

Year 7 science

Water's incredible journeys role-play

Australian Curriculum links: Year 7 Science

Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable (ACSSU116)

Year 7 Geography

The way that flows of water connects places as it moves through the environment and the way this affects places (ACHGK038)

In this activity, students consolidate their ideas about the natural water cycle in their local catchment by devising a class role-playing activity about the journeys that a water molecule can take through the water cycle.

Equipment

For each group

- one or two sheets of stiff A4 card
- markers
- a copy of the [Water cycle poster](#)
- a mathematical net of a cube to make a die for each station
- scissors, glue, sticky tape

Preparation

In the 'long' version of this activity, students create the station labels. If you want to shorten the activity, make the station labels and dice and begin the game at step 7.

Activity steps

1. Ask students to identify the different places that a water molecule can go as it moves through and around the Earth. Discuss the idea that the movement of water depends on energy from the Sun and on gravity. Also explain that the water molecule may not go anywhere for a very long time – for instance, when the water is contained in a confined aquifer. However, make sure that students realise that most groundwater moves through aquifers, albeit very slowly.
2. Students take the role of a water molecule and explore the different pathways that water might take in the water cycle. They create stations around the classroom that represent the places that a water molecule would move through as it journeys through the water cycle. The stations for this activity are: cloud, river, ocean, animal, plant, lake, soil and aquifer.

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3. Divide students into six groups and assign each group at least one station. The 'river' group is also responsible for the 'ocean' station and the 'animal' group is also responsible for the 'plant' station. Each group makes and illustrates a label for each station by folding a piece of stiff A4 card in half. Place the station cards at convenient points around the room.
4. For each water cycle station, the group lists all possible destinations that a water molecule could go to after it leaves their particular station. For instance, from the 'cloud' the water molecule can move to the lake or the river or the soil or the ocean. Students can refer to the 'Water cycle poster' for ideas for possible water molecule destinations.
5. In a class discussion, each group justifies their ideas about the possible destinations that a water molecule might have from their stations. A list of possible destinations from each water cycle station could be:

Station	Destinations
cloud	river, ocean, soil, lake
river	ocean, animal, plant, aquifer, cloud, soil
ocean	cloud, plant
animal	soil
plant	cloud
lake	cloud, soil, aquifer
soil	cloud, aquifer, plant
aquifer	river, soil, plant, ocean, lake

6. The groups use a mathematical net of a cube to make a die for each station. Before folding the die, students label each side of the cube with a different destination. They could also draw an appropriate icon. As most of the stations have less than six possible destinations for the water molecules, students can repeat the most likely pathways on the remaining blank sides of the cube (Figure 1). Mention that it is easier to crease the folds first before they fold up the cube.
7. To play the game, divide the class in two. One half of the class plays the game with the dice while the other half watches and records the water cycle journey of the players.
8. Divide the half of the class that are playing into six groups – one group per station. A student at a station rolls the die to determine which station they go to next. The players move from station to station, rolling the die at each station to determine where they go next. When the players have moved to four or five stations, they swap places with the second half of the class.

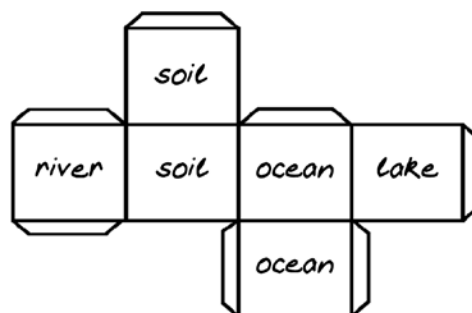



Figure 1: Example of the 'cloud' die

Alternatively, if you have sufficient space, you could make multiple copies of each station die to enable the whole class to play simultaneously.

Students share their ideas about the pathways that the water molecules take as they move through the water cycle. Ask them to suggest ways in which the water cycle role-play can be changed or improved.



Ask students to imagine that the water cycle role-play is taking place in their local catchment. Where would they place the stations of the water cycle in their local catchment? Draw a rough map of the catchment and discuss what the water cycle would look like at a catchment scale.