

# CHAPTER 4: Heat and Temperature

## Aim

The aim of this chapter is for children to measure and record the temperature of cold and warm water.

## Overview of Chapter

In this chapter children learn how to read and record temperature using a thermometer. They also measure and record what happens to water as ice melts.

## Working Scientifically Skills

In this chapter the children will be applying and developing the following working scientifically skills:

- Observing
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Recording and communicating

## Primary Science Curriculum link

Strand unit: Heat



## Lesson 1 – Observing a thermometer

### Lesson link

Before beginning this lesson you might like to revisit: **Junior and Senior Infants Programme Chapter 4: all lessons**

### Resources

**PCM 10: Looking at thermometers** (one per group)  
1 thermometer per group, magnifying glasses, A4 paper, scissors, crayons, rulers

### Activity type: Observing

Hold a classroom discussion about thermometers and their uses.

#### Questions to promote discussion

- 1 What is this?
- 2 Why do we use thermometers?
- 3 Who uses thermometers?
- 4 Do you have any thermometers in your homes?

Divide the class into groups, the size of which will depend on how many thermometers are available. Distribute a thermometer to each group. Encourage each group to carefully examine their thermometers. They can use a magnifying glass.

#### Questions to promote discussion

- 1 What colour is the liquid inside your thermometer?
- 2 What material do you think the thermometer is made from?
- 3 Is there anything written on it?
- 4 Can you make the coloured liquid inside move? How?
- 5 What would happen to the coloured liquid inside the thermometer if you held it in your hand for a minute?

On **PCM 10** each child then makes a detailed drawing of their thermometer and writes three observations they made about their thermometer. They then discuss their observations with the whole class.

## Lesson 2 – Reading and taking the temperature

### Resources

**PCM 11: Measuring hot and cold**  
Thermometers, plastic cups, measuring jug, water

### Activity type: Measure and record

In this activity the children measure and record the temperature of cold and warm water. Divide the class into groups, the size of which will depend on how many thermometers are available.

Give each group a beaker (Beaker A) of cold water and a thermometer.

Ask them to measure the temperature of the water and record the temperature on **PCM 11**. Remind the children to leave the thermometer in the water for a 'wait time' to allow for an accurate reading.

Give each group a second beaker (Beaker B) of warm water. They measure the temperature of the water and record it on **PCM 11** (*remind the children about the 'wait time' for accuracy*).

A reporter from each group reports back to the whole class.

## Lesson 3 – Investigating temperature

### Resources

#### PCM 12: Testing hot and cold

A tray of ice cubes, 1 plastic beaker per group, 1 thermometer per group, water, measuring jugs, kitchen paper, timer

### Activity type: Measure and record

**Teacher note:** In this activity children explore how tap water turns cold when ice is added. They will also learn how to measure the change in temperature.

### Investigation Question: “What happens to the temperature of tap water if you add ice?”

Divide the class into groups, the size of which will depend on how many thermometers are available.

In groups the children discuss what they think will happen (predict) to the temperature of a beaker of tap water if they add an ice cube. They discuss their predictions in groups and record them on **PCM 12**.

Each group is given a beaker of tap water. They take an initial reading and record the temperature on **PCM 12**.

Each group then puts an ice cube into the beaker and measures the temperature after 1 minute. They record the second measurement on **PCM 12**.

They then take 5 or 6 further readings (at 1 minute intervals) and record the different readings on **PCM 12**. They then discuss their results with the whole class.

### Questions to promote discussion

- 1 What happened to the temperature of the water when you added the ice cube?
- 2 Why do you think this happened?
- 3 Did the temperature keep getting lower?
- 4 Why do you think this happened?
- 5 Did the temperature begin to go up again as time went on?
- 6 Did you predict that this would happen?
- 7 Why do you think this happened?