

Watery Earth

How to Use This Study Guide

The Watery Earth Unit has an abundance of information and materials. This study packet was created to help you and your child focus on what to study for the Watery Earth quizzes.

The study packet breaks down the information you need to know into lesson summaries. Each lesson summary includes the lesson goals, vocabulary and key notes. All of the quiz questions were derived from these lesson summaries. If you would like to use the Watery Earth notebooks and Student Reference Books at home to help develop an understanding of the unit, that is fine. However, all quiz questions were based on this study packet.

The Watery Earth Unit is divided into three themes:

1. Water Is a Resource (Lessons 1, 2, 9 and 10)
2. Water Follows a Cycle (Lessons 3 – 8)
3. Taking Care of Water Resources (Lessons 11 – 15)

For the Watery Earth Unit, your child will take five quizzes:

1. Quiz 1 – Lessons 1 – 2
2. Quiz 2 – Lessons 3 – 5
3. Quiz 3 – Lessons 6 – 8
4. Quiz 4 – Lessons 9 – 10
5. Quiz 5 – Lessons 11 – 13

Each quiz will include a vocabulary section, a true/false section, and a section where your child will apply their knowledge. Look in our class newsletter for quiz dates as they approach and focus your study on the lessons pertaining to that quiz. All the information your child needs to be successful is in this study packet.

Good luck and enjoy the unit!!
Mrs. Hauck

Watery Earth

Lesson 1: The Wonder of Water

SRB: pages 1 – 20

Student Notebook: pages 1 and 54

Goals:

1. Make connections between scientific study of water and personal experiences with water.
2. Think about a familiar substance (water) in a new way.

Vocabulary:

1. Water: A liquid that makes up oceans, rivers, lakes, etc., and falls from the clouds as rain.

Notes:

1. Water is a natural resource that is essential for humans and other organisms.
 2. When water is a solid, it is called ice.
 3. When water is a gas, it is called water vapor.
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Lesson 2: Exploring Who Uses Water

SRB: pages 21 - 36

Student Notebook: pages 2 - 4

Goals:

1. Recognize the importance of water in one's own life.
2. Know that water is a natural resource.
3. Explore and compare the ways humans and other organisms use water.
4. Gain an appreciation for the ways that water is essential for life.

Vocabulary:

1. Environment: Everything that surrounds a living thing.
2. Essential: Needed for survival.
3. Human-made: Produced by humans.
4. Natural resources: Things we use that are found in nature, such as water, air, land, forests, oil, and minerals.
5. Resource: Things we use that meet our needs and wants. They may be human-made or natural.

Notes:

1. Humans can't survive without water but most of us use much more than we actually need.
2. The water contained in the oceans, seas, polar ice caps, glaciers, rivers, streams, ponds and other forms of water make up about 2/3 of the Earth's surface.
3. Most of the earth's water (around 97%) is salty and therefore not fit for human's to drink.
4. Although you cannot tell by looking at us, humans are about 70% water.

Lesson 3: Following a Drop of Rain

SRB: pages 37 - 42

Student Notebook: pages 5 - 7

Goals:

1. Explore, document, and share ideas about what happens to a drop of rain after it falls.

Vocabulary:

1. Precipitation: Condensation that forms in clouds and falls to the ground as rain, snow, or hail.

Notes:

1. Water can be on Earth's surface, underground, or in the air.
 2. All water on Earth circulates through the water cycle.
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Lesson 4: Learning About Surface Water

SRB: pages 43 - 54

Student Notebook: pages 8 - 13

Goals:

1. Discover that water covered most of the Earth's surface.
2. Learn that most of Earth's surface water is contained in the salty oceans.
3. Learn some of the bodies of surface water in the United States and in a state and local area.
4. Appreciate that some areas of the country and world have more water than others.

Vocabulary:

1. Body of Water: Surface water that has collected in a lake, river, stream, or other area.
2. Dissolve: When a solid, such as salt, mixes with and becomes part of a liquid, such as water.
3. Fresh Water: Water with little or no salt dissolved in it. Found in rivers, streams, and most lakes.
4. Salt water: Water with salt dissolved in it. Found mainly in oceans and seas.
5. Surface Water: Liquid water on the surface of the earth, not underground or in the air.

Notes:

1. The Earth's oceans and seas make up a majority of the salt water on our planet.
2. Most of the water on Earth today has been around in one form or another for eons.
3. The amount of water on Earth stays the same because it is constantly circulating through the water cycle, and no new water is added.

Lesson 5: Learning About Groundwater

SRB: pages 55 - 61

Student Notebook: pages 14 - 17

Goals:

1. Recognize that there is fresh water stored underground.
2. Become more familiar with how Earth's water is distributed, particularly groundwater.
3. Begin to appreciate that the amount of fresh water available to humans is very limited.

Vocabulary:

1. Aquifer: A porous underground layer of rock, sand or soil in which water is stored.
2. Gravity: The downward pull on all objects toward the center of the earth.
3. Groundwater: Water that is stored beneath the earth's surface.
4. Percolate: To move slowly down through the earth's layers.
5. Porous: Having many small spaces or holes.

Notes:

1. Water can be on Earth's surface, underground, or in the air.
 2. All water on Earth circulates through the water cycle
 3. Most of the available fresh water on Earth is stored as groundwater in aquifers.
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Lesson 6: Learning About Frozen Water

SRB: pages 63 - 76

Goals:

1. Recognize that most of the fresh water on Earth is in the form of ice that is located in hard to reach places.
2. Become more familiar with the distribution of Earth's water around the globe, particularly water in glaciers and polar ice caps.
3. Appreciate that the amount of fresh water available to humans is very limited.

Vocabulary:

1. Glacier: A large, long-lasting mass of moving ice and snow.
2. Glacial Meltwater: Water that flows out from the front edge of a melting glacier.
3. Iceberg: A chunk of ice that breaks off from a glacier flowing into the sea.
4. Polar Ice Cap: The thick layers of ice covering the North and South Poles.
5. Sea Ice: A layer of ice formed when seawater freezes.

Notes:

1. Water can be on Earth's surface, underground, or in the air.
2. All water on Earth circulates through the water cycle.
3. Once ice or snow melts, it becomes an active part of the water cycle.

Lesson 7: Learning About Water in the Air

SRB: pages 77 - 90

Student Notebook: pages 18 - 21

Goals:

1. Recognize that water evaporates and exists in the air as water vapor, a gas.
2. Learn that water condenses on cold surfaces and at the cold temperatures in the air above the earth.
3. Understand that clouds are made of tiny droplets of water that have condensed from water vapor in the air.

Vocabulary:

1. Air: A mixture of gases that surround the earth.
2. Cloud: A mixture of tiny particles of water, dust and sometime ice, floating in the air.
3. Condensation: The change of a gas into a liquid when the gas is cooled.
4. Evaporation: The process of a liquid changing into an invisible gas.
5. Water Vapor: The state of water when it is an invisible gas.

Notes:

1. Water can be on Earth's surface, underground, or in the air.
 2. All water on Earth circulates through the water cycle.
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Lesson 8: Modeling the Water Cycle

SRB: pages 91 - 97

Student Notebook: pages 22 - 27

Goals:

1. Build a model of the water cycle that demonstrates evaporation, condensation, precipitation, and percolation.
2. Learning that water moves through the water cycle in different states (solid, liquid and gas).

Vocabulary:

1. Cycle: A repeating pattern of events.
2. Water Cycle: The way water always circulates between the air, the earth's surface, and the underground aquifers.

Notes:

1. Water can be on Earth's surface, underground, or in the air.
2. All water on Earth circulates through the water cycle.
3. A major part of the water cycle involves the evaporation and condensation of water.

Lesson 9: Water In, Water Out

SRB: pages 97 - 110

Student Notebook: pages 28 - 35

Goals:

1. Learn where our water comes from, how the water is made drinkable, and how the water gets to the people who need it.
2. Learn where our wastewater goes and how it is treated after use.
3. Apply knowledge about Earth's water to one's local situation.

Vocabulary:

1. Disinfect: To kill harmful bacteria, viruses and other organisms.
2. Reservoir: A place the community water supply system uses to store water before sending it to homes or businesses.
3. Septic System: Usually a tank under the ground that holds wastewater.
4. Wastewater: Water that has been used and needs to be cleaned.
5. Wastewater Treatment Plant: A place where wastewater is filtered and cleaned before going back into the water cycle.
6. Water Treatment Plant: A place where fresh water is filtered and cleaned before going to a community for its water supply.
7. Well: A hole dug in the ground so that groundwater can be pumped out of an aquifer.

Notes:

1. Water is a natural resource that is essential for humans and other organisms.
 2. To use water, we must develop ways to access it and clean it.
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Lesson 10: Considering Water Wants and Needs

SRB: pages 28 and 159 - 162

Goals:

1. Categorize water uses as "wants" and "needs" and explain.
2. Realize that they (and most people they know) use more water than they need.

Vocabulary:

1. Need: Something an organism must have in order to stay alive.
2. Want: Something an organism would like to have, but can survive without.

Notes:

1. Water is a natural resource that is essential for humans and other organisms.
2. Sometimes humans use more water than they need.
3. An average family in LA uses about 130 gallons of water per person a day!
4. One sixth of the world's population must still hand-carry water from its source to their homes.

Lesson 11: Conserving Water at Home

SRB: pages 111 – 122 and 151 - 154

Student Notebook: pages 36 – 43 and 54

Goals:

1. Learn that personal behavior directly affects the amount of water used by individuals.
2. Realize how much water is used for some household tasks.
3. Appreciate the ways water can be conserved around the house.

Vocabulary:

1. Conserve: To use something carefully so it's not wasted.
2. Estimate: A best guess.
3. Flow Rate: How fast or slow water comes out of a faucet or shower.
4. Mean: A typical or middle value for a set of numbers.
5. Value: A number that represent the amount of something.

Notes:

1. Water resources are limited.
 2. It is important to protect and conserve water.
 3. There are many areas in the world where people struggle on a daily basis to secure enough water to simply survive.
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Lesson 12: Walk the Talk: Looking for Pollution

SRB: pages 123 - 132

Student Notebook: pages 44 - 45

Goals:

1. Identify pollutants around the school and community.
2. Discuss and debate if, when and how various pollutants contribute to water pollution.
3. Explore ways to minimize the impact of pollutants on the water supply.

Vocabulary:

1. Contaminate: To make dirty or unclean.
2. Herbicide: A chemical used to kill unwanted plants.
3. Pesticide: A chemical used to kill unwanted pests, usually insects.
4. Pollutant: Something that contaminate air, soil, or water.
5. Pollution: A harmful change in the natural environment due to human activities.
6. Water Pollution: The addition of harmful substances that causes water to become unhealthy.

Notes:

1. Water is a natural resource that is essential for humans and other organisms.
2. To use water, we must develop ways to access it and clean it.

Lesson 13: Investigating a Way to Clean Water

Student Notebook: pages 46 – 49

Goals:

1. Conduct a simple investigation to answer a question.
2. Recognize that water is easy to pollute but difficult to clean.
3. Understand that different pollutants require different treatment strategies.
4. Learn there are many ways to define “clean” water.

Vocabulary:

1. Filter: A device that blocks some pollutants from getting into water or removes some pollutants from water.

Notes:

1. Water resources are limited.
 2. It is important to protect and conserve water.
 3. Water dissolves a number of different substances and holds them in solution. This is one reason why it is much easier to pollute water than to clean it up.
 4. Try to keep water from being contaminated in the first place.
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Lesson 14: Water Resources Case Study

SRB: pages 133 - 142

Student Notebook: pages 50 - 53

Goals:

1. Recognize and understand some ways that human actions, including the application of technology, can positively and negatively impact water supply and water quality.
 2. Synthesize and apply prior learning about water resources, water conservation and water pollution.
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Lesson 15: Protecting Water Resources Project

SRB: pages 143 - 149

Student Notebook: pages 54 – 57

Goals:

1. Apply knowledge from this unit to protecting water resources.
2. Learn that developing and implementing a plan of action can positively impact an issue.
3. Appreciate that students can be advocates for protecting water resource.
4. Understand that communicating something important to an audience can make a difference in the world.
5. Recognize that breaking complex projects into smaller, more manageable tasks helps accomplish them.