

# Curriculum map - Science

## Year 7 and 8

Each term has a biology, chemistry and physics topic and these are taught in different order depending on the member of teaching staff. Staff start with their specialism subject in order to facilitate forming relationships with their classes. This also ensures the practical lessons have smaller groups as there is more equipment, therefore facilitating more effective learning during these activities.

There are assessments for each topic, some are practical assessments and some are with a written test:

The **Practical Assessments** are not watching their practical skills but are based on one of the practical skills they have covered following a practical activity completed in class. These are designed to cover all key skills: method writing, risk assessments, drawing a table, drawing a graph, variables, conclusion and evaluation and do so on an individual basis until the summer term of year 8 where one investigation puts all of these skills together.

The **Written Assessments** are a test style with multiple choice and short answer questions (only 1 and occasionally 2 mark questions). There are no tiers on the topic tests. In addition to this there is an end of year test for year 8 which has a higher and foundation tier and covers material from many of the topics over both years to promote long term retention.

	Topic	Ideas Covered	Why is it Important?	Why Now?	Impact	Assessment
7 Autumn Biology 1	Cells	The structure of animal, plant and bacterial cells	Cells are the basic unit of all forms of life	This is an introductory topic to biology that interlinks with many other modules in KS3 and KS4. Many more complicated concepts are based on a sound understanding of this knowledge.	Students will be able to describe cell structure and the functions of the subcellular structures. Students will be able to use a microscope to observe cells	Practical assessment
7 Autumn Chemistry 1	Particles	The nature of particles Diffusion	The basic states of matter are fundamental to material science. Separation techniques further embed these ideas. Diffusion is a process used in	The basics will have been taught at KS2 and so progression is smooth. It is important to have topics that contain familiarity in the first term of Year 7 so as not to overwhelm students with new information.	Students will be able to use the particle model to explain the difference in the properties of solids, liquids and gases and their change of state. They will be able to describe diffusion.	Written assessment

	Topic	Ideas Covered	Why is it Important?	Why Now?	Impact	Assessment
			all three science strands.			
7 Autumn Physics 1	Space	The solar system Gravity and Orbits Light Years	To inspire students about the universe and our place within it	As the students begin year 7 it is important to inspire them with topics they find fascinating as well as basic knowledge they will need later. This is one of those topics.	Students will be able to explain understanding of day and night, the seasons and have an appreciation of the structure of the universe	Written assessment
7 Spring Biology 2	Reproduction	Anatomy of reproductive systems How new life is conceived both in animals and plants	Reproduction links to many life processes. We exist only because this process takes place.	Reproduction builds on the cells topic in looking at eggs and sperm cells. follows sex and health education from KS2, introducing biological anatomical accuracy. It is also a basis for references to sexual reproduction in teaching disease and hormones.	Students develop an accurate understanding of sexual reproduction and the differences and similarities between plants and animals. They will appreciate the specialised cells involved.	Written assessment
7 Spring Chemistry 2	Atoms, elements and compounds	Atoms, elements, periodic table Chemical reactions Writing chemical equations	The knowledge taught in this topic is fundamental to all other chemistry topics.	The understanding and familiarity with the periodic table is fundamental to helping to explain more difficult concepts further through the curriculum. An introduction at this time enables a pathway of revisiting to firmly embed this knowledge.	Students will understand the nature of elements and how to find them on the periodic table. They will be able to describe different types of chemical reactions. They will be able to begin to construct chemical equations.	Written assessment
7 Spring Physics 2	Energy	Concept of energy and energy resources	Energy is important both as a concept and how we use energy in our daily lives.	Energy is one of the big ideas in science and an introduction in year 7 will be building blocks for further concepts in the curriculum. Conduction, convection and radiation follow on from the chemistry particles topic from the autumn term	Students will be able to describe how energy is harnessed. They will also be able to show how energy moves from one place to another.	Practical Assessment

	Topic	Ideas Covered	Why is it Important?	Why Now?	Impact	Assessment
7 Summer Biology 3	Inheritance	The concept and application of inheritance The nature of DNA	Understanding DNA allows students to understand how we are all different. It also introduces the theory of evolution to describe how life developed into what it is today	Understanding of both DNA, heredity and evolution are building blocks for further study within the curriculum. There are also often many misconceptions with this topic so it is important to tackle these at this early stage.	Students will be able to explain why DNA is important and describe Darwin's theory of evolution	Written assessment
7 Summer Chemistry 3	Acids and Alkalis	The nature of acids and alkalis	Acids and Alkalis are common place within everyday life thus necessitating an early understanding of the properties of these two groups of chemicals	The basics of this topic are needed now to build upon this further through the curriculum. It also gives opportunities for exploring safety in the lab.	Students will be able to state the properties of acids and alkalis and how to identify	Practical Assessment
7 Summer Physics 3	Waves	Properties of light waves Properties of sound waves	Seeing and hearing are vital to most of us in perceiving the world and this topic makes it clear how this happens.	This topic has links to more complicated knowledge taught further through the curriculum. This topic also contains practical activities involving different equipment and will build on students' practical skills.	Students will be able to describe (and explain) the behaviour of light and sound waves and how they are detected by humans	Written assessment