

The National Curriculum conceptual knowledge statements are big and contain complex ideas. The *Snap* 'Progression of knowledge' breaks each statement into a sequence of learning steps. Each lesson teaches a step in this progression. Use this document to understand how children's conceptual knowledge develops from year to year and is connected between topics.

Year	Module	Materials
1	3: Naming and describing materials	Everything around us is made from materials.
		Some materials are natural materials, naturally sourced materials that are used without modification.
		Some materials are manufactured materials, made by changing natural source materials.
		Different materials have different characteristics.
		Materials should be used carefully and can often be reused or recycled.
		Objects can be sorted according to their source material.
	4: Properties and uses of materials	Objects can be made from more than one material, including recycled materials.
		Materials have physical properties that make them useful for different purposes.
2	2: Choosing materials	Objects can be tested and sorted according to the properties of the materials they are made from.
		Inventors discover new uses for materials and create new materials.
	5: Changing materials	Squashing, bending, stretching and twisting can change the shape of some materials.
		Different properties allow the shapes of materials to be changed in different ways.
		Objects are made from materials with properties that make them fit for purpose.
3	1: Rocks	Rocks can be compared and grouped according to their appearance and simple properties.
		Rocks change over time depending on their physical properties.
		Soils are made from rocks and organic material.
		Specific properties of different soils affect whether they absorb and hold water or not.
		Fossils are formed when living things are trapped within rock.
		Human knowledge of the living world has been developed through the lives and work of fossil scientists such as Mary Anning.
4	1: Changes of state	A solid holds its shape. Liquids can be poured and will spread out. Both solids and liquids have a fixed volume.
		Water freezes at zero degrees Celsius.
		Freezing/solidifying is when a liquid changes state into a solid. Melting is when a solid changes state into a liquid. Different materials melt at different temperatures. Melting and freezing are reversible processes.
		Air is a gas. Gases have substance (take up space) and have weight. Gases change in shape and volume to fill the space they are in.
		When water changes state from liquid into gas it becomes water vapour. This process is called evaporation. Liquids other than water evaporate too. Steam is the invisible gas produced by boiling water.
		When water vapour changes state from gas into liquid it becomes water. This process is called condensation.
		The Earth's water can be a liquid (water), a gas (vapour) and a solid (ice). Water in the environment evaporates into the air then the warm air cools as it rises, leading to condensation and the formation of clouds. Water droplets in the clouds fall as rain (or as snow or hail if cooled below freezing point). The water returns to the sea via streams, lakes and rivers to continue the water cycle.

Year	Module	Materials
5	2: Properties and uses of materials	Materials have physical properties that make them fit for certain purposes.
		Weathering, wear and tear can occur over time and this will have an impact upon a material's fitness for purpose.
		The properties of liquids include having a fixed weight, a fixed volume, an ability to flow, a level of viscosity; and they take on the shape of a container.
		The viscosity of a liquid describes how thick or thin it is and how fast or slowly it will flow.
		A thermal insulator is a material that does not transmit heat through it well.
		A thermal conductor is a material that transmits heat through it very well.
		A thermal insulator keeps hot things hot and cold things cold.
		Materials can be absorbent and can soak up and take in liquid.
		Some materials are permeable and let water pass through.
		Some materials are waterproof and do not let water pass through.
	5: Separating mixtures and changing materials	Solid, dry mixtures of materials can be separated by sieving.
		Some solids dissolve in water while others do not.
		Solids that do not dissolve can be separated from a liquid by filtering.
		Solids which dissolve can be retrieved from a solution if the liquid is evaporated.
		Some changes of state are reversible, and others are non-reversible.
		Non-reversible changes result in the formation of new materials.