| Subject | Year 7 Threshold Concepts – Summer Term | • How to support students' learning |
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| Earth Science | <u>The Earth's atmosphere</u><br>• Compare the earths early atmosphere to the atmosphere today<br>• Recall the proportions of gases in the atmosphere today<br>• Explain why carbon dioxide and oxygen levels changed in Earth's early history<br><u>Crude oil</u><br>• Describe the composition of crude oil<br>• Draw molecular diagrams of the first 5 alkanes<br>• Evaluate the extraction and use of crude oil<br><u>The carbon cycle</u><br>• Describe the main process involved in the cycling of carbon<br><u>The greenhouse effect and climate change</u><br>• Describe the greenhouse effect<br>• Explain the significance of an increased greenhouse effect<br>• State and describe some of the potential consequences of climate change<br>• Analyse data related to climate change<br><u>Types of materials</u><br>• Describe some of the properties of ceramics, polymers and composites<br><u>Recycling resources</u><br>• Explain the importance of reducing, reusing and recycling<br>• Compare methods of preserving natural resources<br><u>Mining and quarrying</u><br>• Describe and evaluate the processes of mining and quarrying | • Encourage your child to visit the Centre for Science education website to read about the gases in the atmosphere and atmospheric pollution What's In the Air? \| Center for Science Education (ucar.edu)<br>• Here is a quiz to check your child's understanding 20220714104317_the-carbon-cycle-6gtkac-exit-quiz-questions.pdf (ttsonline.net)<br>• Encourage your child to watch this video on air pollution Air Pollution \| Video for Kids \| Causes, Effects & Solution - YouTube<br>• Here is a stretch and challenge task for your child based on ways that we can reduce pollution Carbon Neutral Fuels (ttsonline.net)<br>Here is a stetch and challenge task for your child about recycling M06_EXSC_CM_Y8GBR_2506_UF.indd (ttsonline.net) |
| Reproduction | <u>Reproduction</u><br>• Describe reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to | Encourage your child to read through the information here, and take the relevant quiz to test their knowledge Human reproduction - Reproduction - KS3 Biology - BBC Bitesize - BBC Bitesize |

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| | include the effect of maternal lifestyle on the foetus through the placenta<br><br><u>Pollinators</u><br>• Describe the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops<br>• Understand the importance of plant reproduction through insect pollination in human food security | Encourage students to complete the revision resources for plants here: What is pollination? Reproduction - KS3 Biology - BBC Bitesize - 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<br>• 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 | 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<br><br>Watch this BBC video to find out more about how the eye works:<br>BBC iScience The Eye - YouTube |

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| Ecosystems | • 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.<br><br><u>Populations, competition and predator prey relationships</u><br>• Explain the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops | 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<br><br>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 |

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| Earth space | • 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<br>• Describe how both solar and lunar eclipses occur | 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 –<br><br>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. SpaceX |

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| | <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. | |