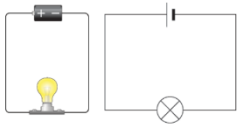
# Science Progression– Materials



## Year 6

**Electricity:**
Use recognised symbols when representing a simple circuit in a diagram.
Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells in the circuit.
Compare and give reasons for variations in how components function including brightness of bulbs, the loudness of buzzers and the on/off position of switches.

## Year 5

**Materials:**
Use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating.
Know that some materials will dissolve in liquids to form a solution and describe how to recover a substance from a solution.
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.
Demonstrate that dissolving, mixing and changes of state are reversible.
Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
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.

**Forces:**
Identify the effects of air resistance, water resistance and friction that act between moving surfaces.
Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

**Electricity:**
Identify common appliances that run on electricity.
Construct a simple series circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzes.
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.
Recognise some common conductors and insulators and associate metals with being good conductors.
Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple circuit.

## Year 4

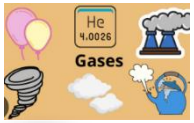
**States of Matter:**
Compare and group materials together according to whether they are solids, liquids or gases.
Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in Celsius (°C).
Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

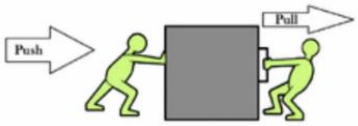
## Year 3

**Forces and Magnets:**
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.
Predict whether 2 magnets will attract or repel each other depending on which poles are facing.
Notice that some forces need contact between 2 objects but magnetic forces can act at a distance.
Describe magnets as having 2 poles.
Compare how things move on different surfaces.

**Materials:**
Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock.
Distinguish between an object and the material from which it is made.
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 properties.






## Year 2

**Materials:**
Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick 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.

## Year 1

**States of Matter link - Seasonal change (Earth and Space):**
Observe changes across the 4 seasons.
Observe and describe weather associated with the seasons and how day length varies.

## EYFS

ELG - Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
Development matters - Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them.
**Curriculum statement from milestones document To understand that they are part of a bigger world.**