KEEP

Name: Room 20 #: _____

Water Sources

STEMscopes:
Water can be found almost everywhere on Earth covering 71% of Earth's surface. It is in the atmosphere, in bodies of water both fresh and saline, in living organisms, and in the upper layers of Earth's crust (its solid surface layer). Ninety-seven point f ve percent of the water on Earth is saltwater; only 2.5% is the fresh water that organisms that do not live in the oceans can use to survive. Most of the freshwater is in the form of glaciers and ice caps (68.7%) leaving about 30% as groundwater. Freshwater found in lakes and rivers is what non-oceanic organisms use to meet their needs.

Standards that will be addressed:

- **5-ESS2.C.1:** The Roles of Water in Earth's Surface Processes: Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.
- **5-ESS2.2:** Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Remember to look at the Science tab on our class website for additional resources, information, and updates.

What's Included in the Packet:

1. Investigative Phenomena
2. Accessing Prior Knowledge
3. Do 2: Where is the Water?
    a. Graphs
    b. Student CER
4. STEMscopedia
5. Graphic Organizer
6. Main Ideas and Details
7. Roundtable Review
8. Content Connection Videos:
    a. Underground Caves
    b. Glaciers 1
    c. Glaciers 2
9. Science Today- Demand for Drinking Water
10. Independent Practice
    a. Secret Word
    b. Break the Code
11. Concept Attainment Quiz

Test Date: Thurs. 2/27 - 3 short answer
- 5 multiple choice

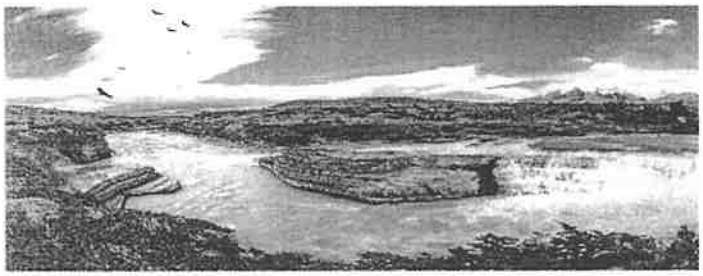
Accessing Prior Knowledge

Name: _____ Date: _____

Water Sources

Circle the statement you agree with most. When directed, join the others in your class who have made the same selection. Explain why you chose the statement you did in the blank box provided. After hearing the other groups, did you feel compelled to choose another statement?

Fresh water is found mostly in oceans.
–Gloria



Fresh water is found mostly in lakes and rivers.
–Craig

Fresh water is found mostly underground and in glaciers.
–Alex

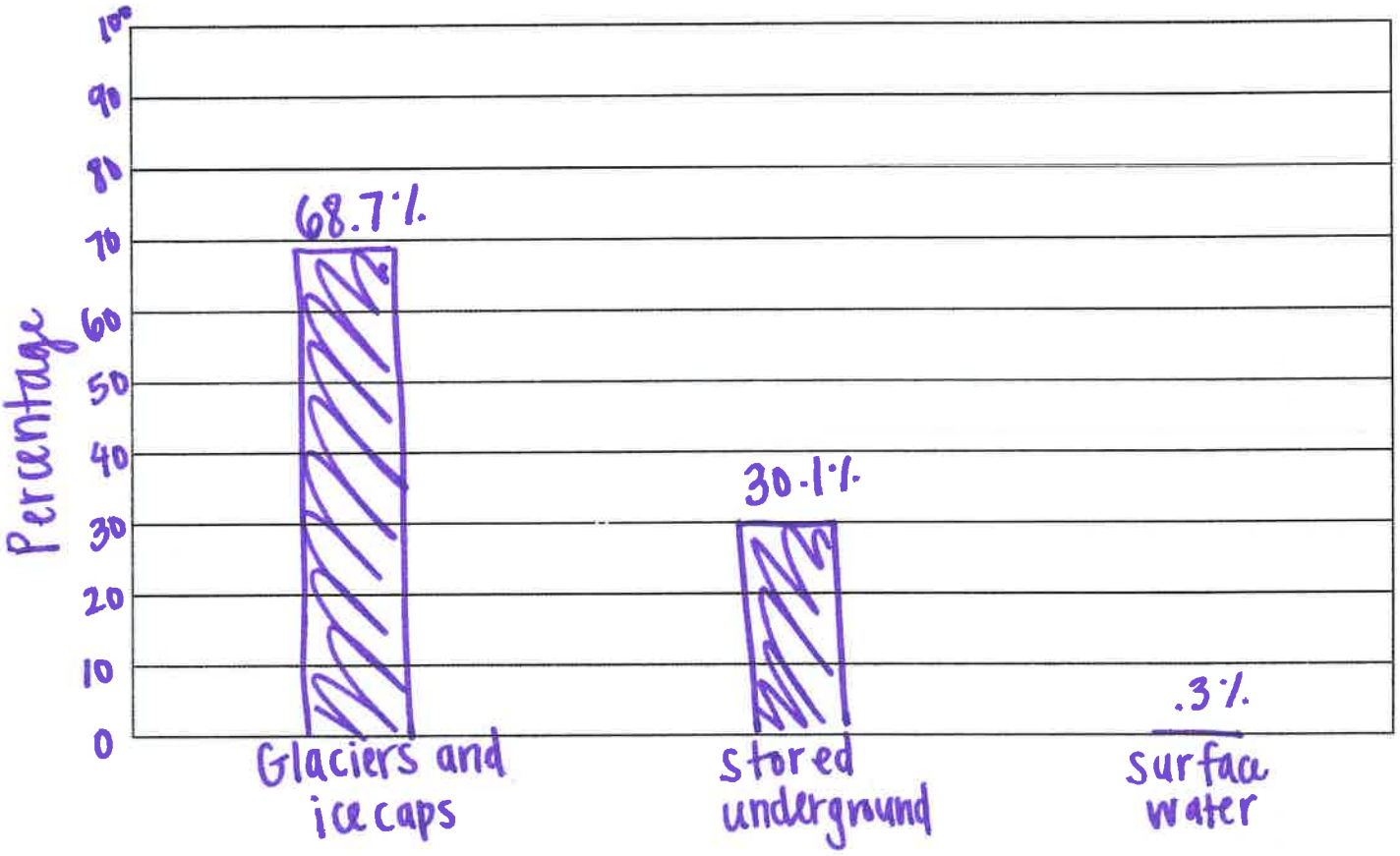
Reasons

Answers may vary

Explore

Use the data from the index cards to create a bar graph that represents all the sources of Earth's water. Label the graph. Be sure to include the amount and percentage of water within each reservoir.

Title: Fresh Water Sources on Earth



Where is the largest supply of fresh water?

The largest supply of fresh water is in glaciers and ice caps.

Are we able to use the fresh water that is frozen in the glaciers?

No, we are unable to because they are in difficult locations and it would impact ecosystems.

Which source of fresh water is easiest for us to access?

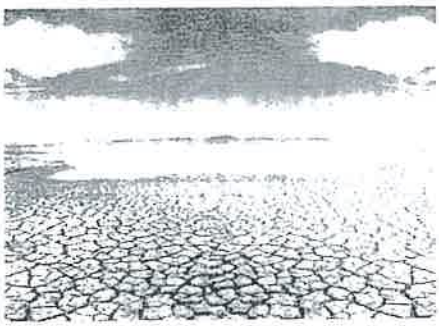
Surface water, rivers, lakes, streams, is the easiest to access.

Water Sources

Reflect

Have you ever wondered from where your next drink of water will come? Most likely, you have never thought about it. It is easy to grab a glass and fill it up at the sink or the fridge. Drinking fountains are found in almost every hallway of your school, and taking a shower is probably a daily task for you.

Despite the fact that the majority of Earth is covered with water, many places face water shortages.

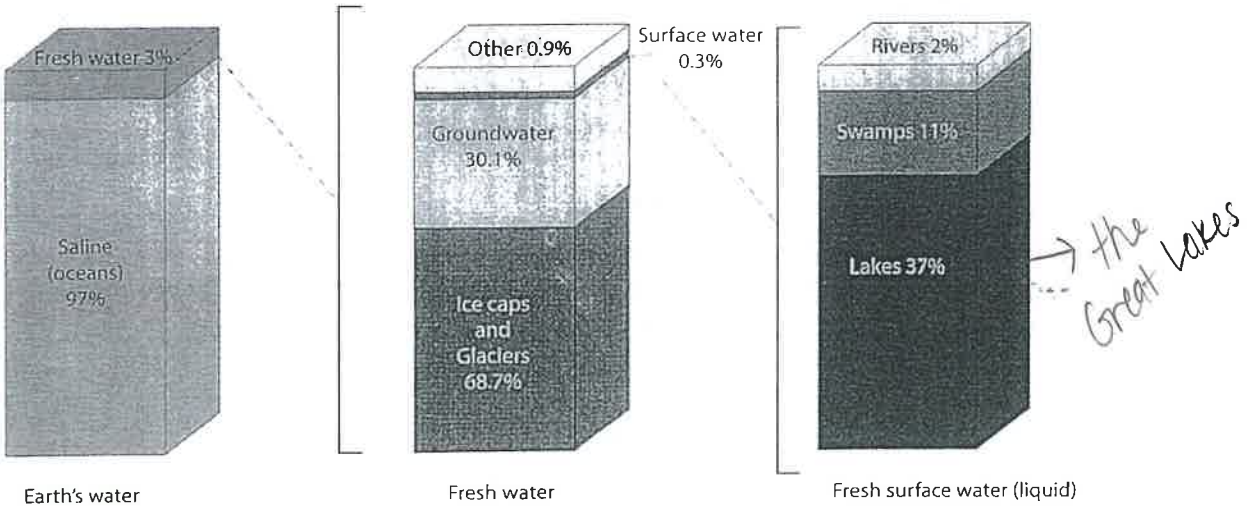


Parts of our world are not as fortunate. South Africa is facing a water shortage crisis due to climate change and weather patterns. A shortage of fresh water can lead to diseases and economic problems.

Where can we find water on Earth?

Almost 71% of Earth's surface is covered in water. It is in oceans, lakes, rivers, streams, glaciers, and ice caps. It is in our bodies, in animals, in plants, and in foods. With so much water available, it seems that no one should face a shortage! However, the large majority of water on Earth is not safe for drinking. Look at the different sources that make up Earth's water supply. There are two different types of water—fresh water and saline water (or salt water).

Distribution of Earth's Water



From US Geological Survey

Salt Water

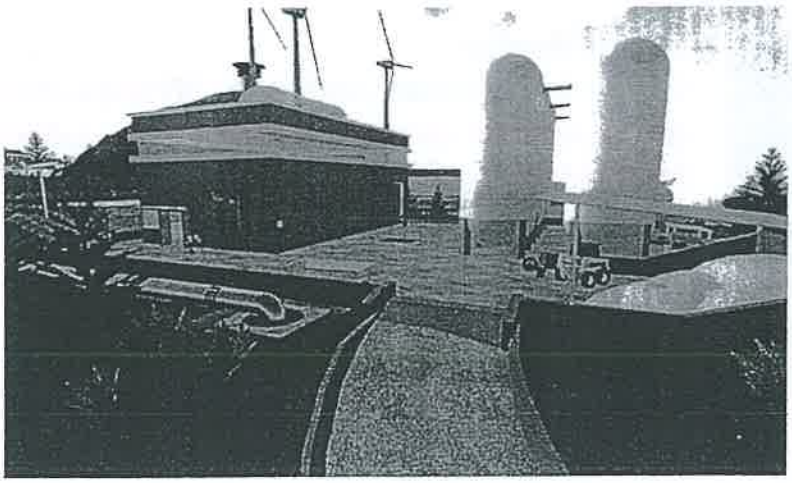
Of Earth's water, 97% is salt water. Most of the salt water is found in the oceans, all of which are connected. They cover about 70% of Earth's surface. Some salt water exists in the form of saltwater lakes, such as the Great Salt Lake in Utah and many lakes in China. Although salt water provides a habitat for many marine organisms, we cannot drink it.

Nearly three-quarters of earth's surface is covered in water. Salt water is 97% of that. Only 3% is fresh water.

What Do You Think?

Because 97% of Earth's water is salt water and undrinkable, many people have attempted to find ways to turn ocean water into drinking water. Scientists call this process *desalination*.

Look at the example below of machinery used for the desalination of water, then answer the questions about it.



A desalination plant takes salt water and removes the salt and other minerals to make the water potable (drinkable) for people and animals.

Questions:

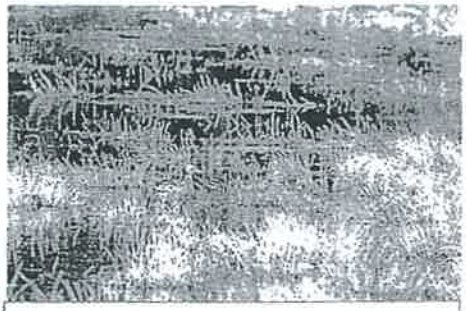
- Based on what you know about the evaporation of seawater, how do you think desalination works?
- What are some benefits of building desalination plants?
- What are some drawbacks of building desalination plants?
- Where on Earth should these plants be built?

Surface Water

The remaining 0.3% of Earth's fresh water is surface water. Surface water is any water on top of the land. Most of this water is in the form of lakes, rivers, and marshes. *Lakes* are bodies of water that are completely surrounded by land and not connected to an ocean. Most lakes have rivers connected to them that allow water to move in and out. *Rivers* are natural, flowing sources of water. Rivers move from higher elevations to lower elevations. Smaller rivers act as tributaries to larger rivers. Most larger rivers eventually empty into larger bodies of water, such as oceans or lakes. Smaller rivers may be called *brooks*, *creeks*, or *streams*. *Marshes*, or *wetlands*, are shallow areas where land and water meet. A wetland is flooded the majority of the time.

Lakes are large bodies of fresh water.

Rivers are another example of freshwater surface water.



Wetlands are important because they filter, clean, and store water.

Water in the Atmosphere

A small percentage of water is always present in the atmosphere. Water evaporates when it has enough energy to leave its liquid form and become a gas called *water vapor*. The warmer the air is, the easier it is for available water to evaporate. When water vapor cools, it condenses back into liquid form or solid form and eventually falls out of the sky as precipitation. This is part of the water cycle. There will always be water in the atmosphere in the form of a solid, liquid, or gas, due to the water cycle.

How is water present in the atmosphere as a solid, a liquid, and a gas?

Graphic Organizer

Name: _____ Date: _____

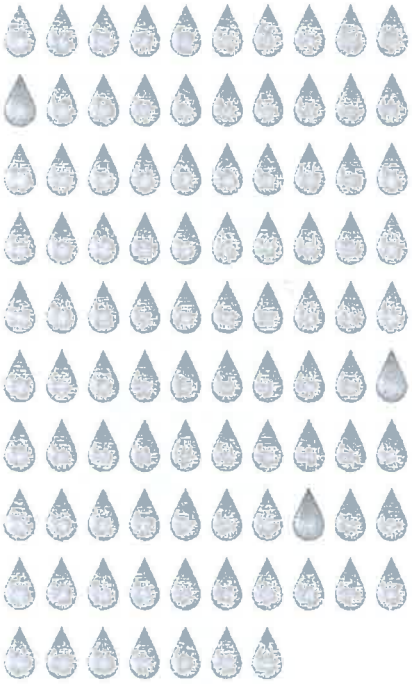
How Much Water?

Directions

Label the chart demonstrating the distribution of water on Earth. Create a symbol to represent each type of water source and add your symbols in the empty rectangles. Use the table at the bottom of the page to list examples of bodies of fresh water.

Water on Earth

97% salt water



3% fresh water

Types of Fresh Water

- glaciers and ice caps
- groundwater
- surface water

Types of Surface Water

lakes	rivers	stream	swamp	pond

Linking Literacy

Name: _____ Date: _____

Roundtable Review

After reading the text, read the questions below and write down your answers to the questions. Record why you think your answers are correct and cite evidence from the text. Discuss your answers with your group and record the group consensus in the final column.

Question	What Do You Think?	Why Do You Think That?	What Is Your Evidence?	Group Consensus
1. Does our Earth's large amount of salt water serve a purpose?	Yes	Marine animals live there. Water cycle uses ocean water, and transportation.		
2. How does the water cycle link fresh water and salt water?	Answers May Vary			
3. If we are able to treat fresh water for drinking, why do we need to conserve it?				

Content Connections Video

Name: Date: Group:

Glaciers 1

1. How do glaciers form? (Pause 0:22)
Glaciers form when layers of snow build up, and slowly compress into ice.

2. How old can the ice inside glaciers be? (Pause 0:32)
The ice inside glaciers can be thousands of years old.

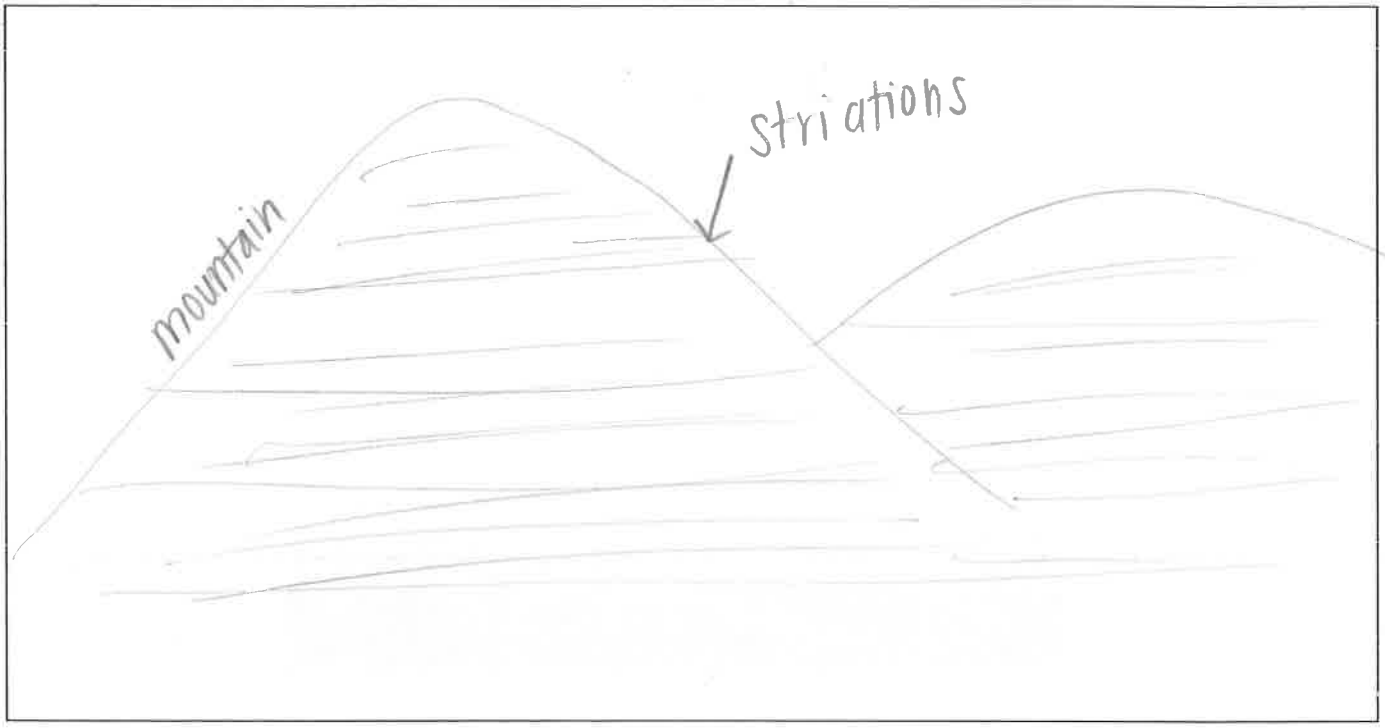
3. What can scientists learn by studying glaciers? (Pause 0:44)
Scientists study glaciers to learn about how Earth's climate has changed.

4. Draw a picture of a glacier. (Pause 1:06)

Answers may vary

Content Connections Video

7. Draw a picture of the **striations** that **abrasion** leaves behind after a glacier flows over land. (Pause 2:14)



8. What has happened to glaciers in the past as Earth's climate has warmed and cooled? (Pause 2:25)

AS Earth has warmed and cooled, glaciers retreat and advance

Independent Practice

Name: _____ Date: _____

Part I: Secret Word

Directions: Use the clues to complete the puzzle and find the secret word.

						P									
1		R	I	V	E	r									
2				F	r	e	s	h		w	a	t	e	r	
3					O	c	e	a	n						
						I									
						P									
4		G	l	a	c	i	e	r							
5				W	e	t	L	A	N	D	S				
6					L	a	k	e							
7					A	t	m	o	s	p	h	e	r	e	
						I									
8				G	r	o	u	n	d		w	a	t	e	r
						N									

1. Streams flow into this freshwater source that continues toward the ocean.
2. This makes up only ~~29%~~ 3% of Earth's total water supply.
3. The majority of salt water is found in this water source.
4. An extremely large block of ice that weathers and erodes land, creating U-shaped canyons
5. An area where water keeps some shallow areas flooded and keeps the soil wet
6. Fresh water that is much larger than a puddle, such as _____ Ontario, _____ Superior, and _____ Michigan
7. This is where clouds are formed with the condensation of water.
8. Water that is found under Earth's surface

Secret Word: precipitation

Concept Attainment Quiz

Name: _____ Date: _____

Part I: Vocabulary Matching

C A large, slow-moving, long-lasting accumulation of snow and ice that develops on land

D A small body of freshwater that flows into a river

B A large body of water that is still and is surrounded by land

E Areas where standing water covers the soil or an area where the ground is very wet

A The entire body of saltwater that covers about 71% of Earth, it makes up 97% of our total water on Earth.

A. Ocean

B. Lake

C. Glacier

D. Stream

E. Wetlands

Part II: Identification

Use the words below to label each color of the pie graphs. Write a legend below.

Surface water	Saltwater	Groundwater	Glacier and ice caps
Freshwater	Frozen water