Year Group 5 Term 1	Earth and Space			
Living things and their habitats	Forces	Properties of materials	Earth & Space	Animals Including Humans
Enquiry Question		Why doe	s Earth move?	
Scientific Enquiry	<ul> <li>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>To be able to record data using scientific diagrams and labels.</li> <li>To be able to plan different types of scientific enquiry to answer questions.</li> </ul>			
NC Objectives	<ul> <li>Describe the movement of the Earth, and other planets, relative to the sun in the solar system.</li> <li>Describe the movement of the Moon relative to the Earth.</li> <li>Describe the sun, Earth, and Moon as approximately spherical bodies</li> <li>Use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>			
Curriculum Coherence	Prior Knowledge     Future Learning       Builds on previous knowledge from Y5 Forces.     Future Learning			
	Vocabulary Orbit, terrestrial planet, solar system, spherical, gas giant planet, moon, phases, waxing, waning, gibbous, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto.	High Quality Text	Misconceptions The Earth is the centre of our Solar System Everything in our Solar System is the same size: The Earth is flat.	Assessment/Outcomes Retrieval Practice Written Task Online Platform

Year Group Term 1	5 Earth and Space
Líving things and their habitats	Forces Properties of Materials Earth & Space Animals Including Humans
Unit Summary: This unit exploration of each plat developed over time	it gives children the opportunity to star-gaze by learning more about the Earth and the celestial bodies in our solar system. Starting with an anet - from Mercury to Neptune - this unit then explores how scientific ideas surrounding Earth's movement and placement have changed and The children will deepen their understanding of the Moon, time zones and the night and day cycle.
Knowledge Sequence	Lesson 1 – What are the planets called and how are they ordered? During the lesson the children will discover the names of the different planets, their properties and their relationship with the main star in our solar system, the sun. They will consider the size difference between the planets building a life size model of the solar system to depict the planets and their distance and size relative to each other. <u>DE Lesson 1</u> Lesson 2 – How do the planets move around the sun? Within this lesson the children will develop an understanding of the geocentric model of the solar system and how this gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus. They will look at the different ideas regarding the solar system and explores how opinion has changed over time as well as the distance travelled and time taken for planets to orbit the sun, including the direction of travel. <u>DE lesson 2</u> Lesson 3 – How does the earth travel around the sun and what is its impact? During this lesson the focus shifts to look at how the Earth rotates and spins on its axis. The children will understand how this creates the night and day cycle and how the Earth orbits the Sun. The children will observe the Sun as it transitions across the sky, conducting a simple experiment to track what happens to the light on their bodies as they rotate. <u>DE lesson 3</u> Lesson 4 – How does the earth travel around the sun and what is its impact? The children will discover the impact that the sun has on us being able to tell the time by tracking and using its movements back to their work on seasons. Develop a sun dial and use it to help tell the time throughout the day. <u>DE Lesson 4</u> Lesson 5 – Does the moon move, or do we? Next up the children begin to look at the Moon and its different phases. The children will learn about the position of the Moon and how it orbits the Earth. They will understand the phases of the Moon and recall that it is not a light source, but reflects the light
Aspiration	Your key knowledge will help you to be one of the following: Astronaut, astronaut, astronaut,
Scientist/Historical	Galileo Galilei - <u>research-card-Earth-and-space.pdf (ogdentrust.com)</u> – Constructed the first astronomical telescope.
figure	

Year Group 5 Term 2		Forces		REGOLFU.
Living things and their habitats	Forces	Properties of materials	Earth & Space	Animals Including Humans
Enquiry Question		Why did the apple	e fall from the tree?	
Scientific Enquiry	<ul> <li>To be able to plan different s</li> <li>To be able to take measurem</li> <li>To be able to identify scientif</li> </ul>	cientific enquiries to answer questio ents using scientific equipment with ic evidence that has been used to su	ns. I increasing accuracy and precision Ipport or refute ideas or arguments.	
NC Objectives	<ul> <li>Explain that unsupported objects fall towards the Earth because of the force of gravity.</li> <li>Identify the effects of air resistance, water resistance and friction, that act between a moving surface.</li> <li>Recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have greater effect.</li> </ul>			
Curriculum Coherence	Prior Knowledge: Compare how things move on differen Notice that some forces need contact magnets (Y3) Compare items that are magnetic and	nt surfaces (Y3) with two objects but others don't, not and group them. (Y3)	Future Learning	
	<b>Vocabulary</b> Gravity, astronomy, mass, weight, Newton, resistance, levers, pullies, friction, fulcrum, axle.	High Quality Text	Misconceptions If an object is at rest, no forces are acting on it: Forces must come into contact with an object to act upon it: There is no gravity in space	Assessment/outcomes Retrieval Practice Written Task Online Platform

Year Gro Term 2	Forces			
Líving things and their habitats	Forces Properties of Materials Earth & Space Animals Including Humans			
Unit Summary: Th acting between th to recognise that :	his unit 'Force' takes children through six lessons where they learn how to: explain that unsupported objects fall towards the Earth because of the force of gravity e Earth and the falling object; identify the effects of air resistance, water resistance and friction, that act between moving surfaces; and finally, they learn how some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.			
	Lesson 1 – What is the impact of gravity and the how is the work of Newton and Galileo important? Teach the children about the life and work of Isaac Newton. Newton discovered gravity, which is a fundamental force within the universe. It is the force which draws objects towards the centre of a body, such as a planet. Explore Newton's further contributions, such as calculus and Newton's laws of motion. Discuss the difference between mass and weight and apply this to an astronaut visiting the moon. <u>DE Lesson 1</u>			
	Lesson 2 – What is resistance? Within this lesson the children will explore the life and work of Galileo and discover his influential experiment on gravity. Drop a feather and tennis ball from the same height and observe what happens. Knowing that the mass of an object does not influence how quickly it falls to the ground, discuss some possible reasons for the differences the children see. E that air resistance is a force which acts as friction between the object and air. It is sometimes known as drag and is an opposing force to gravity. DE lesson 2			
Knowledge	Lesson 3 – What factors affect water resistance? During this lesson the focus shifts to look at water resistance is a force which prevents an object from moving easily through the water. Test whether air resistance or water resistance is stronger by dropping a small object, such as a marble or penny, from the same height through water and the air. Explore examples of objects or animals which are streamlined to allow them to move through the water more quickly. DE lesson 3			
Sequence	Lesson 4 – Does resistance act between moving objects? This lesson progresses the children's learning to consider the idea that friction is the resistance force between two surfaces when they move across each other. It is a contact force which works in the opposing direction to an object's movement. Explore examples of when friction is useful, such as rubber brakes on tyres, shoe soles and tyres on the road. In the winter, sand/salt is spread over the road to increase friction and prevent car tyres from slipping. <u>DE Lesson 4</u>			
	Lesson 5 – How are levers and pulleys used to make light work? The lesson starts by exploring information relating to levers and pulleys. Pupils will there that they are two types of simple machines that are used to make work easier by reducir the amount of force required to move an object. Pupils will explore how Levers work by allowing a small force to be applied over a long distance to move a larger load over a shorter distance and Pulleys work by distributing the load over multiple ropes or cables, reducing the amount of force required to lift the load. <u>DE Lesson 5</u>			
Aurintian	Lesson 6 – Are we in the right gear? During this final lesson, the children will learn about a further mechanism - gears. Gears are toothed wheels that mesh together and interact with each other. When 2 gears grind together, they will rotate in opposite directions. They will explore the relationship between the number of teeth gears have and how fast or slow they rotate. DE Lesson 6			
Aspiration Scientist/Historical figure	Sir Issac Newton - Isaac Newton - Kids   Britannica Kids   Homework Help			

Year Group 5 Term з	Cha	inges of mo	ateríals	REGOLANT.
Living things and their habitats	Forces	Properties of materials	Earth & Space	Animals Including Humans
Enquiry Question		Are all changes to mate	erials permanent?	
Scientific Enquiry	<ul> <li>To be able to plan different types of scientific enquires to answer questions.</li> <li>To be able to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar, and line graphs.</li> <li>To be able report and present findings from enquiries, including conclusions, casual relationships, and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>			
NC Objectives	<ul> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>Know that some materials will dissolve in a liquid to form a solution and describe how to recover a substance from a solution.</li> <li>Know how to separate liquids, solids and gases using methods such as filtering, sieving, and evaporating.</li> <li>Know that some changes result in new materials and are usually irreversible including changes associated with burning and acid on bicarbonate of soda.</li> </ul>			
Curriculum Coherence	Prior Knowledge       Future Learning         Compare and group materials according to whether they are solids, liquids or gases.       Future Learning         Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)       Future Learning			
	<b>Vocabulary</b> Solute, Solvent, reversible, evaporate, chemical change, effervescence, fair test, corrosion, combustion, extinguish, reaction, carbon dioxide	High Quality Text	<b>Misconceptions</b> Melting and dissolving are the same: When something dissolves, it disappears: .	Assessment/outcomes Retrieval Practice Written Task Online Platform

Year Gr Term	oup 5 Changes of materials
Líving thing and their habitats	Forces Forces Properties of materials Earth & Space Animals Including Humans
Unit Summary: This dissolving, mixing	unit 'Changes of materials' takes children through six lessons where they learn how to: describe how to recover a substance from a solution; demonstrate that and changes of state are reversible changes; and finally, they learn how to explain that some changes result in the formation of new materials and that this kind of
change is not usua	Ily reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
	Lesson 1 – What happens when you dissolve a material in a solution and how do you recover it? Introduce the children to a problem to solve: They have been stranded on a desert island. They have found 2 bottles filled with a clear, colourless solution. One solution is pure water for drinking and the other is salty water. The labels have been washed off and they need to work out which one is suitable for drinking (but they cannot taste it). <u>DE Lesson 1</u>
	Lesson 2 – What is a reversible and irreversible change? Within this lesson the children will recap on the previous lesson's learning by reminding themselves that a reversible change is a physical change that can be undone, meaning that the original substances can be obtained back by reversing the process. In a reversible change, the chemical composition of the substance does not change, and the substance can return to its original state without undergoing any chemical reaction. Compare this to an irreversible change where the items chemical make-up changes and cannot be returned. <u>DE lesson 2</u>
Knowledge Sequence	Lesson 3 – How can chemical reactions create new materials? During this lesson the children will initially recap the learning around reversible changes. Discuss how human activities since the Industrial Revolution have set in motion major climate changes, many of which we will continue to experience even if we stopped emitting all greenhouse gases immediately. However, if we made a lot of changes today, most experts agree that climate change is still reversible. The children will explore 4 examples of chemical changes. They will carry out a range of practical's/watch demonstrations to look at the changes that take place in an irreversible change to show a new product has been made. <u>DE lesson 3</u>
	Lesson 4 – How do things burn and what are the effects? During this lesson the children will be reminded that burning is an irreversible change. They will discover that burning can be described as combustion. Combustion is when a fuel reacts with oxygen to release energy. Combustion needs 3 things to take place - fuel, heat and a fuel. This can be described as the fire triangle - if one thing is removed, the fire will go out. Demonstrate this by placing a jar over a tea light. Place a larger jar over the same tea light and ask the children to predict what may happen. DE Lesson 4
	Lesson 5 – How do chemical reactions have an impact on our lives? This lesson explores review key concepts covered throughout the unit by looking at reactions. Explore some chemical reactions the children will be familiar with that occur in everyday life. Ask the children to predict and then test how different liquids react with bicarbonate of soda. Ask them to observe the reactions and record them in a table. Then, divide the children into small groups to test which combination they think would be the best and compare the results. DE Lesson 5
Aspiration	Your key knowledge will help you to be one of the following: Builder, food technician, Maintenance officer, nuclear plant operator.
Scientist/Historical figure	Ruth Benerito - Ruth Benerito - Kids   Britannica Kids   Homework Help Developed wrinkle free cotton.

Year Group 5 Term 4	Prop	erties of mi	ateríals	TREGOLIN PCADENT
Living things and their habitats	Forces	Properties of materials	Earth 5 Space	Animals Including Humans
Enquiry Question		Are all materials	s the same?	
Scientific Enquiry	<ul> <li>To be able report and present findings frow written forms such as displays and other</li> <li>To be able to use test results to make pre</li> <li>To be able to Identify scientific evidence</li> </ul>	om enquiries, including conclusions, cas presentations. edictions to set up further comparative t that has been used to support or refute	ual relationships, and explanations of an eests. ideas or arguments.	nd degree of trust in results, in oral and
NC Objectives	<ul> <li>Compare and group together materia</li> <li>Give reasons, based on evidence/fair</li> </ul>	Is based on, hardness, solubility, tra tests for particular uses of materials	nsparency, thermal and electrical co s.	onductivity, and magnetism.
Curriculum Coherence	Prior Knowledge Compare and group together every day materi properties (Y1) Identify and compare the suitability of everyda (Y2)	ials on the basis of their physical ay materials for particular resources	Future Learning	
	<b>Vocabulary</b> Conductive, magnetic, thermal, conduction, hardness, force, dissolve, solute, solvent, substance, filtering, evaporation.	High Quality Text	Misconceptions All materials can be grouped together based on their properties. All metals will respond to magnets in the same way:	Assessment/outcomes Retrieval Practice Written Task Online Platform



Year Group 5 Term 5	Líving t	hings and	their habito	ats
Living things and their habitats	Forces	Properties of aterials	Earth & Space	Animals Including Humans
Enquiry Question		Does everything	reproduce?	
Scientific Enquiry	<ul> <li>To be able to record data and results bar, and line graphs.</li> <li>To be able to record and present find results, in oral and written forms such</li> </ul>	of increasing complexity using scier lings from enquiries, including concl h as displays and other presentation	ntific diagrams and labels, classificati usions, casual relationships, and exp IS.	on keys, tables, scatter graphs, lanations of and degree of trust in
NC Objectives	<ul> <li>Describe the difference in the life cycl</li> <li>Describe the life processes of reprodu</li> </ul>	le of a mammal, an amphibian, an ir uction in some plants and animals. U	nsect and a bird. Inderstand sexual and asexual repro	duction in plants.
Curriculum Coherence	<ul> <li>Prior Knowledge</li> <li>Identify that most living things live in variety of plants and animals in their l</li> <li>Recognise that living things can be gree</li> <li>Explore the use of classification keys to be a set of the set of th</li></ul>	habitats. Identify and name a habitats. (Y2) ouped in a variety of ways (Y4) to help group and identify (Y4)	Future Learning Describe how living things are classifie common observable characteristics ar differences. (Y6) Give reasons for classifying plants an characteristics. (Y6)	ed into broad groups according to nd based on similarities and <b>d animals based on specific</b>
	Vocabulary Living organisms, naturalist, primatologist, metamorphosis, endangered, asexual, reproduction, fertilisation.	High Quality Text	Misconceptions All living things reproduce the same way. All living things have the same life cycle.	Assessment/outcomes Retrieval Practice Written Task Online Platform

Year Gro Term	Living things and their habitats				
Líving thing and their habitats	Forces Forces Properties of Materials Earth & Space Animals Including Humans				
Unit Summary: Th reproduction and n upon to aid recall a dissect an egg, pret	This unit builds on work from previous years and deepens the children's understanding of life cycles, reproduction and animal characteristics. New concepts such as asexual netamorphosis are introduced to help the children understand how life cycles are constantly progressing, whilst pre-existing concepts are continually referenced and built and scaffold learning. A blend of science and creativity will capture the children's imagination during our Mission Assignments, where they will have the opportunity to tend to be David Attenborough or Jane Goodall as they research their favourite creature and even create their own reports on world-renowned scientists.				
	Lesson 1 – What are the different types of reproduction? During the lesson the children will start by reviewing the essential components needed to live (MRSNERG). We will focus in on the term reproduction. The children will be asked to consider when they might have come across this term before and the links to plants, animals and mammals. They will then explore the difference between sexual and asexual reproduction.				
	Lesson 2 – How do plants reproduce? Within this lesson the children will further explore plants as living things. Ask the children about plants as a living thing. How do we know they are alive? Discuss how plants and animals reproduce. When talking about sexual reproduction in plants, have some examples of real flowering plants (buttercups or lilies) in your classroom for the children to get hands on and see for themselves. Explore the parts of the flower and how they function. DE lesson 2				
Knowledge Sequence	Lesson 3&4 – Understand and compare the life cycle of mammals, insects, birds and amphibians? During this lesson the children will discuss the different classifications of mammals and how they reproduce and grow. Ask the children what similarities and differences there are in different mammals. Can they name any? Recall from prior learning that mammals are animals which have fur/hair, are warm blooded and have young that look like them. Discuss the human life cycle - is this the same for all mammals? A bird's life cycle is the same for all birds. Talk through the key sections of a bird's life cycle and stress the point that we don't eat fertilised eggs. <u>DE lesson 3</u> <u>DE lesson 4</u>				
	Lesson 5 – What is metamorphosis? This lesson starts by recapping the 3 types of mammals before explaining the similarities between insect and amphibian life cycles. Discuss insects and ask the children to give you some names of insects they know. Look at the life cycles of an amphibian and an insect. What similarities are there? Discuss metamorphosis with the children and explain that this only happens with some insects and amphibians. <u>DE Lesson 5</u>				
	Lesson 6 – What did Jane Goodall discover? This lesson allows the children to discover Jane Goodall who is a British primatologist, anthropologist, and UN Messenger of Peace who is best known for her groundbreaking work with chimpanzees. In 1960, at the age of 26, Goodall travelled to Tanzania to study chimpanzees in their natural habitat. She spent several years living among the chimpanzees, observing their behaviour and developing new insights into primate behaviour and communication. They will produce a presentation about Jane Goodall her life, discoveries and suggest animals that they would like to explore and discover more about. <u>DE Lesson 6</u>				
Aspiration Scientist/Historical	Your key knowledge will help you to be one of the following: Vet, Biologist, Nanotechnologist, Ranger, Conservationist. David Attenborough. Jane Goodall – Conservationist/TV Presentor				
figure					

Year Group 5 Term 6	Anímal	ls includin	g Humans	TCADENT
Living things and their habitats	Forces	Properties of aterials	Earth 5 Space	Animals Including Humans
Enquiry Question		What happens as v	we get older?	
Scientific Enquiry	<ul> <li>To be able to record data and results of ir graphs.</li> <li>To be able to report and present findings and written forms such as displays and ot</li> </ul>	ncreasing complexity using scientific dia from enquiries, including conclusions, c ther presentations.	grams and labels, classification keys, ta casual relationships, and explanations o	bles, scatter graphs, bar, and line f and degree of trust in results, in oral
NC Objectives	<ul> <li>Describe the changes as humans develop</li> <li>Describe changes (puberty) and reproduct</li> </ul>	to old age. Draw timelines to indicate st tion in some animals. (SRE lessons)	tages in the growth and development o	f humans.
Curriculum Coherence	<ul> <li>Prior Knowledge</li> <li>Notice that animals, including human adults (Y2)</li> <li>Identify that humans and some anima</li> <li>Describe the simple functions of the complement of the</li></ul>	s, have offspring, which grow into als have skeletons and muscles Y3 digestive system and teeth (Y4)	Future Learning Identify and name the main parts of describe the functions of the heart, I Recognise the impact of diet, exerci- bodies function (Y6)	the human circulator system and blood vessels and blood. (Y6) i <b>se, drugs and lifestyle on the way their</b>
	Vocabulary Offspring, foetus, dependent, adolescent, puberty, gestation, pregnant, toddler, prenatal, breeding, embryo, hormones.	High Quality Text	Misconceptions All humans develop at the same rate: Puberty is only about physical changes.	Assessment/outcomes Retrieval Practice Written Task Online Platform

Year Gr Term	oup 5 Animals including Humans
Living thin and their habitats	Forces Forces Properties of Materials Earth & Space Animals Including Humans
Unit Summary: T	his unit 'Animals, including humans' takes children through six lessons where they learn how to: describe the changes as humans develop to old age.
	Lesson 1 – What are the stages of the mammal life cycle? During the lesson the children will discover that most mammals have very similar life cycles. They will learn that humans have similar life cycles to other mammals, making comparisons to dogs. Explore the key developments during each of the stages of the human life cycle - foetus, baby, child, teenager/adolescent, adult and old age. <u>DE Lesson 1</u> Lesson 2 – Do all mammals take the same periods of time to grow their young? Within this lesson the children will be introduced to the idea that mammals' gestation periods vary greatly - from the North American opossum (12 days) to the elephant (23 months). Explore animals which have longer gestation periods but highlight that these are not mammals. Discuss the possible reasons for why gestation periods vary and why it is important for us to understand the gestation period of mammals, especially with regards to endagement of provide reasons for why gestation
	Lesson 3 – What are the stages of foetal development? During this lesson the children will discover foetal development and the incredible changes that take place as a foetus grows. Please be sensitive towards your class's experiences surrounding pregnancy. Pregnancy is split into three trimesters. Relate the size of the foetus at the end of each trimester to a fruit/vegetable! <u>DE lesson 3</u>
Knowledge Sequence	Lesson 4 – Do we all grow at the same rate at the same age? This lesson starts by exploring the changes that take place from when a human is a baby to when they are a child and key milestones. Highlight that children all grow and develop at different rates - for example, some children may not crawl before they walk and some may talk earlier than others. With the children, accurately measure a range of hand spans. Discuss how this could be done. The best way would be to accurately mark the tip of the little finger and thumb on a sheet of paper and then measure the distance between them. <u>DE Lesson 4</u>
	Lesson 5 – What changes occur during puberty? This lesson allows the children to discover the fact that their bodies go through many changes during puberty. This is the time when a child's body develops into an adult's body. Explore the changes experienced by boys and girls. The children may wish to make notes throughout the presentation. All discussions should be age appropriate and in line with school guidelines. <u>DE Lesson 5</u>
	Lesson 6 – How do we experience old age? During this final lesson in the sequence, the children will explore some of the changes humans may experience during adulthood and old age. Look at physical changes - such as bones, joints, eyes, skin and hair - as well as changes to the brain and common medical problems. Assess whether these are affected by lifestyle or genetics. DE Lesson 6
Aspiration Scientist/Historical	Your key knowledge will help you to be one of the following: Doctor, Ambulance worker/paramedic, midwife, biologist, vet, animal care worker.
figure	