

Year 9 - Science

What will be studied?

Topic(s)

Students are following the AQA KS3 Activate Science Syllabus and during this final year of key stage 3 students will have the opportunity to recap the challenging topics taught during year 7 and 8 and also improve their maths in science skills.

- **Biology: variation and evolution** – Students will be re-taught key concepts on variation and will then link this to evolution. They will learn about evolution by natural selection and build upon their knowledge of inheritance. **Respiration and Photosynthesis:** Students will be taught about aerobic and anaerobic respiration. Students will also learn about the process of photosynthesis and look in detail at the structure of a leaf and why minerals are required for healthy growth. **Cell structure and transport:** students will revise animal and plant cells, unicellular cells and specialist cells and how substances travel in organisms using osmosis, diffusion and active transport. **The digestive system:** Students will further develop their knowledge on the digestive system, how it works and enzymes which support digestion of food groups. They will then look at factors which can affect the rate of digestion and how hydrochloric acid and bile help to aid digestion.
- **Physics: Energy** - Students will recap and further develop their knowledge of how scientists think about energy including the idea of dissipation. They will model how energy is transferred between different stores and learn how we can use energy calculations to tell us which processes are possible. **Light:** Students will be taught how light travels through different mediums and how light is able to reflect and refract. They will also learn about how the eyes work and how we see different colours. **Motion and pressure:** Students will further develop their knowledge on speed and interpret speed-time graphs. They will also look at the effect of pressure in different states. Followed by learning what is meant by moment, the law of moment and how to calculate the moment of a force.
- **Chemistry: Types of reaction** : Students will develop their knowledge by looking at different types of chemical reactions, including oxidation, combustion, and decomposition. Students will also learn how to represent chemical substances and reactions using ratios and how to write word equations and balanced formula equations. Students will also learn about the energy changes involved in a chemical reaction. **Fundamental of atoms:** Students will recap and further their knowledge on atoms, how atoms were discovered, what comprises an atom and how they can be presented using electronic structure. **Understanding the periodic table:** Students will be learning about the periodic table and how atoms are

arranged in the periodic table. They will also see how group 1, 7 and 0 elements are arranged and look into their reactivity. Followed by transition metals, how they are different to other metals and its properties.

- Numeracy enrichment – Students will improve their maths in science skills by recapping unit conversions, graph plotting, gradient calculations and rearranging equations. They will also practical questions involving experimental data analysis

How do you assess the learning?

Students are assessed by the following methods:

- Teacher created assessment for learning opportunities
- Extended response tasks which allow students to write at length
- Multiple choice assessments
- Examination questions
- Online assessments - Kerboodle
- Sparx Science
- Spelling tests
- In class AfL as appropriate such as: use of mini whiteboards, traffic light cards, exit cards etc.

Teachers arrange opportunities in lesson for students to present work and do individual and group projects. Practical work is completed in lessons and assessed by teachers.

End of Year Examination

How will I be assessed at the end of the year?

Students are given a one hour final assessment covering topics from the whole of Year 9 and the corresponding prior learning from Year 7 and Year 8 – students will not be expected to revise their work from Year 7 and Year 8, it is reinforced through normal teaching. This also covers the skills that students have learnt, students will be assessed on their ability to apply knowledge they have gained in one topic to another. For example, they may have done some work on graph drawing in physics – in their exam they may be asked to draw a graph for chemistry.

How can I help my child?

Guidance and advice

- Kerboodle.com – all students have a log in for a free version of the textbook used in lessons. This also includes videos, support and extension activities.
- BBC Bitesize – KS3 Science. Students can find animations, explanations and questions on this site – organised as Biology, Chemistry and Physics.

Science Curriculum Information

- Collins Science KS3 Revision - Collins provides KS3 revision books based on the AQA KS3 science syllabus.
- Senecalearning.com - Students are encouraged to revise using Seneca. There is a Key Stage Three Science course available for free.
- Sparx science - Students are required to complete tasks assigned each week on Sparx to aid in active recall and understanding.