



💧 Lesson Plan: Earth's Fresh Water

Grade Level: 6

Subject: Earth Science

Duration: 45–60

NGSS MS-ESS2-4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

🎯 Learning Objectives

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

- **Describe** the water cycle and its role in distributing fresh water across Earth's systems.
- **Identify** the major sources of fresh water on Earth, including surface water and groundwater.



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

- **Water Table:** The top of the body of water held in an aquifer, marking the boundary between the zone of aeration above and the zone of saturation below.
- **Porosity:** A measure of the amount of space between particles in soil or rock. Higher porosity means more water can be stored.
- **Permeability:** A measure of how well spaces between particles are connected, allowing water to flow through soil or rock.
- **Tributary:** A small stream that feeds water into a larger river.
- **Watershed:** A geographical region of land that includes its main river or rivers and all the tributaries that feed the rivers, also called a drainage basin.



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

- Printed copies of the Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)
- Vocabulary matching worksheet (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-6-earth-s-fresh-water-1-1.pdf>)
- Practice Worksheet 0 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-0.pdf>)
- Practice Worksheet 2 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-2.pdf>)
- Clear containers with sand, gravel, and water for porosity and permeability demonstration
- Food coloring or dye for water flow visualization
- Labeled diagram of the water cycle



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

- Discuss the distribution of fresh water: glaciers and ice caps hold about 68.7%, groundwater about 30.1%, and surface water only 0.3%. (<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)
- Demonstrate porosity and permeability by pouring water through containers filled with sand and gravel, showing how water moves through connected spaces.
- Explain how aquifers store and move groundwater, and introduce the water table as the boundary between saturated and unsaturated zones.



(<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)

Step 3: Guided Practice (15 minutes)

- Distribute the vocabulary matching worksheet and work through it as a class, reinforcing key terms like aquifer, porosity, permeability, and water table.

(<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-6-earth-s-fresh-water-1-1.pdf>)

- Use the Study Guide diagrams to trace the path of water from precipitation through groundwater flow and back to surface water.

(<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)

- Discuss point-source pollution (identifiable sources like factory pipes) versus nonpoint-source pollution (diffuse sources like farm runoff).

(<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

nonpoint-source pollution? Is fertilizer runoff from farmland point-source or nonpoint-source?

- Review completed worksheets for accuracy, focusing on water cycle stages, fresh water distribution, and aquifer characteristics.

(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-0.pdf>)

Step 6: Closure (5 minutes)



- Summarize the lesson by reviewing the water cycle, the importance of groundwater and aquifers, and the need for water conservation.
- Ask students to share one new fact they learned about Earth's fresh water and why it matters for their community.

Differentiation Strategies

For advanced learners:

- Challenge students to research the Ogallala Aquifer and calculate its recharge rate compared to its usage rate, then propose conservation strategies.
- Have students design a model water treatment facility that addresses both primary and secondary treatment stages.

For learners needing support:



PREVIEW

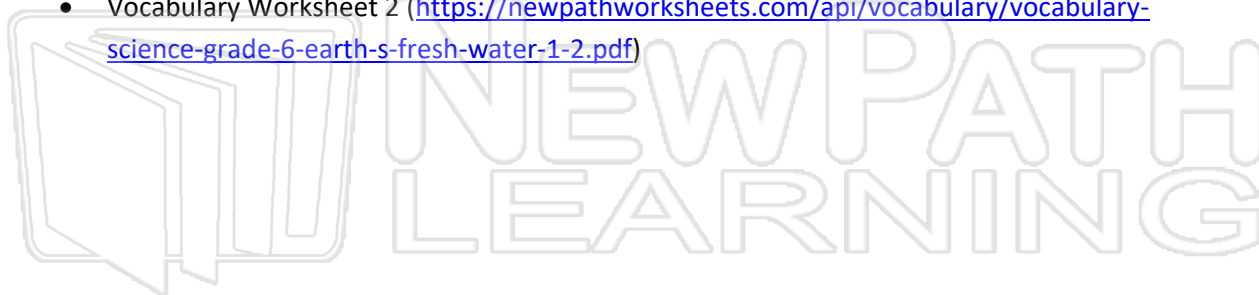
Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

Complete List of Available Resources:

- NewPathWorksheets: Earth's Fresh Water (<https://newpathworksheets.com/science/grade-6/earth-s-fresh-water-1>)
- Study Guide: Earth's Fresh Water (<https://newpathworksheets.com/api/guide/study-guide-science-grade-6-earth-s-fresh-water-1.pdf>)
- Practice Worksheet 0 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-0.pdf>)



- Practice Worksheet 1 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-1.pdf>)
- Practice Worksheet 2 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-6-earth-s-fresh-water-1-2.pdf>)
- Vocabulary Worksheet 1 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-6-earth-s-fresh-water-1-1.pdf>)
- Vocabulary Worksheet 2 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-6-earth-s-fresh-water-1-2.pdf>)



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet



EARTH'S FRESH WATER

The Water Cycle

The constant moving of water from Earth's surface into the atmosphere, back to the Earth's surface, and into bodies of water is called **the water cycle**. Water **evaporates** from bodies of water (lakes, oceans and rivers) and is **transpired** by plants. This water vapor **condenses** to form clouds. This water **precipitates** out of the clouds as rain, snow, sleet or hail (or a combination of these) and returns to the Earth's surface. Some of this **precipitation** falls directly back into oceans, lakes and rivers. The rest falls on the land. **Runoff** is water that moves over the land to return to rivers and ultimately, the ocean.



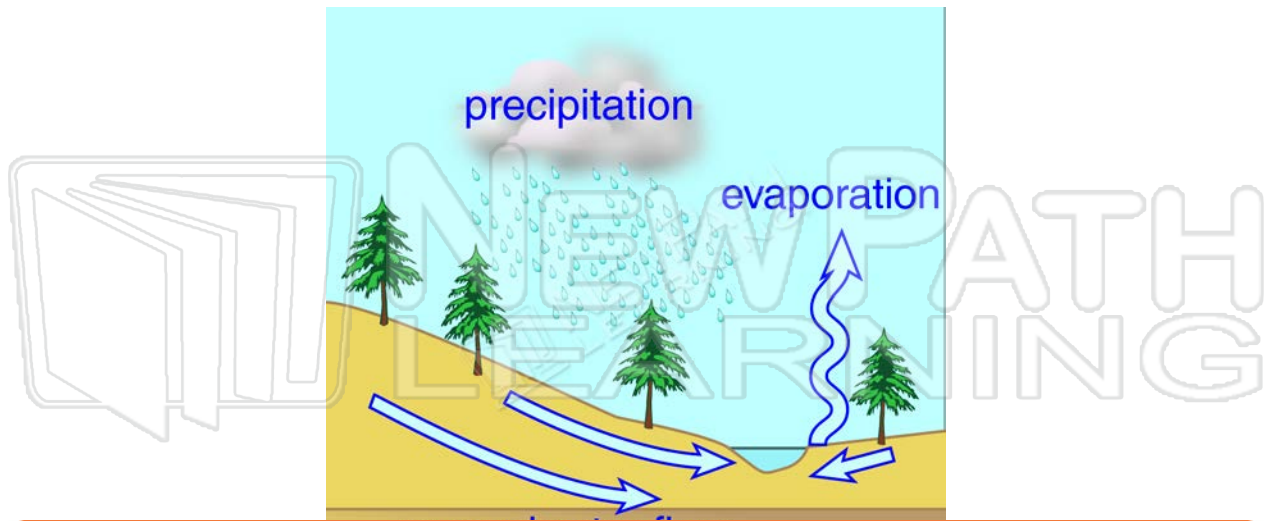
PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

Water near high geographical regions, such as mountain ranges, separate drainage basins from one another. A geographical feature separating drainage basins is called a **divide**. The Rocky Mountains in western United States is known as the **Continental Divide**. Precipitation that falls to the east of the Rockies drains to the East, and that which falls to the west of the Rockies drains to the West.

Lesson Checkpoint:
Which water features does the Continental Divide separate?

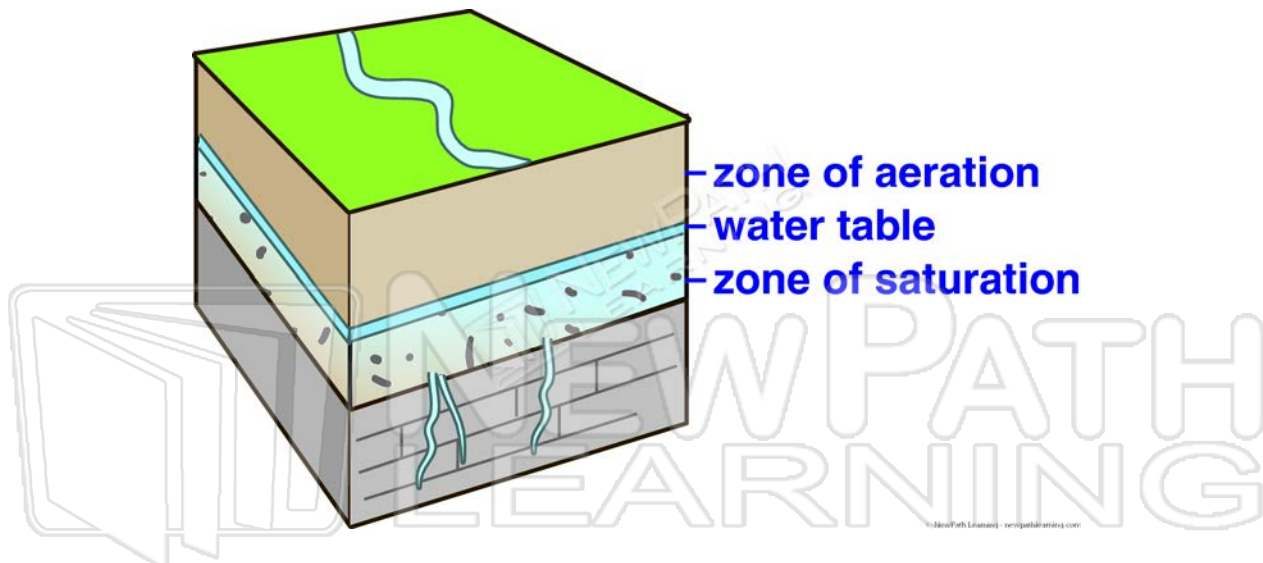
Groundwater



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet





The top of the body of water held in an aquifer is the **water table**.
The water table marks the boundary between the **zone of aeration**



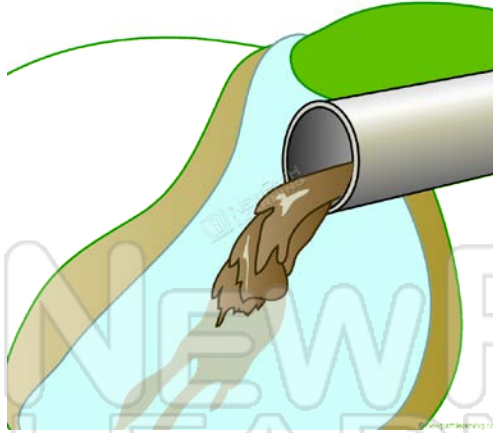
PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet

aquifer?

Water Quality and Water Pollution

Though traditionally thought of as a **renewable resource**, overuse and unmanaged pollution can eradicate a water resource, either depleting it completely or making it unusable for very long periods of time, turning it into a **nonrenewable resource**. Consequently, water preservation and pollution management is essential.



There are two categories of pollution, **point-source pollution** and **nonpoint-source pollution**. Point source pollution is pollution that comes from a specific, identifiable source, like a leaky underground fuel tank or a wastewater pipe from a factory.



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

If polluted water is returned to the ground, it becomes very, very difficult to clean. In fact, it moves so slowly through the aquifer that it will take extraordinary measures to get it out of the aquifer and make the aquifer usable again. Consequently, it is preferable to collect wastewater and transport it to a water purification facility where it can be properly treated so that clean, usable water can be returned to the environment.

Water treatment facilities clean water in two steps. The first is **primary treatment** in which particles are physically filtered out of the wastewater. The solid material that is removed from the water is called **sludge**. The remaining water enters **secondary treatment** where it is aerated with oxygen and treated with bacteria that consume dissolved waste and very small waste particles. In the end stages of secondary treatment, chlorine is added to the water to kill any remaining bacteria. At this point the water is returned to the environment.

In some cases water is polluted with industrial chemicals and other byproducts that cannot be easily removed and, at times, cannot be removed at all. Eliminating such scenarios is an imperative step of conservation and environmental preservation.

Lesson Checkpoint:



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet





Name _____ Class _____ Date _____

1

In the water cycle, the process by which **water vapor cools** and becomes **liquid droplets** of water is called _____.

- A precipitation
- B condensation
- C percolation
- D runoff

**2**

Water returns to earth's surface as **rain**, **snow**, **hail**, and **sleet**. These are different forms of _____.

- A runoff
- B percolation
- C precipitation
- D condensation

**3**

The **constant moving of water** from earth's surface, into the atmosphere, back to the earth's surface, and into bodies of water is called _____.

- A the water cycle
- B the life cycle
- C the circle of life

**4**

Evaporation is the part of the water cycle in which water becomes vapor and moves up into the atmosphere. **From where does water evaporate?**

- A large bodies of water, such as oceans, lakes, and rivers
- B soil
- C living organisms

**5**

PREVIEW

7

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

9

A **high** geographical region, such as a mountain chain, that **separates** different watersheds (also called drainage basins) is known as _____.

- A a tributary
- B a divide
- C an artesian well
- D an aquifer

**10**

Tributaries are part of a watershed (or drainage basin). They are _____.

- A triangular shaped sections of rivers and land emptying into a body of water
- B sections of rushing water due to sharp declines in elevation
- C smaller streams that feed water into larger rivers
- D high geographical regions that separate watersheds





Name _____ Class _____ Date _____

1

In the water cycle, the process by which **water vapor cools** and becomes **liquid droplets** of water is called _____.

- A precipitation
- B condensation
- C percolation
- D runoff

**B****2**

Water returns to earth's surface as **rain, snow, hail, and sleet**. These are different forms of _____.

- A runoff
- B percolation
- C precipitation
- D condensation

**C****3**

The **constant moving of water** from earth's surface, into the atmosphere, back to the earth's surface, and into bodies of water is called _____.

- A the water cycle
- B the life cycle
- C the circle of life

**A****4**

Evaporation is the part of the water cycle in which water becomes vapor and moves up into the atmosphere. **From where does water evaporate?**

- A large bodies of water, such as oceans, lakes, and rivers
- B soil
- C living organisms

**D****5****C**

PREVIEW

7

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

C**9**

A **high** geographical region, such as a mountain chain, that **separates** different watersheds (also called drainage basins) is known as _____.

- A a tributary
- B a divide
- C an artesian well
- D an aquifer

**B****10**

Tributaries are part of a watershed (or drainage basin). They are _____.

- A triangular shaped sections of rivers and land emptying into a body of water
- B sections of rushing water due to sharp declines in elevation
- C smaller streams that feed water into larger rivers
- D high geographical regions that separate watersheds

**C**



Name _____ Class _____ Date _____

1

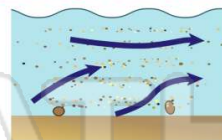
The **amount of water** that moves in a stream or river over a specific amount of time is called that stream's or river's _____.

- A delta
- B discharge
- C gradient
- D load

**2**

Though rivers and streams carry a significant amount of fresh water, that fresh water is not always immediately usable. Rivers and streams naturally carry **sediments**. The **materials** that a stream can **carry**, like silt and sediment, is called the stream's _____.

- A gradient
- B discharge
- C load
- D tributary

**3**

Water that **collects** in the soil, sand, and rocks **below the earth's surface** is called _____.

- A aerated water
- B groundwater
- C the water table
- D precipitation

**4**

Groundwater is water that **collects** in the soil, sand, and rocks below the earth's surface. The main **source** for groundwater is _____.

- A rainfall
- B rivers
- C oceans

**5**

PREVIEW

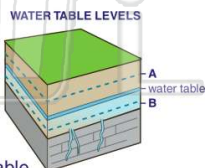
7

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

9

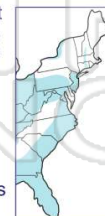
In this image you can identify the water table. This is the location of the water table in the aquifer during the rainy season. **After two seasons of drought**, where will the water table be?

- A closer to the surface due to evaporation (letter A)
- B closer to the bedrock (letter B)
- C in the same place
- D there will be no water table

**10**

This map shows the location of significant aquifers in the United States. What conclusion can be drawn about the Northeast portion (**New England**)?

- A There is no water there.
- B The rock there has low porosity and permeability.
- C All the water there is on the surface and runs off in rivers and streams.
- D There is a water source crisis there.





Name _____ Class _____ Date _____

1

The **amount of water** that moves in a stream or river over a specific amount of time is called that stream's or river's _____.

- A delta
- B discharge
- C gradient
- D load

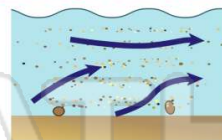


B

2

Though rivers and streams carry a significant amount of fresh water, that fresh water is not always immediately usable. Rivers and streams naturally carry **sediments**. The **materials** that a stream can **carry**, like silt and sediment, is called the stream's _____.

- A gradient
- B discharge
- C load
- D tributary



C

3

Water that **collects** in the soil, sand, and rocks **below the earth's surface** is called _____.

- A aerated water
- B groundwater
- C the water table
- D precipitation



B

4

Groundwater is water that **collects** in the soil, sand, and rocks below the earth's surface. The main **source** for groundwater is _____.

- A rainfall
- B rivers
- C oceans



A

5



D

PREVIEW

7

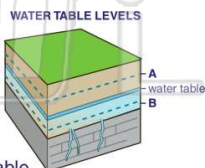
Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

B

9

In this image you can identify the water table. This is the location of the water table in the aquifer during the rainy season. **After two seasons of drought**, where will the water table be?

- A closer to the surface due to evaporation (letter A)
- B closer to the bedrock (letter B)
- C in the same place
- D there will be no water table

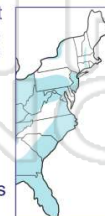


B

10

This map shows the location of significant aquifers in the United States. What conclusion can be drawn about the Northeast portion (**New England**)?

- A There is no water there.
- B The rock there has low porosity and permeability.
- C All the water there is on the surface and runs off in rivers and streams.
- D There is a water source crisis there.



B



Name _____ Class _____ Date _____

1

Water is stored in an aquifer. Remember, though, that water is always **moving** in an aquifer. As water leaves the aquifer, either by natural flow or from human use, it needs to be **replaced**.

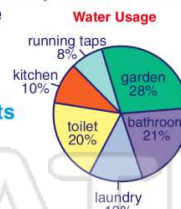
The ground surface where **water comes into** an aquifer is called the _____.

- A zone of saturation
- B caprock
- C bedrock
- D recharge zone

2

A community wanted to track how much water it polluted in a year. This pie chart shows average water usage in that community.

What percentage of water used will be **polluted** when it exits people's homes?



- A 20%
- B 28%
- C 30%
- D 64%

3

Pollution caused by a source that is confined to a **specific place**, such as a leaky underground gas tank at a gas station, is called _____.

- A point-source pollution
- B nonpoint-source pollution

**4**

Which of the following is an example of **nonpoint-source** pollution?

- A water runoff from cities
- B fertilizers from farmlands
- C water from septic tanks

**5**

PREVIEW

7

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

9

In some instances, industrial use of water resources can **overuse** the natural resource. If not managed properly, natural water sources can **run dry**.

In this case, water is considered a(n) _____.

- A renewable resource
- B nonrenewable resource
- C expendable resource
- D unlimited resource

**10**

Agriculture uses water from aquifers to water crops. In the Midwestern United States, the Ogallala aquifer provides water to 8 states! Suppose the water table of the Ogallala aquifer has dropped **25 meters** because it's used so extensively that it's losing water faster than it's recharging.

If it would take **1,000 years** to **replenish** the Ogallala aquifer to its original state, what is the **rate of recharge**?

- A 25 m/year
- B 2.5 m/year
- C 0.25 m/year
- D 0.025 m/year



Name _____ Class _____ Date _____

1

Water is stored in an aquifer. Remember, though, that water is always **moving** in an aquifer. As water leaves the aquifer, either by natural flow or from human use, it needs to be **replaced**.

The ground surface where **water comes into** an aquifer is called the _____.

- A zone of saturation C bedrock
B caprock D recharge zone

D

2

A community wanted to track how much water it polluted in a year. This pie chart shows average water usage in that community.

What percentage of water used will be **polluted** when it exits people's homes?

- A 20% C 30%
B 28% D 64%



D

3

Pollution caused by a source that is confined to a **specific place**, such as a leaky underground gas tank at a gas station, is called _____.

- A point-source pollution
B nonpoint-source



A

4

Which of the following is an example of **nonpoint-source** pollution?

- A water runoff from cities
B fertilizers from farmlands
C water from



D

5



C

PREVIEW

7

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

A

9

In some instances, industrial use of water resources can **overuse** the natural resource. If not managed properly, natural water sources can **run dry**.

In this case, water is considered a(n) _____.

- A renewable resource
B nonrenewable resource
C expendable resource
D unlimited resource



B

10

Agriculture uses water from aquifers to water crops. In the Midwestern United States, the Ogallala aquifer provides water to 8 states! Suppose the water table of the Ogallala aquifer has dropped **25 meters** because it's used so extensively that it's losing water faster than it's recharging.

If it would take **1,000 years** to **replenish** the Ogallala aquifer to its original state, what is the **rate of recharge**?

- A 25 m/year C 0.25 m/year
B 2.5 m/year D 0.025 m/year

D



Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Water cycle

Condensation

Divide

Discharge

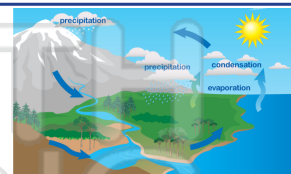
Nonpoint-source
pollution

Ground water

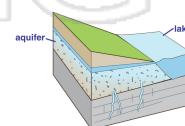
Load

Aquifer

1. Earth's water from the Earth's surface to the atmosphere and back again



2. a layer of rock that can both store ground water and allow it to move through the rock



3. cools a



4. over a

5. mount

6. rocks

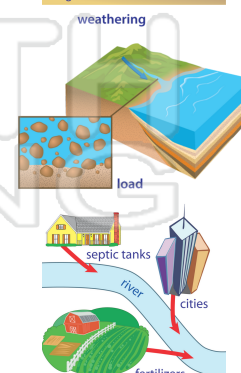
PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet

7. including particles and dissolved materials; something that is carried



8. pollution that comes from a large region





Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Water cycle

Condensation

Divide

Discharge

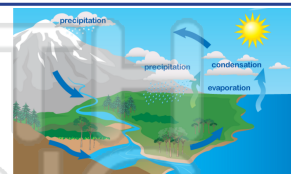
Nonpoint-source
pollution

Ground water

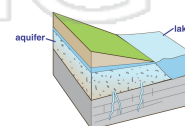
Load

Aquifer

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



2. aquifer - a layer of rock that can both store ground water and allow it to move through the rock



3. con
becom



4. dis
amou

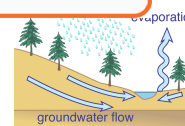
5. div
separ

6. gro
Earth'

PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet

7. load - the materials a stream or river can carry including particles and dissolved materials; something that is carried



8. nonpoint-source pollution - pollution that comes from a large region

