

In this unit: Pupils will revisit their knowledge of properties of materials. Pupils will explore how to dissolve a magical substance [salt] in water, to avoid being caught by Hades and then retrieve it. They will apply their learning to design objects to help Greek Gods on their voyages.

Children should already know:

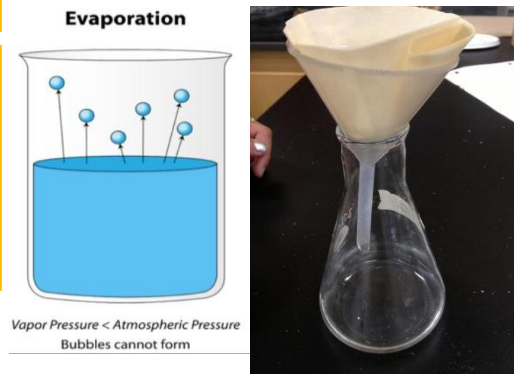
- the suitability of materials based on their properties.
- how shapes of a solid structure can be changed by squashing, bending, twisting and stretching.
- materials that are solids, liquids and gases and their particle structure.
- some materials change state when they are heated or cooled and the temperature at which this happens.
- the roles of melting, evaporation and condensation in the water cycle and the role temperature has on the rate of evaporation.

At the end of this unit, children will know:

- that materials can be grouped based on their properties using complex vocabulary.
- that thermal conductors all heat to pass through them easily.
- that thermal insulators do not let heat travel through them easily.
- that electrical conductors allow heat to pass through them easily.
- that electrical insulators have a high resistance which means that it is hard for electricity to pass through.
- that when particles of a solid mix with particles of a liquid they dissolve and these materials are known as soluble.
- that some materials can be separated after they have been mixed and this is called a reversible change.

Pupils could investigate:

- which materials are soluble.
- how materials can be retrieved after they have been dissolved.
- whether solid materials can be retrieved from all liquids.
- whether some materials cause an irreversible change.



Key Vocabulary

acid	a chemical with a pH less than 7
alkaline	a chemical with a pH greater than 7
conductor	a substance or material that heat or liquid can pass through or along
dissolve	when a solid substances disappears as it is mixed with a liquid
filtering	separating a solid from a liquid or gas by passing it through paper
hardness	the quality of being hard
insulator	a material that does not conduct electricity or heat
irreversible	not able to turn back of change back into its original state
neutral	a chemical with a pH of 7 – water
pH scale	a way of measuring the strength of chemicals
reaction	a chemical process in which substances act on each other and are changed into different substances
reversible	able to turn back or change back to its original state
sieving	a way of separating coarser from finer particles
soluble	able to be dissolved
transparency	the quality of being able to see through something

Key Questions:

- how can I get salt out of water?
- why are wires made out of copper?
- why are pans metal?
- why do wires have rubber or plastic around them?
- what happens when salt is mixed with acid?