

# SJCR KS3 Science Curriculum

## General Details

The KS3 science curriculum is taught via a two year accelerated teaching and learning pathway. Our curriculum is well differentiated, accessible, and flexible to facilitate personalisation of individual pupil needs, motivating and engaging for both teachers and pupils. Other features include a wide range of: testing and assessment opportunities (including baseline pre-unit testing), literacy, numeracy and ICT skills opportunities, personal learning and thinking skills opportunities, cross-curricular links including PSHEE and Citizenship, support materials for non-specialist teachers, NQTs, experienced teachers and supply teachers. The KS3 science curriculum provides opportunities with a collection of teaching resources at four ability levels, to ensure that **all** pupils working on any ability level can be supported, stretched and progress at a steady pace appropriate to them.

## Skills development

Ensuring progression in skills has underpinned the development of the course. There are three skill sets used, developed from a range of sources including PLTS, SEAL and APP in Science:

<ul style="list-style-type: none"> <li>• <b>Thinking scientifically</b> relates to the relationship between evidence, ideas and theories, and has a strong role to play in science generally and in KS4 courses. It includes asking questions, considering the quality of evidence, understanding how theories develop, evaluating risks, using units and nomenclature, using equations and analysing data.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Working scientifically</b> relates to conducting practical investigations and includes making predictions, designing investigations, recording evidence, presenting evidence, interpreting evidence, developing explanations and evaluating data.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Developing as learners</b> is not a science-specific set of skills, though science can play a strong part in developing the skills. They include planning progress, acting responsibly, developing resilience, asking questions, communicating effectively, respecting others and collaborating effectively.</li> </ul>
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## Teaching Pathway

### Year 7

### Year 8

#### Autumn term:

- Cells – the Building Blocks of Life (Biology)
- Mixing, Dissolving and Separating (Chemistry)
  - Forces and their Effects (Physics)

#### Autumn term:

- Looking at Plants and Ecosystems (Biology)
- Obtaining Useful Materials (Chemistry)
- Motion on Earth and in Space (Physics)

#### Spring term:

- Eating, Drinking and Breathing (Biology)
- Elements, Compounds and Reactions (Chemistry)
  - Energy Transfers and Sound (Physics)

#### Spring term:

- Variation for Survival (Biology)
- Explaining Chemical Changes (Chemistry)
- Waves and Energy Transfer (Physics)

#### Summer term:

- Getting the Energy your Body Needs (Biology)
  - Explaining Physical Changes (Chemistry)
- Exploring Contact and Non-Contact Forces (Physics)

#### Summer term:

- Our Health and the Effects of Drugs (Biology)
- Using our Earth Sustainably (Chemistry)
  - Magnetism and Electricity (Physics)

### Assessment of KS3

The KS3 science curriculum employs a plethora of differentiated methods of assessing the progression of pupils. Assessment include both formative and summative. Both the theoretical knowledge of biology, chemistry and physics are assessed alongside the SC1 skills which assess specifically the pupils' ability to plan, conduct, carry out and present data from scientific investigation. End of year 7 and 8 tests are conducted as well as nine specific unit tests throughout each year. At the end of each unit, pupils can assess themselves against a 'ladder' of levelled outcomes: i) both in terms of content knowledge; ii) How Science Works concepts and skills. This enables the pupils to determine which level they are working at, and what they need to further work on if they want to progress.

### Literacy and numeracy

The KS3 science curriculum is established on a thoroughly embedded and heuristic approach to the development of literacy and numeracy within the context of science.

**Literacy:** there are four important aspects to literacy in science – words, reading, writing and talk. Pupils are provided ample opportunity to engage in these aspects. Specific activities include: i) pupils use of a range of DARTs (directed activities related to text) where pupils are actively engaged with the text and are clear about why they are reading and what they should gain from the experience; ii) pupils make use of a range of DARTs (directed activities related to text) where pupils are actively engaged with the text and are clear about why they are reading and what they should gain from the experience; iii) Pupils are provided the opportunities to describe, explain and justify their understanding in science lessons. They are given the opportunities to 'think aloud', discussing and exploring.

**Numeracy:** the curriculum develops a thorough understanding of basic and advanced numerical skills. Specific activities include: i) pupils understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature; ii) pupils use and derive simple equations and carry out appropriate calculations; iii) pupils undertake basic data analysis including simple statistical techniques.

### Transition from KS3 to KS4 GCSE

The KS3 science curriculum provides a thorough transition for the new GCSEs (starting 2015) which will be tougher in terms of both content and skills. The KS3 science curriculum will prepare pupils for: i) the mathematical requirements of the GCSE have been increased with the expectation to demonstrate 'quantitative problem solving' in exams; ii) the assessment on extended writing skills.

### SMSC

The KS3 science curriculum provides a plethora of opportunities to develop spiritual, social, moral and cultural issues (SMSC) over the two year program. For instance pupils explore the SMSC issues associated to: i) several biological themes such as human reproduction and genetic research; ii) in chemistry units pupils explore the SMSC issues related to the environment and pollution as well as medicine and drugs; iii) in physics the question of the origin of the universe and its SMSC implications are studied.

### Uses of ICT

The KS3 science curriculum is based on around the Collins connect software which is an innovative online learning platform designed to support our teachers and pupils by providing a wealth of content and interactive activities. It is an essential part of our front-of-class teaching and learning and also helps to support independent learning for the VLE or home. The curriculum has an embedded approach to developing ICT and we are expanding to incorporate aspects of the new computing curriculum via cross curricula activities and opportunities.

### Websites to support learning of KS3

<http://connect.collins.co.uk/school/portal.aspx>

<http://www.doddlelearn.co.uk/>

<http://www.bbc.co.uk/bitesize/ks3/science/>