

# Measure Temperature using a Thermometer.

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### Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

### Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

### Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

# MEASURE TEMPERATURE USING A THERMOMETER.

## EXPLICIT TEACHING PLAN OVERVIEW PAGE

THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

RESOURCES: THERMOMETER, PENCIL, PAPER

### WHAT COULD WE DO?

Children:

- explain the scales on a thermometer, for example, degrees Fahrenheit and Celsius
- read the temperature in degrees Celsius on a thermometer
- compare temperatures in degrees Celsius on a thermometer

### WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

- ask one another questions about reading temperature in degrees Celsius on a thermometer, for example:
  - ▶ what are the scales we can use to measure temperature?
  - ▶ how can we read temperature in degrees Celsius on a thermometer?
  - ▶ how can we compare temperatures in degrees Celsius on a thermometer?

# MEASURE TEMPERATURE USING A THERMOMETER.

## EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?	WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?
<p>Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.</p> <p>Display a thermometer Record, for example, thermometer</p> <p>Point to the scale on the thermometer Record, for example, 'degrees'</p> <p>Use questioning to develop understanding that although the word 'degree' and symbol '°' are the same, a degree in angle measurement and a degree in temperature measurement are not related</p>	<ul style="list-style-type: none"><li>▶ Today brings an investigation about temperature.</li><li>▶ What do you know about temperature ?</li><li>▶ Talk about temperature with a friend.</li><li>▶ Is anyone ready to share what they are thinking about temperature ?</li> <li>▶ What this is measuring device?</li><li>▶ What does it measure?</li><li>▶ Look at the prefix 'thermo'. Thermo means 'heat'. Look at the suffix 'meter'. Meter means measure. So thermometer actually says 'heat measure'!</li> <li>▶ What is the unit of measurement?</li><li>▶ Is the unit of measurement, degrees?</li> <li>▶ What else do we measure in degrees?</li><li>▶ Do we measure angles in degrees?</li><li>▶ Do you think there two types of degrees?</li><li>▶ This symbol for both types of degrees is the same.</li><li>▶ The symbol means degrees, no matter what language you speak.</li></ul>

Record, for example, Fahrenheit

Record, for example, Celsius

Read 25 degrees on the thermometer.

Record, for example, 25

Record, for example, 25 degrees and 25°

Record, for example, 25 degrees Celsius and 25°C

Record, for example, 22°C

- ▶ There are three different scales to measure temperature. Does anyone know any of them? Has anyone heard of Celsius? Has anyone heard of Fahrenheit? Has anyone heard of Kelvin?
- ▶ Around 300 years ago, Daniel Fahrenheit created a scale to measure temperature. He based his scale on the freezing point of a solution of salt and water, which is zero degrees Fahrenheit, and the boiling point of water, which is 212 degrees Fahrenheit.
- ▶ About the same time, Anders Celsius also created a scale to measure temperature. He based his scale on the freezing and boiling temperatures of water. Water freezes at zero degrees Celsius, and boils at 100 degrees Celsius.
- ▶ There is another scale, used in science, called Kelvin. This scale is not recorded in degrees.
- ▶ Only the USA still use the Fahrenheit temperature scale today.
- ▶ All other countries use the Celsius scale.
  
- ▶ Let's read a temperature in degrees Celsius on the thermometer.
- ▶ How do we record the temperature?
- ▶ What is our unit of measurement?
- ▶ Can we just record degree?
- ▶ Do we need to record whether we are measuring the temperature in degrees Celsius or Degrees Fahrenheit?
- ▶ So we read 25 degrees Celsius on the thermometer.
- ▶ Let's read 22 degrees Celsius.
- ▶ Is 22 degrees Celsius hotter or colder than 25 degrees Celsius?
- ▶ Is 22 degrees Celsius colder than 25 degrees Celsius?
- ▶ Why?

- ▶ Do higher numbers mean higher temperatures? Do higher temperatures mean it's hotter?
- ▶ Do lower numbers mean lower temperatures? Do lower temperatures mean it's colder?