Wrenbury Primary School
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WRENBURY PRIMARY SCHOOL EYFS – Understanding the World						
	N1 Autumn	**N1 Spring**	**N1 Summer**	**N2 Autumn**	**N2 Spring**	**N2 Summer**
The Natural World (Science)	Explore materials with different properties.			Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore how things work Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice.		

	Provide open-ended play materials inside and outdoors. Suggestion: Treasure Baskets for repeated exploration of textures, sounds, smells and tastes.	Provide open-ended play materials inside and outdoors. Offer lots of different textures for exploration with fingers, feet and whole body. Suggestions: wet and dry sand, water, paint and playdough Spring time walk – collect flowers, leaves, grass and items that have changed over time, explore colour, texture and feel.	Provide open-ended play materials inside and outdoors. Offer lots of different textures for exploration with fingers, feet and whole body. Create summer time beach tuff trays for children to explore with their hands and feet – wet/dry sand, waters, pebbles, etc.	Provide interesting natural environments for children to explore freely outdoors. Make collections of natural materials to investigate and talk about. Suggestions: contrasting pieces of bark different types of leaves and seeds different types of rocks different shells and pebbles from the beach Provide equipment to support these investigations. Suggestions: magnifying glasses or a tablet with a magnifying app. Encourage children to talk about what they see. Model observational and investigational skills. Ask out loud: "I wonder if…?" Plan and introduce new vocabulary Explore how different materials sink and float.	Show and explain the concepts of growth, change and decay with natural materials. Suggestions: - plant seeds and bulbs so children observe growth and decay over time - observe an apple core going brown and mouldy over time - help children to care for animals and take part in first-hand scientific explorations of animal life cycles, such as caterpillars or chick eggs. - Plan and introduce new vocabulary related to the exploration. Encourage children to use it in their discussions, as they care for living things. Encourage children to refer to books, wall displays and online resources. This will support their investigations and extend their knowledge and ways of thinking.	Draw children's attention to forces - how the water pushes up when they try to push a plastic boat under it - how they can stretch elastic, snap a twig, but cannot bend a metal rod - magnetic attraction and repulsion Plan and introduce new vocabulary related to the exploration and encourage children to use it. Provide children with opportunities to change materials from one state to another - cooking – combining different ingredients, and then cooling or heating (cooking) them - melting – leave ice cubes out in the sun, see what happens when you shake salt onto them Explore how you can shine light through some materials, but not others - Investigate shadows. Plan and introduce new vocabulary related to the exploration and encourage children to use it.

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Science			
Base 1 – Year 1			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	Seasonal Change and Parts of the Body	Plants and Common Animals	Everyday materials
National Curriculum	To observe changes across the 4 seasons. To observe and describe weather associated with the seasons and how day length varies. To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	To identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals. To identify and name a variety of common animals that are carnivores, herbivores, and omnivores. To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, and mammals including pets). To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To identify and describe the basic structure of a variety of common flowering plants, including trees.	To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. To describe the simple physical properties of a variety of everyday materials To compare and group together a variety of everyday materials on the basis of their simple physical properties.
Prior Learning	Y1 as YR in 2022-23 will have explored the natural work around them. They will have described what they see, hear, and feel outside. Children will have also had a simple understanding of the effects of the changing season on the natural work around them.	Y1 as YR in 2022-23 will have made observations and drawings of animals and plants. The have also named some common animals.	Y1 as YR in 2022-23 explored how objects feel and look different based on the material they are made from. Children also used different materials when painting and making art.
Why this, why now?	As the seasons have changed the days have become shorter and the nights longer – children will explore the differences between day and night, focusing on shadows. Children will be given the opportunities to explore	Pupils will be exploring the book Stone Girl Bone Girl where children will be exposed to a range of animals. This provides a good opportunity for children to identify and name a range of animals, including carnivores, omnivores and herbivores.	Everyday materials are viewed and used by the children. This will allow children to build on their existing knowledge of materials and their uses.

	shadows form natural light, as well as artificial light. Children will make links to their learning by building on this in music with parts of the body.	Children will build on their knowledge of carnivores, omnivores and herbivores by making links to their book that will lead the learning about dinosaurs.	Children will then build on this knowledge in DT when exploring how to strengthen a structure.
Core Learning	**Concept: Curiosity about natural phenomena** **Enquiry Question:** **Is it darker for longer in the winter?** To know what a season is and name to four seasons. To know what happens in the autumn. To know what happens in winter.	**Concept: Classification** **Enquiry Question:** **How can we group animals?** To know what vertebrate, mammals, fish, birds, reptiles, and amphibians are. To know what certain animals eat. To name some common garden plants. To name some common wild plants. To name what the parts of the common trees and plants are.	**Concept: Laws, theory, and models** **Enquiry Question:** **Which materials are natural, and which are man- made?** To know which materials some objects are made from. To know words to describe materials. To know which materials man-made and which materials are not.
Opportunities for deepening learning ... *Know more and remember more.*	Children will be exploring seasonal and daily weather patterns in geography, and this will deepen the understanding of seasonal change. In music, children will be exploring body parts through song and in computing, children will be using digital paintings to create parts of the body.	Throughout the spring term, children will be exploring dinosaurs. This will provide a good opportunity for children to make links to classifying animals into groups based on what they eat. In geography, children will be exploring the characteristics of the UK which provides a link to common wild plants and common trees.	In Design and Technology, children are building structures and exploring how to strengthen and stiffen a structure. This will provide a further opportunity to link new knowledge of materials with children being able to carry out practical procedures.
Opportunities for oracy and reading...	**Revisit and review discussion questions.** What can you see outside at night? What can you see outside during the day? Why would you wear hat and gloves? **STEM sentence starters** In the ___ season, you can observe . . . The weather changes during . . . The ___ is a sense for . . .	**Revisit and review discussion questions.** Name five different animals. What do you know about these animals? What is the difference between a plant and a tree? **STEM sentence starters** A ____ is classified as a _____ because ... A ___ is a common garden plant The difference between an evergreen and deciduous tree is . . .	**Revisit and review discussion questions.** What is a table made from? What is the window made from? What material did you use to paint? **STEM sentence starters** The most suitable material for a ___ would be ___ because . . . An example of a man-made material would be . . . ___ is not a man-made material.

	Texts ordered from ELS to drive learning:	Texts ordered from ELS to drive learning:	Texts ordered from ELS to drive learning:
Key Figure / Artist			
Vocabulary	autumn, cold, conkers, day length, freeze, hibernate, months, ice, nature, rain, season, snow, spring, summer, temperature, winter	branches, blub, common, deciduous, evergreen, flower, fruit, garden, herb, plant, leaves, petal, roots, stem, seed, tree, trunk, vegetable, weed, wild backbone, carnivores, cold blooded, environment, farm, gills, herbivore, omnivore, pet, temperature, vertebrate, warm-blooded, wild	absorbent, bendy, brick, dull, elastic, fabrics, foil, glass, man-made, metal, natural, opaque, plastic, rock, rough, shiny, smooth, soft, stiff, stretchy, transparent, waterproof, wood
Quick Quiz	What season do leaves fall in? Describe the weather in the winter. What clothes would you usually wear in summer? What about winter? It always snow in winter. True or false? What is the weather like today?	What is an animal that gives birth do its young called? Name and animal which is not a suitable pet. What is the name of an animal that only eats meat? What is the name of an animals that only eats plants? Name 4 parts of a plant. How is an evergreen tree different from a deciduous tree?	Name five different types of materials. What material is transparent? Is plastic man-made or natural? How could you describe the material elastic? Name 2 materials that are stretchy.
Discussion question/point:	Why are there more leaves on the ground in winter . . . Discuss.	What ways are animals similar and different? What ways are plants similar and different? Discuss	Three suitable materials needed to make a sofa are . . . because . . .

Science			
Base 2 – Year 1/2			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			

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Unit of Work	Everyday materials	Living things and their habitats	Animals including humans
National Curriculum	To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. To describe the simple physical properties of a variety of everyday materials To compare and group together a variety of everyday materials on the basis of their simple physical properties.	To explore and compare the differences between things that are living, dead, and things that have never been alive. To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. To identify and name a variety of plants and animals in their habitats, including microhabitats. To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	To notice that animals, including humans, have offspring which grow into adults. To find out about and describe the basic needs of animals, including humans, for survival (water, food and air). To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Prior Learning	Y1 as YR in (B1 2022-23) explored how objects feel and look different based on the material they are made from. Children also used different materials when painting and making art. Y2 as Y1 (B2 2022-23) looked at everyday materials that could be found around the school grounds and their uses.	Y1 as YR (B1 2022-23) will have made observations and drawings of animals and plants. The have also named some common animals. Y2 as Y1 (B2 2022-23 and B1 2022-23) looked at grouping animals (including minibeasts) which the found in the local area. The are able to name and variety of common animals including fish, amphibians, reptiles, birds and mammals.	Y1 and Y2 in Spring Term (B2 2023-24) explored and comparted things that are alive, dead or things that have never been alive. They also learnt how animals are suited to their habitats and how they depend on each other to survive.
Why this, why now?	Everyday materials are viewed and used by the children. This will allow children to build on their existing knowledge of materials and their uses. By making links to the history of flight, children will now explore the uses of and experiment with a wide variety of materials, not only those listed in the programme of study, but including brick, paper, fabric, elastic	Children will now be introduced to the idea that all living things have certain characteristics that are vital for keeping them alive and healthy. Children will now be introduced to a habitat and microhabitat. This will also include sorting and classifying and lead to constructing simple food chains.	Children will now start to use their local environment to answer questions about animals in their habitat. Pupils should now start to learn about the names of the main body parts. Children will also now start to make observations to compare and contrast animals by grouping them.

	and foil and the impact of these materials on significant individuals who pioneered flight.	Children will use this knowledge when making links to cooking and nutrition and the food we eat, where it comes from and why it keeps us alive and healthy.	This knowledge will be built on by making links to health and wellbeing week, and through art where pupils will be sketching parts of the body.
Core Learning	**Concept: Laws, theory, and models** **Enquiry Question:** **Which materials are natural, and which are man- made?** To know which materials some objects are made from. To know words to describe materials. To know which materials man-made and which materials are not.	**Concept: Classification** **Enquiry Question:** **How is the habitat different for two animals?** To know the difference between something that is dead, alive or things that have never been alive. To know why most living things in habitats are suited to their surroundings and how plants and animals are dependent on each other. To name and identity plants and animals in their habitats (microhabitats).	**Concept: Classification** **Enquiry Question:** **What are the basic needs for survival of humans?** To know that animals have offspring which grow into adults. To know and describe the basic needs of animals, including humas for survival. To describe the importance of humans for exercise and know that we need to eat the right amount of different food types.
Opportunities for deepening learning ... *Know more and remember more.*	History – links to materials of a flying machine DT – links to mechanisms in products (wheels and axis)	Geography – Links to simple maps to construct basic symbols. DT – links to cooking and nutrition.	Links to health and wellbeing week Geography – human and physical features Art – links to drawing (body parts)
Opportunities for oracy and reading...	**Revisit and review discussion questions.** What is a table made from? What is the window made from? What material did you use to paint? **STEM sentence starters** The most suitable material for a ___ would be ___ because . . . An example of a man-made material would be . . . ___ is not a man-made material. **Texts ordered from ELS to drive learning:**	**Revisit and review discussion questions.** Children should raise and answer questions about the local environment to help them identify and study a variety of plants and animals within their habitat. They should describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. **STEM sentence starters** A _____ is classified as a _____ because ... A ___ is suited to its habitat because _____	**Revisit and review discussion questions.** Children should ask questions about what things animals need for survival and what humans need to stay healthy discussing ways to find the answer to their questions. **STEM sentence starters** A _____ need these basic things from survival. _____ The current amount of food for a ___ is _____ A chick will grow into a ___

		___ was alive because but ____ was never alive. **Texts ordered from ELS to drive learning:**	A tadpole will grow into a ____ A toddler will grow into a ____ ___ is not a man-made material. **Texts ordered from ELS to drive learning:**
Key Figure / Artist	John Dunlop Charles Macintosh		
Vocabulary	absorbent, bendy, brick, dull, elastic, fabrics, foil, glass, man-made, metal, natural, opaque, plastic, rock, rough, shiny, smooth, soft, stiff, stretchy, transparent, waterproof, wood	Biomes, carnivore, depend, food chain, habitat, herbivore, invertebrate, microhabitats, minibeast, offspring, omnivore, plant, source, tree, vegetation, vertebrate.	Healthy, diet, protein, far, carbohydrate, nutrition, offspring, exercise, growth, survival, life cycle, diary, breathing, germs, hygiene, disease.
Quick Quiz	Name five different types of materials. What material is transparent? Is plastic man-made or natural? How could you describe the material elastic? Name 2 materials that are stretchy.	Give 3 examples of a microhabitat. Billy has found a woodlouse under a large rock. What does the woodlouse need to survive? Create a simple food chain involving an insect eating bird.	What three basis things to all animals need to survive? Give an example of an animal which has an offspring. To be heathy, we must have the right foods. Name some of the different food types. Why is exercise important for us? What must we do to stop illness and infections spreading?
Discussion question/point:	What is the best material for making a model plane? Discuss	Will climate change effect an animal's habitat? Discuss	Do all animals look the same as their offspring? Discuss

Science			
Base 3 – Year 3			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			

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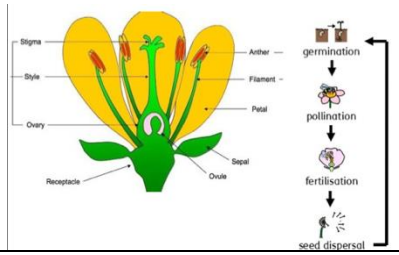
Unit of Work	Light	Plants	Forces and magnets
National Curriculum	To recognise that they need light in order to see things and that dark is the absence of light. To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. To recognise that shadows are formed when the light from a light source is blocked by an opaque object. To find patterns in the way that the size of shadows change.	To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. To investigate the way in which water is transported within plants. To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	To compare how things move on different surfaces. To notice that some forces need contact between two objects, but magnetic forces can act at a distance. To observe how magnets attract or repel each other and attract some materials and not others. To compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. To describe magnets as having two poles. To predict whether two magnets will attract or repel each other, depending on which poles are facing.
Prior Learning	Y3 as Y2 (B2 2022-23) will have explored the natural work around them. The looked at the four season and that the light we see comes from the sun. Children also looked at different materials, the surface of these materials and how light can pass through materials. Y3 as Y2 (B2 2022-23) will have explored nocturnal animals and know that these animals come out when it is dark.	Y3 as Y1 (B2 2021-22) will have observed and described how seeds and bulbs grow into mature plants. They also looked at how a plant needs water, light and a suitable temperature to grow and stay healthy. Y3 in Y2 (Base 2 2022-23) looked at a variety of different flowering plants and common trees including deciduous and evergreen.	Y3 as Y2 (B2 2022-23) looked at different materials including, wood, metal, plastic, glass, brick, rock, paper and cardboard. Y3 as Y2 (B2 2022-23) in geography explored north, east, south and west and learnt about magnetic north and how a compass uses a magnet to point towards north.
Why this, why now?	Children have good understanding of materials and their uses. They know that light can pass through a material.	Children have looked at different plants and trees and can explain how these plants grow and what is needed to keep them healthy. Children will now be learning what the different functions of a plant are,	Children have learnt about the structure of different materials and carries out test on the suitability of different materials. Now children will look at how objects move on different

	This knowledge will be built on with new learning of light, shadows, and reflection. Children will need to know and think about why it is important to protect their eyes from the bright lights. As historians, B3 are learning about Ancient Egypt and this makes links to the dark shadows in Ancient Egyptian Tombs.	how water is transported in a plant and explore the life cycle of a plant. Children will build on this new learning in geography by looking at key aspects which include biomes and vegetation belts. An important aspect of these climate zones is knowing that the requirements for different plants to grow vary from plant to plant.	materials and how the act of a force is needed between objects for movement. Children will make links to this learning of forces when applying their mark making of force applied and impressions made. Children will be able to see how different materials move with different forces applied and the impression that is made.
Core Learning	**Concept: Laws, theory, and models** **Enquiry Question:** **What is light and what is dark?** To know what happens when light reflects off a mirror. To know that we need light to see things and if there is an absence of light it is dark. To know that shadows can be formed what an object blocks a light source. To know that light can be dangerous for their eyes.	**Concept: Natural phenomena** **Enquiry Question:** **Are plants alive? How do we know?** To know that different parts of a plant have different functions and to name these functions. To know and compare the different requirements plants have to grow and be healthy. To investigate the way in which water is transported within plants. To explain the life cycle of plants including pollination, seed formation and seed dispersal. 	**Concept: Laws, theory, and models** **Enquiry Question:** **Are some magnets strong than others?** To make predictions and then compare how things move on a different surface using self-setup investigations. To show that a force is happening with direct contact on an object (for example opening a door, pushing a swing). To compare group materials that are magnetic. To know that magnets have two poles and to predict whether 2 magnets will attract or repel each other.

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Opportunities for deepening learning ... *Know more and remember more.*	History – Ancient Egypt dark and shadow in tombs. Art - thinking about how we can see light and shadows as an artist.	Geography – climate zones and the requirement for plants to grow and be healthy.	Art – Painting using natural materials. How different materials can move across a surface and leave an impression. How much force needs to be applied to leave and impression.
Opportunities for oracy and reading...	**Revisit and review discussion questions.** Children should explore and discuss what happens when light reflects off a mirror, including playing games to help them answer questions about the way light behaves. **STEM sentence starters** Shadows are formed by . . . We can see and object that do not give out light when ___ ___ is the absence of____. **Texts ordered from ELS to drive learning:**	**Revisit and review discussion questions.** Children should be provided with time to explore and discuss the idea that every part of a plant has a job to do. Children should talk about patterns that can see in the structure of fruits and relate to seed dispersal. **STEM sentence starters** The requirements for life and growth of plants are . . . ___ plays an important part in the life cycle of flower plants because . . . **Texts ordered from ELS to drive learning:**	**Revisit and review discussion questions.** Children should discuss ways to gather and record data to find answers to their questions about forces. They should discuss how to set up and investigation into a magnets strength. **STEM sentence starters** ___ is a force that acts be ___ ___ will repel and ___ will attract. ___ is not a man-made material. **Texts ordered from ELS to drive learning:**
Key Figure / Artist			
Vocabulary	Absorb, dark, energy, light, light source, mirror, opaque, reflect, shadow, transparent, translucent	Absorb, answer, branches, bulb, carbon dioxide, climate zone, common, deciduous, dispersed, dissect, Evergreen, fertilisation, fertiliser, flower, fruits, garden, germination, life cycle, mature, nutrients, ovule, petal, plant, pollen, pollination, roots, seed, stigma, temperature, transported, vegetation.	Attract, bendy, friction, force, gravity, magnet, magnetic field, metal, motion, non-magnetic, opposite, position, push, pull, repel, resistance, squash, stretchy, surface, twist
Quick Quiz	What is an opaque object? How can we change the size of a shadow? Name 3 ways to keep your eyes safe from the sun. Which surfaces reflect light well?	Name one thing that all seed must have to start growing. Explain the order in which a plant starts to grow. What part of the plan makes new food? A flower has just grown on a plant, what is the next stage in the life cycle?	A pushing or pulling effect on something can be described best as a . . . Which force pulls objects towards the ground? What surface would create the most friction for a cyclist? Sand, concrete, or polished wood? How could you test to see whether a material is magnetic or not?

Discussion question/point:	How could direct light using mirrors? Discuss	All plants are the same and need the same things to stay alive and reproduce. Discuss	How would you know which magnet is the strongest? Discuss

Science			
Base 4 – Year 4/5			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	Properties and the change of materials	Electricity	Earth, Sun and Moon Light
National Curriculum	To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (thermal), and response to magnets. To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	To identify common appliances that run on electricity. To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. To recognise some common conductors and insulators, and associate metals with being good conductors. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To compare and give reasons for variations in how components function, including the brightness of	To describe the movement of the Earth and other planets relative to the sun in the solar system. To describe the movement of the moon relative to the Earth. To describe the sun, Earth and moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. To recognise that they need light in order to see things and that dark is the absence of light. To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.

	To demonstrate that dissolving, mixing and changes of state are reversible changes. To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	bulbs, the loudness of buzzers and the on/off position of switches. To use recognised symbols when representing a simple circuit in a diagram.	To recognise that shadows are formed when the light from a light source is blocked by an opaque object. To find patterns in the way that the size of shadows change.
Prior Learning	Y4 and 5 as Y3 and Y4 (B3 2022-23) looked at the state of matter by comparing and grouping materials together according to whether they were solid, liquid or gas. They observed materials changing state when heated or cooled. They also looked at the water cycle and identified the parts that were played with evaporation and condensation.	Y4 and 5 as Y4 and Y5 (B4 2023-24) looked at grouping materials based on their properties including thermal conductivity – conductivity being the transfer on energy (heat). They looked at insulators of thermal energy.	Y5 and Y4 (in B1 and B2 in KS1) will have explored the natural work around them. The looked at the four season and that the light we see comes from the sun. Children also looked at different materials, the surface of these materials and how light can pass through materials. They will have explored nocturnal animals and know that these animals come out when it is dark.
Why this, why now?	Building on their prior knowledge, pupils will now be building more of a systematic understanding of materials by exploring and comparing the properties of a broad range of materials. Children have explored materials grouping them into solids, liquids and gases. Now children will build on this by learning more about these materials. E.g. How they can be separated, and how they can change state. To deepen their learning, children will apply this knowledge when choosing materials for their DT project. Children will also look at the properties of cotton and the importance of this material which impacted on trade.	Children have explored how to group materials based on properties without the energy of electric. Now the children are going construct simple circuits with different components. This will include the use of bulbs, buzzers and motors including switches. Children will take this knowledge further by applying their learning to DT when designing a toy car with electric circuits.	Children have good understanding of materials and their uses. They know that light can pass through a material. This knowledge will be built on with new learning of light, shadows, and reflection. By building on previous knowledge in RE about the creation of earth, children will now use models of the sun and Earth to explain day and night looking at why religion had played a significant role in peoples belief of the geocentric and heliocentric models.

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Core Learning	**Concept: Classification** **Enquiry Question:** **Which material would be most effective material for wrapping ice cream to stop it melting?** To group everyday materials based on their properties. To know that materials dissolve into a solution and know how to recover this. To separate materials by sieving, evaporating, and filtering. To give reasons for everyday materials based on evidence gathered. To know that changes associated with burning and acids are not usually reversable.	**Concept: Laws, theory, and models** **Enquiry Question:** **How would you design a traffic signal circuit for trainline?** To create simple electrical circuits naming the parts, cells, wires, bulbs, switches, and buzzers. To recognise common conductors and insulators and associate metals with being good conductors. To draw a pictorial representation of a circuit using conventional symbols. To associate the brightness of lamps or volume of a buzzer based on the voltage of the cells used.	**Concept: Curiosity about natural phenomena** **Enquiry Question:** **Why did people think the geocentric model of the solar system meant that the sun obits the Earth?** To know what happens when light reflects off a mirror. To know that we need light to see things and if there is an absence of light it is dark. To know that shadows can be formed what an object blocks a light source. To explain the geocentric model and how this made way for the heliocentric model. To explain how we have day and night because of the Earth's rotation and the apparent movement of the sun across the sky.
Opportunities for deepening learning ... *Know more and remember more.*	History – Links to distribution of natural recourses (Benin cotton trade). DT – To design, make evaluate a belt to hold crafting tools.	DT – To design an electrical circuit for their toy. History – Life beyond 1066 railway traffic systems. Geography – Physical features in the local area using digital technologies.	DT – Design, make and evaluate a moon buggy. Computing – heliocentric model using variables. RE – revisit the creation story and discuss belief of geocentric model against heliocentric model
Opportunities for oracy and reading...	**Revisit and review discussion questions.** Children should have discussions about which material is effective for a particular task based on evidence gathered as a group. They should also discuss how chemical changes have an impact on our lives, such as cooking. **STEM sentence starters** ___ is and insulator that does not let heat travel easily through.	**Revisit and review discussion questions.** Children should work scientifically by observing and discussing patterns with the brightness of bulbs when more cells are added to a circuit. Children should also discuss materials that can be used to connect across a gap in a circuit. **STEM sentence starters** A complete circuit is a _____ that allows _____ to flow through.	**Revisit and review discussion questions.** Children should explore and discuss what happens when light reflects off a mirror, including playing games to help them answer questions about the way light behaves. Children should discuss why it was difficult for scientists to share their findings on the heliocentric model. **STEM sentence starters** Shadows are formed by . . .

	When the partials of a solid mix with the partials of a liquid, this is call ___ **Texts ordered from ELS to drive learning:**	A switch can _____. Electricity can be dangerous because _____ **Texts ordered from ELS to drive learning:**	We can see and object that do not give out light when ___ ___ is the absence of____. The eight plants that are in the solar system are ____ Day and night takes place because ____ **Texts ordered from ELS to drive learning:**
Key Figure / Artist	Spencer Silver (creator of glue for sticky notes) Ruth Bernerito (invented wrinkle free cotton)		Ptolemy, Alhazen and Copernicus
Vocabulary	Circuit, condensation, conductor, dissolves, evaporation, filtering, flexible, gas, insoluble, irreversible, liquid, magnetic, melting, particles, permeable, process, rate, resistance, reversable, solid, soluble, solution, state, thermal, variable, water cycle	Ammeter, appliances, battery, cell, electron, proton, circuit, component, conductor, current, device, insulator, mains, motor, resistance, resistor, switch, voltage, series circuit,	Absorb, dark, energy, light, light source, mirror, opaque, reflect, shadow, transparent, translucent. Asteroid, axis, comet, galaxy, gravity, leap year, meteorite, orbit, planet, shadow, solar system, sphere, spin, star, time zones, universe, heliocentric, geocentric
Quick Quiz	Name 3 electrical conductors. Materials that can dissolve are called? When solid partials mix with the particles of a liquid, this is called what? Describe and effective way of separating paper clips, rice, and water. Give an example of a reversible change and an irreversible change.	Draw these symbols that you would see in a circuit. (Battery, bulb, motor, buzzer, switch) Explain what happens when you add another bulb to a working circuit. Name 3 reasons a circuit will not work. A buzzer does not have a loud volume, what could you do to increase the volume?	What is an opaque object? How can we change the size of a shadow? Name 3 ways to keep your eyes safe from the sun. Which surfaces reflect light well? Name the eight planets that orbit the sun. How long does it take for the Earth to orbit the sun? How are the seasons causes? Jupiter, Saturn, Uranus and Neptune are known as what?
Discussion question/point:	What is the most effective way to change the direction of light?	How many different ways could you make a bulb brighter in a circuit?	Religion is the main cause of the geocentric model. . . Discuss

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Science			
Base 5 – Year 5/6			
Whole School Theme	**Around the World**	**Wild Isles**	**Peering into the Past**
What does this mean to me? Why does this matter?			
Unit of Work	Earth Sun and Moon Light	Electricity	Classifying plants and animals **Properties of materials**
National Curriculum	To describe the movement of the Earth and other planets relative to the sun in the solar system. To describe the movement of the moon relative to the Earth. To describe the sun, Earth and moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. To recognise that they need light in order to see things and that dark is the absence of light. To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. To recognise that shadows are formed when the light from a light source is blocked by an opaque object. To find patterns in the way that the size of shadows change.	To identify common appliances that run on electricity. To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. To recognise some common conductors and insulators, and associate metals with being good conductors. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. To use recognised symbols when representing a simple circuit in a diagram.	To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. To give reasons for classifying plants and animals based on specific characteristics.

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Prior Learning	Y5 and Y6 (in B1 and B2 in KS1) will have explored the natural work around them. The looked at the four season and that the light we see comes from the sun. Children also looked at different materials, the surface of these materials and how light can pass through materials. They will have explored nocturnal animals and know that these animals come out when it is dark.	Y5 and 6 as Y4 and Y5 (B4 2023-24) looked at grouping materials based on their properties. The also looked at conductivity (including electricity) and how energy, such as thermal, is transferred through materials.	Y5 and Y6 as Y4 and Y3 (B4 2022-23) recognised that living things can be grouped into a variety of ways. The explored use of classification keys to group, identify and name a variety of living things in the local environments.
Why this, why now?	Children have good understanding of materials and their uses. They know that light can pass through a material. This knowledge will be built on with new learning of light, shadows, and reflection. Now children will be building on their understanding of the natural world, by using models of the sun and Earth to explain day and night. Children will also make links to the Ancient Greeks and how the civilisation had a significant impact on our understanding of the earth, sun and moon.	Children have explored how to group materials based on properties without the energy of electric. Now, by building on this prior knowledge, the children are going construct simple circuits with different components. This will include the use of bulbs, buzzers and motors including switches. Children will make links to this learning by pictorially representing these circuits using conventions circuit symbols in DT. Through this link, children will learn about precautions for working safely with electricity.	Children have learnt about grouping living things and looking at classification system in more detail. They have been introduced into broad groups such as micro-organism, plants, and animals. Linking back to their prior knowledge, children will now use direct observations to classify animals into commonly found invertebrates such a insects, spiders, snails, and worms. Making links to wild areas of the UK in geography, children will use classification systems and keys to identify animals and plants in the immediate environment and research unfamiliar animals and plants from a broad range of habitats.
Core Learning	**Concept: Curiosity about natural phenomena** **Enquiry Question:** **Why did people think the geocentric model of the solar system meant that the sun obits the Earth?** To know what happens when light reflects off a mirror. To know that we need light to see things and if there is an absence of light it is dark. To know that shadows can be formed what an object blocks a light source.	**Concept: Laws, theory, and models** **Enquiry Question:** **How could use circuits to create an alarm to monitor and control? (crumble)** To create simple electrical circuits naming the parts, cells, wires, bulbs, switches, and buzzers. To recognise common conductors and insulators and associate metals with being good conductors. To draw a pictorial representation of a circuit using conventional symbols.	**Concept: Curiosity about natural phenomena** **Enquiry Question:** **Can you classify invertebrates?** To describe ways in which living things can be classified into broad groups, including micro-organisms. To be able to name the reason for classifying plants and animals based on their characteristics.

	To explain the geocentric model and how this made way for the heliocentric model. To explain how we have day and night because of the Earth's rotation and the apparent movement of the sun across the sky.	To associate the brightness of lamps or volume of a buzzer based on the voltage of the cells used.	
Opportunities for deepening learning ... *Know more and remember more.*	History – Links to Ancient Greek RE – Links to geocentric model	DT – To design an alarm to monitor and control (crumble) - completed in Autumn term	Geography – Focusing on wild areas of the UK
Opportunities for oracy and reading...	**Revisit and review discussion questions.** Children should explore and discuss what happens when light reflects off a mirror, including playing games to help them answer questions about the way light behaves. Children should discuss why it was difficult for scientists to share their findings on the heliocentric model. **STEM sentence starters** Shadows are formed by . . . We can see and object that do not give out light when ___ ___ is the absence of____. The eight plants that are in the solar system are ____ Day and night takes place because ____ **Texts ordered from ELS to drive learning:**	**Revisit and review discussion questions.** Children should work scientifically by observing and discussing patterns with the brightness of bulbs when more cells are added to a circuit. Children should also discuss materials that can be used to connect across a gap in a circuit. **STEM sentence starters** A complete circuit is a _____ that allows _____ to flow through. A switch can _____. Electricity can be dangerous because _____ **Texts ordered from ELS to drive learning:**	**Revisit and review discussion questions.** Children should discuss reasons why living things are placed into one group and why they are not. **STEM sentence starters** Living things can be classified into a different criterial such as ____ A classification key is _____ The Linnaean system is _____ **Texts ordered from ELS to drive learning:**
Key Figure / Artist	Ptolemy, Alhazen and Copernicus		Carl Linnaeus
Vocabulary	Absorb, dark, energy, light, light source, mirror, opaque, reflect, shadow, transparent, translucent.	Ammeter, appliances, battery, cell, electron, proton, circuit, component, conductor, current, device, insulator, mains, motor, resistance, resistor, switch, voltage, series circuit,	Adaption, carnivore, characteristics, classification key, criteria, energy, environment, evolution, food chain, habitat, herbivore, invertebrate, microhabitat,

	Asteroid, axis, comet, galaxy, gravity, leap year, meteorite, orbit, planet, shadow, solar system, sphere, spin, star, time zones, universe, heliocentric, geocentric		microorganism, minibeast, omnivore, organism, predator, prey, species, vertebrate
Quick Quiz	What is an opaque object? How can we change the size of a shadow? Name 3 ways to keep your eyes safe from the sun. Which surfaces reflect light well? Name the eight planets that orbit the sun. How long does it take for the Earth to orbit the sun? How are the seasons causes? Jupiter, Saturn, Uranus and Neptune are known as what?	Draw these symbols that you would see in a circuit. (Battery, bulb, motor, buzzer, switch) Explain what happens when you add another bulb to a working circuit. Name 3 reasons a circuit will not work. A buzzer does not have a loud volume, what could you do to increase the volume?	Name 4 animals that are classified as vertebrates. Give an example of a vertebrate. Give an example when microorganisms are helpful. Give an example of how food is preserved to stop it from going mouldy. What is Carl Linnaeus famous for and why is his work important?
Discussion question/point:	Why did the Ancient Greek progress further with space exploration than any other civilisation?	What is the best material to use to design a wire for a circuit?	How would you create your own classification key?