

Nurturing the
Naturalist
intelligence

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NURTURING THE NATURALIST INTELLIGENCE

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Unit 1 **IS COOPERATION THE BEST SITUATION?** 

In this unit, students study how we as humans, and indeed all of nature, are connected in the web of life. Students use a wide range of intelligences as they draw, sing, chant, act, observe, categorise, design, reflect and move while blindfolded. They learn about: plant-animal interdependence, humans' connections with other aspects of nature, connections between countries, interdependence of body parts and links within language.

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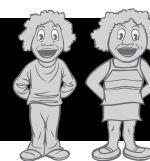
Unit 8**WHY DON'T SPIDERS
STICK TO THEIR OWN
WEBS?**

The wonders of nature are all around us, but we often don't notice them. In this unit, students go hands-on with one such wonder: spider webs. They discuss, speculate, imagine, analogise, dramatise and read poetry about this marvel of the natural world. Students learn what keeps spiders from sticking to their webs and how to see the world from spiders' point of view.

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This unit celebrates the uniqueness of each of us. Students use diagrams, chant, predict, draw and debate. Starting with their own profiles, they come to understand what makes them distinctive as individuals as well as their similarities to others. This concept is explored via such topics as fraternal and identical twins, fingerprints and the distinctive patterning on tigers' faces.

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KEY IDEAS

1. Water is essential to life.
2. Water covers 71% of Earth.
3. The bulk of water on Earth is not fresh water. Only 2.5% is fresh water.
4. Our drinking water is very finite, with only 0.3% of fresh water readily available to us.
5. Water is recycled through a perpetual cycle of change from water to water vapor and back again.
6. Humans face a global water problem from the rising demands of a growing population and from development and mismanagement of this precious and finite resource.

FOR YOUR INFORMATION

Life on this planet began in water, a precious and finite resource that we humans often take for granted. Without water, life as we know it cannot be supported. Seventy-one percent of Earth is covered by water. Only 2.5% of this water is fresh water. Most of this fresh water is not available to humans. Sixty-nine percent of it consists of ice in the polar caps and glaciers. Of the remainder, much of it is inaccessible fresh water far under Earth's surface. Surface water, which is the most common source of our water, constitutes only 0.3% of Earth's fresh water. Imagine all Earth's water in a 4L jug. What is available to us is about one tablespoon!

Water is essential to life. Water is necessary for plants to make their own food and for their growth. More than 90% of a head of lettuce, for instance, consists of water. Typically, about 55% of a human female is water. A human male is made up of even more water, at about 70%.

Most of the water on Earth is found in the seas. Nature goes about its eternal recycling of water with water vapor rising from the ocean, leaving the salts behind when the sun heats the sea. Clouds form from the evaporation of water from the sea, as well as from water vapor arising from the transpiration of plants. Rain is released from clouds. This water falls and flows into rivers, lakes and seas. It also seeps into the ground.

Humans not only use water for domestic and industrial purposes, but also for irrigation for crops. Water is collected in reservoirs, treated, used for various human purposes, and then returned as wastewater to the sea after treatment. Water is recycled over and over again in a perpetual cycle. Yet, experts warn that humanity is facing a water shortage crisis with 50 countries and 30% of the world's population predicted to run short of water by 2025.

WHAT IS PRECIOUS AND FINITE?

Rising human populations, industrialisation, indiscriminate development and environmental mismanagement are all factors contributing to the global problem of water shortage. For instance, if chemicals pollute our lakes and rivers, such water will not be clean enough for swimming and fishing, much less drinking. Every one of us needs to take personal responsibility for this problem and its solution. While the basic human need for water for drinking and other uses is 50 litres per day, human wants can

be as much as 500 litres per day. How we can help may be as simple as making sure that taps are turned off properly and taking a shower instead of a bath, or as complicated as changing the water use practices of corporations.

UNIT VOCABULARY

- Acid rain
- Audit
- Beaker
- Bunsen burner
- Calcium carbonate
- Coarse
- Condensation
- Cubic feet
- Cycle
- Diameter
- Discoloration
- Droplets
- Erosion
- Evaporation
- Germinate
- Hydrochloric acid
- Marble
- Mist
- Nitric acid
- Peat moss
- Phenomena
- Photosynthesis
- Precipitation
- Raised
- Reservoir
- Resolution
- Respiration
- Seedling
- Simulate
- Sulfuric acid
- Top soil
- Transpiration
- Vapor
- Wisps



KNOW YOUR EARTH

Students visualise what Earth looks like, draw their visualisations, and compare visualisations with a partner. Pairs calculate the average percentage of Earth covered by water in their drawings. The teacher informs them of the actual percentage.

► STRUCTURES

- RallyTable

► MATERIALS

- Activity sheet: Comparing Visualisations of Earth (1 per pair)

1 STUDENTS VISUALISE EARTH

Students close their eyes and visualise planet Earth. The teacher asks, “What do you see — oceans, lakes, rivers, valleys, mountains, cities, people, other animals, trees, spaceships landing from outer space?”

2 STUDENTS DRAW THEIR VISUALISATIONS

Students open their eyes and draw what they visualised. Students share their drawings with a teammate.

3 PAIRS COMPARE DRAWINGS

With the aid of a Venn Diagram, pairs compare their two drawings. Partners take turns writing one similarity or difference on the diagram. They continue back and forth in this manner (RallyTable).

4 PAIRS ESTIMATE THE PERCENTAGE OF WATER IN THEIR DRAWINGS

The teacher asks pairs to look at their two drawings and estimate what percentage of Earth is covered by water in each of them. Together they then calculate the average percentage of water in the two drawings. The teacher informs the class that the actual percentage is about 71%.

COMPARING VISUALISATIONS OF EARTH

Directions: Use this Venn Diagram to compare the two drawings of planet Earth.

