Chemistry

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum	Everyday Materials Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Everyday Materials Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Rocks Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter	States of Matter Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Properties and Changes of Material 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 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes 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.	

Expected Standard	<u>Everyday Materials</u> Pupil can identify a range of natural and man-made materials from which objects are made Pupil is aware that objects are made from certain materials dependent on their properties Pupil can use a range of vocabulary to describe the properties of materials Pupil suggests different ways to investigate the properties of materials to test if they would be suitable for making an object	<u>Everyday Materials</u> Pupil can explain the properties of materials which make them suitable for a purpose Pupil can demonstrate how a wide range of materials are suitable for the same purpose Pupil can use their knowledge of materials to suggest different ways they could be grouped e.g. hardness; flexibility Pupil has investigated the properties of materials extensively and understands that the shapes of some solid objects can be changed. Pupil can use appropriate language to describe the change of shape of some solid objects when pressure is applied in different ways Pupils can name a scientist who has developed useful new materials explaining what property this material has which makes it useful	<u>Rocks</u> Pupil can group rocks by their appearance and physical properties with accurate reasoning relating to colour, hardness, grain or crystal composition Pupil can describe the structure of the Earth and where the different types of rocks may be found Pupil can explain how igneous, metamorphic and sedimentary rocks are formed Pupil can explain the rock cycle with simple scientific vocabulary Pupil uses their knowledge of rock formation to explain how fossils, from previously living animals/plants, are made Pupil can describe how soils are formed and include organic matter and inorganic materials	<u>States of Matter</u> Pupil can define and group a range of materials as solids, liquids and gases Pupil can explain that materials can change their state and that this is affected by temperature Pupil can explain the different temperatures at which water changes state and can suggest how this could be investigated/measured Pupil can describe the process of evaporation and condensation giving examples from the environment around them Pupil can describe how evaporation and condensation occur within the water cycle Pupil can explain factors, such as wind, temperature, surface of materials which may be perceived to affect the rate of evaporation and/or condensation	<u>Properties and changes of materials</u> Pupil can group most everyday materials on the basis of their properties explaining their similarities and differences. Pupil can identify materials which are soluble in liquids and describe the process as dissolving. Pupil can explain how materials dissolved in a solution can be recovered. Pupil can suggest and use a range of methods to separate materials from mixtures based on their knowledge of the properties of these materials. Pupil can describe different uses for common everyday materials based on their properties. Pupil can explain the differences between reversible and irreversible changes, giving examples of both. Pupil understands (and give examples) that some irreversible changes can result in the formation of new materials. Pupil can describe some materials which have been manufactured by irreversible (chemical) change and explain how the properties of the new materials make them useful to man. Pupil can explain why some materials are not suitable for particular uses based on their knowledge of the properties of materials.	

Vocabulary	materials; properties; hard; soft; stretchy; elastic; stiff; shiny; dull; rough; smooth; bendy; not bendy; flexible; rigid; solid; liquid; waterproof; absorbent; not absorbent; transparent; opaque; brick; wood; plastic; metal; fabric; wool; foil; elastic; man made; natural; manufactured; object.	materials; natural; man-made; manufactured; object; group; properties; change; bake; bend; twist; stretch; squash; heat; cool; freeze; melt; boil; metal; plastic; wood; paper; glass; clay; rock; fabric; sand; hard; soft; rough; smooth; shiny; dull; bendy; waterproof; absorbent; non-absorbent; strong; weak; magnetic; non-magnetic; transparent; opaque; translucent;	rock; soil; appearance; grain; crystal; particle; permeable; impermeable; porous; sedimentary; metamorphic; igneous; rock cycle; bedrock; weathering; erosion; organic; peat; humus; loam; absorbent; impervious; molten; lava; fossil; texture; sand; gravel; clay; Moh's scale; sandstone; granite; marble; limestone; flint; slate; chalk; characteristics; volcano; inorganic; organic	matter; solid; liquid; gas; vapour; expand; contract; particles; thermometer; temperature; degrees; Celsius; heating; cooling; freezing; melting; dissolve; soluble; solution; thermometer; energy; change of state; Water Cycle; evaporation; condensation; evaporate; condense; degrees	freezing; melting; boiling; burning; solid; liquid; gas; properties; solution; solute; solvent; mixture; filter; sieve; evaporation; decanting; sieving; condensation; saturated; temperature; Celsius; state; reaction; chemical; reversible; irreversible; conductivity; brittle; thermal; flexible; waterproof; synthetic; absorbent; rigid; natural; hard; permeable; impermeable; hardness; conductor ; insulator; transparent; magnetic; non-magnetic	
Examples						
Scientists			Mary Anning			
CPA						