| Subject | Year 7 Threshold Concepts – Summer Term | • How to support students' learning |
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| Matter | <u>Physical changes</u><br>• Conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation and dissolving<br>• Similarities and differences between solids, liquids and gases<br>• Brownian motion in gases<br>• Diffusion in liquids and gases driven by differences in concentration<br>• The difference between physical and chemical changes<br><u>Particle model</u><br>• The differences in arrangements in motion and in closeness of particles<br>• explaining changes of state, shape, and density, the anomaly of ice-water transition<br>• atoms and molecules as particles<br><u>Energy in matter</u><br>• changes with temperature in motion and spacing of particles<br>• internal energy stored in materials | Watch this video to help understand Brownian motion<br>What Is Brownian Motion? \| Properties of Matter \| Chemistry \| FuseSchool - YouTube<br><br>Use this learners guid to help understanding of changes of state Changes of state - BBC Bitesize |
| Waves | <u>Light waves and reflection</u><br>• Describe how light travels as a wave<br>• Describe how light reflects of everyday objects and mirrors<br>• Understand the difference between transparent, translucent and opaque objects<br><br><u>Refraction, Lenses and our eye</u><br>• Investigate how light changes direction when entering a different material | You could have a go at making a periscope at home using these instructions:<br>Periscope STEM activity - Science Museum Group Learning<br><br>Look around your home and try and identify different materials which are either transparent, translucent or opaque |

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| Ecosystems | • Understand how lenses can be used to form an image<br>• Describe how the lens in our eye allows us to see an image<br><br><u>Colours</u><br>• State the primary colours of light<br>• Describe how the primary colours make up all other colours we see<br>• Explain how we see different coloured objects<br><br><u>Sound Waves</u><br>• State the range of frequencies humans can hear<br>• Describe how sound travels as a wave<br>• Understand how an echo is formed.<br><br><u>Food chains and pyramids of number</u><br>• Understand the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br><br><u>Food webs and bioaccumulation</u><br>• The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br>• How organisms affect, and are affected by, their environment, including the accumulation of toxic materials. | Watch this BBC video to find out more about how the eye works:<br>BBC iScience The Eye - YouTube<br><br>Read through this website to support your child with their understanding how we see different coloured objects.<br>Colour - Shalom Education (shalom-education.com)<br><br>Different age people can hear different frequencies of sound. Use this YouTube clip to see if you can hear a different range of sounds compared to your child.<br>How Old Are Your Ears? (Hearing Test) - YouTube<br><br>Encourage your child to work through the revision resources here : What are pyramids of numbers and biomass? Ecosystems and habitats - KS3 Biology - BBC Bitesize - BBC Bitesize<br><br>Encourage your child to work through the revision resources here : What are pyramids of numbers and biomass? Ecosystems and habitats - KS3 Biology - BBC Bitesize - BBC Bitesize |

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| Earth and space | <u>Populations, competition and predator prey relationships</u><br>• Explain the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br>• Understand the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br><br><u>Pollution and the greenhouse effect</u><br>• How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.<br>• How organisms affect, and are affected by, their environment, including the accumulation of toxic materials<br><br><u>Living on Earth</u><br>• Understand what causes day and night<br>• Understand why we have seasons on Earth<br><br><u>Solar System</u><br>• Describe the objects in the solar system<br>• Describe which objects in the solar system are light sources and how we see other objects<br><br><u>Satellites</u><br>• Describe some uses of satellites<br>• Understand how a satellite stays in orbit around the Earth<br><br><u>The Moon</u><br>• Understand how we can see the moon | Encourage your child to watch the video on bioaccumulation to learn how the process occurs What is Bioaccumulation - More Science on the Learning Videos Channel - YouTube<br><br>Encourage you child to compete the tasks throughout this video to consolidate learning. Ecosystems and Competition - Biology - Key Stage 3 - Mr Deeping - YouTube<br><br>Use this website to help you understand how we get day and night and why we have seasons. Why not try the quiz at the end to show much you understand. What are days, seasons and years? - BBC Bitesize<br><br>If it is a clear night have a go yourself looking for objects in the night sky. Use this website which will tell you what you can see each night in the sky: Night Sky Map & Planets Visible Tonight (timeanddate.com)<br><br>The international space station is a satellite. If it is a clear night can you spot it racing across the sky. Use this website to find out which nights you can see it: meteorwatch.org – |

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| | • Describe how both solar and lunar eclipses occur<br><br><u>Rockets</u><br>• Describe what rockets might be used for<br>• Discuss how science relates to careers. What job roles might there be in the future related to space travel. | Search on BBC iPlayer for documentaries on space and eclipses. They also have a wide selection of useful programs to watch<br><br>Use the SpaceX website to keep up to date with the current news regarding rocket launches.<br>SpaceX |