Year 8 Science Curriculum

What will you learn?

Topic(s)

Students are following the AQA year 8 Smart Science Syllabus based on the below 5 pillars:

- Coherence: building and maintaining a coherent curriculum as well as ensuring coherence between curriculum and assessment
- Academic attainment and progress: holding high expectations and aspirations for all learners
- Preparation for successful futures: developing cognitive and metacognitive skills
- Equity, inclusion, and belonging: promoting the roles of identity, diversity, and inclusion
- Wellbeing: delivering experiences of awe and wonder

Students will be learning the following topics in year 8:

Working scientifically: – In this unit, students revisit the planning of investigations, focusing on collecting data that is precise and reproducible, and writing risk assessments to ensure their safety and the safety of those around them. They will extend their focus on analysing data, through looking at how to plot a pie chart and a histogram, and how to identify the median and mode averages in a data set. They will identify linear and directly proportional relationships, and use lines of best fit to interpolate and extrapolate data. Students will also use secondary data to improve confidence in their conclusions. Finally, students will study how our understanding of science develops over time, the importance of peer review, and how scientists communicate information with different audiences.

Biology : In this unit, students will compare the effects of healthy and unhealthy lifestyles. This involves looking at the structure and function of the digestive system and role of enzymes in digestion. They will then combine their knowledge of biology and chemistry when studying the cellular processes of photosynthesis and respiration. Building on their knowledge of food chains, students will study the interdependence of organisms and the adaptations that enable organisms to be successful competitors and survive in harsh and changing environments. They will then study the causes of variation and how characteristics are inherited through chromosomes, before learning about the process of evolution through natural selection. Throughout this unit, students are introduced to a number of scientists who played a fundamental role in developing our understanding of biology.

Chemistry: In order to be good global citizens, it is important to be aware of our place in the world and our interaction with it. We can do this by exploring what the Earth is made from, how we can extract useful substances from it, how we can change these substances into more useful ones, and our impact on the environment when we do this. Following on from our introduction to the particle model, this unit develops on the knowledge of how some materials and substances

are used and behave. We discuss the differences between metal and non-metal elements and their reactions, we look at some different separation techniques, and we discuss how patterns in behaviours can be used to make useful predictions about substances. Students delve into the study of the Earth and rocks, they describe our impact and effect on the environment, and look at how we can best protect and look after our fascinating world.

Physics: In Chapter 1, students are introduced to the abstract idea of electricity, and gain an understanding of how objects can be charged. They meet the (fundamental) concept of a 'field' as a region where objects experience forces. They build circuits and take measurements when learning about current, potential difference, and resistance. They investigate the shape of the magnetic field around a bar magnet and explore how electricity and magnetism are linked. In Chapter 2, students are introduced to the difficult concept of energy. They compare energy values in foods and fuels, and look at different energy resources. They learn about different energy stores and how energy is transferred between stores. They use their knowledge of energy and power equations to calculate the cost of using domestic appliances. In Chapter 3, students learn to calculate the speed of an object and look at how distance–time graphs can be used to describe motion. They extend their Year 7 knowledge of forces with the concept of pressure and apply it to situations where a force can produce a turning effect.

Students will apply and develop their knowledge by undertaking a range of practical work. This practical work is used to develop transferable skills such as devising and testing questions, identifying and controlling variables, analysing and interpreting data. Students are given the opportunity to build and master practical skills including: using specialist equipment to take measurements, handling and manipulating equipment with confidence and recognising hazards and planning to minimise risk.

How will you be assessed?

Overall assessment

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 assigned on kerboodle
- Examination questions
- Online assessments using exampro
- Spelling tests
- In class AfL as appropriate such as: use of mini whiteboards, traffic light cards, exit cards etc.

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

End of Year assessment
Students are given a one hour final assessment covering topics from the whole of Year 8. 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.

Which resources should you use?

Books, websites, online resources, trips and visits

- 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.
- Collins Science KS3 Revision - Collins provides KS3 revision books based on the AQA KS3 science syllabus.
- Senecalearning.com - Students were encouraged to complete the Key Stage Two Seneca course before starting at Alperton – they are encouraged to continue using Seneca and the Key Stage Three course to aid their revision.

What independent work can you do?

Books, websites, online resources

Use the VIP Zone, there you will find:

- An 'Independent Learning' folder full of resources and ideas to support your learning
- PLCs [Personal Learning Checks] - use these to rate your understanding of each topic and to recap and stretch your knowledge and skills.

Start revising. Try some of these to improve your understanding of each lesson and to help you prepare for assessments.

- **Summarise your notes:** Identify the key ideas and essential details. This technique improves understanding and retention by making information clearer and more manageable.
- **Flashcards**: Write key information on cards, don't forget to include an example
- **Mind maps**: Visually organize information by creating diagrams that connect ideas. This helps you see the relationships between topics.

- **Mnemonics**: Use songs, rhymes, or acronyms to help remember facts and figures.
- **Recording and replaying**: Record yourself reading notes and listen back to them.
- **Sticky notes:** Write / draw a key point on each note and place them around your house to help with memorisation.

Watch this: BBC Bitesize The Best Memory Hacks to Help Your Revision