCSE Agriculture and Land Use



### Other Key Stage 4 Qualifications

Entry Level Science

Entry Level Home Economics

GCSE Biology

GCSE Chemistry

GCSE Double Award Science

GCSE Health and Social Care

GCSE Home Economics: Child Development

GCSE Home Economics: Food and Nutrition

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## GCSE Biology

aims to encourage students to:

- develop their knowledge and understanding of biology;
- develop their understanding of the effects of biology on society;
- develop an understanding of the importance of scale in biology;
- develop and apply their knowledge and understanding of the nature of science and of the scientific process;
- develop their understanding of the relationships between hypotheses, evidence, theories and explanations;
- develop their awareness of risk and the ability to assess potential risk in the context of potential benefits;
- develop and apply their observational, practical, modelling, enquiry and problem-solving skills and understanding in laboratory, field and other learning environments;
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions both qualitatively and quantitatively; and
- develop their skills in communication, mathematics and the use of technology in scientific contexts.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Cells, Living Processes and Biodiversity
Unit 2	Body Systems, Genetics, Microorganisms and Health
Unit 3	Practical Skills

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

The specification builds on the knowledge, skills and understanding developed through the Northern Ireland Curriculum for science at Key Stage 3.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about [GCSE Biology](#)



### Other Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

[GCSE Agriculture and Land Use](#)

[GCSE Chemistry](#)

[GCSE Double Award Science](#)

[GCSE Health and Social Care](#)

[GCSE Home Economics: Child Development](#)

[GCSE Home Economics: Food and Nutrition](#)

[GCSE Hospitality](#)

[GCSE Physics](#)

[GCSE Single Award Science](#)



## GCSE Chemistry

aims to encourage students to:

- develop their knowledge and understanding of the material world;
- develop their understanding of the effects of chemistry on society;
- develop their understanding of the importance of scale in chemistry;
- develop and apply their knowledge and understanding of the nature of science and of the scientific process;
- develop their understanding of the relationships between hypotheses, evidence, theories and explanations;
- develop their awareness of risk and the ability to assess potential risk and potential benefits;
- develop and apply their observational, practical, modelling, enquiry and problem-solving skills and understanding in laboratory, field and other learning environments;
- develop their ability to evaluate claims based on chemistry through critical analysis of the methodology, evidence and conclusions both qualitatively and quantitatively; and
- develop their skills in communication, mathematics and the use of technology in scientific contexts.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Structures, Trends, Chemical Reactions, Quantitative Chemistry and Analysis
Unit 2	Further Chemical Reactions, Rates and Equilibrium, Calculations and Organic Chemistry
Unit 3	Practical Skills

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

However, the specification builds on the knowledge, skills and understanding developed through the Northern Ireland Curriculum for science at Key Stage 3.

Before studying this specification, we expect students to have a level of skills in science, numeracy, literacy and communication that is commensurate with having studied science to Key Stage 3.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about [GCSE Chemistry](#)



### Other Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

[GCSE Agriculture and Land Use](#)

[GCSE Biology](#)

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[GCSE Health and Social Care](#)

[GCSE Home Economics: Child Development](#)

[GCSE Home Economics: Food and Nutrition](#)

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[GCSE Single Award Science](#)



## GCSE Double Award Science

aims to encourage students to:

- develop their knowledge and understanding of the material, physical and living worlds;
- develop their understanding of the effects of science on society;
- develop their understanding of the importance of scale in science;
- develop and apply their knowledge and understanding of the nature of science and of the scientific process;
- develop their understanding of the relationships between hypotheses, evidence, theories and explanations;
- develop their awareness of risk and the ability to assess potential risk and potential benefits;
- develop and apply their observational, practical, modelling, enquiry and problem-solving skills and understanding in laboratory, field and other learning environments;
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions both qualitatively and quantitatively; and
- develop their skills in communication, mathematics and the use of technology in scientific contexts.

*Specification Aims (Section 1.1)*

## Subject Content

Biology Unit B1	Cells, Living Processes and Biodiversity
Chemistry Unit C1	Structures, Trends, Chemical Reactions, Quantitative Chemistry and Analysis
Physics Unit P1	Motion, Force, Moments, Energy, Density, Kinetic Theory, Radioactivity, Nuclear Fission and Fusion
Biology Unit B2	Body Systems, Genetics, Microorganisms and Health
Chemistry Unit C2	Further Chemical Reactions, Rates and Equilibrium, Calculations and Organic Chemistry
Physics Unit P2	Waves, Light, Electricity, Magnetism, Electromagnetism and Space Physics
Unit 7	Practical Skills

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

However, the specification builds on the knowledge, skills and understanding developed through the Northern Ireland Curriculum for science at Key Stage 3.

Before studying this specification, we expect students to have a level of skills in science, numeracy, literacy and communication that is commensurate with having studied science to Key Stage 3.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about [GCSE Double Award Science](#)



### Other Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

[GCSE Agriculture and Land Use](#)

[GCSE Biology](#)

[GCSE Chemistry](#)

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## GCSE Health and Social Care

aims to encourage students to:

- develop their interest in health, social care and early years;
- draw together areas of knowledge, skills and understanding related to the health, social care and early years sectors;
- develop higher order thinking skills;
- increase their understanding of the health, social care and early years sectors to develop as effective and independent learners;
- understand aspects of personal development and the health, social care and early years sectors by investigating and evaluating a range of services and organisations;
- examine issues that affect the nature and quality of human life, including an appreciation of diversity and culture;
- develop skills, aptitudes and values for employment in the health, social care and early years sectors; and
- develop a critical and analytical approach to decision-making and problem-solving in relation to the specified content.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1 Personal Development, Health and Well-being

Unit 2 Working in the Health, Social Care and Early Years

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* and *Learning for Life and Work* Areas of Learning.



### More about [GCSE Health and Social Care](#)



### Other Key Stage 4 Qualifications

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## GCSE Home Economics: Child Development

aims to encourage students to:

- follow a broad, coherent and worthwhile course of study;
- develop the knowledge, understanding and skills (including practical skills) required for working in the area of child development;
- understand pregnancy, parental responsibilities and young children's overall needs;
- understand how important it is to maintain a healthy lifestyle;
- develop their knowledge and understanding of human needs in a multicultural society;
- increase their knowledge and understanding of relevant technological and scientific developments;
- develop a critical and analytical approach to decision-making and problem-solving;
- examine issues that affect the quality of human life, including an appreciation of diversity;
- evaluate decisions so that they develop as informed and discerning consumers;
- make informed decisions about further learning opportunities and career choices; and
- engage actively in studying child development to develop as effective and independent students.

*Specification Aims (Section 1.1)*

### Subject Content

Unit 1	Parenthood, Pregnancy and the Newborn Baby
Unit 2	The Development of the Child (0–5 Years)
Unit 3	Investigation Task

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification. Students are not required to have any prior experience of Home Economics.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* and *Learning for Life and Work* Areas of Learning.



### More about [GCSE Home Economics: Child Development](#)



### Other Key Stage 4 Qualifications

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[Entry Level Home Economics](#)

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[GCSE Biology](#)

[GCSE Chemistry](#)

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## GCSE Home Economics: Food and Nutrition

aims to encourage students to:

- follow a broad, coherent and worthwhile course of study;
- develop the knowledge, understanding and skills (including practical skills) required for Home Economics: Food and Nutrition;
- develop their knowledge and understanding of human needs in a multicultural society;
- increase their knowledge and understanding of relevant technological and scientific developments;
- develop a critical and analytical approach to decision-making and problem-solving;
- examine issues that affect the quality of human life, including an appreciation of diversity;
- evaluate decisions so that they develop as informed and discerning consumers;
- develop an interest in and appreciation of the diverse range of food now available; and
- actively engage in studying food and nutrition to develop as effective and independent students.

*Specification Aims (Section 1.1)*

### Subject Content

Unit 1 Food and Nutrition

Unit 2 Practical Food and Nutrition

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* and *Learning for Life and Work* Areas of Learning.



### More about [GCSE Home Economics: Food and Nutrition](#)



### Other Key Stage 4 Qualifications

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[Entry Level Home Economics](#)

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[GCSE Biology](#)

[GCSE Chemistry](#)

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## GCSE Hospitality

aims to encourage students to:

- develop core knowledge about the hospitality industry and the skills required for working in it;
- actively engage in studying hospitality and become effective and independent learners with creative and enquiring minds;
- develop and apply their knowledge in relevant, enjoyable and work-related contexts;
- make informed decisions about further learning opportunities and career choices in the hospitality industry; and
- develop and practise key transferable skills for working life.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	The Hospitality Industry
Unit 2	Hospitality and the Customer
Unit 3	Food and Beverage Preparation and Service

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification and are not required to have prior knowledge of hospitality courses. However, they should have an appropriate level of literacy and numeracy skills and have the ability to work at GCSE level.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* and *Learning for Life and Work* Areas of Learning.



### More about GCSE Hospitality



### Other Key Stage 4 Qualifications

Entry Level Science

Entry Level Home Economics

GCSE Agriculture and Land Use

GCSE Biology

GCSE Chemistry

GCSE Double Award Science

GCSE Health and Social Care

GCSE Home Economics: Child Development

GCSE Home Economics: Food and Nutrition

GCSE Physics

GCSE Single Award Science



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## GCSE Physics

aims to encourage students to:

- appreciate the value of physics in their lives and in the wider world around them;
- develop their knowledge and understanding of physics;
- develop their understanding of the effects of physics on society;
- develop an understanding of the importance of scale in physics;
- develop and apply their knowledge and understanding of the nature of physics and of the scientific process;
- develop their understanding of the relationships between hypotheses, evidence, theories and explanations;
- develop their awareness of risk and the ability to assess potential risk in the context of potential benefits;
- develop and apply their observational, practical, modelling, enquiry and problem-solving skills;
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions both qualitatively and quantitatively; and
- develop their skills in communication, mathematics and the use of technology in scientific contexts.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Motion, Force, Moments, Energy, Density, Kinetic Theory, Radioactivity, Nuclear Fission and Fusion
Unit 2	Waves, Light, Electricity, Magnetism, Electromagnetism and Space Physics
Unit 3	Practical Skills

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

However, the specification builds on the knowledge, skills and understanding developed through the Northern Ireland Curriculum for science at Key Stage 3.

Before studying this specification, we expect students to have a level of skills in science, numeracy, literacy and communication that is commensurate with having studied science to Key Stage 3.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology Area of Learning*.



### More about [GCSE Physics](#)



### Other Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

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[GCSE Biology](#)

[GCSE Chemistry](#)

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## GCSE Single Award Science

aims to encourage students to:

- develop their knowledge and understanding of the material, physical and living worlds;
- develop their understanding of the nature of science and its applications and the interrelationships between science and society;
- develop their understanding of the relationships between hypotheses, evidence, theories and explanations;
- develop and apply their observational, practical, enquiry and problem-solving skills and understanding in laboratory, field and other learning environments;
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions; and
- develop their skills in communication, mathematics and the use of technology in scientific contexts.

*Specification Aims (Section 1.1)*

## Subject Content

Unit 1	Biology
Unit 2	Chemistry
Unit 3	Physics
Unit 4	Practical Skills

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

*Specification Section 1.3*



This qualification builds on the knowledge, understanding and skills developed through the *Science and Technology* Area of Learning.



### More about [GCSE Single Award Science](#)



### Other Key Stage 4 Qualifications

[Entry Level Science](#)

[Entry Level Home Economics](#)

[GCSE Agriculture and Land Use](#)

[GCSE Biology](#)

[GCSE Chemistry](#)

[GCSE Double Award Science](#)

[GCSE Health and Social Care](#)

[GCSE Home Economics: Child Development](#)

[GCSE Home Economics: Food and Nutrition](#)

[GCSE Hospitality](#)

[GCSE Physics](#)



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## GCE Biology

aims to encourage students to:

- develop their interest in and enthusiasm for biology, including developing an interest in further study and careers in the subject;
- develop and draw together different areas of knowledge, skills and understanding of different aspects of the subject;
- develop competence and confidence in a number of skills, including independent learning, creative thinking, practical, mathematical and problem-solving;
- carry out practical tasks and present their findings in different formats;
- develop an appreciation and understanding of scientific methods; and
- appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Molecules and Cells	Unit A2 1	Physiology, Co-ordination and Control, and Ecosystems
Unit AS 2	Organisms and Biodiversity	Unit A2 2	Biochemistry, Genetics and Evolutionary Trends
Unit AS 3	Practical Skills in AS Biology	Unit A2 3	Practical Skills in Biology

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

However, the AS specification builds on the knowledge, understanding and skills developed in GCSE Biology, GCSE Science Double Award and other equivalent courses. Knowledge, understanding and skills developed in GCSE Mathematics are also relevant. The A2 section of this GCE builds on the knowledge, understanding and skills developed at AS level.

*Specification Section 1.3*



### More about [GCE Biology](#)



### Other Post-16 Qualifications

[GCE Chemistry](#)

[GCE Environmental Technology](#)

[GCE Physics](#)

[GCE Health and Social Care](#)

[GCE Life and Health Sciences](#)

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## GCE Chemistry

aims to encourage students to:

- develop their interest in and enthusiasm for chemistry;
- develop their interest in the further study of chemistry and the careers associated with courses related to the subject;
- draw together different areas of knowledge, skills and understanding;
- develop essential knowledge and understanding of the different areas of the subject and how they relate to each other;
- appreciate how society makes decisions about scientific issues and how the subject contributes to the success of the economy and society;
- develop competence and ability in practical, mathematical and problem-solving skills;
- develop and demonstrate a deep appreciation of scientific skills, and knowledge and understanding of how science works; and
- demonstrate that they understand and can apply key concepts.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Basic Concepts in Physical and Inorganic Chemistry	Unit A2 1	Further Physical and Organic Chemistry
Unit AS 2	Further Physical and Inorganic Chemistry and an Introduction to Organic Chemistry	Unit A2 2	Analytical, Transition Metals, Electrochemistry and Organic Nitrogen Chemistry
Unit AS 3	Basic Practical Chemistry	Unit A2 3	Further Practical Chemistry

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

However, the specification builds on the knowledge, understanding and skills developed within GCSE Science: Chemistry or GCSE Science: Double Award. The GCE specification incorporates AS. The A2 section of the GCE builds on the foundations of knowledge, understanding and skills developed at AS level.

*Specification Section 1.3*



### More about [GCE Chemistry](#)



### Other Post-16 Qualifications

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[GCE Environmental Technology](#)

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## GCE Environmental Technology

allows opportunities for students to:

- develop their interest in science and technology along with an enthusiasm for environmental action;
- appreciate how science and technology can contribute towards a sustainable economy and society;
- develop their awareness of the complex interdependency between human populations and the environment on a local and global scale;
- understand the concept of sustainability and the role of environmental technology in present day and future society;
- apply their skills to relevant work-related scenarios;
- develop decision-making skills;
- research, develop and present their findings in a variety of formats;
- develop advanced study skills in preparation for third level education; and
- demonstrate their understanding and application of key concepts through challenging internal and external assessments.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	The Earth's Capacity to Support Human Activity	Unit A2 1	Building and Managing a Sustainable Future
Unit AS 2	Renewable Energy Technologies	Unit A2 2	Environmental Building Performance and Measurement

*Specification Section 3*



### Prior attainment

The AS specification builds on, but does not depend upon, the knowledge, understanding and skills developed in GCSE Double Award Science, GCSE Physics, GCSE Chemistry, GCSE Biology, GCSE Mathematics and GCSE Technology and Design. The A2 specification builds on the knowledge, understanding and skills developed in the AS course.

*Specification Section 1.3*



### More about [GCE Environmental Technology](#)



### Other Post-16 Qualifications

[GCE Biology](#)

[GCE Chemistry](#)

[GCE Physics](#)

[GCE Health and Social Care](#)

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[GCE Nutrition and Food Science](#)



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## GCE Physics

aims to encourage students to:

- develop their interest in and enthusiasm for physics, including developing an interest in further study and careers in the subject;
- appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society;
- develop competence in a range of practical, mathematical and problem-solving skills;
- develop and demonstrate a deeper appreciation of scientific skills, and knowledge and understanding of how science works;
- develop essential knowledge and understanding of different areas of the subject and how they relate to each other; and
- develop advanced study skills that help them prepare for third level education.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Forces, Energy and Electricity	Unit A2 1	Deformation of Solids, Thermal Physics, Circular Motion, Oscillations and Atomic and Nuclear Physics
Unit AS 2	Waves, Photons and Astronomy	Unit A2 2	Fields, Capacitors and Particle Physics
Unit AS 3	Practical Techniques and Data Analysis	Unit A2 3	Practical Techniques and Data Analysis

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

The specification builds on knowledge, understanding and skills developed in both GCSE Double Award Science and GCSE Physics. The knowledge and understanding from GCSE Mathematics is also very relevant.

*Specification Section 1.3*



### More about GCE Physics



### Other Post-16 Qualifications

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GCE Health and Social Care

GCE Life and Health Sciences

GCE Nutrition and Food Science



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## GCE Health and Social Care

aims to encourage students to:

- develop their interest in health, social care and early years;
- draw together different areas of knowledge, skills and understanding;
- develop higher order thinking skills, creative thinking and problem-solving, where appropriate;
- apply their skills to work-related scenarios;
- work with others in groups;
- carry out research and present their findings in different formats;
- develop advanced study skills that help them prepare for third level education;
- develop knowledge and understanding relevant to degrees in nursing, allied health professions, social sciences, social policy, social work and early years;
- develop skills, aptitudes and values for employment in the health, social care and early years sectors;
- provide extended responses and evidence of quality of written communication; and
- demonstrate through internal and external assessments that they understand and can apply key concepts.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Promoting Quality Care	Unit A2 1	Applied Research
Unit AS 2	Communication in Health, Social Care and Early Years Settings	Unit A2 2	Body Systems and Physiological Disorders
Unit AS 3	Health and Wellbeing	Unit A2 3	Providing Services
Unit AS 4	Safeguarding Children	Unit A2 4	Public Health and Health Promotion
Unit AS 5	Adult Service Users	Unit A2 5	Supporting the Family
Unit AS 6	Holistic Therapies	Unit A2 6	Understanding Human Behaviour
Unit AS 7	Understanding the Physiology of Health and Illness	Unit A2 7	Human Nutrition and Health

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification. However, the specification builds on some of the knowledge, understanding and skills developed in GCSE Health and Social Care.

*Specification Section 1.3*



### More about [GCE Health and Social Care](#)



### Other Post-16 Qualifications

[GCE Biology](#)

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[GCE Physics](#)

[GCE Life and Health Sciences](#)

[GCE Nutrition and Food Science](#)





## GCE Life and Health Sciences

aims to encourage students to:

- develop their interest in and enthusiasm for science, including developing an interest in further study and careers in research science;
- appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society;
- develop competence in a range of practical, mathematical and problem-solving skills;
- develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of how science works;
- develop essential knowledge and understanding of different areas of the subject and how they relate to each other; and
- develop advanced study skills that help them prepare for higher education.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Experimental Techniques	Unit A2 1	Scientific Method, Investigation, Analysis and Evaluation
Unit AS 2	Human Body Systems	Unit A2 2	Organic Chemistry
Unit AS 3	Aspects of Physical Chemistry in Industrial Processes	Unit A2 3	Medical Physics
Unit AS 4	Brain Science	Unit A2 4	Sound and Light
Unit AS 5	Material Science	Unit A2 5	Genetics, Stem Cell Research and Cloning
Unit AS 6	Medicine, Drugs and Clinical Trials	Unit A2 6	Microbiology
		Unit A2 7	Oral Health and Dentistry
		Unit A2 8	Histology and Pathology
		Unit A2 9	Analytical Chemistry Techniques
		Unit A2 10	Enabling Technology

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification.

The specification builds on knowledge, understanding and skills developed in GCSE Single Award Science, GCSE Double Award Science and GCSE Sciences. The knowledge and understanding developed in GCSE Mathematics are also relevant.

*Specification Section 1.3*



### More about [GCE Life and Health Sciences](#)



### Other Post-16 Qualifications

[GCE Biology](#)

[GCE Chemistry](#)

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## GCE Nutrition and Food Science

aims to encourage students to:

- develop and apply knowledge, understanding and skills to meet human needs in a broad range of activities;
- develop an awareness of how to manage resources to meet an identified human need in a diverse and ever-changing society;
- develop higher order critical thinking skills such as problem-solving and decision-making;
- develop personal capabilities such as self-management and working with others;
- become independent and lifelong learners;
- develop Cross-Curricular Skills of Communication, Using Mathematics and Using ICT;
- take account of and develop an awareness of rapid technological changes and the growth of scientific knowledge and understanding;
- carry out research and present their findings in different formats; and
- demonstrate through challenging internal and external assessments that they understand and can apply key concepts.

*Specification Aims (Section 1.1)*

## Subject Content

	Advanced Subsidiary (AS) Units		A2 Units
Unit AS 1	Principles of Nutrition	Unit A2 1	Food Security and Sustainability or Food Safety and Quality
Unit AS 2	Diet, Lifestyle and Health	Unit A2 2	Research Project

*Specification Section 3*



### Prior attainment

Students do not need to have reached a particular level of attainment before beginning to study this specification. However, the specification builds on knowledge, understanding and skills developed in GCSE Food and Nutrition.

*Specification Section 1.3*



### More about [GCE Nutrition and Food Science](#)



### Other Post-16 Qualifications

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[GCE Chemistry](#)

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