Science progression

	EYFS	Year 1	Year 2	Lower key stage 2	Upper key stage 2
ENQUIRY SKILLS					
Plan	**Choose the resources** they need for their chosen activities and say when they do or don't need help.	**Ask simple questions** and recognising that they can be answered in different ways.	**Ask simple questions** and recognising that they can be answered in different ways.	**Ask relevant questions** and using different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and **fair tests**.	**Plan different types** of scientific enquiries to answer questions, including **recognising and controlling variables** where necessary.
Do	Know about **similarities and differences** in relation to places, objects, materials and living things. **Make observations** of animals and plants. **Explore** a variety of materials, tools and techniques,	**Observe** closely, using **simple equipment.** **Perform simple tests.** Identify and classify.	**Observe** closely, using simple equipment. **Perform simple tests.** **Identify and classify.**	**Make systematic and careful observations** and, where appropriate, take **accurate measurements** using standard units, use a **range of equipment,** including thermometers and data loggers.	**Take measurements,** using a range of scientific equipment, with **increasing accuracy and precision**, **taking repeat** readings when appropriate.

	experimenting with colour, design, texture, form and function. **Select and use** technology for particular purposes.				
Record	**Represent** their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.	**Gather and record data** to help in answering questions.	**Gather and record data** to help in answering questions.	**Gather, record, classify and present data** in a variety of ways to help in answering questions. **Record findings** using simple scientific language, **drawings, labelled diagrams, keys, bar charts, and tables.**	**Record data** and results of increasing complexity using **scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.**

Review	**Talk about the features** of their own immediate environment and how environments might vary from one another. **Explain** why some things occur and talk about changes.	**Use their observations and ideas** to suggest answers to questions.	**Use their observations and ideas** to suggest answers to questions.	**Report on findings** from enquiries, including oral and written **explanations, displays or presentations of results and conclusions.** **Use results to draw simple conclusions**, make predictions for new values, suggest **improvements** and raise further questions. **Identify differences, similarities** or changes related to **simple scientific ideas and processes.** Use straightforward scientific **evidence** to answer questions or to refuse ideas and arguments.	**Use test results** to make **predictions** to set up further **comparative and fair tests.** **Report and present findings** from enquiries, including **conclusions, causal relationships** and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. **Identify** scientific evidence that has been used to support or refute ideas or arguments.

	EYFS	Year1	Year2	Lower Key stage 2	Upper key stage 2
CONTENT					
LIGHT				Recognise **light** is needed to see things and that **dark** is the absence of light. Notice that light is **reflected** from **surfaces.** Sunlight is **dangerous** and eyes should be **protected**. Recognise **shadows** are formed when light from a **light source** is blocked by an **opaque** object. Find patterns in the way the size of shadows change.	Recognising light appears to travel in **straight lines**. Using the idea that light travels in straight lines to explain that objects are seen because they reflect light into the eye. Explain that we see things as light travels from **light sources** to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
EARTH AND SPACE					Describe 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. The sun is a **star** and is at the centre of the solar system. It has eight planets. The **moon** is a **celestial body** that **orbits** a planet. Find out about the way ideas about the solar system have developed, understanding how the **geocentric model** of the solar system gave way to the **heliocentric model** by considering the work of **Ptolemy, Alhazen and Copernicus.**

					Why some people think that places such as Stone Henge were used by people as **astronomical clocks.**
FORCES AND MAGNETS				Compare how things move on different surfaces. Notice that some **forces** need contact between two 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 based on whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having two **poles**. Predict whether two magnets will attract or repel	Understand and explain that unsupported objects fall towards the earth due to 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 **pulleys, levers** and **gears** allow a smaller force to have a greater effect. They may also find out about key scientists such as **Galileo Galilei or Isaac Newton** and how they contributed to the theories of **gravity**.

				each other, depending upon which poles are facing. Explore the strengths of different magnets and find a fair way to compare them. Explore properties of magnets in everyday and suggest uses for them. Identifying different types of forces such as **air resistance, water resistance, friction**.	
SOUND		Listening walks and identifying sounds. **Sound, listen, hear, ears.** Distinguishing between different types of sounds and being able to describe them, for example, **plane, train, car, tractor, birds, wind, rain, thunder, trees, natural, man-**	Listening walks and identifying sounds. Distinguishing between different types of sounds and being able to describe them, for example, plane, train, car, tractors as well sounds of nature.	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 sound and the features of the objects that produced it. Find patterns between the **volume** of the sound and the	Links to music – pitch, volume etc.

		made, loud, quiet, near, far.		strength of the vibrations that produced it. Recognise that sounds get **fainter** as the distance from the sound source increases. (Find out how pitch and volume can be changed in a variety of ways). (Identifying sounds on sound walks).	
PLANTS		(Links across to seasonal change) Identify and name a variety of common, **wild** and **garden plants**, including **deciduous** and **evergreen** trees. **Vocab to name trees/ plants** Identify and describe the basic	Observing and describing how seeds and **bulbs** grow into mature plants, including **germination, growth, survival** and processes of **reproduction** (a simple understanding of **pollination** and **seed dispersal**). Find out and describe how plants need	Identify and describe the functions of different **flowering plants**, including **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). How they vary from plant to plant. Investigate how water is **transported** within plants.	

		structure of a variety of common flowering plants including trees – **leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches and stem.**	**water, light** and a suitable **temperature** to grow and stay healthy.	Explore the part that **flowers** play in the **life cycle** of flowering plants, including **pollination, seed formation and dispersal.**	
ROCKS				Compare and group different types of rocks based on **appearance** and **physical properties**. How **fossils** are formed. Recognising that soil is made from **rocks** and **organic matter**.	
MATERIALS AND CHANGES IN STATE		**<u>Everyday Materials</u>** Naming and identifying materials used to make objects.	**<u>Uses of Everyday Materials</u>** Identifying and comparing the suitability of a variety of materials for particular uses.	**<u>States of Matter</u>** Comparing and grouping materials according to solid, liquid or gas. Observe some materials **change state** when they are **heated or cooled.**	**<u>Properties and Changes of Materials</u>** Compare and group together materials based on properties including: **hardness, solubility, transparency, conductivity**

		Name **materials** including **wood, plastic, glass, metal and rock.** Describe simple physical **properties** of a variety of everyday **materials** and consolidate vocabulary from Year R as well as additional vocabulary such as **wet, liquid, solid, gloopy, hard, stretchy, stiff, shiny, dull, bendy, not bendy, waterproof, not waterproof, absorbent, non-absorbent, opaque and transparent.**	**Materials – wood, metal, plastic, glass, brick, rock, paper, cardboard.** Find how the shapes of solid objects made from some materials can be changed by **squashing, bending, twisting and stretching.** Look at people who have developed new materials, such as **Dunlop, McAdams** and **Mackintosh**.	**Measure** or research the **temperature** of when that happens (in degrees Celsius). Understand **evaporation** and **condensation** in the **water cycle.** Associate the rate of change with temperature.	**(electrical and thermal) and response to magnets.** Know some materials will **dissolve** to form a **solution.** Describe how to recover a substance from a solution. Decide how **mixtures** can be **separated** by **filtering, sieving and evaporating**. Give reasons for particular uses for everyday materials including metal, wood and plastic based on their own experiments and fair test. Demonstrate that dissolving, mixing and changes of state are **reversible.** Explain that some changes result in the formation of new materials and that this is not normally reversible.

		Broadening their vocabulary to further describe such **as bumpy, spiky**. Grouping a variety of materials based on their physical properties.			Research chemists such as **Spencer Silver and Ruth Benorito**.
SEASONAL CHANGES		Name the seasons, observe and identify the changes that occur within those seasons. **Season, Spring, Summer, Autumn, Winter, change, grow, die, months of the year.** Discuss weather related to those seasons. **Sunny, raining, cloudy, thunder and lightning, storms,**		(Understanding it is not safe to look directly at the sun even when wearing dark glasses – Light).	(Understand the idea of the earth's rotation to understand day and night and the apparent movement of the sun – Earth and Space).

		snowing, temperature, hot, warm, cold, freezing, hail, sleet, fog, change. Understanding it is not safe to look directly at the sun. **Sun, bright, damage, protection, safe, unsafe.**			
LIVING THINGS IN THEIR HABITATS			Compare **living**, **dead**, never been alive. **Adaption/ suited** to habitats. How **habitats** support living things. Identify and name variety of **plants** and **animals** and their	Grouping living things in variety of ways Know terms: **vertebrate, fish, amphibians, reptiles, birds, mammals, invertebrates** **Snails, worms, spiders, insects** **Classification keys**- use to identify in **local and wider environment**	**Lifecycle** differences: **mammal, insect, bird, amphibian.** Describe **life process** of **reproductio**n in some plants and animals. **Sexual and Asexual reproduction** in plants Sexual reproduction in animals

			habitats including **microhabitats**. How animals use plants and other animals for food. Simple **food chain**. Identify/ name sources of food. Intro habitat/ microhabitat.	**Environments** can change and pose dangers to living things. **Litter**/ **deforestation** etc positive effects of nature reserves, garden ponds	Key scientists/ behaviourists associated e.g. Attenborough. Describe how living things are classified into groups according to observable similarities and differences (more detail than yr 4- sub divisions) Give reasons for classifying related to characteristics Related scientists- **Carl Linnaeus**
ANIMALS INCLUDING HUMANS		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,**	Know that animals including humans have **offspring** which grow into adults **(possible life cycles).** Find out about and describe basic needs of animals, including humans for survival.	Identify that animals including humans need the right types and amount of **nutrition**, they cannot make their own food, and they get nutrition from what they eat. Identify that humans and some other animals have **skeletons** and **muscles** for support, protection and movement.	Describe changes as humans develop to old age (including **puberty**, **gestation** periods of animals compared to humans). Identify and name the main parts of the human **circulatory system**. Describe functions of **heart, blood vessels and blood.**

		omnivores and herbivores. Describe and compare the structure of a variety of common animals (as above). Identify, name, draw and label basic parts of the human body and say which part is associated with which sense. **Senses, sight, hearing, touch, taste, smell, ears, tongue, skin, hands, nose, eyes.**	Describe the importance for humans, the importance of exercise, eating the right amount of different foods and hygiene.	Introduce them to the main body parts associated with the skeleton and muscles and how different parts of the body have special functions. Understand how different food groups contribute to different parts of the body remaining healthy, for example, calcium assisting bone growth and repair. Describe the simple functions of the basic parts of the digestive system in humans. Know and name main body parts associated with the **digestive system** (that is, **mouth, tongue, teeth, oesophagus, stomach, small and large intestine).** Identify the different types of teeth in humans and their simple functions. Comparing teeth of **carnivores and herbivores**, finding out what	Recognise the impact of **diet, exercise, drugs and lifestyle** on **body function**. Describe ways in which water and **nutrients** are **transported** in animals and humans. Children to build upon knowledge learnt in Years 3 and 4 to explain further the functions of body parts.

				damages teeth and how to look after them. Construct and interpret a variety of **food chains,** identifying **producers, predators and prey.**	
ELECTRICITY				Identify **electrical appliances.** Construct a simple series of electrical circuits. Identify **cells, wires, bulbs, switches and buzzers.** Identify if a **circuit** is a complete loop or not. Know that a switch opens and closes a circuit and that this affects if the lamp is on. Recognise some common **conductors and insulators.** Associate metals with being good **conductors**.	Associate the **brightness** of a lamp or the **volume** of a **buzzer** by the number and **voltage** of **cells** used in a **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**.

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.**