Science- Whole School Overview (Chemistry Topics)

In science we build upon the learning in KS1 and by the end of year 6 we aim for all pupils to have studied a broad and progressive science curriculum, which provides the foundations for understanding the world. We focus on a range of key concepts, skills, knowledge & vocabulary, which ensures pupils have the necessary understanding to embrace the KS3 curriculum. We endeavour for pupils to develop rational explanation, a sense of excitement and curiosity about natural phenomena, to understand how science can explain what is occurring, predict how things behave and analyse causes.

Year 3	
Topic	**Rocks and Soils**
Link to School Values	Together we are problem solvers
Recall knowledge and vocabulary	**Recall Knowledge Concept:** **Y1 - 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 and compare/group together a variety of everyday materials on the basis of their simple physical properties. **Y2 - Uses of 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. **Recall the scientific vocabulary of:** Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching flexible, rigid, opaque, transparent and translucent, reflective, non-reflective,
New Knowledge Concepts & Vocabulary	**New Knowledge Concept:** • Compare and group together different kinds of rocks (marble, chalk, granite, sandstone, slate) on the basis of their appearance and simple physical properties (physical properties to be discovered through investigation and might include: hard/soft; various shapes and sizes- stone, pebble, boulder; absorb water; crystals or grains of different sizes).

	• Describe in simple terms how fossils are formed when things that have lived are trapped within rock (Fossils form millions of years ago. Plants and animals died and fall to the seabed. They become covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water). • Recognise (through practical investigation) that soils are made from rocks (some ground down, some small pieces, some larger pieces) and organic matter – these differ from soil to soil. **Use the scientific vocabulary of:** Rock, marble, chalk, granite, sandstone, slate, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil

Year 4	
Topic	**States of Matter**
Link to School Values	Together we are safe (due to heating and cooling)
Recall knowledge and vocabulary	**Recall Knowledge Concept:** **Y3 – Rocks and Soils** • group and identify materials including rocks in different ways according to their properties, based on first-hand observation; **Recall the scientific vocabulary of:** Rock, marble, chalk, granite, sandstone, slate, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil
Communicating scientifically: New Knowledge Concepts & Vocabulary	**New Knowledge Concept:** • compare and group materials together, according to whether they are solids (including grains and powders), liquids (including thick liquids such as conditioner or treacle) or gases (including visible gas such as bubbles in a carbonated drink) • observe that some materials (water, chocolate and steel) change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • identify (through observation and investigation) the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Use the scientific vocabulary of:** States of Matter, solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle

Year 5

Topic	Properties and Changes of Materials
Recall knowledge and vocabulary	**Recall Knowledge Concept:** **Y3 - Forces and magnets (physics)** •Compare and group everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. **Y4 - States of matter/electricity (physics)** • describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle • Recognise some common heat conductors and heat insulators, and associate metals with being good conductors. **Recall the scientific vocabulary of:** States of Matter, solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, Force, contact force, non-contact force, magnetic force, magnet, conductor, insulator Thermal/electrical insulator/conductor, change of state
New Knowledge Concepts & Vocabulary	**New Knowledge Concept:** • 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 (sugar, salt) will dissolve in liquid to form a solution and describe how to recover a substance from a solution having taken part in practical investigation (evaporate the water). • 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, through practical enquiry, 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, rusting, the action of acid on bicarbonate of soda and the process of making bread. **Use the scientific vocabulary of:** mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material