

Year 8- Biology

In year 8 we continue to build upon the knowledge of animals, particularly humans. We introduce larger systems within multicellular organisms and how energy is created by cells, which will continue in KS4 as we add extra details regarding respiration and other organ systems in humans, namely the digestive and circulatory system. We also begin to add more knowledge regarding natural selection and evolution, which links to students KS3 knowledge and understanding of animals and their habitats, explaining how animals are adapted to their environments.

Lessons covered

Lesson	Title
1	The lungs
2	Breathing
3	Gas exchange in plants
4	Photosynthesis
5	Respiration
6	Fermentation
7	Interdependence
8	Bioaccumulation
9	Heredity
10	Chromosomes and DNA
11	Variation
12	Natural selection
13	Extinction
14	Biodiversity

Year 8- Chemistry

Year 8 Chemistry continues to expand students' knowledge and understanding of the world around them with regards to Dalton's atomic model first introduced in year 7. Taking the logical next steps into how different types of atom are categorised and how their properties differ based on their position on the Periodic table. This will be advanced in KS4 as we use electronic structure to explain differences in properties across the periodic table. We also spend time advancing students' knowledge of rocks and composition of the Earth/atmosphere. First touched upon by categorising rocks based on appearance and physical properties, we expand the understanding by explaining the rock cycle and the creation of different rocks leading to different properties.

Lessons covered

Lesson	Title
1	The periodic table
2	The periodic table 2
3	Metals and non-metals
4	Obtaining metals
5	Properties of materials
6	Structure of the Earth
7	Rocks
8	
9	The atmosphere
10	Resources and recycling

Year 8- Physics

This unit will build upon work done during KS2 on magnets, states of matter and simple circuits. We delve further into similarities and differences between different waves and build more complex circuits from the “electricity” part of the KS2 NC. This knowledge is fundamental to everything taught in Physics across the rest of KS3 and into KS4 and 5, where it will be built upon further into topics such as circuits, magnets and the Earths motion in space.

Lessons covered

Lesson	Title
1	Current in circuits
2	p.d. in circuits
3	Static electricity
4	Magnets
5	Density
6	Movement of particles
7	Arrangement of particles
8	Our solar system
9	Days and seasons

Year 8- Experimental Procedure

This topic will allow students to practise working scientifically. They will build on what they learnt in year 7 to use more complex equipment and substantive knowledge. Students will be given scope to pick their own variables and develop their own investigation. This will progress into KS4 e.g. required practicals.

Investigations conducted

EP5- Breathing and exercise

EP6- Circuits

EP7- Rates

EP8- Quadrats

Year 8- Research

A crucial skill required by all scientists is knowing how to research, this topic allows students in year 8 to fully develop their independent study skills. Over a period of several weeks, we will support students to research an area of science they find interesting. This allows the students to have greater ownership of their learning, to go beyond the national curriculum and really understand what it means to independently learn, a skill we believe is crucial for later life. The extended nature of the project will give students the breathing room to develop their independence, resilience and reflective abilities, while also showing enthusiasm for the subject. The project will conclude with a presentation to the rest of the class regarding the topic they have researched.