

Year 4 Term 6

## Is it better to live near water or far away from it?

### SCIENCE



#### National Curriculum Links:

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.

#### Essential Prior Learning:

Talk about different materials according to their properties, e.g. plastic is light and can be transparent or opaque; metal is heavier and can be polished to be shiny. The properties of a material make it suitable for a particular purpose, e.g. windows are made from glass. Some materials are natural, e.g. stone, and some are man-made, e.g. plastic. Water (e.g. in a puddle) seems to 'disappear' when the sun shines.

#### Progression in Skill:

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.  
Measure or research the temperature(s) in degrees Celsius (°C) at which some materials change state.  
Identify the part played by evaporation and condensation in the water cycle.  
Associate the rate of evaporation with temperature.  
Set up simple practical enquiries, comparative and fair tests.

Make systematic and careful observations.

Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

Develop criteria to identify, group, sort and classify, considering differences, similarities or changes related to simple scientific ideas and processes.

Collect, gather, record, present data and report on findings from their own enquiries/ observations and measurements using simple scientific language in a variety of ways to help in answering questions, including oral and written explanations, displays or presentations, drawings, labelled diagrams, bar charts and tables of results and conclusions.

#### Long-term Memory Knowledge:

Identify whether a material is a solid, liquid or gas, according to its properties.  
Know that some materials can change their state when heated or cooled and give examples.  
Talk about evaporation and condensation in the context of the water cycle; know that temperature affects the rate of evaporation.  
Set up comparative and fair tests.  
Know that observations should be systematic and have a purpose, i.e. know what you are looking for/at.  
Use equipment to take accurate measurements using standard measurements.  
Present data in a suitable way.

#### Key Vocabulary

<b>solid</b>	a material with a fixed shape and volume, e.g. ice
<b>liquid</b>	a material that can flow but be easily contained, e.g. water
<b>gas</b>	a material with no fixed shape or volume: it will expand to fill the available space, e.g. water vapour
<b>evaporation</b>	the process of heating a liquid so that it forms a gas
<b>condensation</b>	the process of cooling a gas to form a liquid

<b>states of matter</b>	the forms of solid, liquid or gas
<b>particles</b>	tiny pieces that all matter is made up of
<b>water vapour</b>	water in its gas state
<b>melting</b>	the process of a solid changing to a liquid after heat being applied
<b>freezing</b>	when a liquid is cooled and changes to a solid
<b>boiling</b>	when liquid turns into a gas
<b>precipitation</b>	the liquid and solid water particles that fall from clouds

#### Progression in Resources:

range of solids, liquids and gases for sorting  
bowls, kettle, bags, butter, chocolate, ice, data loggers/thermometers  
ice trays, freezer compartment, range of liquids (ketchup, honey, olive oil, milk, shampoo, lemonade)

#### Relevance

<b>Now</b>	Children have a better understanding of some natural phenomena: they know how some solids, liquids and gases can be heated and/or cooled to be useful, e.g. melting chocolate to dip strawberries in.
<b>Future</b>	Children can use their knowledge practically in their everyday lives, e.g. dry washing quickly outside on a sunny day; make their own ice pops.
<b>Aspiration</b>	Children use their knowledge of solids, liquids and gases to work with materials, developing new products or improving existing ones to be more efficient; they work within the environmental sector, mitigating some of the effects of climate change.