



Knowledge and Understanding Progression

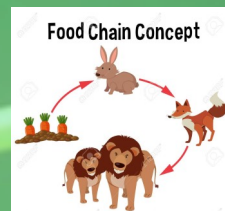
The following "Progression of Knowledge and Understanding" pages take a Science topic (eg Forces and magnets) and show you the year groups, who do that topic and the knowledge they are learning. There is clear progression in knowledge and understanding in the Year groups who do that topic.



Living Things and their Habitats

Year 2

Children can explore and compare the differences between things that are living, dead and things that have never been alive. They can identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other. Children can identify and name a variety of plants and animals in their habitats, including micro-habitats. Children are able to 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.



Year 4

Children will recognise that living things can be grouped in a variety of ways. They will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Children will recognise that environments can change and that this can sometimes pose dangers to living things.



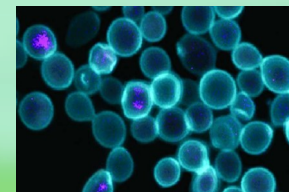
Year 5

Children can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. They can describe the life process of reproduction in some plants and animals.



Year 6

The children will 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. They will give reasons for classifying plants and animals based on specific characteristics.

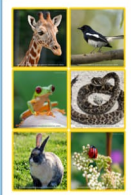




Animals, including humans

Year 1

Children can identify and name a variety of common animals including fish, amphibians, reptiles and birds. They can name a variety of common animals that are carnivores, herbivores and omnivores. Children are able to describe and compare the structure of a variety of common animals. They can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.



Mammals

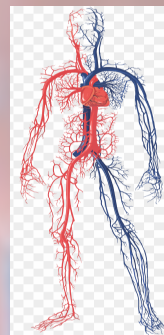
Amphibians

Reptiles

Fish

Year 6

Children will identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. The children will learn about the impact that diet, exercise, drugs and lifestyle and the way their bodies function. Children will also describe the ways in which nutrients and water are transported within animals, including humans.



Year 3

Children will identify that animals, including humans, need the right types and amounts of nutrition and that they cannot make their own food; they get nutrition from what they eat. Children will identify that humans and some other animals have skeletons and muscles for support, protection and movement.



Year 5

Children will describe the changes as humans develop to old age.



Year 4

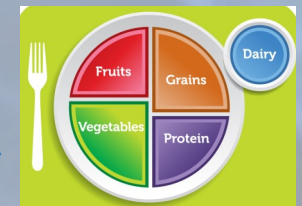
Children will describe the simple functions of the basic parts of the digestive system in humans. They will investigate the different types of teeth in humans and their simple functions.



Children will construct and interpret a variety of food chains, identifying producers, predators and prey.

Year 2

Children notice that animals, including humans, have offspring which grow into adults. They find out about and describe the basic needs of animals, including humans, for survival (water, food and air). They can describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.

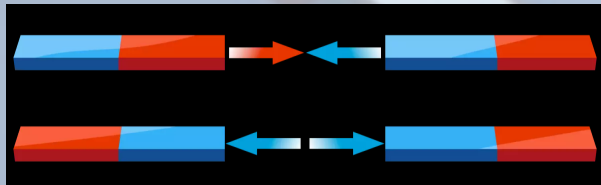




Forces and Magnets

Year 3

Children will compare how things move on different surfaces. Children will identify that some forces need contact between two objects, but magnetic forces can act at a distance. Children will observe how magnets attract or repel each other and attract some materials and not others. Children will 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. Children will be able to describe magnets as having two poles and will be able to predict whether two magnets will attract or repel each other, depending on which poles are facing.



Year 5

Children will explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Children will identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Children will recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

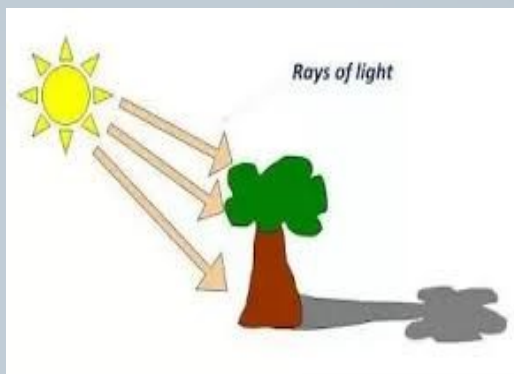




Light

Year 6

Children will recognise that light appears to travel in straight lines and 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. Children will 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. Children will use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.



Year 1

Children can identify different light sources, including the sun and that darkness is the absence of light.



Year 3

Children will recognise that they need light in order to see things and that dark is the absence of light they will also notice that light is reflected from surfaces. Children will recognise that the light from the sun can be dangerous and that there are ways to protect their eyes. Children will identify that shadows are formed when the light from a light source is blocked by a solid object and find patterns in the way that the size of a shadow changes.





Plants

Year 3

Children will identify and describe the functions of different parts of flowering plants: roots, stem/trunks, leaves and flowers. Children will explore the requirements of plants for life and growth (air, light, nutrients from soil, and room to grow) and how they vary from plant to plant. Children will investigate the way in which water is transported within plants. Children will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.



Year 1

Children can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They can identify and describe the basic structure of a variety of common flowering plants, including trees.



Year 2

Children can observe and describe how seeds and bulbs grow into mature plants. They find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.





Rocks

Year 3

Children can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. They can describe in simple terms how fossils are formed when things that have lived are trapped within rock. They can recognise that soils are made from rocks and organic matter.

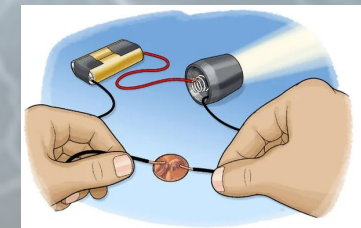




Electricity

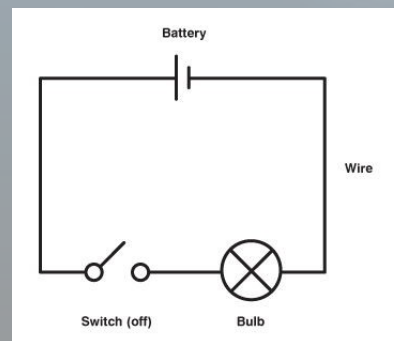
Year 4

Children can identify common appliances that run on electricity. They can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Children can 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. They can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. They can recognise some common conductors and insulators, and associate metal with being good conductors



Year 6

Children can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. They can 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. They can use recognised symbols when representing a simple circuit in a diagram.





Sound

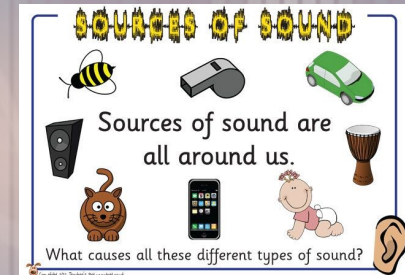
Year 4

Children can identify how sounds are made, associating some of them with something vibrating. They recognise that vibrations from sounds travel through a medium to the ear. Children find patterns between the pitch of a sound and features of the object that produced it. They can find patterns between the volume of a sound and the strength of the vibration that produced it. Children recognise that sounds get fainter as the distance from the sound source increases.



Year 2

Children observe and name a variety of sources of sound, noticing that we hear without our ears. They can recognise that sounds get fainter as the distance from the sound source



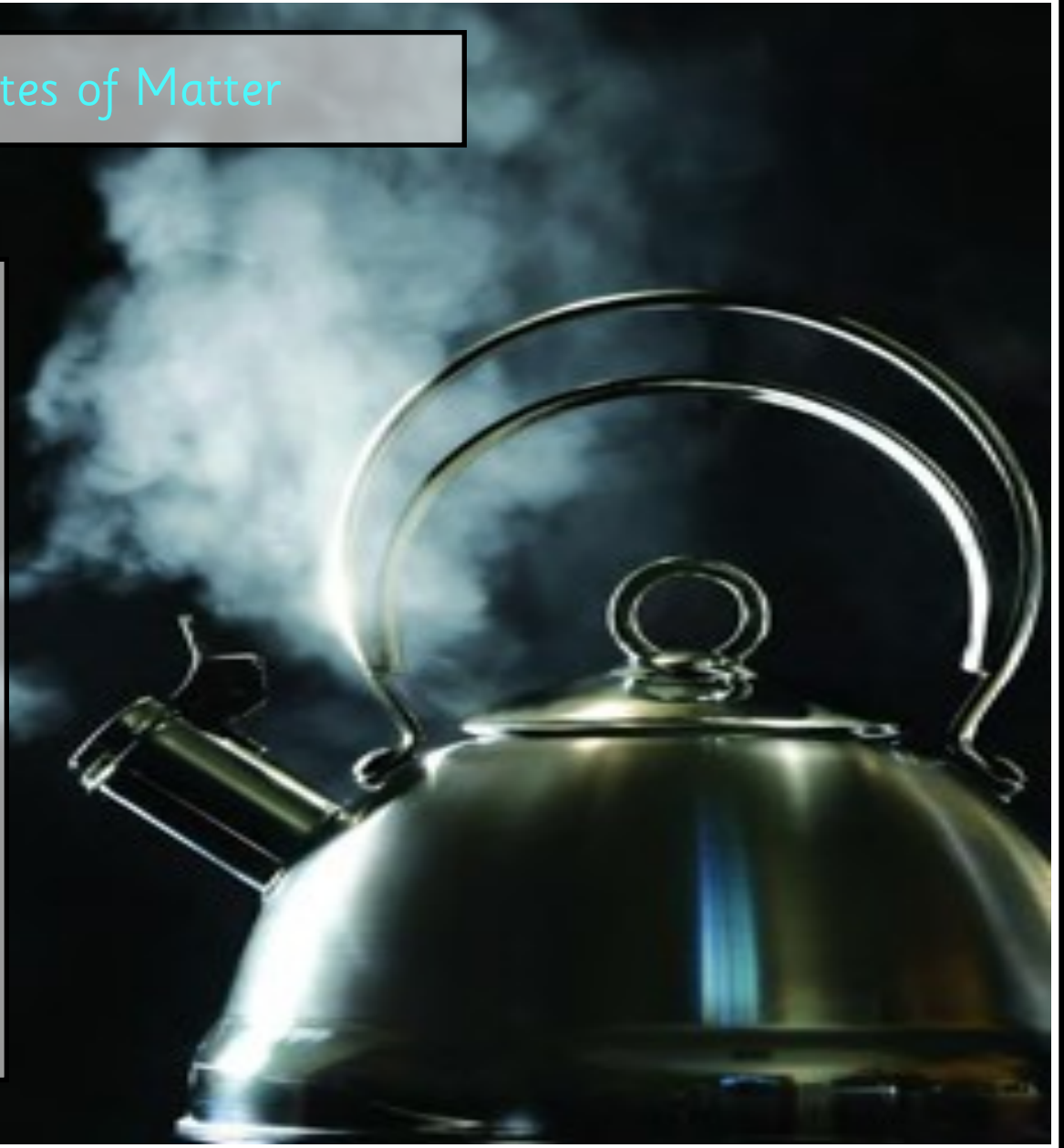


States of Matter

Year 4

Children can compare and group materials together, according to whether they are solids, liquids or gases. Children 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). They can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

solid	liquid	gas
<ul style="list-style-type: none">● rigid● fixed shape● fixed volume	<ul style="list-style-type: none">● not rigid● no fixed shape● fixed volume	<ul style="list-style-type: none">● not rigid● no fixed shape● no fixed volume
cannot be squashed	cannot be squashed	can be squashed

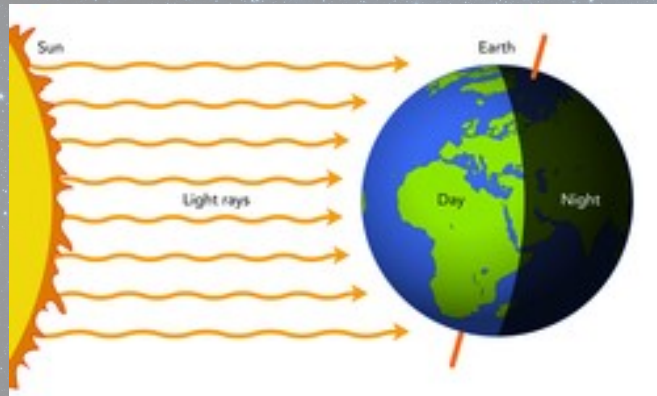




Earth and Space

Year 5

Children can describe the movement of the Earth and other planets relative to the sun in the solar system. They can describe the movement of the moon relative to the Earth. They can describe the sun, Earth and moon as approximately spherical bodies. Children can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.





Properties/Changes of Materials

Year 5

Children can 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. They know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Children use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.



Children can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. They can demonstrate that dissolving, mixing and changes of state are reversible changes. Children can 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.



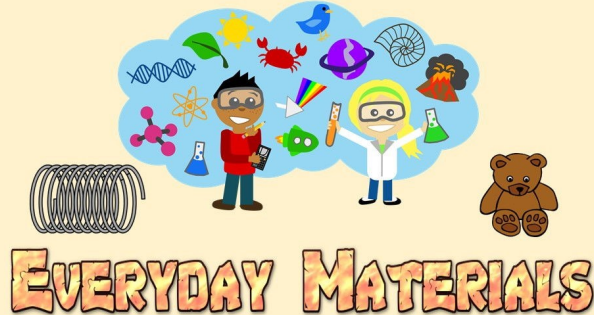


Everyday Materials

Year 1

Children can distinguish between an object and the material from which it is made. They can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Children can describe the simple physical properties of a variety of everyday materials. They can compare and group together a variety of everyday materials on the basis of their simple physical properties.

Year 1 Science Assessment



Year 2

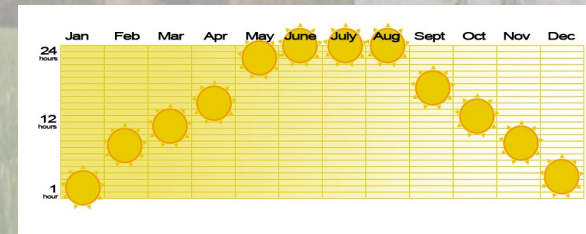
Children can identify the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. They will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.



Seasonal Changes

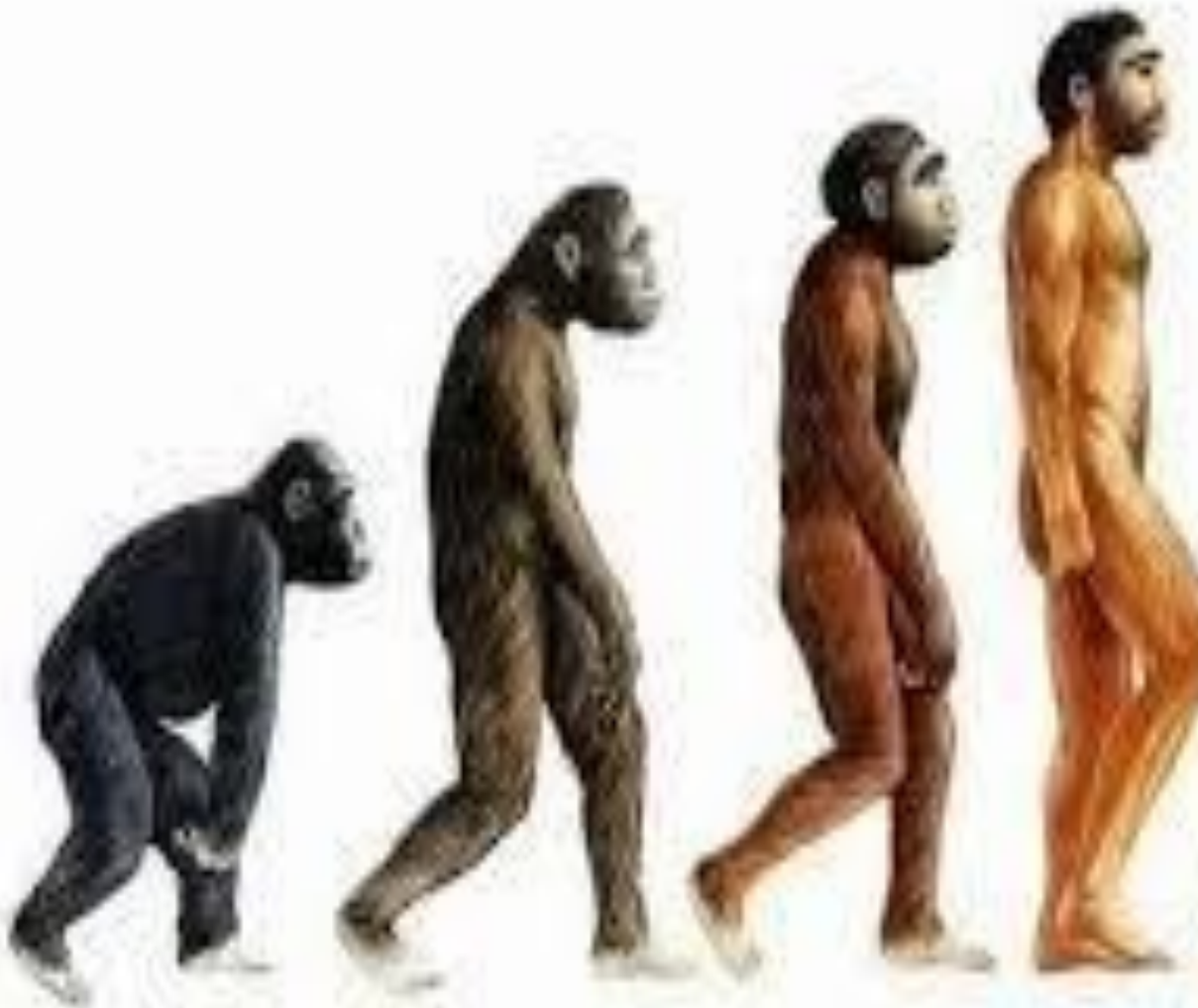
Year 1

Children observe changes across the four seasons. They observe and describe weather associated with the season and how day length varies.





Evolution and Inheritance



Year 6

Children recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. They recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Children identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

GENETIC INHERITANCE OF EYE COLOR

