

Year 1 science

What can water do?

Australian Curriculum links: Year 1 Science

Everyday materials can be physically changed in a variety of ways (ACSSU018)

Sustainability cross-curriculum priority

In this lesson, students participate in four tasks to develop an understanding of the properties of water, specifically how water changes when warmed or cooled.

This activity is similar to the Prep to Year 1 Science activity **How does water change** in which students observe and describe different forms of water. However, this activity uses a more structured predict-observe strategy. Likewise, the **Solid, liquid and gas** activity is a Year 5 version of this lesson and can be found in the Years 3 to 6 activities.

Equipment

For the class

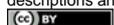
- kettle
- plastic jug
- enlarged copies of resources 1, 2, 3 and 4 for display

For each group

• three clear plastic cups	• container of water
• three coloured ice cubes (same colour)	• plain ice cubes
• ice cold water	• piece of chalk
• water at room temperature	• one copy of:
• hot water	○ Resource 1: Temperature change
• clear plastic cup of water	○ Resource 2: Heating water
• clear plastic cup of water with cordial	○ Resource 3: Painting with water
• brush	○ Resource 4: Liquid to solid
•	○ Resource 4: Liquid to solid

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Preparation

The activities can be organised in a variety of ways such as:

- activity stations
- students engaged in one activity at a time as a whole class
- students working with buddies from a higher year level.

Try the 'Temperature change' activity (resource 1) prior to the lesson to find out what students might observe and how long the melting process might take.

Safety note: Be aware of safety with water. Ensure that students know that it is essential to report any spillages immediately. Any activity involving heating water should be done only by an adult, as a demonstration. Ensure the students are a safe distance from the hot water.

Refer to resource 5 for additional information about the activities.

Lesson steps

1. Invite students to share what they think they know about water. Ask students whether they can think of anything special that water can do. Accept and record all responses, then ask students whether they think that water can change. Ask students to give evidence to support their responses; for example, 'if I put water in the freezer, the water will change from a liquid and become frozen or a solid'. Record students' initial ideas on the board.
2. Explain to the students that they will be following directions to participate in activities to find out about water. Before they begin each activity, students predict what they think will happen and record their predictions using words and/ or drawings. Students complete each activity and make and record observations (Figure 1).
3. For the 'heating water' demonstration, place the water in a plastic jug before it is poured into the electric jug and ask students to feel the water to find out whether it feels cold. A thermometer could be used to record the water temperature, before it is heated. As the water is heated, ask students to listen and watch for steam. Ensure students are a safe distance from the water as it is heating.
4. When the activities are completed, students discuss what they observed with the class and teacher. Record students' observations and ideas on the board.
5. Summarise their findings and highlight the states water can take – solid, liquid or gas.



Figure 1 Learning about evaporation

Resource 1

❖❖❖ Temperature change

Question 1:

What happens when you hold an ice cube in your hand?

What do you think is going to happen?

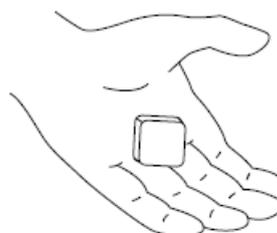
I think that _____

because _____

What happened?

I saw _____

I felt _____



My drawing of what happens

A large, empty rectangular box with a dotted border, intended for a student to draw their observation of what happens when they hold an ice cube.

Resource 1 continued

Question 2:

What happens to the ice cube when we change the water temperature?

You need:

- 6 coloured ice cubes
- 3 transparent plastic cups
- ice cold water
- lukewarm water
- hot water
- stop watch (optional)



To make sure this is a fair test, look at all three cups at the same time.

What do you think is going to happen?

I think that _____

because _____

What happened?

I saw _____

I touched the plastic cups and _____

My drawing of what happens

Resource 3

... Painting with water

Question: What happens to the picture when we do a painting with water?

You need:

- one container for water
- one brush
- one piece of chalk
- art paper

Draw an outline of a picture with a piece of chalk and then colour it in with water.

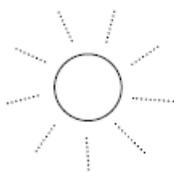
What do you think is going to happen?

I think that _____

because _____

What happened?

I saw _____



water. 

My drawing of what happens

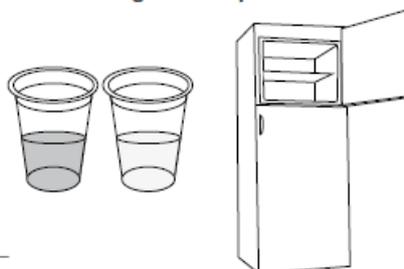
Resource 4

❖❖❖ Liquid to solid

Question: What happens to water and food colouring when we put it in a freezer?

You need:

- clear plastic cup of water
- clear plastic cup of water with food colouring
- access to a freezer



What do you think is going to happen?

I think that _____

because _____

What happened?

I saw _____

My drawing of what happens

A large, empty rectangular box with a dotted border, intended for a student to draw their prediction of what will happen.

Resource 5

Additional information for teachers

Resource 5 What happens to the ice cube when we change the water temperature or place the ice cube in our hands?	Temperature change An ice cube held in a hand will begin to melt, due to the difference between body temperature and the temperature of the ice cube. A coloured ice cube will melt at varying rates when it is placed in very cold water, in water at room temperature, and in hot water.
Resource 7 What happens when we paint with water on a surface that is exposed to sunlight?	Painting with water Although evaporation may be a difficult concept for students to comprehend, students may realise the effect of heat from the sun on the water. Students may be able to relate this to fabric drying in the sun. To help develop students' understandings about evaporation, pour water onto a hard surface—for example concrete, metal or plastic—and draw around the outline of the puddle. Check at regular intervals and re-draw the outline each time to indicate changes in the size of the puddle as the water evaporates.
Resource 8 What happens when we place water in a very cold place?	Liquid to solid Liquid water will turn into ice, which is classified as a solid. Students may be familiar with other liquids that become solids when placed in freezers or very cold places. This task could be extended by using water coloured with food dye or water with cordial.