2-year cycle Curriculum Long Term Plan Science
Whole school for each year group

Areas of learning	Animals Human	Animals other	Plants	Materials	Forces
CYCLES					
Early Years links to Science skills					
	Communication and Language • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. **Listening/attention** • Make comments about what they have heard and ask questions to clarify their understanding.	**Personal and Emotional Learning** • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian **Managing Self** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	**Understanding the world** • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. **Natural World** Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.		
1 A	**Animals inc humans – About me (1)** 1. What are the basic parts of the human body? 2. What do you know about your eyes and sight? 3. What do you know about your ears and hearing? 4. Can you tell me about your tongue and taste?	**Insects (R)** Know what an insect is Learn about where an insect lives and why Conduct an insect hunt Name some different types of insect	**Food (R)** Know where food comes from Informed about healthy food choices Understand how animals are used for food production Say why measuring ingredients is important	**Exploring Everyday Materials pt1 (1)** 1. Can you name a variety of everyday materials? 2. Can you say what material an object is made from? 3. What are the properties of everyday materials? 4. Which objects are natural and which are man-made? 5. Do you think this will sink or float?	**Seasons (1)** 1. What are the four seasons? 2. What changes take place in Autumn? 3. What changes take place in Winter? 4. What changes take place in Spring? 5. What changes take place in Summer? 6. How can you measure rainfall?

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	5. Tell me about your sense of touch. 6. How does your nose smell? **Our Body (R)** Know about and name body parts Describe what different body parts do Explore how our bodies change Think about how we are similar and different			6. What is the best material for these objects?	**Senses (R)** Know the names of the senses Describe what each of our senses does Explore how to make sounds **Space (R)** Know what is in Space Learn the names of some planets and features of Space Know how Space travel is made possible
1 B		**Animals inc humans – All about animals (1)** 1. Tell me about animal families. 2. What is the difference between a mammal and a bird? 3. What is the difference between amphibians, reptiles and fish? 4. What types of food do living things eat? 5. What is the difference between wild animals and pets? 6. What are the characteristic of an animal? **Animals (R)** Name different types of animals Explore different habitats animals live in Discover dinosaurs and how they are now extinct	**Plants (1)** 1. What does a seed grow into? 2. What are the basic parts of a plant? 3. Explain how different plants can grow in the same environment. 4. What is a deciduous tree? What is an evergreen tree? 5. Name two different plants which are crops. 6. What happens to a tree as it grows older?	**Exploring Everyday materials pt2 (1)** 1. What materials will build a house? 2. What does waterproof mean? Which materials are waterproof? 3. Why is glass the best materials for windows and why are other materials unsuitable? 4. What materials would be good to make furniture? 5. What are different types of fabric? What properties do fabrics have? What can you use fabric for? 6. Explain why some materials are suited to their use. **Materials (R)** State the names of different materials Describe materials using descriptive vocabulary Know where some materials come from Understand how some materials can change	**Forces (R)** Know what applying a force to an object means Describe different forces Discover which materials sink and float **Weather and seasons (R)** Know the names of different seasons State what weather is likely in different seasons Recognise types of weather Discuss ways to be safe in different types of weather **Machines (R)** Know why a machine is non-living Know different types of machines Explore how machines make jobs easier Think about different modes of transport and what they're used for
2A	**Animals including humans – Growth (2)**	**Living Things and their Habitats around the world (2)** 1. What is a habitat?	**Plants (3)** 1. What factors can affect plant growth?	**Uses of Everyday materials (2)** 1. What is a material? What are properties of materials? Why are	**Light (3)** 1.What is a light source? What is a non-light source?

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	1. What do animals need to survive? 2. What do human need to survive? 3. Why are the 5 food groups important for human health? 4. Why is it important to have a healthy diet? Why is pre-cooked or processed food not always a healthy choice? 5. What exercise do you need to do to stay healthy? What daily habits do you need to maintain to stay hygienic and healthy? 6. Why do we need good hygiene to stay healthy? What is a good hygiene routine?	2. What can you do to help different habitats? 3. Why are rainforests important? What are the key challenges rainforests face? 4. What are the dangers of ocean life? 5. How are the Arctic and Antarctic habitats different? What are the climates of the Arctica and Antarctic? 6. Which animals are best suited to live in desert, underground and ocean habitats?	2. Can you identify the parts of a plant? Draw and label a diagram to show parts of a plant. Describe the functions of a flowering plant. 3. How is water transported in plants? 4. Identify the reproductive parts of a flower. Explain how flowering plants reproduce. 5. Explain how seed dispersal can support reproduction. 6. Can you create a fair test to see how different factors affect plant growth?	some materials suited to their use? 2. What materials would be good to create a bridge? 3. What materials are easy to stretch? How stretchy are they? 4. Which materials can change their shape by bending, twisting, squashing or stretching? 5. Who was Charles McIntosh? 6. Which materials can change? Who is John McAdam? **Year 3 Unit also covered this cycle – Scientific Enquiry**	2.How do you stay safe in the sun? 3. Which materials are reflective? 4. How are shadows formed? 5. How do shadows change throughout the day? 6. Explain how you can change the size of a shadow.
2 B	**Animals Inc Humans – skeleton (3)** 1. What are the jay 5 food groups? 2. Explain how a food label can help us to make healthy choices. 3. What is an exoskeleton, endoskeleton and hydrostatic skeleton? How do animals' skeletons help them to move and survive? 4. What are the functions of thee human skeleton? What are the main bones in the human body?	**Living things and their habitat (2)** 1. What are the 7 characteristics of living things? 2. What is a microhabitat? 3. Which animals would live in a micro-habitat? 4. What do animals eat and how do they obtain their food? 5. What is in your food chain? What food does your food eat?	**Plants (2)** 1. What is the difference between a bulb and a seed? 2. What do plants need in order to grow? 3. How do plants stay healthy? 4. What is the life cycle of a plant? 5. Explain how plants grow and change over time. 6. How do plants adapt to suit their environment?	**Rocks (3)** 1. How are igneous rocks formed? What is the difference between extrusive and intrusive igneous rock? 2. What are the main differences between the three different types of rock - metamorphic, igneous and sedimentary? 3. What is weathering? What are the best rocks to use for certain tasks? 4. How does water contribute to weathering? 5. How are fossils formed?	**Forces and Magnets (3)** 1. What is a contact and non-contact force? 2. Explain why some surfaces slow objects down. How can friction be increased or decreased? 3. What are the names of some magnets and what everyday use do they have? 4. Can you identify a range of materials that are magnetic? 5. Explain how magnetic forces act at a distance.

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	5. How have animals' skeletons adapted to help them to move in their environment? 6. What are voluntary and involuntary muscles? Name some muscles in the human body.	6. What foods come from natural sources? How can foods change from their natural source? **Animals including humans 2 – life cycles (2)** 1. What are the stages of the human lifecycle? 2. What are the stages of life from adulthood to old age? 3. Can you match the offspring to its parent? 4. What is the lifecycle of a chicken? 5. What is the life cycle of a butterfly? 6. What is the life cycle of a frog?		6. What are different types of soil? Name some properties of different types of soil.	6. What is a compass and how does it work? What are the four main compass points?
3A	**Food and digestion (4)** 1. What are the organs in the digestive system? 2. Describe the functions of the organs in the digestive system. 3. What are the different types of human teeth and what are their functions? 4. Explain how different liquids affect your teeth. 5. What is a food chain? 6. What is a food web?	**Living things and their habitats (4)** 1. How many habitats can you name and what are they like? How do they differ? 2. Tell me about one habitat. What are is the climate, soil and temperature like there? What threats do living things face in this habitat? 3. How can you classify animals into groups? 4. What is a classification key? How would you use one? 5. How do animals adapt to suit their environment? 6. Can you name and describe some plants that live in a pond habitat? How can you		**Changes in material (5)** 1. How can evaporation be used to get salt back from salty water? 2. What are methods for reversing a physical change? 3. What are some irreversible changes? How do you know that an irreversible change has taken place? 4. Is rusting reversible or irreversible? Why is rusting a problem and how can it be prevented? 5. What are 3 factors a fire needs to burn? How can you extinguish a fire? 6. What is a chemical reaction? How can you create one? **States of matter (4)**	**Forces (5)** 1. What is gravity and who was Sir Isaac Newton? 2. What is the connection between air resistance and parachutes? 3. Which factors affect an object's ability to resist water? 4. What effects does friction have on different surfaces? 5. What are pulleys and levers and what forces do they create? 6. What are gears and what is their purpose?

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		classify and sort plants that live in a pond habitat?		1. Can you compare and group the 3 states of matter? What are the properties of the 3 states of matter? 2. How do particles behave in solids, liquids and gases? 3. What is a melting point? 4. What are freezing and boiling points? 5. What are evaporation and condensation? 6. What are the different stages of the water cycle? How are evaporation and condensation important in the water cycle?	**Electricity (4)** 1. Which common appliances run on electricity? What are the dangers of using an electrical appliance? How do you stay safe when using one? 2. What are electrical components? How does an electrical circuit work? 3. What is the difference between a complete and incomplete circuit? 4. What is the difference between an insulator and a conductor? Which objects are insulators and conductors? 5. How does an electrical switch work? 6. How can electrical components change within a circuit?
3 B	**Animals including Humans (5)** 1. What are the key stages of a mammal's life cycle? 2. What are the gestation periods of mammals? 3. Explain the different stages of pregnancy. 4. How does a child's hand change over time? 5. What changes happen during puberty?	**Living things and their habitats (5)** 1. What is sexual reproduction? 2. Write a definition for the term asexual reproduction? 3. Explain the differences between the life cycle of an insect and an amphibian. 4. Describe the life cycle of a mammal, bird and reptile. 5. Why is Sir David Attenborough's work contribution important?		**Properties of Materials (5)** 1. Can you group materials according to their properties? 2. Which materials are thermal conductors? How are thermal conductive properties of materials suitable for a specific task? 3. Which materials are hard? How does the hardness of	**Sound (4)** 1. How are sounds made? 2. How do vibrations of sound travel through a medium to the ear? 3. What are sound insulators and how do these work? 4. How is the volume of sound measured? Why does volume change?

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	6. What changes occur during old-age?	6. Why is Dame Jane Goodall's research important? **Living things and their Habitats including conservation (4)** 1. What is an ecosystem and how are they affected by changes in the seasons? 2. What is the human impact on the environment through deforestation? 3. What is air pollution? What contributes to air pollution? How does it impact the environment and human health? 4. What is water pollution and how is it caused? How can we prevent water pollution? 5. How can we conserve water? 6. What positive impact can humans have on nature?		materials enable them to be suited to a specific task? 4. What does the word 'dissolve' mean? Which materials are soluble and insoluble in water? Can solutions be reversed? 5. How soluble are different solutes? 6. How are mixtures separated through sieving, filtering, evaporating or through magnets?	5. What is pitch and how is it affected? 6. Why does sound fade as it travels? **Earth and Space (5)** 1. What were Nicolaus Copernicus' ideas about planetary motion? 2. How does the Earth move through space? 3. What are the characteristics of the planets in our solar system? 4. What is the Big Bang theory? 5. How does gravity affect the movement of the Earth and Moon in space? 6. What are the different phases of the Moon?
4A	**Animals including Humans** 1. What is the function of the heart and its circulatory system? 2. What are the functions of blood vessels? How does blood move through the heart? 3. What is the composition of blood? What are the functions of cells within blood? 4. How does the body transport water and nutrients? 5. What can affect your heart rate? 6. What impact do drugs and alcohol have on the body?	**Living things and their Habitats** 1. Explain how living things are classified. 2. What does the acronym MRS GREN stand for? What is multicellular and unicellular? 3. Why is the work of Carl Linnaeus important to scientists? 4. Name the different classes of vertebrates. 5. What makes a soil habitat unique? 6. Name different types of fungi.	**Looking after our Environment** 1. What is the difference between climate and weather? What is climate change? 2. How can we reduce how much waste is sent to landfill? 3. How can we reduce energy consumption? 4. What happens when fuels are burnt? 5. What are the outcomes of COP26	**If in Cycle B for whole school, revisit states of materials (solids, liquids, gases) last seen Cycle B Year 4.**	**Light** 1. How does light travel? 2. What is reflection? 3. How can reflection help us to see? 4. How can shadows change? 5. Why do shadows have the same shape as the object that cast them? 6. What is a light phenomenon? **Electricity** 1. What are the parts of an electric circuit?

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	Inc. **Blood and transportation** **Evolution and Inheritance** 1. Explain how adaptations help animals and plants survive. 2. Why is natural selection is important in the cycle of life? 3. Why animals can look different to their parents? 4. Why is the process of genetic modification important for farmers and the food chain? 5. What can we learn about our past by studying fossils? 6. Why is Mary Anning's contribution to studying fossils important?		6. What affect can climate change have on habitats, plant life and animals?		2. What is the effect of voltage on an electrical circuit? 3. What problems may arise in a circuit and how would you correct them? 4. What affects the output of a circuit? 5. How do you create a switch? How can you create a set of traffic lights? 6. How does a loop and wire game work?