

Sir John Cass Red Coat School Programme of Study – Key Stage 3
Subject: Science

***Students embark on GCSE Science from year 9, for year 9 PoS please see KS4**

Year 7	Year 8
<p><u>Topics Covered/ Areas of Focus:</u></p> <p><u>Autumn Term</u></p> <p>Cells-The building blocks of life (Biology)</p> <p>Elements, compounds and reactions (Chemistry)</p> <p><u>Spring Term</u></p> <p>Forces and their effects (Physics)</p> <p>Eating, Drinking and Breathing (Biology)</p> <p><u>Summer Term</u></p> <p>Explaining Chemical Changes (Chemistry)</p> <p>Getting the energy your body needs (Biology)</p> <p>Exploring Contact and Non-Contact Forces (Physics)</p>	<p><u>Topics Covered/ Areas of Focus:</u></p> <p><u>Autumn Term</u></p> <p>Looking at plants and ecosystems (Biology)</p> <p>Magnetism and Electricity (Physics)</p> <p><u>Spring Term</u></p> <p>Obtaining useful materials (Chemistry)</p> <p>Our Health and the Effect of Drugs (Biology)</p> <p><u>Summer Term</u></p> <p>Using our Earth Sustainably (Chemistry)</p> <p>Motion on Earth and in Space (Physics)</p> <p>Waves and Energy Transfers (Physics)</p>

Skills Development & Expected Progress:

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:

Thinking scientifically 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.

Working scientifically relates to conducting practical investigations and includes making predictions, designing investigations, recording evidence, presenting evidence, interpreting evidence, developing explanations and evaluating data.

Developing as learners 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

Assessment:

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 seven specific unit tests throughout each year. At the end of each unit, pupils can assess themselves against a 'ladder' of staged outcomes: i) both in terms of content knowledge; ii) How Science Works concepts and skills. This enables the pupils to determine which stage they are working at, and what they need to further work on if they want to progress.

Literacy:

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:

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.

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.

Life in Modern Britain:

Different areas of life in modern Britain are explored and have been embedded into the KS3 curriculum to enhance and develop students understanding and how it links to the following key areas.

- **Criminal and civil law:** themes- drugs substance abuse, speed equation and explaining how speed cameras work, pollution, misuse of acids and alkalis and acid attacks.
- **Institution and services:** themes-to develop understanding and discussion of the local and national government policies and solutions on acid rain. Students also explore healthy diet, obesity, starvation and the impact of substance abuse on health and the development of the foetus, students look into how the National Health Service is able to provide support to individuals with different medical needs.
- **Democracy and democratic values:** themes- discussion on the laws implemented for cars that are speeding over the limit and the dangers this can cause to the public. Further development of the socio-political policy on the effect of toxins in the environment through pollution and destruction of the environment.
- **Individual Liberty:** themes- discussion and debate on the early atmosphere and how life was created primordial theory and if biological evolution can be scientifically demonstrated by referring to the conditions of the atmosphere. This leads into further discussions of several other views and theories about how the universe was created.
- **Respect and tolerance of multi faith society:** themes- discovering the origin of the metals – a discussion and debate about the nature of power, equals resources and how individuals (or countries) with the control of resources can determine the course of future history. A further discussion of the wars that took place in Congo (DRC) over metal mining.

Safeguarding and reliance to propaganda: themes- explaining the use of catalytic convertors – a critical discussion on the advantages and disadvantages of the use of catalytic convertors in reducing harmful gases. Exploration will require that alternatives to even catalytic convertors be proposed in order solve the pollution problem.

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.

Meeting the needs of individual students & Additional Support:

Teachers individualise lessons to support the needs of all ability students through effective planning and differentiation of tasks so all students can be challenged and make progress according to their ability. Students with special education needs, we have one to one support in lessons provided for them to give extra support and build student confidence.

Extra-Curricular Activities & Club:

There is a Science club that runs once every week for KS3 students. This provides enrichment to the KS3 curriculum. This gives an opportunity for students to enhance their Scientific skills further through a range of different practical based activities all three Science areas biology, chemistry and physics are explored. The Science club will be implementing the Crest Awards where students are able to do project work and take ownership of their own learning and develop their scientific thinking skills further as well as other skills such as communication, time management, team work and project management skills. Students projects will be assessed and successful students will be given an award.

Independent Study/ Homework:

Independent study and homework is implemented by class teachers to enhance learning for students by allowing students to consolidate their learning and become independent and confident learners.

Resources for Learning Support and VLE:

KS3 resources for learning support are available through different revision guides to help supplement the course to consolidate student learning and provide revision support to pupils through different test practise questions and summary section of each topic. To improve student performance in lessons and exams. The VLE can be used to support independent learning, the KS3 curriculum is based around the Collins connect software which is used to provide support to our teachers and pupils through a variety of content and interactive activities. As well as this teachers are able to upload worksheet activities for students through firefly which students can have access to at school and home.