

Keeping our classroom warm



Overview

In this activity, students find out about heat energy, how their classroom is heated and how to keep it warm.

Curriculum links:

LEARNING AREAS	ACHIEVEMENT OBJECTIVES	LEVELS	YEARS
Science: Physical World: Physical inquiry and physics concepts	Explore everyday examples of physical phenomena, such as electricity and magnetism and light.	1-2	1-4
Science capabilities:	Gather and interpret data, Use evidence, Engage with science	1-2	1-4
English: Speaking, writing and presenting	Acquire and begin to use sources of information, processes and strategies to identify, form and express ideas	1-2	1-4
Other curriculum links	Mathematics: Geometry and measurement	1-2	1-4

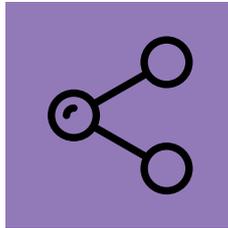
Guiding questions:

What is heat energy? How do we keep warm and heat our spaces?

Teacher information:

Keeping warm

Learning sequence



Learning intentions

Students are learning to:

- Understand what heat energy is and the meaning of the terms: hot, warm, cool and cold
- Explain how we can keep ourselves warm and heat a room

Success criteria

Students can:

- Explore and compare the temperatures of objects and spaces
- Share ideas about how to keep warm

Vocabulary:

Energy, electricity, heat, heater, heat pump, space, cool, cold, hot, warm.

Background information and supporting resources

Resources needed

- Heating our spaces: [Google Slides](#)
- Exploring [energy and electricity slideshow](#)

Background information

Science Learning Hub article: [Heat energy](#)



Learning experience suggestions

Note: These are suggestions only and teachers are encouraged to adjust the activity to suit the needs and interests of their students.



1. Introducing knowledge

Allow approximately 15 minutes

- Introduce heat energy vocabulary and concepts using the Google Slides slideshow: [Heating our spaces](#)
Share prior knowledge about heat. Discuss the resulting questions, such as: how do you know if you are hot? What does a person look like if they are warm? How do we act when we are cold?
- Take turns acting out how people look and feel at different temperatures, e.g: hot, warm, cool or cold. See if students can guess which temperature the person is acting.



2. Explore and investigate

Allow approximately 20 minutes

Thinking like a scientist

Let's use our senses to feel how warm we are.
Are you feeling hot, warm, cool or cold?
How can we sense the temperature of our own bodies or the spaces around us?



- How warm does it feel in the room you are in? Do you think it is cold, cool, warm or hot? Why is this? What is keeping your room warm or cool? Discuss the clues our bodies give us, e.g: sweating, goose bumps, shivering.
- Students could touch different objects to find and label them: cool, cold, warm or hot using the labels below, e.g. melting ice cubes, water, warm wheat bag, hot water bottle. (Note: ensure all items are safe to touch and not too hot or cold).



Extra extension activity: Measuring temperatures

Equipment needed: thermometers (non-mercury), or temperature reading devices or apps, worksheet: hot, warm, cool or cold? (see below)

- Temperature is a measurement of how hot or cold something is.
- Do you think that it is the same temperature inside as it is outside? Let's find out!

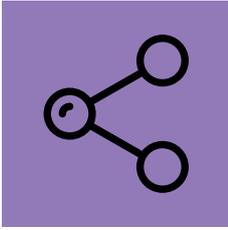
Use the following guide to help you with your observations and measurements:

Hot, warm, cool or cold? Sensing and measuring heat		
About you and what it's like today		
Name:	What is the weather like today? Sunny  Cloudy  Rainy  Stormy  Very cold 	Date: Time:
Location	How does it feel?	What is the temperature?
Notes:		

Google slides version of this [spreadsheet](#)

Teaching points:

- Temperatures are measured using whole numbers (degrees Celsius in New Zealand). Whole number temperatures are easiest for teaching younger students.
- Temperatures can be compared, for example: 16 degrees Celsius is cooler than 20 degrees Celsius.
- A thermometer is a tool that can collect data to measure temperature.
- Heat can pass from one place to another.
- Heat energy naturally moves from a hot place to a cooler place.



3. Create and share

Allow approximately 15 minutes

- Students can share their ideas about how to keep themselves and their classroom warm. Write a set of instructions about how to keep warm for someone visiting a cold place.
- Explore warm and cool colours with art works. This picture (left) was made using crayon, ink and dye.



4. Reflect and extend

Allow approximately 10-20 minutes

- Reflect on how your spaces are heated. Draw a picture of how to efficiently heat your room and keep the heat in (see slideshows in resources for ideas)
- What other questions do students have about heating, house design and electricity? Form an big/fertile inquiry question. Plan an inquiry around this question, if you have time.



5. Make a difference

Allow approximately 15-30 minutes

- Use your findings from the activities above to find out how you could keep warm or heat your space more efficiently, e.g. wear warmer clothing, reduce drafts, increase insulation.

Other useful resources:

KES Art studio: [warm and cool hands](#)

Science Learning Hub: [Teacher PLD](#)