

		KEY LEARNING OBJECTIVES	COMPONENTS
Autumn Term	Wars of the World	To recognise that light appears to travel in straight lines (NC)	<ul style="list-style-type: none"> <li>To know that light is a form of energy</li> <li>To know that light travels in straight lines until it hits an object</li> <li>To know that shadows are formed when light is blocked by an opaque object</li> </ul>
		To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye (NC)	<ul style="list-style-type: none"> <li>To know that, when we see an object, we are actually seeing the light bouncing off it</li> <li>To know that there are different parts to the human eye and these all have their own function</li> </ul>
		To explain that we see things because light travels from light sources to our eyes off from light sources to objects and then to our eyes (NC)	<ul style="list-style-type: none"> <li>To know that there are different parts to the eye and to be able to name them</li> <li>To know that the reflected light enters the eye through the opening in the iris called the pupil</li> <li>To know that the retina at the back of the eye is sensitive to light and changes the light into electrical signals which are sent to the brain</li> <li>To know that the brain interprets these signals as an image or picture</li> </ul>
		To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them (NC)	<ul style="list-style-type: none"> <li>To know that, when an opaque or solid object comes between the light source and a surface, a shadow is formed</li> <li>To know that light travels in straight lines</li> <li>To know that the size of a shadow depends on how close the object is to the light source</li> <li>To know that if an object is close to the light source, it casts a big shadow</li> <li>To know that if an object is further away from the light source, the shadow is smaller</li> </ul>
	A World of Bright Ideas	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object (NC)	<ul style="list-style-type: none"> <li>To know that gravity is an invisible force that pulls objects towards the centre of the Earth</li> <li>To know that gravity keeps the Earth and the other planets in their orbits around the Sun</li> <li>To know that the gravity on the Moon is not as strong as gravity on the Earth because the moon is much smaller</li> <li>To know that it is the Earth's gravity keeps us on the ground and makes things fall</li> <li>To know that Isaac Newton was a scientist who was famous for his discoveries about gravity</li> </ul>
		To identify the effects of air resistance, water resistance and friction, that act between moving surfaces (NC)	<ul style="list-style-type: none"> <li>To know that friction is the resistance that one surface or object encounters when moving over another</li> <li>To know that air resistance is a type of friction between air particles and another material, making it more difficult to move through air</li> <li>To know that water resistance is a type of friction between water particles and another material, making it more difficult to move through water</li> <li>To know that streamlined objects are designed to reduce resistance e.g. shapes of cars, airplanes or boats</li> </ul>
		To recognise some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect (NC)	<ul style="list-style-type: none"> <li>To know that mechanisms, such as levers, pulleys and gears are devices that we use to help move things</li> <li>To know that a lever is a simple mechanism designed to lift objects</li> <li>To know that a pulley is a machine with a wheel and rope mechanism, designed to lift objects</li> <li>To know that a gear is a wheel with teeth that connects with other wheels to turn objects, control the speed of an object or help an object change direction</li> <li>To know that all of these mechanisms reduce the force you need to apply to lift or move heavy objects</li> </ul>

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Spring Term	I Have a Dream	To know the difference in the life cycles of a mammal, an amphibian, an insect and a bird (NC)	<ul style="list-style-type: none"> <li>To know that a life cycle represents the stages a living thing goes through in its life, from birth to death</li> <li>To know that animals are small when they are born and, over time, they grow and their bodies change</li> <li>To know that most animals have babies of their own when they grow up, and the life cycle begins again</li> <li>To know that a mammal gives birth to its young which suckles on its mother's milk, has hair or fur on its body, and is warm-blooded</li> <li>To know that an amphibian lives partly in water and partly on land, has moist slimy skin and lays eggs</li> <li>To know that birds lay eggs, have feathers and wings and most can fly</li> <li>To know that an insect has a body with three segments that are protected by a hard shell, three pairs of legs and a pair of antennae</li> <li>To know that most insects produce eggs which are left to hatch into young</li> </ul>
		To know that some changes result in the formation of new materials, and that this kind of change is not usually reversible (NC)	<ul style="list-style-type: none"> <li>To know that some materials can be changed and made into new materials and others cannot and these include paper, cardboard, glass, metal, food and some rigid plastics</li> <li>To know that some changes are not always reversible i.e. materials cannot be changed back to how they were before e.g. when a piece of wood is burned</li> <li>To know that recycling means collecting materials that would otherwise be thrown away and using them to create new products</li> <li>To know that waste materials are a major cause of pollution, especially plastic waste which cannot be recycled</li> <li>To know the impact of pollutants on different parts of the planet and identify which are not reversible</li> </ul>
Summer Term	Global Warning	To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets (NC)	<ul style="list-style-type: none"> <li>To know that, if you put a soluble material into water, it disappears (dissolves)</li> <li>To know that some materials allow electricity to pass through them and these are called electrical conductors</li> <li>To know that an insulator is a material that does not allow electricity to pass through</li> <li>To know that some materials allow heat to pass through them and these are called thermal conductors</li> <li>To know that some materials keep heat from being lost e.g. wool</li> <li>To know that some materials are magnetic and give examples</li> </ul>