

## AUTUMN 1

<b>Science Licence</b> Introduction to lab safety and using lab equipment.	<b>Cells</b> Animal and plant cells, specialised cells, introduction to microscopy.	<b>Acids and Bases</b> Everyday acids and alkalis, testing for pH, pH scale and neutralisation reactions.	Prior Learning <b>KS2:</b> Comparisons of key features of animals and plants, including location and function of several organs. Exploration of requirements for life in animals and plants. Investigation of reaction between vinegar and sodium bicarbonate, and understanding of 'solution'.
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## AUTUMN 2

<b>Contact Forces</b> Balanced / unbalanced forces, resultant forces, friction, air resistance.	<b>Particle Model</b> Properties and particle model of solids, liquids and gases, also diffusion.	<b>Movement</b> The human skeleton and skeletal system, joints, ligaments and tendons.	Prior Learning <b>KS2:</b> Effects of forces, effects of different surfaces. Identify contact and non-contact forces. Classify solids, liquids and gases, observing state changes on heating/cooling. Identify animals with internal skeletons, and explain they are for support, protection and movement.
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## SPRING 1

<b>Energy Transfers</b> 8 Energy stores and how energy cannot be created or destroyed.	<b>Sound</b> Longitudinal waves, vibrations, pitch, amplitude, wavelength, and ear structure.	Prior Learning <b>KS3:</b> Energy is not taught as an explicit concept prior to KS3. Identifying that sounds are heard due to vibrations passed to the ear. Spotting patterns between pitch, frequency volume and amplitude. To recognise that sounds are quieter when further away.
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## SPRING 2

<b>Earth's Structure</b> Sedimentary, igneous, metamorphic rocks and the rock cycle	<b>Reproduction</b> Male and female reproductive systems, fertilisation, foetal development, birth, plant reproduction.	Prior Learning <b>KS2:</b> Elements as the building blocks for all matter. Describing life cycles in a variety of organisms, including human and plant reproduction. Explaining variation within offspring
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## SUMMER 1

<b>Light</b> Transverse waves, reflection and refraction.	<b>Periodic Table of Elements</b> Metals and non-metals, groups 1, 7, 0	<b>Speed</b> Speed = distance / time, factors affecting speed.	Prior Learning <b>KS2:</b> Light is needed to see, darkness is the absence of light, light can be transmitted but is blocked by opaque in order to create a shadow. Light travels in straight lines. Make comparisons of rock types and groups, describe how fossils are formed and recognise that soils are made from rocks and organic matter. The effect of friction on how fast an object moves.
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## SUMMER 2

<b>Variation and Interdependence</b> Food chains and webs, predator/prey cycles.	<b>Non-contact Forces</b> Magnetic materials and fields, electromagnets, gravity, and weight.	Prior Learning <b>KS2:</b> Living things have changed over time and there is fossil evidence for this. Magnets, magnetism, and magnetic materials, plus the effects of gravity on unsupported objects.
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## CAREERS LINKS

Health & safety officer, microbiologist, analytical chemist, physicist, particle physicist, physiotherapist, mechanical engineers, sound engineers, studio technicians, astrophysicist, optician, geologist, aeronautics engineers.

## CHARACTER LINKS

Motivation, resilience and teamwork (performance virtues).  
 Confidence and determination  
 Listening, critical thinking and problem solving (intellectual virtues).  
 Consideration and construction of moral and ethical arguments in science (moral virtues).

## KEY ASSESSMENT DATES

Summative and synoptic testing in October, February and May.