



Learning about solar power

Melting Ice Observation

Learning objectives:

Foundation Stage: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

KS1: Develop understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time.

KS2 Year 4: 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).

Start learners off

Give children an ice cube to look at and touch (work in pairs or groups designed for discussion e.g. talk partners). Ask children about the properties of the ice. How does it feel?

What is ice? What is ice made from? How is water turned into ice (make links to real life examples such as making ice in the freezer at home or puddles freezing in winter.) Note that in movies like 'Frozen', characters can just 'make' ice! How is ice really made? Can we turn the ice back into water? How could we do this?

Move learners on

Explain that each pair or group will be given 2 ice cubes to place somewhere outside. Carry this activity out on a sunny day. Children need to choose a place where they think the ice will melt FAST and one where it will melt more SLOWLY.

Make a prediction. "The ice cube placed... will melt most quickly, because...." If you have a school format for recording science predictions (eg 'Discovery Dog') you may want to use this.

Place the ice cubes out on dishes. Revisit and **observe** the ice cubes. What is happening? Where is the water coming from? What is making the ice melt? Why did some ice cubes melt before others? Ensure that children realise that an ice cube will melt faster in a sunny spot than in a shady spot. Heat from the sun melts the ice.

Challenge learners further by:

Extend learners with the concept that the sun has energy and that energy from the sun went into the ice. The heat energy went from the sun to the ice. The effect was that the cold ice changed temperature and got warmer. The ice melted back into water. Children in KS2 can investigate the temperatures at which the changes happened.

Challenge children to come up with ways of slowing down the melting process. As well as leaving the ice in cooler places, introduce the idea of **insulation**. Wrapping the ice in different materials can stop the sun's energy reaching the ice cube and can slow down the melting. Explore different materials to see which are the best at stopping the ice from melting in the sun. This can be a difficult concept for children who are used to wrapping up to keep warm. Remember: insulation keeps warm things warm and cool things cool - it slows the change of heat transfer.

At the end of this activity:

Most children will be able to explain that ice melts in the sun.

Some children will be able to explain that energy from the sun makes the ice melt and that the sunnier the place that the ice cube is left, the faster it will melt.

A few children will be able to suggest ways to slow the rate of melting, explaining why this will be effective.