

Cambridge Secondary 1 Science Curriculum outline

Cambridge Secondary 1 combines a world-class curriculum with high-quality support for teachers and integrated assessment. The curriculum is dedicated to helping schools develop learners who are confident, responsible, reflective, innovative and engaged. Cambridge Secondary 1 develops skills and understanding in English (including English as a second language), Mathematics and Science for learners typically aged 11–14.

The curriculum frameworks for each subject for Cambridge Secondary 1 are organised into three stages corresponding to the first three years of secondary education. They reflect the teaching target for each year group and provide comprehensive learning objectives.

For Cambridge Secondary 1 Science, the curriculum is presented in four content areas or 'strands'. These are further divided into 'substrands'. The four strands and substrands are:

Strand: Scientific enquiry

- Ideas and evidence
- Plan investigative work
- Obtain and present evidence
- Consider evidence and approach

Strand: Biology

- Plants
- Humans as organisms
- Cells and organisms
- Living things in their environment
- Variation and classification

Strand: Chemistry

- States of matter
- Material properties
- Material changes
- The Earth

Strand: Physics

- Forces and motion
- Energy
- The Earth and beyond.

The Scientific enquiry objectives underpin Biology, Chemistry and Physics, which are focused on developing confidence and interest in scientific knowledge. Environmental awareness and some history of science are also incorporated. The Cambridge Secondary 1 Science curriculum framework provides a solid foundation for further stages of education such as Cambridge IGCSE.

Cambridge Secondary 1 Progression Tests are available to schools registered for Cambridge Secondary for stages 7–9. These tests are marked by teachers and come with full mark schemes and marking guidance. At the end of Cambridge Secondary 1, schools can also offer Cambridge Checkpoint, a diagnostic test which offers comprehensive feedback at the end of the Cambridge Secondary 1 stage.

On the following pages, you will find some examples from the Biology strand and substrands for stages 7 and 9 of the Cambridge Secondary 1 Science curriculum.



Stage 7

Strand: Biology

Plants

- Recognise the positions, and know the functions of the major organs of flowering plants, e.g. root, stem, leaf.

Humans as organisms

- Explore the role of the skeleton and joints and the principle of antagonistic muscles.
- Recognise the positions and know the functions of the major organ systems of the human body. Secondary sources can be used.
- Research the work of scientists studying the human body.

Cells and organisms

- Identify the seven characteristics of living things and relate these to a wide range of organisms in the local and wider environment.
- Know about the role of micro-organisms in the breakdown of organic matter, food production and disease, including the work of Louis Pasteur.
- Identify the structures present in plant and animal cells as seen with a simple light microscope and/or a computer microscope.

- Compare the structure of plant and animal cells.
- Relate the structure of some common cells to their functions. Secondary sources can be used.
- Understand that cells can be grouped together to form tissues, organs and organisms.

Living things in their environment

- Describe how organisms are adapted to their habitat, drawing on locally occurring examples. Secondary sources can be used.
- Draw and model simple food chains.
- Discuss positive and negative influence of humans on the environment, e.g. the effect on food chains, pollution and ozone depletion.
- Discuss a range of energy sources and distinguish between renewable and non-renewable resources. Secondary sources can be used.

Variation and classification

- Understand what is meant by a species.
- Investigate variation within a species. Secondary sources can be used.
- Classify animals and plants into major groups, using some locally occurring examples.



Stage 9

Strand: Biology

Plants

- Define and describe photosynthesis, and use the word equation.
- Understand the importance of water and mineral salts to plant growth.
- Understand sexual reproduction in flowering plants, including pollination, fertilisation, seed formation and dispersal.

Living things in their environment

- Explain the ways in which living things are adapted to their habitats. Secondary sources can be used.
- Research the work of scientists studying the natural world. Secondary sources can be used.
- Explain and model food chains, food webs and energy flow.
- Explain the role of decomposers.
- Describe factors affecting the size of populations.
- Describe and investigate some effects of human influences on the environment.

Variation and classification

- Use and construct keys to identify plants and animals.
- Understand that organisms inherit characteristics from their parents through genetic material that is carried in cell nuclei.
- Describe how selective breeding can lead to new varieties.
- Discuss the work of Darwin in developing the scientific theory of natural selection.
- Understand percentage as the number parts in every 100; use fractions and percentages to describe parts of shapes, quantities and measures.
- Calculate simple percentages of quantities (whole number answers) and express a smaller quantity as a fraction or percentage of a larger one.
- Use percentages to represent and compare different quantities.



How can I access the full curriculum framework?

Only schools offering Cambridge Secondary 1 can access the full curriculum frameworks.

- If you are a Cambridge Secondary 1 school you can download the full curriculum framework from our password protected *Cambridge Secondary 1 site*
- If you are a Cambridge school and would like to offer Cambridge Secondary 1 complete and return our *Additional Qualification Types* form.
- If you are not a Cambridge school and would like to find out more about Cambridge Secondary 1 complete our *Expression of interest* form at www.cie.org.uk

Learn more! For details of Cambridge Secondary 1, go to www.cie.org.uk/secondary1 or contact our Customer Services team at info@cie.org.uk or call them on +44 1223 553554.

