Progression of Knowledge, Skills and Vocabulary in Science

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning, communication and sources.	- Draw simple pictures talk about what they see and do. - Ask questions using why and how.	- Draw simple pictures talk about what they see and do. - Use simple **charts** to communicate finding. - Identify key features. -Ask questions.	- Describe their observations using some scientific vocabulary. - Use a range of simple texts to find information. - Suggest how to find things out. - Identify key features.	- Use pictures, writing, **diagrams** and **table**s as directed by their teacher. - Use simple texts, directed by the teacher, to find information. - Record their **observations** in written, pictorial and diagrammatic forms. - Select the appropriate format to record their observations.	- Record observations, comparisons and **measurements** using tables and **bar charts.** - Begin to **plot points** to form a simple **graph** use graphs to point out and interpret patterns in their data. - Select information from a range of sources provided for them.	- Record observations systematically. - Use appropriate scientific language and conventions to communicate **quantitative** and **qualitative** data. - Select a range of appropriate sources of information including books and the internet.	- Choose **scales** for graphs which show data and features effectively. - Identify measurements and observations which do not fit into the main pattern. - Use appropriate ways to communicate quantitative data using scientific language.
Enquiry and testing and obtaining and presenting evidence.	- Say what they think will happen. - Talk about what they can see and changes. - Play with scientific equipment.	- **Test** ideas suggested to them. - Say what they think will happen. - Use first hand experiences to answer questions. - Begin to compare some **living things.**	- Use simple equipment provided to aid observation. - Compare objects, living things or events. -Make observations relevant to their task. - Begin to recognise when a test or comparison is unfair. - Use first hand experiences to answer questions.	- Put forward own ideas about how to find the answers to questions. - Recognise the need to collect data to answer questions. - Carry out a fair test with support. - Recognise and explain why it is a fair test with help. - Pupils begin to realise that scientific ideas are based on evidence.	- Pupils begin to realise that scientific ideas are based on evidence. - Show in the way they perform their tasks how to vary one factor while keeping others the same. - Decide on an appropriate approach in their own investigations to answer questions. - Describe which factors they are varying and which	- Use previous knowledge and experience combined with experimental evidence to provide scientific explanations. - Recognise the key **factors** to be considered in carrying out a **fair test.**	- Describe evidence for a scientific idea. - Use scientific knowledge to identify an approach for an **investigation.** - Explain how the interpretation leads to new ideas.

					will remain the same.		
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Observing and recording.	- Draw pictures of things they see. - Talk about what they can see. - Begin to make marks to count and **collect data.** - Make observations about animals and plants.	- Make observations using appropriate **senses.** - Record observations orally, in drawing, labelling, simple writing and using ICT.	- Respond to questions asked by the teacher. - Ask questions collect and record data (supported by the teacher). - Begin to select equipment from a limited range.	- Make relevant observations. - Measure using given equipment. - Select equipment from a limited range.	- Carry out measurement accurately. - Make a series of observations, comparisons and measurements. - Select and use suitable equipment. - Make a series of observations and measurements adequate for the task.	- Make a series of observations, comparisons and measurements with increasing precision. - Select apparatus for a range of tasks. - Plan to use **apparatus** effectively. - Begin to make repeat observations and measurements systematically.	- Measure quantities with precision using fine – scale divisions. - Select and use information effectively make enough measurements or observations for the required task.
Considering evidence and evaluating.	- Talk about similarities and differences in relation to **materials** and **living things.**	- Make simple **comparisons** and **groupings.** - Say what has happened. - Say whether what has happened was what they expected.	- Say what has happened, what their observations show and whether it was what they **expected.** - Begin to draw simple **conclusions** and explain what they did. - Begin to suggest improvements in their work.	- Begin to offer explanations for what they see and communicate in a scientific way what they have found out. - Begin to identify patterns in recorded measurements. - Suggest improvements in their work **evaluate** their findings.	- **Predict** outcomes using previous experience and knowledge and compare with actual results. - Begin to relate their conclusions to scientific knowledge and understanding. - Suggest improvements in their work, giving reasons.	- Make predictions based on their scientific knowledge and understanding. - Draw conclusions that are consistent with the evidence. - Offer simple explanations for any differences in their results. - Make practical suggestions about how their working methods could be improved.	- Make reasoned suggestions on how to improve working method. - Show how **interpretation** of evidence leads to new ideas. - Explain conclusions, showing understanding of scientific ideas.
Specific knowledge Living things and habitats	Draw pictures of **animals** and **plants.** Know some similarities and differences between the	- Explore and compare the differences between things that are **living, dead,** and things that have never been **alive** - 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		- Recognise that living things can be **grouped** in a variety of ways - Explore and use **classification keys** to help group, **identify** and name a variety of living things in their local and wider **environment**		- Describe the differences in the **life cycles** of a **mammal,** an **amphibian**, an **insect** and a **bird** - Describe the life process of	- Describe how living things are **classified** into **broad groups** according to common observable **characteristics** and based on similarities and differences,

	natural world around them and contrasting **environments,** drawing on their experiences and what has been read in class;	**animals** and **plants**, and how they **depend** on each other - Identify and name a variety of plants and animals in their habitats, including **microhabitats** - 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**		- Recognise that **environments** can change and that this can sometimes **pose dangers** to living things		**reproduction** in some plants and animals	including **micro-organisms**, plants and animals - Give reasons for classifying plants and animals based on specific characteristics
Specific knowledge Plants	Draw pictures of **animals** and **plants.**	- Identify and name a variety of common **wild** and **garden plants**, including **deciduous** and **evergreen** trees - Identify and describe the basic structure of a variety of **common flowering plants**, including **trees**	- Observe and describe how **seeds** and **bulbs** grow into **mature plants** - Find out and describe how plants need **water, light** and a suitable **temperature** to **grow** and stay **healthy**	- Identify and describe the **functions** of different parts of **flowering plants: roots, stem/trunk, leaves** and **flowers** - 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 - Investigate the way in which **water** is **transported** within plants - Explore the part that flowers play in the life cycle of flowering plants, including **pollination, seed formation** and **seed dispersal**			
Specific knowledge Animals including humans	Draw pictures of **animals** and **plants.**	- Identify and name a variety of common animals including **fish, amphibians, reptiles, birds** and **mammals** - Identify and name a variety of common animals that are **carnivores, herbivores** and **omnivores**	- Notice that animals, including **humans,** have **offspring** which grow into **adults** - Find out about and describe the basic needs of animals, including humans, for **survival (water, food** and **air**	- Identify that animals, including humans, need the right types and amount of **nutrition**, and that they cannot make their own food; they get nutrition from what they eat	- Describe the simple functions of the basic parts of the **digestive system** in humans - Identify the different types of **teeth** in humans and their simple functions - Construct and interpret a variety	- Describe the changes as humans develop to **old age**	- Identify and name the main parts of the **human circulatory system**, and describe the **functions** of the **heart, blood vessels** and **blood** - Recognise the impact of **diet, exercise, drugs** and **lifestyle** on the way their bodies function

		- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each **sense**	- Describe the importance for humans of exercise, eating the right amounts of different types of food, and **hygiene**	- Identify that humans and some other animals have **skeletons** and **muscles** for **support, protection** and **movement**	of **food chains,** identifying **producers, predators** and **prey**		- Describe the ways in which **nutrients** and water are **transported** within animals, including humans
Specific knowlegde Everydday materials And changes in materials	Understand some important processes and changes in the natural world around them, including the seasons and **changing states** of matter.	- Distinguish between an **object** and the **material** from which it is made - Identify and name a variety of everyday materials, including **wood, plastic, glass, metal, water**, and **rock** - Describe the simple **physical properties** of a variety of **everyday materials** - Compare and group together a variety of everyday	- Identify and **compare** the **suitability** of a variety of everyday materials, including **wood, metal, plastic, glass, brick, rock, paper** and **cardboard** for particular uses - Find out how the shapes of **solid objects** made from some materials can be changed by **squashing, bending, twisting** and **stretching**			- 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** - Know that some materials will **dissolve** in **liquid** to form a **solution**, and describe how to **recover a substance** from a **solution** - Use knowledge of **solids, liquids** and **gases** to decide how **mixtures** might be **separated,** including through **filtering, sieving** and **evaporating** Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including **metals, wood** and **plastic** - Demonstrate that **dissolving, mixing** and **changes of state** are **reversible changes**	

		materials on the basis of their simple **physical properties**			- 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**
Specific knowledge Seasonal changes	Understand some important processes and changes in the natural world around them, including the **seasons** and changing states of matter.	- Observe changes across the **4 seasons** - Observe and describe **weather** associated with the seasons and how **day length varies**			
Specific knowledge Rocks				- **Compare** and **group** together different kinds of **rocks** on the basis of their appearance and simple **physical properties** - Describe in simple terms how **fossils** are **formed** when things that have lived are **trapped** within rock - Recognise that **soils** are made from rocks and **organic matter**	
Specific knowledge Light				- Recognise that they need **light** in order to see things and that **dark** is the **absence of light** - Notice that light is **reflected** from **surfaces** - Recognise that light from the sun can be dangerous and that there are ways to **protect their eyes**	- Recognise that light appears to **travel in straight lines** - Use the idea that light travels in straight lines to explain that objects are seen because they give out or **reflect light** into the **eye** - Explain that we see things because light travels from **light sources** to our eyes or from light sources to objects and then to our eyes

		- Recognise that **shadows** are formed when the light from a light source is blocked by an **opaque** object - Find **patterns** in the way that the size of shadows change	- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Specific knowledge Forces and magnets		- Compare how things **move** on **different surfaces** - Notice that some **forces** need contact between 2 objects, but **magnetic forces** can act at a **distance** - Observe how magnets **attract** or **repel** each other and attract some materials and not others - 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** -Describe magnets as having **2 poles** - Predict whether 2 magnets will attract or repel each other, depending on which **poles are facing**	- Explain that **unsupported** objects fall towards the Earth because of the force of **gravity** acting between the **Earth** and the falling object - Identify the effects of **air resistance**, water **resistance** and **friction**, that act between **moving surfaces** - Recognise that some **mechanisms** including **levers, pulleys** and **gears** allow a smaller force to have a greater effect
States of matter		- Compare and group materials together, according to whether they are **solids, liquids** or **gases** - 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)** - Identify the part played by **evaporation** and **condensation** in the **water cycle** and associate the rate of evaporation with temperature	

Sound		- Identify how **sounds** are made, associating some of them with something **vibrating** - Recognise that **vibrations** from sounds travel through a **medium to the ear** - Find patterns between the **pitch** of a sound and features of the object that **produced it** - Find patterns between the **volume** of a sound and the **strength of the vibrations** that **produced** it - Recognise that sounds get **fainter** as the distance from the sound source **increases**	
Electricity		- Identify **common appliances** that run on **electricity** - Construct a simple series **electrical circuit,** identifying and naming its basic parts, including **cells, wires, bulbs, switches** and **buzzers** - 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** - Recognise that a **switch** opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - Recognise some common **conductors** and **insulators**, and associate **metals** with being good conductors	- Associate the brightness of a lamp or the volume of a buzzer with the number and **voltage of cells** used in the circuit - 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** - Use recognised **symbols** when representing a simple circuit in a diagram

Earth and space		- Describe the movement of the **Earth** and other **planets** relative to the **sun** in the **solar system** - Describe the movement of the **moon** relative to the Earth - Describe the **sun, Earth** and **moon** as approximately **spherical bodies** - Use the idea of the **Earth's rotation** to explain **day** and **night** and the **apparent movement** of the sun across the **sky**
Evolution and inheritance		- Recognise that **living things** have changed over time and that **fossils** provide information about living things that **inhabited** the Earth millions of years ago - Recognise that living things produce **offspring** of the same kind, but normally **offspring vary** and are not identical to their parents - Identify how animals and plants are **adapted** to suit their **environment** in different ways and that **adaptation** may lead to **evolution**