

To Expected and Beyond (Exceeding)

**A resource to help teachers assess pupils against the individual statements
in the science programme of study
Lower Key Stage 2 - Years 3 and 4**

Introduction

This resource is designed to help teachers when assessing pupils against the individual statements of science in the national curriculum. It is to help teachers decide whether a pupil is working at expected or exceeding for any particular statement.

There are no success criteria in this document for emerging, it was decided that assessing a pupil as emerging was reasonably straightforward.

The document focuses on the knowledge part of the curriculum, not Working Scientifically.

The criteria must not become a tick list. The document is not a planning tool.

The success criteria represent a selection of things that a pupil at a particular age/stage might be able to do. There will be many exceptions to the examples given here. A pupil does not have to be able to do each of the bullet points under a statement in order to be assessed as expected or exceeding.

On some occasions the criteria for 'exceeding' includes material from the next stage. This DOES NOT imply that the teacher has taught this material, or needs to teach this material, but that the pupil already has a knowledge beyond expected, perhaps due to a personal interest in that particular subject area.

It is assumed that a pupil who is assessed as 'exceeding', also meets the criteria for expected.

Plants Year 3

Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	
<p>Expected</p> <ul style="list-style-type: none"> • Draws and labels a diagram of a flowering plant (roots, stem/trunk, leaves and flowers) • Knows the functions of each part of the plant: roots – to anchor a plant and to take up water and nutrients stem/trunk – to support the plant and transport water and nutrients leaves – to make food for the plant flowers – for reproduction • Describes what would happen to a plant if it did not have any of the above named parts, <i>e.g. without roots it would not be able to anchor itself and would fall over, also it would not be able to take up water or nutrients</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> • Names and knows the functions of other parts of a plant, <i>e.g. pips, seeds, stones, stamens, petals, stigma</i> • Knows that plants can reproduce in different ways, <i>e.g. sexual and asexual</i>
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	
<p>Expected</p> <ul style="list-style-type: none"> • From practical investigation knows that plants need air, light, water, nutrients from soil, and room to grow • Describes what would happen if a plant was without one or more of the following: air, light, water, nutrients from soil, and room to grow • Compares the needs of a variety of different plants, <i>e.g. seaweed and cacti</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> • Recognises the different needs of plants according to the habitat where they grow, <i>e.g. plants in the desert, plants in the rain forest</i>
Investigate the way in which water is transported within plants	
<p>Expected</p> <ul style="list-style-type: none"> • From practical investigation knows that water travels from the roots to the leaves/flowers via the stem • Knows that the water is travelling within tubes, inside the plant • Describes what happens to a plant that has had either insufficient or too much water (insufficient - goes floppy and withers, too much – leaves go brown, rots) 	<p>Exceeding</p> <ul style="list-style-type: none"> • Knows that xylem transports water and nutrients from the roots to the leaves • Knows that phloem transports food from leaves to the rest of the plant • Explains why a plant withers • Explains why a plants leaves start to go brown or the leaves/roots rot

Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Expected

- Knows that plants have brightly coloured petals in order to attract insects
- Describes what happens to the pollen when an insect visits a flower
- Describes an example of how seeds are formed over time, *e.g. an apple seed - from flower bud, to flower, to fruit, seeds grow within fruit*
- Knows that plants grow in new places due to seed dispersal
- Describes the different ways in which seeds are dispersed, *e.g. wind distribution of dandelion seeds, animals carrying burrs in their fur*

Exceeding

- Names and knows the functions of other parts of a plant, *e.g. stones, stamens, stigma*
- Knows that plants can reproduce in different ways, *e.g. sexual and asexual*
- Knows that seeds dispersed into the right conditions for growth stand a better chance of survival, *e.g. not too many seeds in the same place*
- Describes a greater variety of ways in which seeds are dispersed
- Describes more unusual methods of seed dispersal, *e.g. some native plants of Australia and South Africa have seedpods that open as a result of the heat from bush fires*

Living things and their habitats Year 4

Recognise that living things can be grouped in a variety of ways	
<p>Expected</p> <ul style="list-style-type: none"> Groups a wide selection of living things in a variety of different ways and explains the criteria used, <i>e.g. sorts plants by type of leaf, prickly and not prickly or by shape of leaf</i> Begins to group vertebrate animals into fish, amphibians, reptiles, birds and mammals Begins to group invertebrate animals into snails and slugs, worms, spiders and insects Begins to group plants into categories such as flowering (including grasses) and non-flowering, such as ferns and mosses 	<p>Exceeding</p> <ul style="list-style-type: none"> Defines the terms vertebrate and invertebrate Identifies the characteristics of: fish, amphibians, reptiles, birds and mammals Groups vertebrate animals into fish, amphibians, reptiles, birds and mammals Groups invertebrate animals into snails and slugs, worms, spiders and insects Groups plants into categories such as flowering (including grasses) and non-flowering, such as ferns and mosses

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	
<p>Expected</p> <ul style="list-style-type: none"> Uses a 'spotters guide' to identify and name a variety of living things in a specific environment, <i>e.g. the school grounds</i> Uses a simple classification key to help group, identify and name a variety of living things, <i>e.g. a branching diagram</i> Devises a simple (up to 6 items) classification key to help group, identify and name a collection of common living things, <i>e.g. a branching database of leaves, flowers, mini-beasts</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Uses a complex classification key to help group, identify and name a variety of living things, <i>e.g. a branching diagram with a larger number of items or items where it is more difficult to observe the differences (because the items are similar in appearance)</i> Devises a complex classification key to help group, identify and name a variety of living things, <i>e.g. a branching diagram with a larger number of items or items where it is more difficult to observe the differences (because the items are similar in appearance) or where the items are not common to them</i>

Recognise that environments can change and that this can sometimes pose dangers to living things	
<p>Expected</p> <ul style="list-style-type: none"> Recognises that some environments change due to human impact, <i>e.g. litter or deforestation</i> and some change due to natural impact, <i>e.g. floods or earthquake</i> Describes some of the changes to an environment as a result of human or natural impact Realises that some of the changes to the environment are temporary and some are permanent 	<p>Exceeding</p> <ul style="list-style-type: none"> Describes the possible long term outcome that change may have on an environment, <i>e.g. certain animals/plants may become extinct</i> Describes ways in which human and natural impact to an environment can be prevented or lessened Explains how some 'natural changes' to the environment are possibly due to human activity, <i>e.g. the effects of global warming</i>

<ul style="list-style-type: none"> • Describes the effect that the changes to the environment have on the plants and animals that live there, including humans • Gives examples of the positive human impact on an environment, e.g. <i>animals/plants in a nature reserve</i> • Gives examples of the negative human impact on an environment, e.g. <i>building on ground that once provided an environment for animals/plants</i> 	
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Animals, including humans Year 3

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	
<p>Expected</p> <ul style="list-style-type: none"> • Defines the word nutrition • Knows that animals, including humans, are unable to make their own food and that they get their nutrition from the food they eat • Knows that humans need foods from different food groups • Recognises what a balanced diet is and why it is beneficial for a human to eat a balanced diet • Compares the diet of a human with the diet of other animals • Knows that humans need different amounts of foods depending on their age, gender, activity level etc • Recognises the effect on the human body that eating too much/too little food than needed has • Suggests a healthy/unhealthy meal for a particular human • Suggests foods that would be healthy/unhealthy for a particular animal 	<p>Exceeding</p> <ul style="list-style-type: none"> • Names the food groups and knows the benefits to the human body of the different food groups, <i>e.g. proteins, carbohydrates</i> • Explains the effect on the human body that eating too much of a particular food/drink can have, <i>e.g. sugar, fat, salt, alcohol</i> • Knows what role a dietician plays in ensuring certain humans have the correct nutrition • Knows that calorific food values are measured • Knows how many calories humans should consume in a day • Describes or researches how poor nutrition can affect our health, <i>e.g. rickets, type II diabetes, heart disease, scurvy</i> • Describes the possible effects on the human body that a deficiency in certain vitamins may have, <i>e.g. Vitamin C</i>

Identify that humans and some other animals have skeletons and muscles for support, protection and movement

Expected

- Knows that a human has a skeleton and has a basic knowledge of what the skeleton looks like
- Knows that the skeleton is made up of many separate bones
- Knows that limbs have more than one bone so that the limb can bend
- Knows that bones are different shapes and sizes
- Knows the basic names of some parts of the skeleton, *e.g. knee bone, rib, skull, hip bone, back bone*
- Knows that many other animals have a skeleton
- Names the internal organs that parts of the skeleton protect - skull protects brain, ribs protect heart and lungs
- Knows that bones can be broken and talks about what an x-ray is
- Describes what a human body would be like without a skeleton
- Knows that muscles are needed in order for us to move parts of our body
- Knows that muscles are attached to bones

Exceeding

- Constructs a model of a human skeleton (or draws one) with an increasing level of accuracy
- Knows that the adult human skeleton has 206 bones
- Knows that the skeleton of a human baby has more bones than an adult
- Knows the correct names of many bones in the human skeleton, *e.g. patella, clavicle, femur, spine, pelvis*
- Compares a human skeleton with that of another animal
- Names an animal that does not have a skeleton, *e.g. worm, starfish, jellyfish*
- Uses the terms vertebrate and invertebrate correctly to describe animals with/without a backbone
- Knows that muscles are attached to bones by tendons
- Describes how muscles work in pairs

Animals, including humans Year 4

Describe the simple functions of the basic parts of the digestive system in humans	
<p>Expected</p> <ul style="list-style-type: none"> Knows, in simple terms, what the human digestive system is, <i>e.g. it is the part of the body where food is converted into nutrients that the body needs</i> Names the main parts of the human digestive system, <i>e.g. mouth, oesophagus, stomach, intestines ...</i> Describes the journey food and drink takes through the human body using the names of the body parts, <i>e.g. mouth/teeth chew the food, stomach breaks the food down, intestines absorb nutrients</i> Knows approximately whereabouts in the human body the digestive system is 	<p>Exceeding</p> <ul style="list-style-type: none"> Explains how the human digestive system works Names the other organs in the human body that are associated with digestion, <i>e.g. liver, gallbladder, pancreas</i>
Identify the different types of teeth in humans and their simple functions	
<p>Expected</p> <ul style="list-style-type: none"> Names the three main types of teeth in humans and explains their function, <i>e.g. molars for crushing chewing and grinding food, canines for cutting/ripping food, incisors for biting through food</i> Identifies which teeth are which (molars, canines and incisors) when looking in own mouth, someone else's mouth or at a model of teeth Knows how to look after own teeth and why it is important to do so 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that a child has 20 temporary teeth and an adult has 32 permanent teeth Knows how many of each type (molars, canines and incisors) of tooth a human has Explains how teeth differ according to the species of animal and relates this to the animals diet, <i>e.g. a lion (carnivore), a cow (herbivore)</i>
Construct and interpret a variety of food chains, identifying producers, predators and prey	
<p>Expected</p> <ul style="list-style-type: none"> Explains what a food chain is Knows that some animals eat plants, some animals eat meat and some eat both Recognises and names some common animals that have plants as their food source, <i>e.g. cows, sheep, horses</i> Recognises and names some common animals that have animals as their food source, <i>e.g. a cat, an insect eating bird</i> Recognises and names some common animals that have both plants and animals as their food source, <i>e.g. humans</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that the Sun is the ultimate and constant source of energy Knows that new supplies of material are NOT being added to the Earth Uses the terms herbivore, carnivore and omnivore accurately and confidently Uses the terms producer, predator and prey accurately and confidently Explains why a food chain always starts with a plant (and that the plant absorbs energy from sunlight) Creates more complex food chains including food webs

<ul style="list-style-type: none"> • Knows that an animal that eats another animal is a predator • Knows that an animal eaten by another animal is the prey • Knows that a food chain always starts with a plant (a producer) • Knows that the arrow in a food chain means 'is eaten by' and that this also means 'gives energy to' • Places plants and animals in the correct order to make a food chain, <i>e.g. rose bush, greenfly, bird</i> 	
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Rocks Year 3

Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties

Expected

- Compares and groups different kinds of rock, *e.g. sandstone, limestone, granite* based on appearance and their simple physical properties, *e.g. simple crumbliness, colour, size of grain*

Exceeding

- Compares and groups different kinds of rock based on appearance and properties using the correct scientific language to describe the properties, *e.g. permeable/ impermeable*
- Compares and groups different kinds of rock based on their knowledge of how the rock was formed
- Compares and groups different kinds of rock based on their knowledge of the names of the different kinds of rock

Describe in simple terms how fossils are formed when things that have lived are trapped within rock

Expected

- Describes how a living thing dies, is buried, is covered in layers of sediment that press down and that over a long period of time the remains of the living thing turn into a fossil
- Knows that fossils are very, very old
- Knows that a fossil was once a living thing - a plant or an animal
- Knows that a fossil is evidence of an ancient life form which has been preserved by natural processes

Exceeding

- Describes in detail how a fossil is formed when a living thing is trapped in rock - including the chemical reactions that turn the sediment into rock and the bones into mineralised fossils
- Recognises that there is more than one way a fossil can be formed
- Knows that only a very small proportion of things that have once been alive become fossils

Recognise that soils are made from rocks and organic matter

Expected

- Knows that soil is a mixture of small pieces of rock, clay and organic matter, *e.g. the decaying remains of anything that was once alive – insects, moss, earthworms, leaves, twigs, bacteria, animal droppings...*

Exceeding

- Describes how soil is formed
- Recognises that soil will be different according to the geographical area in which it is found
- Knows that the nutrients contained within the remains of living things are slowly being released into the soil
- Describes the difference between topsoil and subsoil

States of matter Year 4

Compare and group materials together, according to whether they are solids, liquids or gases	
<p>Expected</p> <ul style="list-style-type: none"> Describes some of the differences between solids, liquids and gases, <i>e.g. solids hold their shape, liquids take the shape of their container, gases escape from a container that is not sealed</i> Observes, compares and sorts a variety of everyday materials into solids, liquids and gases, <i>e.g. water, rock, wood, the bubbles in lemonade, marbles, milk</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that materials are made up of particles and explains (in simple terms) how the particles are arranged differently in each Observes, compares and sorts more complex materials as solids, liquids or gases, <i>e.g. shaving foam, sponge, talcum powder, jelly</i>

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	
<p>Expected</p> <ul style="list-style-type: none"> Uses the appropriate equipment (<i>e.g. a thermometer or a datalogger</i>) to measure temperature accurately Measures accurately (in degrees Celsius) the temperature at which a material changes from being a liquid to a solid or vice versa, <i>e.g. water freezing or chocolate melting</i> Carries out research to find out the temperature at which a material changes state, <i>e.g. metal to molten metal</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that temperature can affect the state in which a material exists Describes the effect of temperature on a range of different materials Recognises that some changes of state are reversible and some are not

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	
<p>Expected</p> <ul style="list-style-type: none"> Defines the terms evaporation and condensation and talks about how these processes feature in the water cycle Knows that 'the warmer the temperature the faster the rate of evaporation' and gives examples of when this happens, <i>e.g. using a hair dryer, puddles in the sunshine, drying clothes in a tumble dryer</i> Gives further examples of when evaporation and condensation occur, <i>e.g. water disappearing from the fish tank over time, condensation on the outside of a glass of cold water, condensation on the classroom windows</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that the water we drink today is the same water that people drank in the past Uses correct terminology to explain concepts, <i>e.g. the 'steam' on the windows is condensation</i> Knows that evaporation and condensation are reversible changes

Light Year 3

Recognise that they need light in order to see things and that dark is the absence of light	
<p>Expected</p> <ul style="list-style-type: none"> Knows that light is necessary in order for animals, including humans, to see things Knows that without a light source it is dark Knows that when it is truly dark, nothing can be seen by the human eye Knows that there are many possible light sources and names several of these, <i>e.g. the Sun, a candle, a fire, a light bulb, a torch, a TV screen</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> Explains why animals, including humans, are unable to see when it is completely dark Explains that we see objects because light reflected from the object enters our eyes

Notice that light is reflected from surfaces	
<p>Expected</p> <ul style="list-style-type: none"> Observes that light is reflected from different surfaces Gives examples of materials which are good reflectors of light Explores how mirrors reflect light and talks about what is happening Gives examples of materials which are poor reflectors of light 	<p>Exceeding</p> <ul style="list-style-type: none"> Understands that some surfaces are better than others at reflecting light and can give examples of how this information could be used in everyday life, <i>e.g. to provide reflective stripes on an item of clothing</i> Understands that light can be absorbed in different ways by different coloured materials and how this information can be used in everyday life, <i>e.g. deciding whether to wear a black or a white t-shirt on a hot sunny day</i> Is beginning to observe that water and other liquids can change the path of light (refraction)

Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes	
<p>Expected</p> <ul style="list-style-type: none"> Knows that it is very dangerous to look directly at the Sun and that doing so could permanently damage the eyes Knows that wearing sunglasses is one way of protecting eyes from the Sun's glare Knows that it is not safe to look directly at the Sun, even when wearing sunglasses 	<p>Exceeding</p> <ul style="list-style-type: none"> No statements provided

Recognise that shadows are formed when the light from a light source is blocked by a solid object	
<p>Expected</p> <ul style="list-style-type: none"> Explains what a shadow is and how a shadow is formed when an object blocks the light Explains why on some days our 	<p>Exceeding</p> <ul style="list-style-type: none"> Knows that light is scattered off objects Knows that light travels in straight lines Knows that the darkness of a shadow can vary depending upon whether the

<p>bodies cast a shadow and on some days they do not</p> <ul style="list-style-type: none"> • Knows that light can travel through some materials but not others and has an awareness of the terms opaque, transparent and translucent • Knows that a shadow will be approximately the same shape as the object blocking the light but that the size of the shadow can vary 	<p>object blocking the light is opaque, translucent or transparent</p> <ul style="list-style-type: none"> • Knows that the position, shape and size of a shadow depends upon the position of the object in relation to the light source • Explains how shadows move when the object causing the shadow moves
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Find patterns in the way that the size of shadows change	
<p>Expected</p> <ul style="list-style-type: none"> • Investigates how the size of a shadow can be changed by varying the distance of an object casting a shadow from the light source, <i>e.g. moving a shadow puppet closer to a light source</i> • Investigates how shadows in the early morning and evening are longer and are shorter at midday 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains why shadows vary in length according to the time of day • Explains why shadows vary in length according to the time of the year • Explains the difference between a reflection and a shadow

Sound Year 4

Identify how sounds are made, associating some of them with something vibrating	
<p>Expected</p> <ul style="list-style-type: none"> • Talks about how sounds are produced by, <i>e.g. hitting, plucking, blowing, blowing or stroking</i> • Defines the term 'vibrate' • Knows that sounds are made when a material vibrates • Knows that sometimes the vibrations made when a sound is produced can be seen and sometimes they cannot 	<p>Exceeding</p> <ul style="list-style-type: none"> • Demonstrates and explains how sound is made, using scientific vocabulary including vibration, conduct, sound wave and material
Recognise that vibrations from sounds travel through a medium to the ear	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that vibrations from sounds travel through the air to the ear • Knows that sounds can travel through solids, liquids and gases 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains that without air, we would not hear any sound, <i>e.g. in outer space</i> • Knows that we hear because the outer ear collects the sounds and carries them to the eardrum
<ul style="list-style-type: none"> • find patterns between the pitch of a sound and features of the object that produced it 	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that pitch is not the same as volume • Defines the term 'pitch' • Knows that pitch can be altered by changing, <i>e.g. the length or thickness of a guitar string, the tautness of a drum skin</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains the relationship between pitch and the feature of the object, <i>e.g. the thinner the guitar string the higher the pitch of the note</i>
Find patterns between the volume of a sound and the strength of the vibrations that produced it	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that volume is not the same as pitch • Defines the term 'volume' and • Knows that volume can be increased and decreased by, <i>e.g. hitting a drum harder/softer</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains the relationship between volume and the strength of the action used to make a sound, <i>e.g. the harder the drum is beaten, the louder the sound</i> • Knows that as volume increases, the size of the vibrations increases
Recognise that sounds get fainter as the distance from the sound source increases	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that as they move further away from a sound source, the volume of the sound heard decreases • Knows that as they move closer to a sound source, the volume of the sound heard increases 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains why the volume of the sound heard changes depending on the distance from the sound source

Forces and magnets Year 3

Compare how things move on different surfaces	
Expected <ul style="list-style-type: none"> Knows that different surfaces can affect how far an object travels Knows that different surfaces can affect how fast an object travels 	Exceeding <ul style="list-style-type: none"> Explains the differences in distance or speed that an object travels over different surfaces, using the term friction

Notice that some forces need contact between two objects, but magnetic forces can act at a distance	
Expected <ul style="list-style-type: none"> Describes how the majority of objects need to be pushed or pulled using physical contact, in order to move, stop or change direction Describes how a magnet can repel or attract without physical contact 	Exceeding <ul style="list-style-type: none"> Gives examples of how magnetic forces acting at a distance are used in everyday life, <i>e.g. the fastener on a mobile phone case</i>

Observe how magnets attract or repel each other and attract some materials and not others	
Expected <ul style="list-style-type: none"> Defines the terms 'repel' and 'attract' Describes how two bar magnets can attract or repel each other Knows that magnetic materials are always metal and that materials that are not metal are not magnetic Recognises that not all metals are magnetic 	Exceeding <ul style="list-style-type: none"> Explores how magnets, other than bar magnets, attract and repel each other Names a metal which is magnetic Names a metal which is not magnetic

Compare and group a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials	
Expected <ul style="list-style-type: none"> Defines the term 'magnetic' Correctly sorts a variety of materials into magnetic and non-magnetic by testing them Correctly predicts which materials will be magnetic from a range of everyday materials, <i>e.g. glass, metal (steel), plastic, wood, rubber</i> Correctly uses the word attract 	Exceeding <ul style="list-style-type: none"> Names a metal which is magnetic Names a metal which is not magnetic

Describe magnets as having two poles	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that the ends of a bar magnet are called poles • Knows that the poles are different • Knows that there is a north and south pole on a bar magnet • Knows that like poles repel • Knows that different poles attract 	<p>Exceeding</p> <ul style="list-style-type: none"> • Describes why the poles of a magnet are called north and south

Predict whether two magnets will attract or repel each other, depending on which poles are facing	
<p>Expected</p> <ul style="list-style-type: none"> • Explains their reasoning when predicting whether or not two magnets will attract or repel each other 	<p>Exceeding</p> <ul style="list-style-type: none"> • No statements provided

Electricity Year 4

Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	
<p>Expected</p> <ul style="list-style-type: none"> • Makes a simple series circuit, without using a bulb holder or a battery holder • Describes what a (simple series) circuit is • Recognises that a cell (battery) is required in a simple series circuit • Identifies and names the components of a simple series circuit 	<p>Exceeding</p> <ul style="list-style-type: none"> • Designs a simple series circuit to work within a model, e.g. <i>a torch/lighthouse</i>

Identify whether or not a bulb (lamp) will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that a simple series circuit needs to be complete for, e.g. <i>a bulb to light</i> 	<p>Exceeding</p> <ul style="list-style-type: none"> • Recognises that if the circuit is complete, there may be other reasons as to why the bulb will not light, e.g. <i>the battery is flat, the bulb has blown</i>

Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	
<p>Expected</p> <ul style="list-style-type: none"> • Knows that a switch makes a break in the circuit and that when the switch is open the lamp will not light • Knows that the switch in the circuit needs to be closed in order for a lamp to light 	<p>Exceeding</p> <ul style="list-style-type: none"> • Recognises that switches exist in many appliances • Understands why a switch is needed • Explains how a switch works

Recognise some common conductors and insulators, and associate metals with being good conductors	
<ul style="list-style-type: none"> • Defines the words conductor and insulator • Recognises that metal is the material most likely to conduct electricity • Knows that electricity can be dangerous 	<p>Exceeding</p> <ul style="list-style-type: none"> • Explains why electrical wires are encased in plastic • Knows that all metals are conductors but that some conduct electricity better than others • Knows what a 'short circuit' is • Explains why electricity is dangerous • Knows why water and electricity are a dangerous combination for animals including humans • Explains why there are no sockets/switches in a (UK) bathroom