

Year 4 - Science

Teacher Guide: The water cycle

Water is the most precious resource on earth. The *water cycle* describes the way water moves around the planet in a continuous cycle driven by the sun and how it changes form. The earth has been recycling water for over 4 billion years.

Evaporation: energy from the sun (light and heat) warms the earth's surface causing the temperature in our lakes, rivers and oceans to rise. Some of the water evaporates into the air turning into a gas called vapour. Plants and trees also lose water through their leaves into the air, this stage is called transpiration.

Condensation: the vapour rises into the air and the cooler temperature changes the form of water back to a liquid (condensation). The liquid droplets join together to form clouds that are moved around by air currents.

Transpiration: is the process where plants absorb water through the roots and then give off water vapour through pores in their leaves.

Precipitation: when the clouds become too full and heavy of water droplets for the air to hold them, they fall back to earth as rain, hail, sleet or snow. This is called precipitation.

Collection: once water returns to the earth, it is collected in places such as rivers, lakes and oceans, where the process of evaporation will occur once more.

The word cycle in the water cycle, refers to a series of events that are repeated over and over.

Australian Curriculum

Learning Area Science	Content Descriptions
AC9S4U02	Identify sources of water and describe key processes in the water cycle, including movement of water through the sky, landscape and ocean: precipitation; evaporation; and condensation.
AC9S4I03	Follow procedures to make and record observations including making formal measurements using familiar scaled instruments and using digital tools as appropriate.
AC9S4I02	Use provided scaffolds to plan and conduct investigations to answer questions or test predications, including identifying the elements of fair tests, and considering the safe use of materials and equipment.
AC9S4I05	Compare findings with those of others, consider if investigations were fair, identify questions for further investigation and draw conclusions.
AC9S4I06	Write and create texts to communicate findings and ideas for identified purposes and audiences, using scientific vocabulary and digital tools as appropriate.
Cross-curriculum priorities	Sustainability
General capabilities	Literacy, Critical and Creative Thinking, Personal and Social Capability

Learning goals

Know:

- The names and stages of the water cycle.
- Water can be solid, liquid and gas.

Understand:

- That water moves in a continuous cycle.
- The water cycle happens all around us (the atmosphere, lakes, oceans and rivers are all connected through the water cycle).

Do:

- Represent understanding through structured activities.
- Engage in scientific procedures, observe and record findings.

Achievement standard

By the end of Year 4, students

Science

...identify key processes in the water cycle and describe how water cycles through the environment.

...pose questions to identify patterns and relationships and make predictions based on observations. ... they compare their findings with those of others, assess the fairness of their investigation, identify further questions for investigations and draw conclusion...they communicate ideas and findings for an identified audience and purpose, including using scientific vocabulary when appropriate

Teaching and learning resources

- YouTube video '*How does rain form and what is the water cycle?*'
- <https://www.youtube.com/watch?v=zBnKgwnn7i4> (published April 16, 2014).

Materials	Number
Smart board or projector	1
Internet connection	1
Water Cycle poster	1
Optional depending on activity	
Activity sheets	
Paper plates	
Collage materials (including pencils or pens)	
Glass bowl – per experiment	
Drinking glass – per experiment	
Cling wrap	
Hot water	
Ice	

Adjustments / strategies to include all students

	Enabling	Extending
Content:	As required explore the water cycle poster in advance with students and identify key vocabulary	Students compare and contrast alternate water cycle diagrams on the internet and select one that provides the most information that you also understand
Process:	Guide students one-to-one where necessary to explain the unit	Provide students with access to undertake their own research of key words or environmental impacts on the water cycle
Product:	Make up mimes to the new vocabulary form the water cycle for others to guess	Students create their own explanation of the water cycle including images such as posters, brochures, film, etc

Evidence of Student Learning

Students are able to:

- Describe the stages of the water cycle.
- Use the scientific words for each stage.
- Make connections between the weather and the water cycle.
- Describe the forms of water.

Group reflection

Refer to *Elaborate and Review* in each Lesson Plan.

Feedback

If you would like more information or to provide feedback please contact our Education team at education@hydro.com.au