Physics Unit: Earth and Space What does progression of knowledge look like?	
Year	**Progression of knowledge.**
EYFS	• Learn about the solar system and stars • Learn about space travel • Explore the natural world around them • Describe what they see, hear and feel whilst outside • Understand the effect of change in seasons on the natural world around them • Name the 4 seasons
1	• Name the 4 seasons and say when in the year they occur • Observe and describe weather associated with the seasons • Observe changes across the 4 seasons • Can describe other features that change throughout the year that are caused by the change in weather e.g. numbers of mini beasts found outside, seed and plant growth, leaves on trees, clothes worn by people, hibernation and migration • Explain how day light (from the sun rising to sun setting)length varies across the year (longer in summer, shorter in winter)
3	• Name some types of rock and describe the physical features of each • Compare and group together kinds of rocks based on their appearance • Compare and group together kinds of rocks based on their simple physical properties • Name the 3 types of rocks (igneous, sedimentary and metamorphic) and classify based on their appearance and physical properties (e.g. marble is metamorphic because it is hard and smooth) • Describe how the 3 rock types are formed (the rock cycle) • Recognise that soils are made from rocks and organic matter • Describe in simple terms how fossils are formed when things that have lived are trapped in rock
5	• Name the planets of Our Solar System and understand Our place in Our universe, describe the Sun, Earth, Moon and other planets as approximately spherical bodies • Describe the movement of the Earth around the sun in the solar system (a full orbit is 365 days, the Earth spins on its axis every 24 hours) • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the day • Describe the movement of the moon relative to the Earth (lunar cycles take 28 days, the lunar cycle and eclipses) • Describe the movement of the other planets relative to the sun in the solar system (fixed orbits) • Describe what meteors are, and name other objects in space • Explain how 'The Space Race' has expanded our scientific knowledge and discuss space travel

KS3	**Climate Change** • Describe what the atmosphere is. • Describe the composition of the atmosphere. • Explain why the atmosphere is important to life on Earth. • Describe how each of the fossil fuels are formed. • Explain why fossil fuels are considered non-renewable. • Evaluate the use of fossil fuels • Explain why coal, oil, and gas are used as fuels. • Explain why releasing too much carbon dioxide into the atmosphere is bad. • List factors which lead to increased carbon dioxide in the atmosphere. • Describe the greenhouse effect. • Explain how global warming is caused by the greenhouse effect. • List the effects of climate change. • Describe the link between climate change and global warming. • Categorise effects of climate change into social, economic, or environmental. • Draw a graph from climate change evidence. • Interpret what the graph shows about climate change. • Describe the stages of the carbon cycle. • Explain why the levels of carbon dioxide in the atmosphere did not change for a very long time. • Use the carbon cycle to classify stores of carbon. **Earth's surface** • Describe the layers of the Earth using key words. • Explain how scientists have developed the model of the Earth. • Design a model that accurately represents the layers of the Earth. • Describe two properties of sedimentary rocks. • Describe how sedimentary rocks are formed with key words. • Explain why fossils are found in sedimentary rocks. • Define the terms intrusive and extrusive in terms of igneous rocks. • Describe how igneous rocks form. • Explain how cooling temperature affects the size of the crystals that form in igneous rocks. • Describe how metamorphic rocks are formed from sedimentary and igneous rocks. • Explain the properties and appearance of metamorphic rocks. • Compare the properties of sedimentary, igneous, and metamorphic rocks. • Describe the stages of the rock cycle. • Explain how the material in rocks is recycled during the rock cycle. • Describe how changes in a model represent the rock cycle. • Classify each type of weathering as biological, physical, and chemical. • Describe the process of each type of weathering. • Explain how weathering is increased by other types of weathering and industrial processes. • Describe the difference between erosion and weathering. • Describe the processes of erosion and transportation. • Explain how a waterfall is formed. **The Universe and Gravity** • Explain why seasonal changes happen. • Explain the motion of the Sun, stars, and the moon across the sky. • Predict the effect of the Earth's tilt on temperature and day-length.

	• Names the phases of the moon in sequence. • Explain why we see the different phases of the moon. • Explain the difference between a solar and lunar eclipse. • Name the planets of the Solar System in sequence. • Describe some similarities and differences between the planets. • Explain how the properties and features of planets are linked to their position in the Solar System. • Describe which have the possibility of colliding with Earth and how this occurs. • Pose questions about factors that affect crater depth based on observations of the real world. • Describe the difference between mass and weight. • Describe the effect of gravitational forces on Earth and in space. • Calculate the weight of an object on different planets. • Describe the forces acting on an object as it is falling. • Describe what is meant by terminal velocity. • Explain how factors can affect terminal velocity. • Link Newton's third law of motion to the launch of a rocket. • State the definition of a lightyear. • Describe our position in the universe. • Describe the other objects found in the universe.