Science Progression Grid Class 4- 5

Cycle 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Electricity (4) **Focusing on electrical circuits.**	**States of Matter (4)** **Focusing on how the water cycle works.**	**Animals including Humans** **Focusing on digestion.**	**Earth and Space (5)** **Focusing on seasons as well as day and night.**	**Properties of materials (5)** **Focusing on experimenting with different liquids and solids.**	**Living things and their habitats (5)** **Focusing on life processes.**
Minimum vocabulary shown in bold			**Minimum learning is highlighted in yellow**		
RECAP To know and identify common appliances that run on electricity.	**RECAP** To know how to compare and group materials together, according to whether they are solids, liquids or gases.	**RECAP** To know the different types of teeth in humans and their simple functions.	**RECAP** To know the names of the planets in order.	**RECAP** To know how to compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets;	**RECAP** To know and describe the life cycle of different mammals.
To know the differences between mains and battery power.	To know 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).	To know how to keep teeth healthy.	To know the movement of the Earth and other planets relative to the Sun in the solar system.	To know how to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic;	To know and describe the differences in the life cycles of a mammal and a bird (hatch, eggs, nest, frogspawn).
To know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	**FOCUS** To know the part played by **evaporation** and **condensation** in the water **cycle** and associate the rate of evaporation with **temperature.** **Evaporation -** When water (liquid) is heated and it	To know how to construct and interpret a variety of food chains, identifying **producers, predators** and **prey.** **Producers -** An organism, such as a plant, that produces its own food.	To know the movement of the Moon relative to the Earth	To know and 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.	**FOCUS** To know the differences in the **life cycles** of an **amphibian** and an insect by exploring complete and incomplete **metamorphosis.** **Life cycle –** The journey of changes that take place throughout the life of a living

	changes to water vapour (gas). **Condensation -** Turn a gas into a liquid.	**Predators -** An animal that hunts and eats other animals. **Prey -** An animal that gets hunted and eaten by another animal.			thing including birth, growing up and reproduction. **Amphibians -** Amphibians are cold-blooded vertebrates (vertebrates have backbones) that don't have scales. They live part of their lives in water and part on land. **Metamorphosis -** An abrupt and obvious change in the structure of an animal's body and their behaviour.
To know 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;		**FOCUS** To know how to demonstrate and explain the **process** of **digestion.** **Process** – series of actions or steps taken in order to achieve a particular end. **Digestion -** Break down food so it can be used by the body.	**FOCUS** To know that the Sun, Earth and Moon as approximately **spherical bodies**;(**orbit, rotates, axis**) **Spherical bodies -** An organism, such as a plant, that produces its own food. **Orbit –** To move in a regular, repeated curved path around another object. **Rotates –** To spin around something. **Axis –** An imaginary line that a body rotates around.	**FOCUS** To know that some materials will **dissolve** in liquid to form a solution, and describe how to recover a substance from a **solution**; **Dissolve –** dissolving is when a solute is added to a solvent to form a solution. **Solution -** A solution is made when solid particles are mixed with liquid particles. Materials that will dissolve are known as soluble.	To know and describe the life process of **reproduction** in some plants and animals. **Reproduction –** The process of new living things being made.
FOCUS To know that a **switch** opens and closes a circuit and associate this with whether or not a lamp lights in a simple series **circuit;**		To know the simple functions of the basic parts of the digestive system in humans	To know and understand Earth's **rotation** to explain day and night and the apparent movement of the sun across the sky.	To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through **filtering, sieving** and **evaporating;**	

Circuit - A pathway that electricity can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a circuit are bulbs, switches, buzzers and motors. **Switch** - Used to turn other components in the circuit on or off.			**Rotation -** To spin around something.	**Filtering -** filtering is the process of separating solids from liquids using filter paper. **Sieving –** sieving is when we use a mesh strainer used to separate lumps and clumps from the fine material **Evaporation –** When water (liquid) is heated and it changes to water vapour (gas).	
To know that some common **conductors** and **insulators,** and associate metals with being good conductors. **Conductors -** A conductor of electricity is a material that will allow electricity to flow through it. **Insulators -** Materials that are electrical insulators do not allow electricity to flow through them.				To know that dissolving, mixing and changes of state can be **reversible** changes or **irreversible**. **Reversible changes** – can be revered, meaning that the original materials can be recovered from the change. **Irreversible changes** – A change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed.	
One lesson of each half term is about the Scientist named below, children to investigate the scientist and why they are famous. Children to know about the different types of scientists and what they study- Botanist, Palaeontologist, Astronomer, Seismologist, Hydrologist, Zoologist, Audiologist					
Scientist focus: **Benjamin Franklin**	**Scientist focus:** **John Dalton**	**Scientist focus:** **William Beaumont**	**Scientist focus:** **Nicolaus Copernicus**	**Scientist focus:** **Albert Einstein**	**Scientist focus:** **Louis Pasteur**
Disciplinary knowledge					
Pupils might work scientifically by observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some	Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such	Pupils might work scientifically by: comparing the teeth of carnivores and herbivores and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and	Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.	Pupils might work scientifically by: carrying out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or	Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas

cannot be used to connect across a gap in a circuit.	as chocolate crispy cakes and ice-cream for a party). They might also observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.	discuss their ideas about the digestive system and compare them with models or images.		for making blackout curtains?' They might compare materials in order to make a switch in a circuit.	and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.
Some key words will appear more than once which is deliberate across the progression grids as the children are consolidating their learning in different year groups. They will constantly be revisiting learning and embedding their understanding in the subject using key words.					