Year 2
Lesson 1
The water cycle

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Learning objectives

Students will be able to:

- recognise that water is part of a natural cycle.
- recognise that water changes shape, taste and form.
- distinguish between salt and fresh water.

Learning outcomes

Subject	Strand & content descriptors
Science	Science understanding: • Different materials can be combined, including by mixing, for a particular purpose. (ACSSU031) • Earth's resources, including water, are used in a variety of ways. (ACSSU032) Science as a human endeavour • Science involves asking questions about and describing changes in objects and events. (ACSHE034) • People use science in their daily lives, including when caring for the environment or living things. (ACSHE035) Science inquiry skills • Respond to and pose questions, and make predictions about familiar objects and events. (ACSIS037) • Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information. (ACSIS038) • Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play. (ACSIS042)
Geography	Geographical knowledge & understanding • Environment: The environment is the source of every material thing we use. • Environment: Weather can be described and measured by temperature, sunshine, rainfall and wind.
English	Language • Understand the use of vocabulary about familiar and new topics and experiment with and begin to make conscious choices of vocabulary to suit audience and purpose. (ACELA1470) • Recognise most sound-letter matches, include silent letters, vowel/consonant diagraphs and many less common sound-letter combinations. (ACLEA1474) Literature • Create events and characters using different media that develop key events and characters from literary texts. (ACELT1593)

Important questions

- Why is water important?
- What do we use water for?
- What is the water cycle?
- Are there different types of water?

Background information - the water cycle

More than 70 percent of the earth's surface is covered by water. However, most of it – 97 percent is salt water. Ice makes up two percent and only one percent is suitable for drinking.

The amount of water on our planet does not change. It is recycled continually – the hydrological or water cycle. As water travels through the cycle it changes taste, shape and form. Three major processes drive the water cycle: evaporation, condensation and precipitation. Transpiration is also important.

- **Evaporation:** when water is heated it changes from liquid to gas (water vapour) – the sun heating the ocean produces most of the water vapour in the atmosphere.

- **Condensation**: as water vapour rises, it cools and changes into tiny droplets of water seen as clouds, fog or mist.

- **Precipitation:** rain, hail or snow – as water vapour continues to rise, the water drops join and become heavier and eventually fall out of the air.

- **Transpiration:** water emitted by plants through pores in the leaves is evaporated and released into the atmosphere as water vapour.

Linking locally

Elements of the water cycle can be easily observed in your local district:
- Rainfall evaporating from a footpath.
- Clouds of water vapour moving from the ocean toward the hinterland.

The city of Logan is dominated by the catchment and tributaries of the Logan and Albert rivers. Covering over 4,000 square kilometres, the catchments drain to Southern Moreton Bay.

Lesson plan – the water cycle

- Initiate a discussion about water to establish student knowledge about water and how it is used.
- Use **Activity sheet 1 'The water cycle'** to discuss how water moves through the environment and how it changes. Common observations can help to illustrate elements of the cycle; such as washing drying on the line to illustrate **evaporation**.
- Prepare the water samples as per the suggestions in **Activity sheet 5 'Water samples'**. Ask students to sample the types of water and to lick the ice cubes, to describe the tastes and sensations in one or two words. Ask which water tasted the best.
- Discuss the ingredients in the water samples, discuss the type of water people need to survive and grow food.

Resource requirements

- Activity sheet 1 'The water cycle'
- Activity sheet 5 'Water samples'
- Student self evaluation sheet 1

Additional activities

Prior to undertaking the following two activities ask students to predict what they will observe; record the predictions and compare with their actual observations.

- **Illustrating the water cycle.**
  Boil water in a kettle or jug. Observe the steam. Place the kettle or jug next to a window or mirror to observe how the steam cools and water drops form.
- **Illustrating the water cycle.**
  To demonstrate evaporation, place water in two identical jars or containers. Mark the water level and place a lid on one jar. Put both jars on a windowsill and record the changes in water level daily.
- **Interpreting the water cycle**
  The class can illustrate the water cycle by preparing a play, story or dance. Separate into groups; each group will represent various natural features (sun, ocean, trees, and mountains) or elements of the water cycle (evaporation, precipitation, and clouds). Use props such as tinsel for rain or wool for clouds.
- **English:** Use the various 'tion' words associated with the water cycle (evaporation, transpiration, condensation, precipitation) to initiate discussion on other unfamiliar sound and letter combinations.
- **Demonstrating transpiration**
  Place a clear plastic bag over the leaves on the end of a plant. Tie the opening of the plastic bag with a piece of string. Monitor the bag throughout the day (in 1 or 2 hourly intervals) to see evidence of transpiration trapped in the bag. It is best to set up this experiment first thing in the morning. The results will vary depending on the heat of the day and the plant chosen.