WATER

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Contents:

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Main Objectives:

1. Distribution of water on Earth:
   - To understand that the volume of water on Earth does not change, but its location does (The water cycle).
   - To acknowledge the proportion of salt-water versus fresh-water.
2. To acknowledge the human impact on the environment and natural resources, and the importance of saving water.
3. To know the main sources of fresh-water on Earth:
   - Ground and superficial water. Rivers, springs, lakes, lagoons, and reservoirs.
   - To know and apply the vocabulary related to the topic.

Useful websites:

ProTeacher: Go With The Flow An easy and fun activity to watch water streams in movement.

http://home.freeuk.net/elloughton13/contents.htm Basic information on rivers and their features, with illustrations.

Discovery Creek : Teachers : Curriculum Resources : Water Glossary Hands-on activities with lesson plans around the theme of water.

Mediateca EducaMadrid - Imágenes - Buscar Images of bodies of water.

http://recursos.cnice.mec.es/vancoimagene4/ Images bodies of water. Mainly waterfalls.

http://www.cyii.es/cyii.es/web/home.html (Canal de Isabel II) Daily information on volume of water on Madrid's reservoirs.

http://www.enchantedlearning.com/geography/landforms/glossary Glossary on bodies of water and landforms, and many more activities primary science, including photocopiables.

WATER

drought

solid

liquid

gas

heat

condensation

evaporation

precipitation

flood

river

lake

lagoon

mouth

source

sea

ocean

flow

aquifer

spring

increase

Vocabulary Cards

aquifer	**n.** an underground bed or layer of earth, gravel, or porous stone from which water flows. **"Aquifers form when rain water filters through the ground".**
condensation	**n.** the conversion of a vapour or gas to a liquid. It happens when the temperature lowers. **"When condensation happens, clouds are formed".**
drought	**n.** a prolonged period of abnormally low rainfall; a shortage of water. **"During a drought, we must reduce the use of water as much as possible".**

evaporation	**n.** the act or process of evaporating. When water evaporates, it changes from liquid to solid. **"Water evaporates from the sea and becomes vapour".**
flood	**n.** an overflow of a large amount of water over dry land. **"Floods can cause serious damage".**
flow	**n.** to move or run smoothly with unbroken continuity, as in the manner characteristic of a fluid. **"Rivers flow from the mountains to the sea".**

gas	**n.** an air-like fluid substance that expands freely to fill any space available. **"Vapour, oxygen, and carbon dioxide are gases".**
increase	**v.** make or become greater in size, amount, or degree. **"When there is a flood, the volume of water in rivers increases".**
heat	**n.** the quality of being hot; high temperature. **"With the heat from the Sun, water evaporates".**

lake	**n.** a large area of water surrounded by land. **"Lake Superior, in North America, is the largest fresh water lake in the world".**
lagoon	**n. . 1** a stretch of salt water separated from the sea by a low sandbank or coral reef. **2** N. Amer. & Austral./NZ a small freshwater lake near a larger lake or river. **"Lagoons are home to many animal species, like ducks and cranes".**
liquid	**n.** a substance with a consistency like that of water or oil, i.e. flowing freely but of constant volume. **"Water, milk, and oil are liquids".**

mouth	**n. (of river)** the place where a river enters the sea. **"The mouth of River Nile forms a delta, or triangular shape".**
ocean	**n.** any of the principal divisions of salt water on Earth, including the Atlantic, Pacific, Indian, Arctic, and Antarctic oceans. **"Some Spanish rivers flow into the Atlantic Ocean".**
precipitation	**n.** rain, snow, sleet, or hail that falls to the ground from the clouds. **"There will be precipitation in the mountains on Monday".**

river	**n.** a large natural flow of water travelling along a channel to the sea, a lake, or another river. **"Rivers in Spain are short, and with a small volume o water".**
sea	**n.** a relatively large body of salt water, partially enclosed by land, and smaller than an ocean. **"Some Spanish rivers flow into the Mediterranean Sea".**
solid	**adj.** if something is solid, it doesn't change in shape or volume when you change the container that holds it. **"Ice is the solid state of water".**

source	**n. (of river)** a spring or other place from which a river or stream begins. **"The source of River Nile is Lake Victoria".**
spring	**n.** a place where water wells up from an underground source. **"Sometimes, the source of a river is a spring".**

WATER

Glossary

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sea: n. a relatively large body of salt water, partially enclosed by land, and smaller than an ocean.

solid: adj. if something is solid, it doesn't change in shape or volume when you change the container that holds it.

source: n. (of river) a spring or other place from which a river or stream begins.

spring: n. a place where water wells up from an underground source.

What is fresh-water?

What is salt-water?

Can water on Earth be used up or run out?

Why is water important?

Where do we get fresh-water from?

What is the source of a river?

What is the mouth of a river?

Can you name eight Spanish rivers?

Is there water in the air?

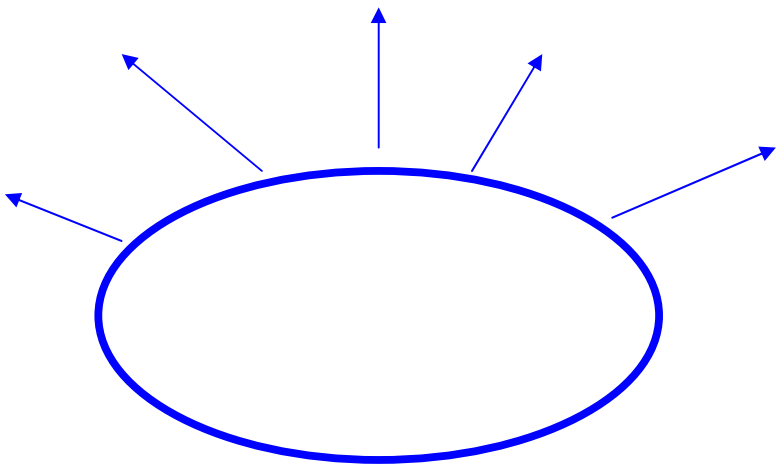
Is water in the oceans different from water in streams and rivers?

How much fresh-water is there?

KEY QUESTION CARDS

PRIOR LEARNING

Write 5 Facts you know about water.
Add more arrows if you know more.



Hands on activity

FRESH-WATER ON EARTH

- **Objectives: 1. Find out the percentage of fresh-water on Earth. 2. Raise awareness of the scarcity of fresh-water and the importance of using it wisely.**

Before you start:

Amount of water on Earth found as ice and weather systems: 2% (white macaroni)

Amount of water on Earth held in living things: 0.5% (red macaroni)

Amount of fresh-water on Earth: 0.5% (blue macaroni)

You will need:

- A big bowl or bucket
- 100 pieces of macaroni
- Wax crayons
- Pencil and paper
- A physical World map
- Small cups
- Blu tack (wall fixing adhesive)

Procedures:

1. Place the World map on the board. Explain the children that today they will find out how much fresh water there is on Earth, and where it is located.
2. Have students place 100 macaroni pieces inside the bowl. This represents all the water in the World. In the map, ask some children to identify some places where water is found.
3. Now ask children if they can find some water in the form of ice (ice polar cups). Ask two children to colour two macaroni white. This represents the amount of water that is found as ice and in weather systems (2%). Place pasta back in the bowl.
4. Ask children if living things have water in their bodies. Have a child colour half a piece of macaroni red. This represents the amount of water held by living things (0.5%). Place pasta back in bowl.
5. Where is all the fresh-water? Ask some children to find some rivers and lakes. Remind them of ponds, springs, and aquifers, which also have fresh-water. Have a child colour half a piece of macaroni blue. This represents the amount of fresh-water on Earth (0.5%). Place pasta back in bowl.
6. Tell the children they will be hunting for fresh-water to drink. Give them cups and one at a time, allow them to dip their cups in the bowl without looking. If they find a coloured piece of macaroni, they can stick it to the world map in the correct place with blu tack (wall fixing adhesive).
7. Ask children to complete the questions sheet and table.

Now answer these questions:

1. What is the percentage of fresh-water on Earth?

_____

2. What is the percentage of water in living things?

_____

3. What is the percentage of water as ice?

_____

4. What is the percentage of salt-water?

_____

5. Is fresh-water necessarily clean?

_____

How to Use Water Wisely

Complete the table:

Water you use	How to waste it	How to save it
To brush my teeth	Let the tap run while I brush my teeth.	

WATER: Read and Understand.

WATER: Read and Understand.	
Earth is often called the blue planet. Have you ever wondered why? Look at a globe and you will soon realize that our planet is mostly covered by water. Water is necessary for all living things. Without water, there would be no plants or animals. We use it to drink, to cook, to wash ourselves, to sail through it, and even to produce energy.	

Most of the water on Earth is salt-water. Salt-water is water with a high amount of salt in it. We can find it in seas and oceans. Many animals and plants depend on this type of water, like fish, marine invertebrates, marine mammals, seaweed and plankton.

Earth also has fresh-water. Fresh-water has a very low amount of salt in it, and it comes from the rain. It is found in rivers, lakes, ponds, and streams on the surface, and it can also be found underground in the form of aquifers and springs. Many animals and plants, including ourselves, depend on fresh-water for survival, but the supply of fresh-water is very scarce (only 0.5% of the total amount of water on Earth).

In Spain, sometimes weather conditions cause a lack of rain for a long period of time. This is called a drought. When this happens, the level of water in rivers, lakes, and reservoirs decreases. As a result, the crops in the fields may be lost, and we may have water restrictions in our homes. This is why it is important to use water wisely.

Water: read and understand II.

ANSWER THESE QUESTIONS:

1. Why is Earth called the blue planet?

_____

_____

2. Where can salt water be found?

_____

_____

3. Where does fresh-water come from?

_____

_____

4. Where can fresh-water be found?

_____

_____

5. Describe some ways in which we use water.

_____

_____

6. What is a drought?

_____

_____

7. In what ways can we save water?

_____

_____

8. What is the percentage of fresh-water on Earth? _____

_____

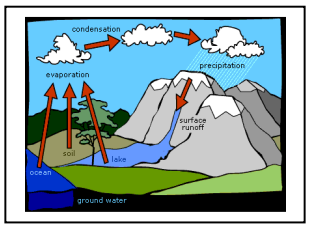
9. Name some living things that depend on salt- water. _____

_____

10. What would the Earth be like if it had no water? _____

_____

THE WATER CYCLE
Facts sheet + Diagram



- The amount of water on Earth doesn't increase or decrease over the years. It is in constant movement, and changing state from liquid to gas, to liquid again or solid. This is why we say it is a cycle.
- Water can be found in three states: liquid, solid, and gas.
- The boiling point for water is 100 degrees Celsius. When water reaches this temperature, it becomes vapour, which is a gas.
- The freezing point for water is 0 degrees Celsius.

When water reaches this temperature, it becomes snow, hale, or frost, which are solids.

- Water in the oceans, seas, lakes, and rivers, gets warm with the Sun's heat, and it turns into vapour or gas. This vapour travels in the air, going higher and higher. This is called evaporation.
- When the vapour reaches colder air, it turns into very small droplets of water again, which remain together in the form of clouds. This is called condensation.
- When the small droplets get bigger, they fall down to the ground with the force of gravity, in the form of rain, sleet, snow, or hale. This is called precipitation.
- Some of that water goes back to rivers, lakes, oceans, seas, and reservoirs, and the cycle begins again.