



Medium Term Planning

Unit:	Materials (Rocks Y3 / States of Matter Y4)
Year Groups:	EYFS, Year 1, Year 2, Year 3, Year 4, Year 5

EYFS			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	I know that toys are made from materials . I know toys can be made from wood, plastic, fabric and metal .		Materials, wood, plastic, fabric, metal.
2	I know the features of different materials so I can sort them I know that toys are made from materials . I know toys can be made from wood, plastic, fabric and metal .	Materials, wood, plastic, fabric, metal.	Features.
3	I know surfaces can be made from different textures . I know different textures can be bumpy, smooth or rough . I know different surfaces can be smooth or rough . I know the material of a surface can affect the speed of a moving object.	Material.	Textures, bumpy, smooth, rough, surface.



Year 1 – Let's build.			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	I know that material is a term used to describe what something is made from. I know that wood, plastic, glass, rock and metal are types of material . I know that properties is a term used to describe materials . I know that rough/smooth, flat/bumpy and sharp/blunt are some properties of everyday materials .	Material, wood, plastic, glass, rock, metal, rough, smooth, bumpy,	Flat, sharp, blunt, properties
2	I know that material is a term used to describe what something is made from. I know that objects can be made from more than one material. I know that wood, plastic, glass, rock and metal are types of material . I know that properties is a term used to describe materials . I know that rough/smooth, flat/bumpy and sharp/blunt are some properties of everyday materials .	Material, wood, plastic, glass, rock, metal, rough, smooth, bumpy, properties.	objects
3	I know metal is the name of an everyday material . I know that magnetic/non magnetic is a property used to describe a material . I know some metals can be magnetic and that some are non-magnetic .	Metal, material	Magnetic, non-magnetic
4	I know the name of materials found in the classroom such as glass, wood, metal and plastic . I know that materials found in the classroom could be described as hard, soft, stretchy, stiff, bendy/floppy . I know that I can sort materials in the classroom by their properties . I know that flexible means that a material is floppy . I know that rigid means that a material is stiff .	Material, wood, plastic, glass, rock, metal, rough, smooth, bumpy, hard, soft, properties	Stretchy, stiff, bendy, floppy, flexible, rigid.
5	I know that straw is flexible and light . I know that sticks are rigid, bumpy and waterproof . I know that bricks are rigid, heavy, flat and waterproof . I know that houses need to be made of materials that are rigid, heavy, flat and waterproof .	Rigid, bumpy, heavy, flat	Straw, sticks, bricks, flexible, light, waterproof.
6	I know that houses need to be made of materials that are rigid, heavy, flat and waterproof . I know how to identify if a material is rigid by trying to bend it. I know how to identify if a material is flat by feeling it. I know how to identify the heaviest material by picking it up and comparing .	Houses, rigid, flat,	Comparing, heaviest material, bend.



Year 1 – Marvellous Materials.			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	<p>I know that materials can be waterproof.</p> <p>I know that waterproof materials do not let water in.</p> <p>I know that wood, plastic, glass, metal and rock are materials.</p> <p>I know that objects are made from different materials.</p> <p>I know that absorbent materials let water in.</p> <p>I know that properties means the qualities or characteristics of a material.</p>	Materials, wood, plastic, metal.	Waterproof, glass, rock, objects, absorbent, properties.
2	<p>I know that materials can be waterproof.</p> <p>I know that wood, metal, plastic, glass and rock are materials.</p> <p>I know that objects are made from different materials.</p> <p>I know that absorbent materials let water in.</p> <p>I know that properties means the qualities or characteristics of a material.</p> <p>I know that materials can break and tear.</p>	Materials, waterproof, wood, plastic, glass, metal, rock, objects, absorbent, properties.	break, tear.
3	<p>I know that the word properties means the qualities and characteristics of an object or material.</p> <p>I know that ice melts to form water.</p> <p>I know that water can be frozen to form ice.</p>	Properties, material.	ice, water, frozen.
4	<p>I know that the word properties means the qualities and characteristics of an object or material.</p> <p>I know that ice melts to form water.</p> <p>I know that water can be frozen to form ice.</p>	Properties, material, ice, water, frozen.	



Year 2 – Materials Matter.			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	I know that if a material is absorbent it will soak up water. I know that weak materials will rip if they soak up too much water. I know that waterproof materials will not allow water in. I know that strong materials are better at absorbing water.	Material, absorbent.	weak, rip, waterproof, strong.
2	I know that materials can be suitable for a purpose because of their properties . I know that absorbent materials will soak up water. I know that waterproof materials will not allow water in. I know that strong materials can be either absorbent or waterproof .	Materials, properties, absorbent, waterproof, strong.	
3	I know that materials can be suitable for a purpose because of their properties . I know that absorbent materials will soak up water. I know that waterproof materials will not allow water in. I know that strong materials can be either absorbent or waterproof .	Materials, properties, absorbent, waterproof, strong.	
4	I know that natural materials are materials that naturally occur in the world. I know that man-made materials are manufactured by humans. I know that materials can be flexible, rigid, weak, strong, waterproof and absorbent . I know that materials can have the same properties but a different appearance.	materials, strong, waterproof, absorbent, properties.	Natural, man-made, flexible, rigid, weak, manufactured.
5	I know that materials can be suitable for a purpose because of their properties . I know that absorbent materials will soak up water. I know that waterproof materials will not allow water in. I know that strong materials can be either absorbent or waterproof .	Materials, properties, absorbent, waterproof, strong.	
6	I know that materials have a range of properties and that these can change . I know that materials can change shape . I know that an example of a material changing shape is melting .	Materials, properties, change.	shape, melting.

**Year 2 – Squash, bend, twist and stretch.**

Lesson	Knowledge	Previously Taught	New Vocabulary
1	I know that materials can change shape . I know that balls made of materials that stretch will bounce the best. I know that pushing a material will squash it. I know that pulling a material will stretch it.	Materials.	shape, stretch, pushing, squash, pulling.
2	I know that a fabric can stretch when it is pulled . I know that materials can change shape . I know that materials can be rough and smooth .	materials.	Fabric, pulled, shape, rough, smooth.
3	I know that if a material is rigid it will not bend easily. I know that some materials are more rigid than others. I know that wood and metal are rigid materials. I know that plastic and paper are flexible materials.	Material, rigid, wood, metal, plastic, paper, flexible.	bend
4	I know that materials can be durable . I know durable materials are strong and don't tear easily.	strong.	durable
5	I know that strong materials are harder to rip . I know that the strongest paper will be hardest to rip. I know that thickest paper will be the strongest paper. I know that paper does not stretch . I know that paper is flexible .	Strong materials, stretch, flexible.	rip, thickest, strongest.
6	I know that strong materials can support a larger weight . I know that paper can tear or rip if a heavy weight is applied. I know that a rigid object can support a heavier weight . I know that I can change the shape of paper by bending and twisting it.	Strong, weight, tear, rip, weight, rigid.	



Year 3			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	<p>I know that sandstone is a golden/brown rock with grains inside.</p> <p>I know that limestone is a light coloured rock that is crumbly.</p> <p>I know that chalk is a soft white rock that is crumbly.</p> <p>I know that granite is a hard rock containing different crystals.</p> <p>I know that slate is a thin, hard rock that can be snapped.</p> <p>I know that marble is a very hard rock.</p>		Sandstone, limestone, chalk, granite, slate, marble.
2	<p>I know that a petrologist is a scientists who studies rocks.</p> <p>I know that rocks can be man made</p> <p>I know that bricks, tile and concrete are manmade rocks.</p> <p>I know that permeable rocks allow liquids to pass through them.</p> <p>I know that impermeable rocks does not allow liquid to pass through them.</p> <p>I know that igneous rocks have been formed from magma.</p> <p>I know that Sedimentary rocks have been formed by layers of sediment pressing together under the sea bad.</p> <p>I know that metamorphic rocks have been formed under extreme heat and pressure from igneous and sedimentary rocks.</p> <p>I know that rocks can be classified based on their physical properties.</p>		Petrologist, rocks, manmade rocks, permeable, impermeable, igneous, sedimentary, sediment, metamorphic.
3	<p>I know that manmade rocks are commonly used for buildings and walls.</p> <p>I know that slate can be used as a roof tile because it is impermeable.</p> <p>I know that older buildings have been built from local bedrock.</p> <p>I know that marble and granite are often used for important buildings and monuments.</p> <p>I know that rocks are durable and that older rocks can show signs of weathering.</p> <p>I know that rocks can be used for different purposes based on their physical properties.</p>	Manmade rocks, impermeable, marble, granite, rocks.	roof tile, bedrock, durable, physical properties.



<p>4</p>	<p>I know that fossilisation is the process by which fossils are made. I know that fossilisation only happens in the right conditions. I know that for an animal to be fossilised, it must be covered with sediment after it dies. I know that over a long time, the layers of sediment build up and turn to rock. I know that the buried skeleton is washed away by water leaving a mould. I know that minerals collect in the mould to form a rock (fossil) After millions of years, the rock rises to the surface. I know that rocks and fossils can be exposed due to erosion and weathering.</p>		<p>Fossilisation, fossils, fossilised, sediment, rock, skeleton, minerals, mould, rises, erosion, weathering</p>
<p>5</p>	<p>I know that soil is a mixture of organic matter, minerals from rocks, air and water. I know that soil is the uppermost layer of the Earth. I know that soil contains micro-organisms. I know that different soils are made from different particles. I know that soil may also contain sand, small rocks, minibeasts and parts of plants. I know that some soils are more absorbent than others.</p>	<p>absorbent.</p>	<p>Organic matter, minerals, soil, micro-organisms, particles, sand.</p>



Year 4			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	<p>I know that solids keep their shape and cannot flow. Solids have a fixed volume and can't be changed unless a force or heat is applied.</p> <p>I know that solids are hard and keep their shape and volume. I know that the particles in a solid are packed closely together.</p> <p>I know that liquids will spread to fill the shape of the container they are in. I know that liquids can change shape and will flow easily. I know that a liquid has a fixed volume and cannot be compressed easily. I know that the particles in a liquid will move and slide over each other.</p>		Solids, fixed volume, particles, liquids.
2	<p>I know that a gas can move quickly and freely. I know that gas particles spread to fill the area they are in. I know that gas particles do not have a fixed shape. I know that gas particles have a fixed mass.</p>	Particles.	Gas, mass.
3	<p>I know that when gas condenses when the temperature cools. I know that a liquid will solidify when the temperature drops to freezing point. I know a liquid will freeze because the particles in the liquid begin to slow down until they can only move gently on the spot, giving them a solid structure. I know that water will freeze when the temperature drops to freezing point. I know that when water is boiled it will evaporate into water vapour. I know that a solid will melt when the temperature rises to melting point. I know that a solid melts because the particles start to move faster until they are able to move over and around each other. I know that a liquid will evaporate when the temperature rises.</p>		Gas condenses, temperature, liquid, solidify, freezing, freeze, particles, solid structure, water, evaporate, melting.
4	<p>I know that evaporation is the process of a liquid changing state into a gas. I know that evaporation takes place when water turns into water vapour.</p>	Evaporation, liquid, state, gas.	Vapour, condensation, reversible.



	<p>I know that evaporation can take place slowly (a puddle) and quickly (a kettle boiling).</p> <p>I know that condensation is the process of a gas changing state into a liquid.</p> <p>I know that condensation is when water vapour is cooled down and changes state to a liquid.</p> <p>I know that precipitation is formed from liquid or solid particles that fall from the clouds as rain, ice or snow. I know that evaporation and condensation are reversible changes.</p>		
5	<p>I know that evaporation changes a liquid (water) into a gas.</p> <p>I know that evaporation is faster at higher temperatures.</p> <p>I know that condensation turns a gas (water vapour) into a liquid (water).</p> <p>I know that when water vapour cools and falls back to Earth, it is called precipitation.</p> <p>I know that the water cycle is the movement of water particles between the oceans, land and atmosphere.</p>	<p>Evaporation, liquid, gas, temperatures, particles.</p>	<p>precipitation, water cycle.</p>



Year 5 – Music Festival Materials			
Lesson	Knowledge	Previously Taught	New Vocabulary
1	<p>I know that properties of materials are the qualities the material has that makes it suitable for a specific purpose.</p> <p>I know that different materials are used for particular jobs based on their properties</p> <p>I know that materials suited to food prep sources are: smooth, washable, corrosion-resistant and non-toxic.</p> <p>I know that metals are scratch resistant, don't soak up water and are smooth to touch.</p> <p>I know that aluminium, stainless steel and iron are examples of metals.</p>	Properties.	smooth, washable, corrosion-resistant, non-toxic, metals, scratch resistant, aluminium, stainless steel, iron.
2	<p>I know that the best material for take-out cups are insulating</p> <p>I know that insulated means heat will stay in and cold will stay out.</p> <p>I know that thermal insulation prevents the movement of heat energy.</p> <p>I know that a woolly hat on a cold day is an example of a thermal insulator.</p> <p>I know that thermal conductors allow heat energy to pass through them easily.</p> <p>I know that an example of a thermal conductor is a metal radiator.</p>		Insulating, insulated, thermal insulation, thermal insulator, thermal conductors, thermal conductor.
3	<p>I know that properties of materials are the qualities the material has that makes it suitable for a specific purpose.</p> <p>I know that there are a range of types of paper (tissue, kitchen roll, computer paper, cardboard and calligraphy paper.)</p> <p>I know that some papers are stronger than others.</p> <p>I know that plastics are cheap, light and simple to make but they do not recycle easily.</p> <p>I know that glass is heavy and easier to reuse but the liquid inside can be affected by light damage.</p> <p>I know that bottles can be opaque, transparent and translucent.</p> <p>I know that cost, recyclability and visibility of product are factors in selecting a material for a bottle.</p>	Properties, opaque, transparent, translucent,	purpose, cheap, light, simple, reuse, recyclability, visibility.



4	I know that cleaning cloths need to be absorbent, strong, durable, textured, robust, non-scratch.	absorbent, strong.	durable, textured, robust, non-scratch.
5	I know that electricity is conducted when there is little resistance. I know that waterproof, electrical insulating materials are important for safety. I know that some materials are electrical conductors . E.g copper, graphite and aluminium. I know that an effective electrical conductor will make a bulb shine brightly. I know that some materials are electrical insulators e.g. Polystyrene.	Electricity, waterproof, electrical insulating, electrical conductors, electrical insulators.	
6	I know that ear defenders must be comfortable, waterproof, lightweight and sound-proofing.	Waterproof.	Comfortable, lightweight, sound-proofing.

Year 5 – Changing Materials

Lesson	Knowledge	Previously Taught	New Vocabulary
1	I know that some changes are reversible and some are not. I know that a solute is a substance that dissolves in a liquid to make a solution . I know that a solvent is a liquid in which a substance is dissolved to make a solution I know that a solution is a liquid consisting of a solvent in which one or more substances have dissolved . I know that a substance is soluble if it dissolves in a solvent . I know that solubility is the measure of how much solute dissolves in a solvent . I know that a substance is insoluble if it does not dissolve in a solvent .		Reversible, solute, substance, dissolves, liquid, solution, solvent, soluble, solubility, insoluble.
2	I know that reversible changes can be reversed. I know that a solution can be separated by the processes of filtration, evaporation and sieving .	Reversible, solution, particles, filtering, solid particles, liquid particles, evaporation, gas particles, solute.	filtration, evaporation, sieving, sieve, separating



	<p>I know that the process of sieving allows smaller materials to fall through the holes in the sieve, separating them from larger particles.</p> <p>I know that filtering allows solid particles to get caught in the filter paper but liquid particles will be able to pass through the paper.</p> <p>I know that evaporation will result in liquid particles changing into gas particles but that solid particles will be left behind.</p> <p>I know that solute can be recovered from a solution.</p>		
3	<p>I know that irreversible changes result in a new product being made from old materials.</p> <p>I know that when a new material is formed it cannot be reversed.</p> <p>I know that mixing baking powder and vinegar will result in a gas being given off.</p>	Irreversible changes, new product, reversed.	
4	<p>I know that rusting is an irreversible change.</p> <p>I know that rust is created when iron is exposed to moisture and oxygen from the air.</p> <p>I know that oxidation is the irreversible process of rust being created.</p> <p>I know that an example of oxidation is an apple going brown when the inside is exposed to oxygen from the air.</p> <p>I know that the oxidation process can be sped up.</p>	Rusting, rust, iron, oxidation, irreversible.	
5	<p>I know that irreversible changes often result in a new product being made from the old materials (reactants).</p>	Irreversible.	Old materials, reactants.