

Churchfields Primary School

Science Curriculum

**Year by Year Crucial Knowledge and Extended
Knowledge**

Science Intent

Vision poster

Topic Key

Animals, including Humans

Materials

Plants

Living things and their Habitats

Forces

Light

Electricity

Seasonal Changes

Sound

Earth and Space

Evolution and inheritance

Science overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1	Everyday materials (Seasonal Changes taught throughout year)	Everyday Materials (Seasonal Changes taught throughout year)	Animals including Humans (Seasonal Changes taught throughout year)	Animals including Humans (Seasonal Changes taught throughout year)	Plants (Seasonal Changes taught throughout year)	Plants (Seasonal Changes taught throughout year)
2	Uses of Everyday Materials	Living Things and Their Habitats	Living Things and Their Habitats	Animals including Humans	Animals including Humans	Plants
3	Forces and Magnets	Rocks	Animals Including Humans	Light	Plants	Child Lead Learning – based on assessment over the year
4	Electricity	Animals including Humans	Sound	Living Things and their Habitats	States of Matter	Child Lead Learning – based on assessment over the year
5	Forces	Earth and Space	Animals Including Humans	Properties and Changes of Materials (1)	Properties and Changes of Materials (1)	Living Things and their Habitats
6	Light	Animals Including Humans	Living Things and their Habitats	Electricity	Evolution	Properties and changes of everyday materials (2)

Science EYFS Crucial Knowledge Exposure

Reception objectives:

- Explore the natural world around them.
- Describe what they see, hear and feel when they are outside.
- Understands the changing effects of the seasons on the world around them.

Crucial Knowledge exposure through:

- Observe seasonal changes around the school grounds. *What wildlife do we see and why?*
- *Bird spotting and making feeders for winter (not as much food for them in winter)*

ELGs:

- Make observations and draw pictures of animals and plants

Crucial Knowledge exposure through:

- *Minibeasts, animals and habitats, what they need to survive.*
- *Changes as animals and people grow eg. baby to child to teenager to adult, egg to chick to chicken, frogspawn to tadpole to froglet to frog, caterpillar to chrysalis to butterfly.*
- *Planting seeds and bulbs, observing plants as they grow.*

ELG:

- Explore changing states of matter

Crucial Knowledge exposure through:

- *Combining ingredients to make playdough, baking.*
- *Observing changes when we put ingredients in an oven. Cooking eggs, melting chocolate, ice and water (characteristics of liquid and solid)*
- *Talk about the different materials things are made from, what different materials are good for different things.*
- *Look at man-made and natural materials and discuss and compare.*

Science Year 1 Crucial Knowledge and Extended Knowledge

Seasonal Changes Crucial Knowledge:

- There are 365 days in a year
- There are 4 seasons – autumn, winter, spring, summer
- Autumn gets colder, Winter is the coldest, Spring gets hotter, Summer is the hottest.

Seasonal changes Extended knowledge:

- We wear more layers in winter, and less in summer
- Animals hibernate in winter
- Offspring are born in spring
- In Autumn leaves turn brown
- Winter there are no leaves on trees
- In Spring plants start to grow
- In summer most plants are in bloom
- It is not safe to look directly at the sun, even with sunglasses
- One of the best ways to know what time of year it is, is to look at trees

Animals, including Humans Crucial Knowledge:

- There are different animal groups
- We are humans
- Humans are mammals
- Mammals have hair or fur
- Fish have gills and fins
- Birds have beaks and feathers and can usually fly
- Some animals eat other animals
- Some eat plants
- Some animals eat plants and animals
- Humans have 5 senses: touch, taste, smell, sight, hearing

Animals including humans Extended Knowledge:

Humans have: hair, head, ears, eyebrows, eyes, nose, mouth, chin, neck, shoulder, chest, elbow, arm, wrist, hand, tummy, knee, leg, ankle and foot

Materials Crucial Knowledge:

- Material is the 'stuff' something is made of
- Properties is a scientific way of describing something
- Liquids can be poured
- A surface is something that can be seen or touched

Materials Extended Knowledge:

Material	Ways to describe it	Examples
Wood	Hard, strong, stiff	Trees, bench
Plastic	Strong, shiny, bendy	Toys, bottle, packaging
Glass	Transparent, smooth, stiff	Window, bottle
Metal	Hard, strong, shiny	Tools, cutlery
Water	Runny, wet clear	Ocean, from a tap
Rock	Hard, strong	Stepping stones

Plants Crucial Knowledge:

- Seeds/bulbs grow into a plant
- Oak trees don't have leaves all year round
- Conifers have leaves all year round
- Plants have: roots, leaves, stem and flower
- Trees have: roots, trunk, branch, twig and leaves

Plants extended knowledge:

- Plants or trees that keep their leaves all year are evergreen
- A tree that loses its leaves in autumn and grows new ones in spring is deciduous
- Garden plants are ones we choose to have in our gardens
- Wild plants grow in the wild and are not planted by humans

Science Year 2 Crucial Knowledge and Extended Knowledge

Use of Materials Crucial Knowledge:

- Waterproof means keep water out
- Absorbent means it can soak up liquid easily
- Opaque means not able to see through
- Transparent means easy to see through

Use of Materials: Extended knowledge

- You can change the shape of something by squashing, bending, twisting or stretching
- Some objects can be made from various materials
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Material	Ways to describe it	Examples/Can be used for
Wood	Hard, strong, stiff	Trees, bench Doors, tables
Plastic	Strong, shiny, bendy	Toys, bottle, packaging, pens, rulers
Glass	Transparent, smooth, stiff	Window, bottle, glasses
Metal	Hard, strong, shiny	Tools, cutlery, cars, coins
Rock	Hard, strong	Stepping stones, dry stone walls, old buildings
Brick	Hard, strong, opaque	Houses, walls
Paper	Dull, can be folded	School books, wrapping paper
Cardboard	Dull, opaque	Folders, birthday cards
Sponge	Bendy, absorbent, dull, soft	Cleaning

Animals, including Humans Crucial Knowledge:

- Offspring is the young of an animal

Lifecycles: Human lifecycle: baby, toddler, child, teenager, adult / Frog lifecycle: spawn, tadpole, tadpole with legs, froglet, frog / Chicken lifecycle: egg, chick, chicken

Exercise, food and hygiene:

- We need food, water and air to survive
- Hygienic is keeping clean. To keep clean we must wash our hands, brush our teeth and bath/shower regularly

Animals, including humans Extended knowledge:

- Reproduction is where living things make a new living thing
- All living things reproduce and have offspring
- All living things develop and get older and die
- Some animals give birth to live young (humans, kittens, puppies) and others lay eggs (birds and reptiles)
- Some animals have offspring which doesn't look like them when they are young e.g. frogs
- All living things need water, food, air and shelter to survive

Exercise, food and hygiene:

- To support our diet, we must also exercise everyday (going for walks, taking part in sports, etc.)
- Exercise supports the growth of our muscles and bones
- To keep us hygienic we must, wash our hands, clean our teeth and bathe regularly.

Plants Crucial knowledge :

- R: seeds and bulbs grow into a plant
- Germination is when a seed begins to grow
- Plants need warmth, light, water
- Germination process: seed cracks and root begins to grow, then shoot grows, green leaves develop on shoot.

Plants extended knowledge

- It grows by using the food within the seed
- Seeds don't need light because they have a store of food in them already
- Once the stem breaks through the soil, it is a plant
- If plants get too hot or too cold, they will die
- If they have too much/too little light and water they will die

Living things and their habitats Crucial Knowledge:

- Habitats are where living things live
- All living things live in a habitat
- Things are living, dead or never lived
- A food chain shows how animals get their energy.
- Food chains always start with a producer
- A producer is a plant, a plant makes its own food
- The arrow in a food chain means 'is food for'
- Living things depend on each other for survival if something is taken away or destroyed, the living things might not survive or may have to adapt

Living things and their habitats Extended knowledge

- Living- animals
- Dead- fallen leaves
- Never lived- car
- Habitats can be hot or cold, wet or dry, on the ground or up high
- Animals live in habitats which suit them best – fish can breathe in water and swim well so they live in water.
- Living things show signs of life
- Dead things are no longer living.
- Things that were never living have never shown any signs of life.

Science Year 3 Crucial Knowledge and Extended Knowledge

Forces and Magnets Crucial knowledge

- Forces are pushes and pulls
- Forces act in opposite directions to each other.
- Magnets attract (pull) or repel (push) each other
- Magnets have 2 magnetic poles (north & south).

Forces and magnets Extended knowledge

- These forces change the motion / movement of an object.
- If you place the magnets so that two of the same poles face each other, the magnets will move away from each other. They are repelling each other.
- Forces need contact between 2 objects, but magnetic forces can act at a distance.
- Friction is the force that holds back a moving object.
- They attract some materials but not others.
- Opposite poles attract. Similar poles repel.

Animals including Humans Crucial knowledge

Nutrients are substances that animals need to stay healthy and grow

A diet is what you eat

- Humans need a range of foods from different food groups for a healthy balanced diet (Protein, carbohydrates, fats, vitamins, minerals, fibre and water).
- Proteins include meat and beans
- Carbohydrates include bread and potatoes
- Fats include nuts and cheese
- A skeleton is there for support and protection
- Muscles help with movement

Animals including Humans Extended Knowledge

- Animals, including humans need the right amount of nutrients to grow, to be strong and to be healthy.
- Animals cannot make their own food; they get nutrients from what they eat.
- Humans and some other animals have skeletons (vertebrates) and muscles for support, protection and movement.
- Joints are where bones meet - they allow our bodies to move.
- Muscles contract and relax.

Rocks, Soils and Fossils Crucial Knowledge

- There are three types of rock that are formed naturally: Igneous, Sedimentary and Metamorphic
- Rocks can either be natural or manmade natural (brick, marble, chalk, granite)
- Soil is made from rocks and organic matter. (minerals, air, water, organic matter)
- Fossils are the remains or traces of plants and animals

Rocks, soils and Fossils Extended knowledge

- Rocks can be compared and grouped together on the basis of their appearance and simple physical properties (hard, soft, permeable, impermeable)
- Fossils are formed when things that have lived are trapped within rock
- Palaeontology allows us to understand more about different fossils that are found. Mary Anning is a famous palaeontologist.

Light Crucial Knowledge

- R: Opaque means not able to see through
- R: Transparent means easy to see through
- Translucent means some light can pass through
- We need light in order to see.
- There are different light sources
- Dark is the absence of light.

Light Extended knowledge

- Light sources include (Sun, flames, light bulbs)
- Light from the sun can be dangerous and so eyes must be protected.
- Shadows are formed when the light from a light source is blocked by a solid object.
- The size of shadows can change depending on where the light source is.

Plants Crucial Knowledge:

- Roots anchor plant and absorb nutrients from soil
- Stem holds plant up and carries nutrients up plant
- Leaves make food for the plant
- Flowers make seeds
- For plants to grow they need: air, light, water, nutrients from soil, and room to grow.
- Water is transported within plants
- The flower's job is to pollinate, create seeds and disperse them.

Plants Extended knowledge

- Different plants need different requirements to survive.
- Water is absorbed by the roots before traveling up the stem to the leaves.
- Water evaporates from the leaves causing more water to be absorbed by the roots.
- Seeds are then dispersed so that germination can begin again.

Science Year 4 Crucial Knowledge and Extended Knowledge

Sound Crucial Knowledge:

- Sound is caused by vibrations
- Volume is how loud or quiet a sound is
- Pitch is how high or low a sound is
- You can change the pitch of a sound

Sound Extended knowledge

- Sound needs to travel through a medium get to the ear
- The closer we are to the sound source, the louder the sound will be
- The further we are from the sound source, the quieter the sound will be
- Giving the vibration more energy, will make the sound louder
- Short objects make a higher pitch
- Long objects make a lower pitch
- Soft materials insulate sound

Animals, including Humans Crucial Knowledge:

- R: A food chain shows how animals get their energy.
- R: Food chains always start with a producer
- R: A producer is a plant, a plant makes its own food
- R: The arrow in a food chain means 'is food for'
- Teeth are used to chew food
- Digestion starts in the mouth
- There are 4 types of teeth
- The journey of food through the body is: mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus

Animals, including Humans extended knowledge

- The oesophagus is the tube that carries food from the mouth to the stomach
- The stomach is where food is broken down with stomach acid and churned around
- Nutrients are absorbed in the small intestine
- Water is absorbed and stools are formed in the large intestine
- Stools are stored in the rectum
- Stools leave the body through the anus
- **Teeth**
 - Incisors bite and cut. Canines tear and rip. Premolars hold and crush. Molars grind

Electricity Crucial Knowledge:

- Electricity is the flow of electric charge (flow of electrons) in one direction
- A circuit always needs a power source
- There are two types of electric charge – mains and battery
- Conductors allow electricity to pass through
- Insulators do not allow electricity to pass through
- A cell is a single device which provides power
- A battery is two or more cells together which provides power

Electricity Extended knowledge:

- Circuits can contain different electrical components such as bulbs, buzzers and motors which allow electricity to pass through
- Electricity can only flow around a complete circuit that has no gaps
- Metals are good conductors (e.g. iron, copper and steel)
- Plastic is a good insulator
- Insulators are used to cover electrical items for safety reasons
- Open switches break the flow of electric charge (turns off a bulb or buzzer)
- Closed switches complete the circuit (turns on bulb or buzzer)

Living things and their habitats:

Local environment Crucial knowledge:

- Vertebrates are animals with a backbone
- Invertebrates are animals with no backbone
- The main invertebrates are: insects, arachnids, molluscs

Local Environment Extended knowledge

- Insects bee, ladybird, ant
- Arachnids spiders, scorpions
- Molluscs snail, slug

Wider environment Crucial knowledge:

- The main groups of vertebrates are: fish, amphibians, reptiles, birds and mammals

Wider environment extended knowledge

- Fish gold fish, salmon
- Amphibians frog
- Reptiles snake, crocodile
- Birds robin, ostrich
- Mammals human, dolphin

Impact of environment Crucial Knowledge:

- Changing a habitat has effects on living things

Impact of Environment Extended knowledge

- The main reasons for habitat loss are: deforestation, pollution, urbanisation and invasive species

States of Matter Crucial Knowledge:

- **Solids** stay in one place and can be held.
- **Liquids** can flow or be poured easily
- **Gases** are often invisible.
- The water cycle is the constant flow of water from the ground, into the sky and back

States of Matter Extended Knowledge

- Most solids keep their shape, they do not flow like liquids but some like sand or salt can be poured. They always take up the same amount of space – they cannot spread out like gases.
- Liquids they are not easy to hold, liquids change shape depending on the container they're in
- Gases do not keep their shape, they spread out and change shape and volume to fill up whatever container they are in.
- Change of state is when a material changes from one state into another
- Water boils at 100°C
- Water melts and freezes at 0°C
- Water Cycle: Water on earth heats up and evaporates. Water vapour rises. Water vapour in the air condenses and turns back into water.

Science Year 5 Crucial Knowledge and Extended Knowledge

Animals including humans Crucial Knowledge:

- Lifecycle of a human: fertilisation, prenatal, infancy, childhood, adolescence, early adulthood, middle adulthood, late adulthood, death

Animals including humans Extended Knowledge:

- Fertilisation: The male and female sex cells fuse together
- Prenatal: The cells develop and grow into a foetus inside the mother's uterus. After around nine months, the baby is born.
- Infancy: Rapid growth and development. Children learn to walk and talk.
- Childhood: Children learn new skills and become more independent.
- Adolescence: The body starts to change over a few years (puberty). The changes occur to enable reproduction during adulthood. Much more independent.
- Early adulthood: The human body is at its peak of fitness and strength.
- Middle adulthood: Ability to reproduce decreases. There may be hair loss or hair may turn grey.
- Late adulthood: Leading a healthy lifestyle can help to slow down the decline in fitness and health which occurs during this stage.
- Death: usually occurs in old age (but not always). Elderly people are more vulnerable to infection and diseases which are difficult for them to recover from.
- Puberty is the physical stage of development between childhood and adulthood.
- The average life expectancy for a human in the UK is around 80 years old.

Earth and space crucial knowledge:

- Earth rotates on axis, it does a full rotation once every 24 hours one day.
- The earth moves around the sun, once every 365 days a year.
- The sun is a star
- The moon is made from natural rock and orbits the earth

Earth and Space extended knowledge

- The Earth and other planets orbit the sun, it is a light source and is at the centre of our solar system
- Daytime occurs when the side of earth is facing towards the sun
- Night occurs when the side of earth is facing away from the sun
- The model of the Sun and Earth allows for us to experience day and night.
- The sun is a star at the centre of our solar system which has 8 planets.
- The moon is a celestial body that orbits a planet.
- You should never look directly at the sun.

Forces Crucial knowledge:

- Gravity the force which pulls objects to the earth's core
- Friction is the force that holds back a moving object.
- Air resistance is a type of friction caused by air pushing on an object.
- Water resistance is a type of friction caused by water pushing on an object.
- They allow objects to move, get faster or slow down.

Forces Extended Knowledge:

- Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Friction, air resistance and water resistance all act as a force between surfaces.
- Some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect (breaks on a bike/car etc).
- Isaac Newton helped to develop the theory of Gravitation.
- Animals and objects can be streamlined so water resistance, air resistance and friction do not affect them as much (i.e. sharks).

CFDS Primary School – Science Curriculum; Year by Year Crucial Knowledge

Living things and their habitats Crucial Knowledge:

- R: Seeds and bulbs grow into a plant
- R: Germination is when a seed begins to grow
- R: Plants need warmth, light, water
- R: Germination process: seed cracks and root begins to grow, then shoot grows, green leaves develop on shoot.
- R: Human lifecycle: fertilisation, prenatal, infancy, childhood, adolescence, early adulthood, middle adulthood, late adulthood, death / Frog lifecycle: spawn, tadpole, tadpole with legs, froglet, frog / Chicken lifecycle: egg, chick, chicken
- Insect lifecycle – caterpillar: pupa, emerging butterfly, adult butterfly, egg
- Mammal- embryo, young, adult
- Asexual reproduction is when a living thing makes a copy of itself
- Sexual reproduction is when opposite sexes mix to create offspring
- Cells are the building blocks of life

Living things and their habitats Extended Knowledge:

- Sexual reproduction in plants occurs through pollination usually involving wind or insects.
- Asexual reproduction in plants involves only one parent.
- Example of sexual reproductive plants: lily, apple tree, tomato
- Example of asexual reproductive plants: spider plant, potato, strawberry

Properties and changes of everyday materials Crucial Knowledge:

- **R: Solids** stay in one place and can be held.
- **R: Liquids** can flow or be poured easily
- **R: Gases** are often invisible. There are two types of electric charge – mains and battery
- R: Conductors allow electricity to pass through
- R: Insulators do not allow electricity to pass through
- R: A cell is a single device which provides power
- When the particles of a solid mix with the particles of a liquid, this is called dissolving.
- Some materials can be separated after they have been mixed based on their properties - this is called a reversible change.

Properties and changes of everyday material extended knowledge

- Materials which are good thermal conductors allow heat to move through them easily.
- Thermal conductors are used to make items that require heat to travel through them easily, such as a saucepan which requires heat to travel through to cook food.
- Thermal insulators do not let heat travel through them easily.
- Electrical conductors allow electricity to pass through them easily while electrical insulators do not.
- Electrical insulators have a high resistance which means that it is hard for electricity to pass through these objects.

Science Year 6 Crucial Knowledge and Extended Knowledge

Animals including humans Crucial knowledge:

- R: The journey of food through the body is: mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus
- An organ is a vital part of the body
- The circulatory system is made of the heart, lungs and the blood vessels.
- The heart constantly pumps blood around our bodies
- Some choices, such as smoking and drinking alcohol can be harmful to our health.

Animals including humans extended knowledge

- Arteries carry oxygenated blood from the heart to the rest of the body.
- Veins carry deoxygenated blood from the body to the heart.
- Nutrients, oxygen and carbon dioxide are exchanged via the capillaries.
- Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste and long-term effects such as lung disease, cancer and death
- Alcohol can cause short-term effects such as addiction and loss of control and long-term effects such as organ damage, cancer and death

Electricity crucial knowledge

- R: Electricity is the flow of electric charge (flow of electrons) in one direction
- R: A circuit always needs a power source
- R: There are two types of electric charge – mains and battery
- R: Conductors allow electricity to pass through
- R: Insulators do not allow electricity to pass through
- R: A cell is a single device which provides power
- R: A battery is two or more cells together which provides power
- Using electricity symbols to create simple electrical circuit diagrams
- Voltage is the push given to an electron by a battery
- Voltage is measured in Volts with a voltmeter
- A higher voltage (more/bigger batteries) will cause a brighter bulb/louder buzzer
- Shortening wires means electrons have less resistance to flow through (making bulbs/buzzers brighter/louder)

Electricity extended Knowledge

Circuit symbols



Lamp

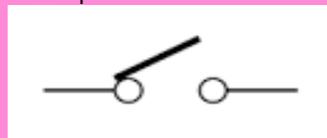
Cell

Wire

Motor

Switch on

Buzzer



Switch off

Evolution and inheritance Crucial Knowledge:

- Evolution is a process of change that takes place over many generations, during which species of animals, plants, or insects slowly change some of their physical characteristics. This is because offspring are not identical to their parents.
- Natural selection occurs when there is competition to survive.
- Inheritance is when characteristics are passed on from generation to the next.
- Adaptation is when animals and plants have evolved so that they have changed to survive in their environments.

Evolution and inheritance Extended knowledge

- Differences within a species (for example between parents and offspring) can be caused by inheritance and mutations.
- Mutations in characteristics are not inherited from the parents and appear as new characteristics.
- Evidence of evolution comes from fossils
- Some environments provide challenges yet some animals and plants have adapted to survive there
- Sometimes adaptations can be disadvantageous. One example of this can be the dodo, which became extinct as it lost its ability to fly through evolution. Flying was unnecessary for the dodo as it had lived for so many years without predators, until its native island became inhabited.

Light crucial knowledge:

- R: Opaque means not able to see through
- R: Transparent means easy to see through
- R; We need light in order to see.
- R: There are different light sources
- R: Dark is the absence of light.
- Light sources include natural (the Sun / fire) and artificial (torch/ bulb)
- The pupils control the amount of light that is let in through the eyes.
- A shadow is a dark area of shape produced by something blocking the light
- The size of shadows can change depending on where the light source is.
- Light travels in a straight line.
- Reflection changes the direction in which the light travels.

Light extended knowledge

- The shadows have the same shape as the objects that cast them.

Living things and their habitats crucial knowledge:

- R: Vertebrates are animals with a backbone
- R: Invertebrates are animals with no backbone
- R: The main invertebrates are: insects, arachnids, molluscs
- R: The main groups of vertebrates are: fish, amphibians, reptiles, birds and mammals
- R: Changing a habitat has effects on living things
- R: Habitats are where living things live
- R: All living things live in a habitat
- Habitats can be hot or cold, wet or dry, on the ground or up high
- Animals live in habitats which suit them best – fish can breathe in water and swim well so they live in water.
- A microhabitat a small area within a habitat.
- Plants can be grouped into plants with seeds or plants without seeds

Living things and their habitats extended knowledge

- Plants with seeds- flowering plants and conifers
- Plants without seeds- mosses and ferns
- Woodland is a habitat; a fallen log is a microhabitat for woodlice
- Insects have 3 body sections and 6 legs
- Arachnids have 2 body sections and 8 legs
- Molluscs have a slimy foot and often have a shell
- There are many types of environment around the world. Polar regions, deserts, rainforests, oceans, rivers, and grasslands are all environments.
- Fish breathe with gills, lay eggs in water, have fins and scales, body temperature changes
- Amphibians are born with gills then develop lungs, lay eggs in water, damp skin, body temperature changes
- Reptiles breathe with lungs, lay eggs on land, dry scaly skin, body temperature changes
- Birds breathe with lungs, lay eggs with hard shells, have feathers, steady body temperature
- Mammals breathe with lungs, babies are born live, body hair or fur, steady body temperature, feeds the baby milk

Properties and changes of everyday materials Crucial Knowledge:

- **R: Solids** stay in one place and can be held.
- **R: Liquids** can flow or be poured easily
- **R: Gases** are often invisible. There are two types of electric charge – mains and battery
- R: A cell is a single device which provides power
- R: When the particles of a solid mix with the particles of a liquid, this is called dissolving.
- R: Some materials can be separated after they have been mixed based on their properties - this is called a reversible change.
- An irreversible change is when a mixture cannot be separated back into the original components.

Properties and changes of everyday material extended knowledge

- Burning is an irreversible change
- Burning wood produces ash.
- Acid mixed with bicarbonate soda is an irreversible change

