

Primary Science subject knowledge audit

Score each statement as Red/Amber/Green for how:

- a) secure your subject knowledge is for this area
- b) confident you would feel explaining this topic
- c) you might approach teaching the topic

There is an action plan to complete once you have done this. Science sessions will cover approaches to teaching primary science, some common areas where subject knowledge is insecure and practical activities that can be done to support conceptual knowledge development. You will need to address the other gaps.

Curriculum content	A	B	C
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, herbivores and omnivores			
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			
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)			
describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene			
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			
identify that humans and some other animals have skeletons and muscles for support, protection and movement			
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 of food chains, identifying producers, predators and prey			
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 the ways in which nutrients and water are transported within animals, including humans			
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			
Living things and their habitats			
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 animals and plants, and how they depend on each other			
identify and name a variety of plants and animals in their habitats, including micro-habitats			
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 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			
recognise that environments can change and that this can sometimes pose dangers to living things			
describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird			
describe the life process of reproduction in some plants and animals			
describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals			
give reasons for classifying plants and animals based on specific characteristics			
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			
Material and 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 materials on the basis of their simple physical properties			
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 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			
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			
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			
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			
Seasonal Change and Earth in Space			
observe changes across the four seasons			
observe and describe weather associated with the seasons and how day length varies			
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			
Light and Sound			
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 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			
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			
use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them			
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			
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 on the basis of 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 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			
Electricity			
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			
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			

Action plan: Knowing everything

Area for development	Do I need to revise this? How I will do that...	Do I need to learn this? How I will do that