



Lesson Plan: Earth's Freshwater and Atmosphere

Grade Level: 5

Subject: Earth Science

Duration: 45–60

5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the five main layers of Earth's atmosphere and the characteristics of the troposphere
- **Describe** the stages of the water cycle, including evaporation, condensation, precipitation,



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Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-5-earth-s-freshwater-and-atmosphere-earth-s-freshwater-and-atmosphere.pdf>)



- Earth's Freshwater Activity Lesson (<https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-5-earth-s-freshwater-and-atmosphere-earth-s-freshwater-4.pdf>)
- Earth's Freshwater and Atmosphere Practice Worksheet 0 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-0.pdf>)
- Earth's Freshwater and Atmosphere Practice Worksheet 1 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-1.pdf>)
- Vocabulary Matching Worksheet (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-earth-s-freshwater-and-atmosphere-1.pdf>)

Lesson Procedure



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is stored in glaciers or underground in aquifers.

Step 3: Guided Practice (10 minutes)

- Distribute the Vocabulary Matching Worksheet and guide students through matching terms like 'Coriolis effect' and 'Atmospheric pressure' to their definitions. (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-earth-s-freshwater-and-atmosphere-1.pdf>)
- Complete Practice Worksheet 0 together as a class to reinforce concepts like atmospheric layers and the cause of Earth's seasons.



(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-0.pdf>)

Step 4: Independent Practice (15 minutes)

- Students complete the Earth's Freshwater Activity Lesson by labeling and explaining the parts of the water cycle on the provided diagram.
(<https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-5-earth-s-freshwater-and-atmosphere-earth-s-freshwater-4.pdf>)
- Instruct students to define 'groundwater' and 'runoff' in their own words based on the diagram cues.

Step 5: Assessment (10 minutes)

- Administer Practice Worksheet 1 as a quiz to evaluate understanding of atmospheric gases, salinity, and water cycle energy sources.
(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-1.pdf>)



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Guide.

Extension Activities

- Create a 'Water Cycle in a Bag' experiment to observe evaporation and condensation in real-time.
- Design a poster illustrating the five layers of the atmosphere with one fact per layer.



Complete List of Available Resources:

- NewPathWorksheets: Earth's Freshwater and Atmosphere (<https://newpathworksheets.com/science/grade-5/earth-s-freshwater-and-atmosphere>)
- Study Guide: Earth's Freshwater and Atmosphere (<https://newpathworksheets.com/api/guide/study-guide-science-grade-5-earth-s-freshwater-and-atmosphere-earth-s-freshwater-and-atmosphere.pdf>)
- Activity Lesson: Earth's Freshwater (<https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-5-earth-s-freshwater-and-atmosphere-earth-s-freshwater-4.pdf>)
- Worksheet 0: Earth's Freshwater and Atmosphere (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-0.pdf>)
- Worksheet 1: Earth's Freshwater and Atmosphere (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-earth-s-freshwater-and-atmosphere-1.pdf>)



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(<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-earth-s-freshwater-and-atmosphere-4.pdf>)



NEW PATH LEARNING



EARTH'S FRESHWATER AND ATMOSPHERE

The Rotating Earth

Planet Earth (the planet on which we happen to live) spins on an imaginary line called an **axis**. This spinning movement is called Earth's **rotation**.



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Lesson Checkpoint:

How long does it take the Earth to make one complete rotation?





The Earth's Temperature Changes

As the Earth moves on its orbit around the Sun, the areas on Earth closest to the Sun receive sunlight and are warmer than those further from the Sun. Of course, as the earth rotates, the areas facing the Sun slowly change, and that means the time of day and the temperatures change.

Look at the diagram below. If you live in the Northern Hemisphere (such as the United States) you can see how close and how far away the United States is from the Sun as the seasons change.

SPRING

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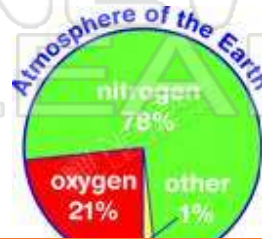




Make up of Earth's Atmosphere

The air that surrounds the Earth is known as the Earth's **atmosphere**. The atmosphere absorbs the energy from the Sun which the Earth uses in many ways to provide a planet on which living organisms can survive.

The Earth's atmosphere is mostly made up of nitrogen, oxygen, and other gases.



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Stratosphere

The stratosphere is just above the troposphere and is about 50 kilometers high. This layer is dry and less dense than the troposphere. The ozone layer is a part of this layer.

Mesosphere

The mesosphere is just above the stratosphere and is about 85 kilometers high.

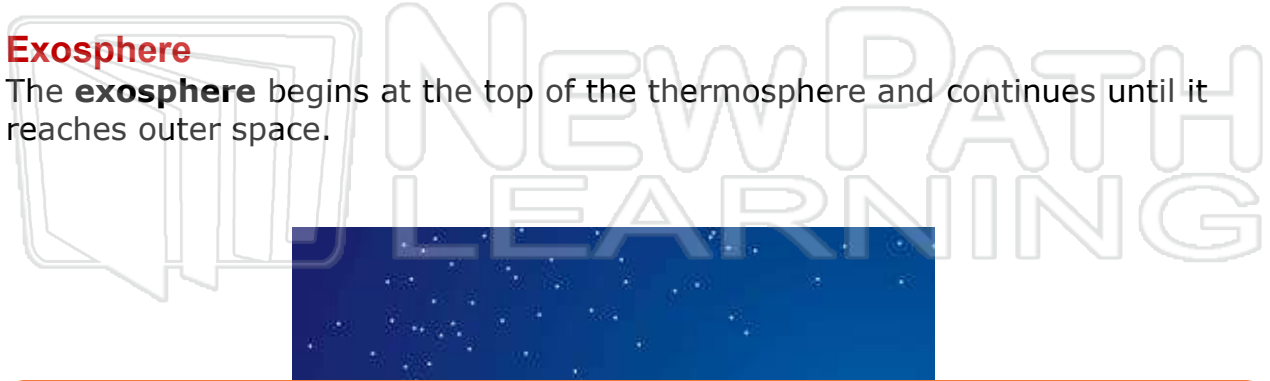


Thermosphere

The thermosphere is just above the mesosphere and is about 600 kilometers high. Temperatures in this region can reach above 1000 C. This layer is known as the upper atmosphere.

Exosphere

The **exosphere** begins at the top of the thermosphere and continues until it reaches outer space.



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The Ozone Layer

The ozone layer absorbs most of the sun's ultraviolet light (known as UV rays), which is a good thing since that kind of light can be EXTREMELY harmful to us on Earth.



Lesson Checkpoints

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An Air Quality Index will tell you! This index uses numbers and colors to tell you about the quality of air around you. The lower the number, the healthier the air and **GREEN** is good!!

Air Quality Index	
201 – 300	very unhealthy
151 – 200	unhealthy
101 – 150	unhealthy for sensitive groups
51 – 100	moderate
0 – 50	good



Water can be polluted too!

Where does water pollution come from?

Pollution comes from wastes from industries, people dumping contaminants into the ocean, water run off from fields that contain fertilizers and chemicals, untreated sewage drains, and from air pollution.

We need water that is NOT polluted. It's a good thing water is recycled here on Earth!!



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salt water and not so much freshwater. Rivers contain freshwater and where rivers and oceans meet, there is low salinity. Oceans have high salinity!



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The Water Cycle

The **water cycle** involves evaporation, transpiration, condensation, precipitation, and water runoff here on Earth.

The sun is the main energy supply for the water cycle.

The Water Cycle Process

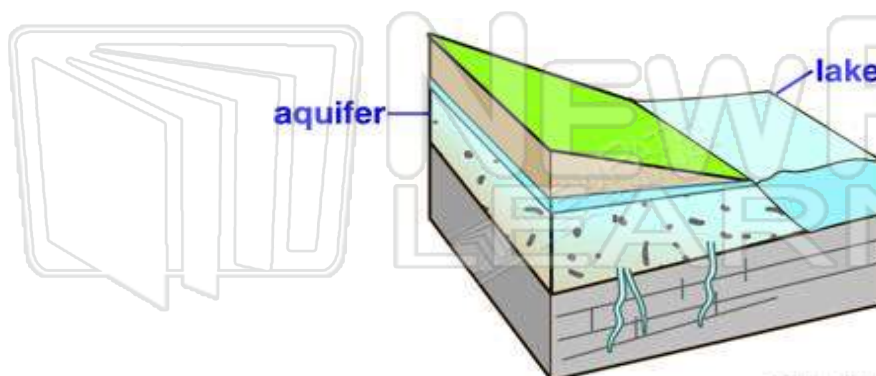
- 🌍 **Evaporation** is when a liquid changes into a gas. Evaporation occurs when the sun warms the water on Earth and some of that water changes into water vapor. The water vapor then goes into the air.
- 🌍 **Transpiration** helps the evaporation process. It is when plants give off water vapor through their leaves into the air.



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An **aquifer** is a layer of rock and soil which holds groundwater.



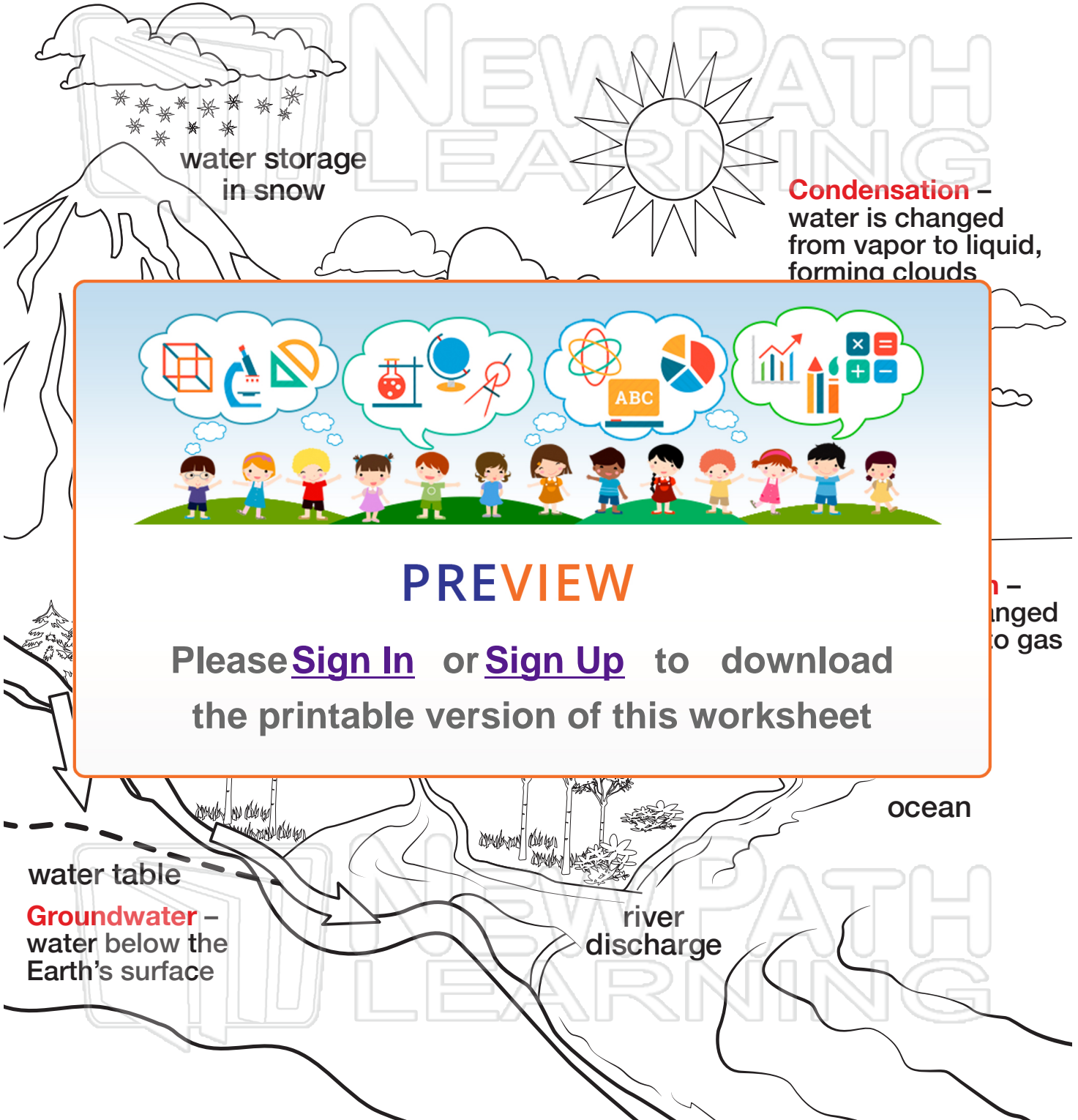


Earth's Freshwater

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Name _____ Class _____ Date _____

Water is everywhere on Earth and is the only known substance that can naturally exist as a **gas**, **liquid** and **solid**. It covers approximately **75% of the Earth's surface**. Most of Earth's water is saltwater. The **water cycle** describes the movement of water on, in, and above the Earth.



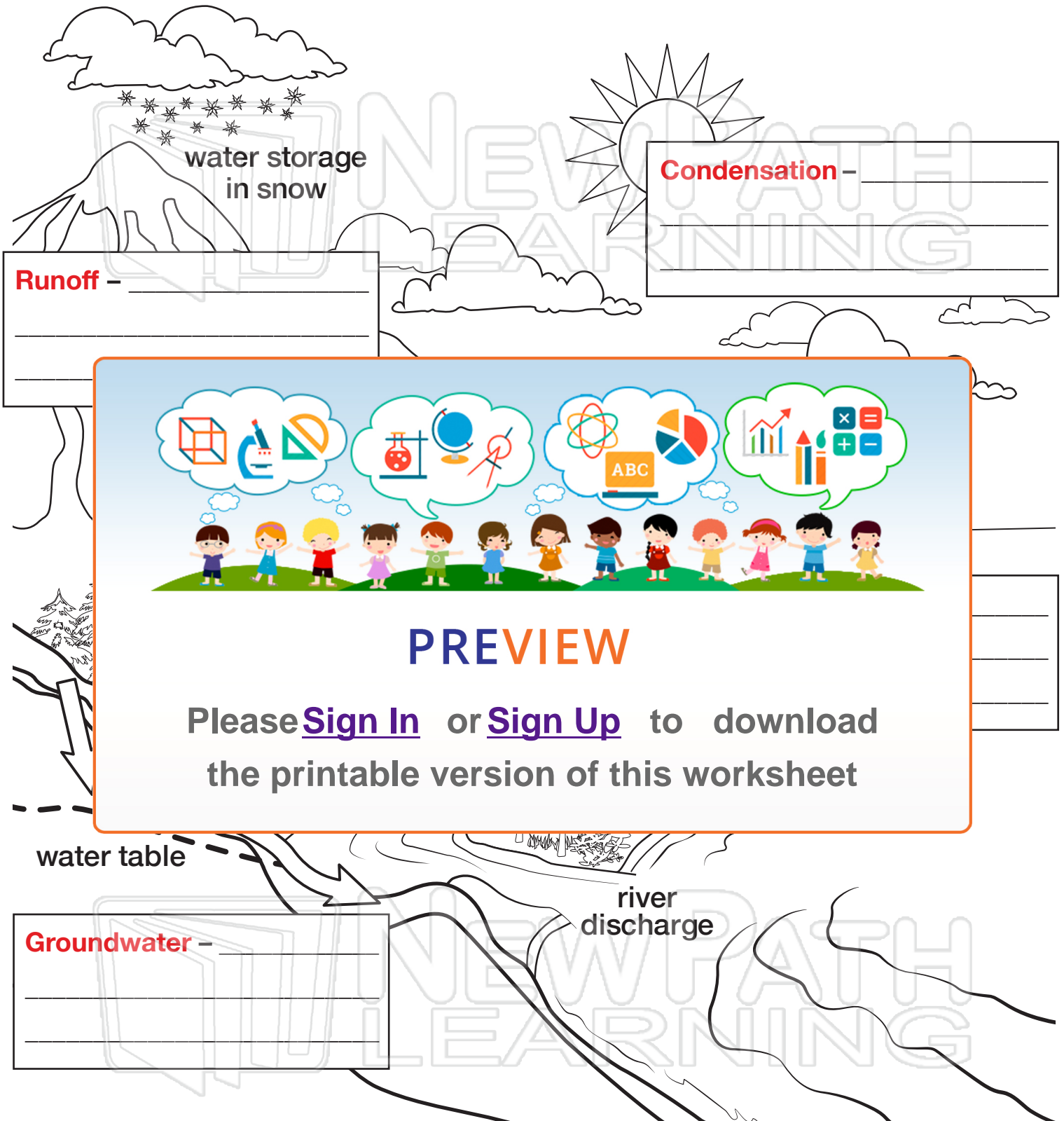


Earth's Freshwater

Sci
E

Name _____ Class _____ Date _____

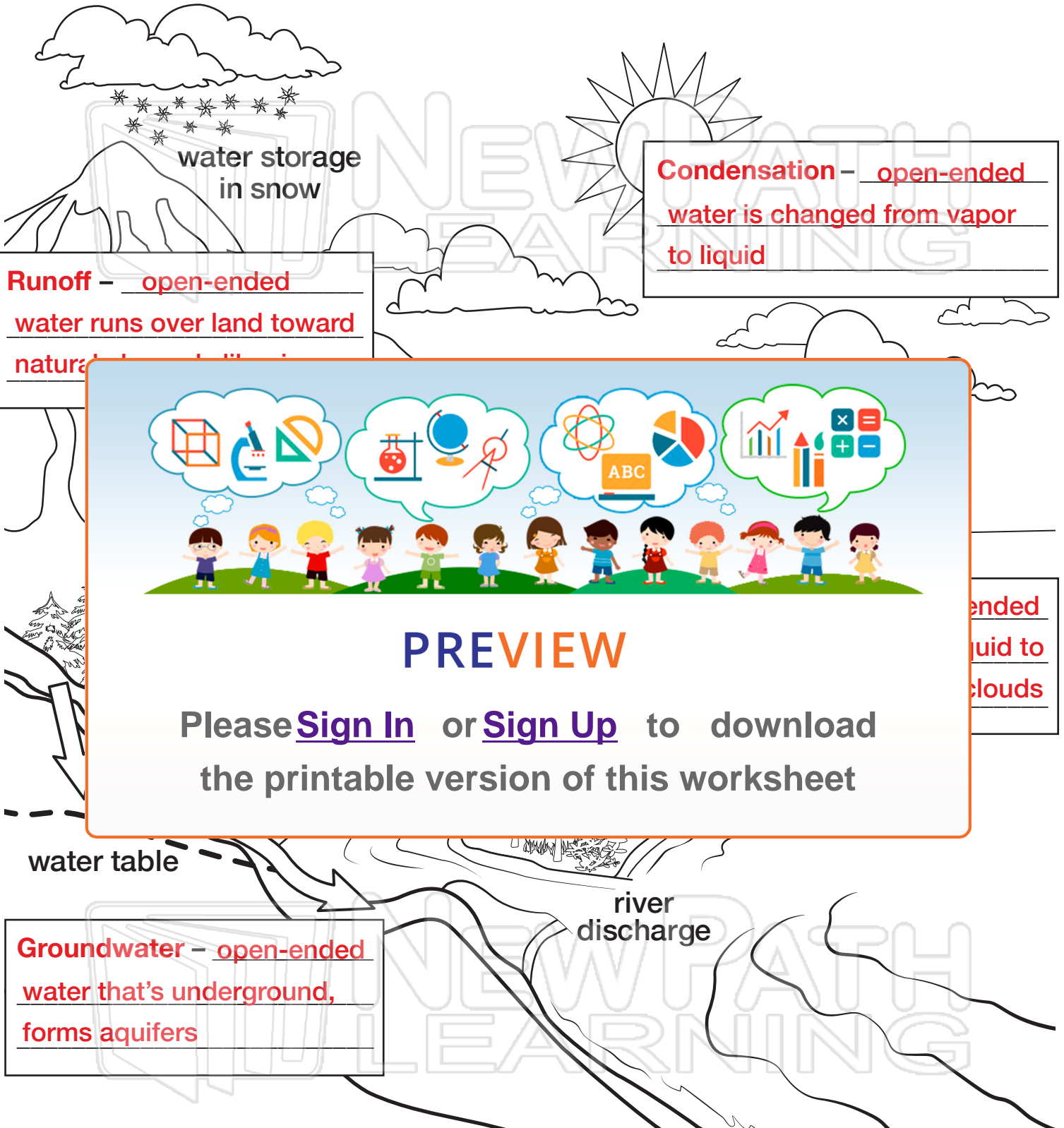
Describe or explain each part of the Water Cycle.





Answer Key


Describe or explain each part of the Water Cycle.





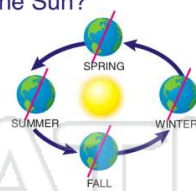
Name _____ Class _____ Date _____

1 What does the **quick rotation** of the Earth **every 24 hours** allow for?




- A extreme temperatures on Earth
- B Earth to be suitable to live on
- C Earth to experience rainfall
- D Earth to have seasons

2 During which **season** in North America is the Northern Hemisphere tilted **nearest** to the Sun?




- A winter
- B spring
- C summer
- D autumn

3 The air that surrounds the Earth is known as the Earth's **atmosphere**. What does the atmosphere do to make **survival on Earth** possible?



- A covers the sky with clouds

4 What gas is the **atmosphere** mostly made up of?




- A nitrogen gas
- B oxygen
- C carbon dioxide



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9 Which of the following is a **cause** of **air pollution**?



- A bicycles
- B litter
- C car exhaust
- D hail

10 This **gas** is highly **poisonous** and can cause death. It can come from cars, gas stoves, water heaters, furnaces, and space heaters. People have detectors in their homes to protect themselves from leaks of this gas, called _____.




- A nitrogen
- B oxygen
- C carbon dioxide
- D carbon monoxide



Name _____ Class _____ Date _____

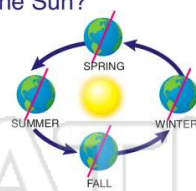
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(B)

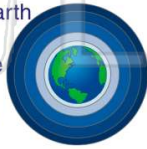
2 During which **season** in North America is the Northern Hemisphere tilted **nearest** to the Sun?



A winter
B spring
C summer
D autumn

(C)


3 The air that surrounds the Earth is known as the Earth's **atmosphere**. What does the atmosphere do to make **survival on Earth** possible?



A covers the sky with clouds
B traps heat from the Sun
C provides oxygen for breathing
D protects from meteorites

(D)

4 What gas is the **atmosphere** mostly made up of?



A nitrogen gas
B oxygen
C carbon dioxide
D hydrogen

(A)

5



(D)

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(B)

D troposphere




B ultraviolet light
C ultraradiant rays
D violent rays



9

Which of the following is a **cause** of **air pollution**?

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(C)

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(D)



Name _____ Class _____ Date _____

1 This gas is **colorless and odorless**. It is the gas we breathe out and the gas that plants take in. It is released into the air when coal, oil, and other natural gases are burned.
Which **gas** is being described here?

A nitrogen
B oxygen
C carbon dioxide
D carbon monoxide



2 The **Air Quality Index (AQI)**, developed by the EPA, is used as a yardstick to report air quality in your area and its effects to your health. **People with breathing problems should stay indoors** if the AQI is _____.

A 101 and above
B 51 and below
C 0-50
D 51-100

Air Quality Index	
201 - 300	very unhealthy
151 - 200	unhealthy
101 - 150	unhealthy for sensitive groups
51 - 100	moderate
0 - 50	good

3 For the air quality to be considered **good**, what ranking on the **Air Quality Index** would the air have?

A 0-50
B 51-100
C 101-150
D 151-200

Air Quality Index	
201 - 300	very unhealthy
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4 Which is the **most unhealthy** ranking on the Air Quality Index?

A 201-300
B 51-100
C 0-50
D 151-200

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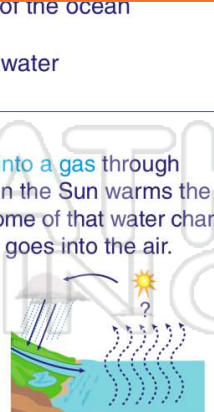
9 What is the **main energy supply** for Earth's **water cycle**?

A wind
B the Sun
C rain
D the atmosphere



10 A **liquid changes into a gas** through _____. When the Sun warms the water on Earth, some of that water changes into **vapor**, which goes into the air.

A condensation
B evaporation
C precipitation
D transpiration





Name _____ Class _____ Date _____

1 This gas is **colorless and odorless**. It is the gas we breathe out and the gas that plants take in. It is released into the air when coal, oil, and other natural gases are burned. Which **gas** is being described here?

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A

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Air Quality Index	
201 - 300	very unhealthy
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A

5



B

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A

D chlorine content

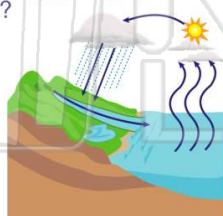


- B at the bottom of the ocean
- C near beaches
- D in cold ocean water

9

What is the **main energy supply** for Earth's **water cycle**?

- A wind
- B the Sun
- C rain
- D the atmosphere



B

10

A **liquid changes into a gas** through _____. When the Sun warms the water on Earth, some of that water changes into **vapor**, which goes into the air.

- A condensation
- B evaporation
- C precipitation
- D transpiration



B



Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Condensation

Atmospheric pressure

Atmosphere

Aquifer

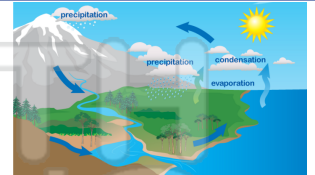
Water cycle

Coriolis effect

Carbon monoxide

Air Quality Index

1. _____ - the movement and recycling of the Earth's water from the Earth's surface to the atmosphere and back again



2. _____ - an index which uses numbers and colors to tell about the quality of air around you

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3. _____
water



4. _____

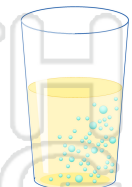
5. _____
on a s

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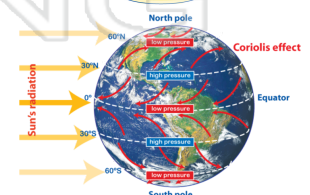
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6. _____
poison

7. _____ - the process by which water vapor (gas) cools and becomes liquid droplets of water



8. _____ - the apparent curving motion of an object caused by the rotation of the surface on which it is moving; the curved direction of global winds caused by the Earth's rotation on its axis





Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Condensation

Atmospheric pressure

Atmosphere

Aquifer

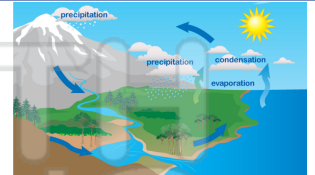
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3. aquifer
move

4. atmosphere

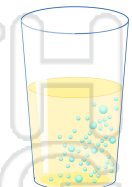
5. atmosphere
a surface

6. carbon dioxide
gas and

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7. condensation - the process by which water vapor (gas) cools and becomes liquid droplets of water



8. Coriolis effect - the apparent curving motion of an object caused by the rotation of the surface on which it is moving; the curved direction of global winds caused by the Earth's rotation on its axis

