

Throughout each topic teachers should check that content has been learned and remembered, including content from previous years, to prevent it from being forgotten. Retrieval practice is built into each lesson to interrupt the forgetting curve and secure construct in long term memory.

At the end of each unit, teachers will assess the work in books and the main creative task for each unit against the relevant Mastery Key for that unit to decide whether the child is working at Age Related Expectations by the end of each academic year.

By the time pupils leave **Key Stage 2**, they will:

- ✓ Have developed **a secure knowledge** of biology, chemistry, and physics, understanding key concepts such as forces, electricity, evolution, and ecosystems.
- ✓ Be able to explain **scientific phenomena** using appropriate vocabulary and apply their learning to new situations.
- ✓ Gain essential **investigative skills**, including hypothesizing, observing, measuring, recording data, and drawing conclusions; and be able to **evaluate evidence** and use logical reasoning to support their ideas.
- ✓ Recognise and appreciate the **relevance of science** in daily life, from understanding health and nutrition to recognizing environmental issues like climate change and appreciate how science contributes to innovation, sustainability, and technological advancements.
- ✓ Be encouraged to **ask questions and seek answers** and be **enthusiastic and motivated** to carry out further scientific study.
- ✓ Be **well-prepared for KS3 science**, having developed both conceptual knowledge and investigative skills

By the end of KS2, students should be confident in making scientific observations, using evidence to explain their findings, and understanding fundamental concepts in biology, chemistry, and physics. These outcomes prepare them for deeper scientific inquiry in KS3.

Mastery Keys

Reception	Y1	Y2	Y3	Y4	Y5	Y6
SEASONS -Can name the four seasons. -Can describe a change between each season. ALL ABOUT ME -Can name basic body parts. -Knows that we look different as we get older. -Can describe a way to look after themselves. KEEPING HEALTHY -Can identify a way to keep healthy. -Understand what a dentist does. -Understand the importance of sleep. -Can identify different emotions. ANIMALS -Identify why habitats are important to animals. -Identify some animals from specific habitats. -Understand hibernation and its purposes. MINIBEASTS & GROWING -Can understand basic life cycles (e.g. caterpillar to butterfly, seed to plant). -Can identify some things that a plant needs to grow. -Can identify some parts of an insect. MATERIALS -Can identify at least three different materials and their properties. -Can closely observe and describe what they see using everyday language.	SEASONAL CHANGES -Can name four seasons and identify when in the year they occur. -Can describe weather in different seasons. -Can describe days being longer in summer and shorter in winter. -Can observe, record and describe changes in e.g. plants, temperature and the weather across the four seasons. EVERYDAY MATERIALS -Can label a picture/diagram of an object made from different materials. -Can describe the properties of materials. -Can sort materials using their properties. -Describe how they sorted the materials according to how transparent they are, and how other groups used different ways to sort the materials. ANIMALS INC.HUMANS -Can name a range of animals which includes animals from each of the vertebrate groups. -Can describe the key features of named animals. -Can label key features on a picture/diagram. -Can describe what a range of animals eat. -Can use observations to classify into given scientific groupings. PLANTS	ANIMALS INC.HUMANS -Can sequence the stages of a baby. -Can describe how animals change as they get older. -Can describe why exercise is important for humans. -Can explain what humans and other animals need to survive. -Can describe how to keep clean and healthy. -Can make comparisons using their observations/results to say which hands are bigger and smaller. -Can suggest reasons for differences in results e.g. his hand is bigger because he has had longer to grow, EVERYDAY MATERIALS -Can name an object, say what material it is made from, identify properties and make a link between property and use. -Whilst changing the shape of an object can describe the actions used using suitable vocabulary. -Describe similarities and differences. -Can explain different tests e.g. you can find out which is waterproof by... PLANTS -Can describe how plants that have grown from seeds and bulbs have developed over time. -Can identify plants that grew well in different conditions.	ANIMALS INC.HUMANS -Can name the nutrients found in food. -Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. -Name some bones that make up the skeleton giving examples that support, help them move or provide protection. -Give similarities and differences between skeletons. -Can describe how muscles and joints help them to move. -Can observe closely, noting similarities and differences between fingerprints. FORCES & MAGNETS -Give examples of forces in everyday life. -Give examples of objects moving differently on different surfaces. -Name a range of magnets and show how the poles attract and repel. -Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. -Can decide on an approach to answer the question and what observations/measurements need to be made. ROCKS & SOILS -Can name some types of rock and give physical features of each.	STATES OF MATTER -Can name properties of solids, liquids and gases. -Can give everyday examples of melting, freezing, evaporation and condensation. -Can describe the water cycle. -Can give reasons to justify why something is a solid liquid or gas. -Can make reasonably accurate measurements of temperature independently using correct units of measurement. ELECTRICITY -Can name the components in a circuit. -Can name some metals that are conductors. -Can name materials that are insulators. -Can communicate structures of circuits using drawings. -Can incorporate a switch and describe how it works. -Can describe the circuit and explain how their results show that metals conduct electricity and most other materials do not. SOUND -Can describe different types of objects producing different sounds and that the sound is produced by vibration in the object. -Can describe sounds travelling through different mediums such as air, water, metal.	FORCES -Can demonstrate the effect of gravity acting on an unsupported object. -Can give examples of friction, water resistance and air resistance. -Can give examples of when it is beneficial to have high or low friction, water resistance, and air resistance. -Can demonstrate how pulleys, levers and gears work. -Can take repeat measurements and choose the mean to accurately plot points on a line graph. EARTH & SPACE -Can show the movement of the Earth and moon using diagrams. -Can explain the rotation of the Earth and how this causes night and day. -Can explain evidence gathered about the position of shadows in terms of movement of the Earth. -Can explain how a sundial works. -Can explain why we have time zones. -Can make decisions about what to record and where to put information in a simple table and graph. PROPERTIES & CHANGES -Can explain what dissolving is, giving examples. -Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions	ANIMALS INC.HUMANS -Can draw a diagram of the circulatory system, label the parts and annotate it to show what the parts do. -Can explain the positive and negative effects of diet, exercise, drugs and lifestyle on the body. -Can use their data to make further predictions. ELECTRICITY -Can make circuits to solve particular problems e.g. how to make the door bell louder. -Can make circuits that can be controlled. -Can understand electricity symbols and draw circuits. -Can understand how switches work. -Can understand electrical hazards. -Can understand how cells/batteries work. -Can understand voltage. -Can identify a range of factors which may affect the brightness of the bulb and define a succinct scientific question to test. LIGHT -Can describe with diagrams how light travels in straight lines, either from sources or reflected from other objects into our eyes. -Can describe with diagrams how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape. -Can use appropriate equipment to measure e.g a



-Can ask questions to find out how things work. -Can sort objects into at least two groups. -Can take measurements by comparing and noticing simple patterns e.g. bigger/smaller.	-Can name trees and other plants they see regularly. -Can describe key features of the trees and plants e.g. shapes of leaves/colour of the flower. -Can use photos to talk about how plants change. -Can describe and point to the basic structure of a plant and a tree using scientific language.	-Can spot similarities and differences between bulbs and seeds. -Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants. -Can observe and record the appearance of the plants over time, comparing the height and features. LIVING THINGS & THEIR HABITATS -Find a range of items which are dead, living. -Can name plants/animals which live in different habitats and micro habitat. -Can talk about the features of the animal/plant and how they are suited to the habitat. -Can talk about what the animal eats. -Can construct a food chain. -Can use spotter sheets to identify plants or animals e.g. I think that is an earwig because it has a funny tail like on the sheet and begin to classify them.	-Can explain how a fossil is formed. -Can explain that soils are made from rocks and also contain living/dead matter. -Classify rocks in a range of ways using scientific vocabulary. -Can use their results to draw conclusions about their findings. LIGHT -Can describe how we see objects in lights and can describe dark as the absence of light. -Know it is dangerous to look at the sun. -Define transparent, translucent, and opaque. -Can describe how shadows are formed. -Predict what materials will be more/less visible. -Can make observations and decide how to record them to answer the question. PLANTS -Can explain the function of the parts of a flowering plant. -Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination. -Can give different methods of pollination and seed dispersal. -Can look at features of seeds to decide on method of dispersal. -Can demonstrate close observational drawing or discussion of parts of a flower noticing similarities and differences.	-Can recognise that sounds get fainter as the distance from the sound source increases. -Demonstrates how to increase/decrease pitch and volume. -Can ask questions and turn them into a form that can be investigated ANIMALS INC. HUMANS -Can sequence the main parts of the digestive system. -Can draw the main parts of the digestive system onto a human outline. -Can describe what happens in each part of the digestive system. -Can point to three different types of teeth in their mouth and talk about what each is used for. -Can explain teeth in animals and if they are carnivores, herbivores or omnivores. -Can use results to draw conclusions and raise further questions. LIVING THINGS & THEIR HABITATS -Can ask yes/no characteristic questions to classify a small number of living things. -Can name living things in a range of habitats, giving key features that helped identify them. -Can give examples of how an environment may change both naturally and due to human impact. -Can use classification keys to identify unknown plants and animals. -Can identify that animals and plants can be classified in a number of ways including vertebrates and invertebrates, flowering and non-flowering.	or mixtures by evaporation, filtering or sieving. -Can describe simple reversible and non-reversible changes to materials, giving examples. -Can plan a fair test identifying one thing to change, one thing to measure/observe and important factors to keep the same. LIVING THINGS & THEIR HABITATS -Can describe the life cycles of mammals, amphibians and insects using diagrams. -Can describe similarities and differences between them. -Can select relevant facts from their research to compare the life cycles of different animals. ANIMALS INC. HUMANS -Can explain the changes that take place in boys and girls during puberty. -Can explain how a baby changes physically as it grows and also what it is able to do. -Can measure accurately in cm and mm. -Can record data in their own structure and identify a pattern, suggesting reasons and identifying any anomalies.	- ruler or protractor for angle of light. -Can take precise measurements which are recorded accurately on a line graph. LIVING THINGS & THEIR HABITATS -Can give examples of animals in the five vertebrate groups and some of the invertebrate groups. -Can give key characteristics of the five vertebrate groups and some invertebrate groups. -Can give examples of flowering and non-flowering plants. -Can use classification keys to identify unknown plants and animals. -Can give reasons why a particular invertebrate belongs to a certain group. EVOLUTION & INHERITANCE -Can explain the process of evolution. -Can give examples of how plants and animals are suited to their environment. -Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth. -Give examples of things that lived millions of years ago and the fossil evidence to support this. -Can explain how fossils are formed. -Can identify evidence to support ideas from research or by making comparisons with modern animals.
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