WHAT GOES AROUND

TEACHER GUIDE

ACCELERATE

PLANNING

Here's a suggested schedule for this kit! The activities should be completed in order, but you can choose when the lessons take place over time.

ACTIVITY INFORMATION	SECTION(S)	TIME REQUIRED	DAY/ LESSON
ACTIVITY 1: WATER FROM THE OCEAN Can you change salt water into fresh water? **Time required: 2 h**	☐ Solar Still	120 minutes	Day 1
ACTIVITY 2: FALLING LIKE RAIN Learn how water moves around the earth. **Time required: 1 h 45 min**	☐ Up in the Air	30 minutes	Day 2
	☐ The Water Cycle	45 minutes	Day 3
	☐ Show What You Know	30 minutes	Day 4
ACTIVITY 3: WHAT'S THE SOURCE? Explore additional steps of the experiment with	☐ Complete the Cycle (Bag it Up	30 minutes	Day 5

activity 1

WATER FROM THE OCEAN

In this activity, your student will explore how to get fresh water from saltwater using distillation.

SOLAR STILL

CONTENT

- Your student is asked to think about what they would want to bring with them if they were stranded on a desert island. It is then explained that students should attempt to access freshwater prior to food or shelter.
- The vocabulary terms distillation and solar still are defined in this section.

PREPARATION AND SUPERVISION

- The bowl students use for this experiment can be either plastic or glass, but should be sturdy enough to sit in the Sun for a couple hours without getting knocked over.
- Work with your student to choose a warm, sunny day to perform the experiment. Temperatures over 18ºC (65ºF) will provide the best results.
- Your student will be measuring 475 mL water using their 100 mL beaker. This is an opportunity for them to work on both mathematics and problem solving to determine how to measure out the correct amount of water.

SAFETY: **WARNING! Contains chemicals that may be harmful if misused. Do not eat or drink. Wash your hands after use.**

MULTIPLE AGES AND ABILITIES:

You can take this experiment further by having your student repeat the experiment with different colored paper. They can also repeat the experiment with bowls of different materials (ex. glass, plastic, ceramic, metal). Make sure your student only makes one change to the procedure or materials at a time. Additionally, have students predict how the change will produce different results than the initial experiment.

This experiment focuses on efficiency in distilling the water. You can have students create a data table that measures the water level in the collection cup after each hour of evaporation for a longer period of time than the procedure outlined in the Student Workbook. They can take the data and determine how long they would need to be distilling water to be able to survive on a desert island for a day, week, or year.

MULTIPLE AGES AND ABILITIES:

You can take this experiment one step further by having students provide rocks from their neighborhood to test how well they withstand weathering and erosion. Encourage them to rank the rocks from most to least that they think will withstand the impacts of weathering and erosion prior to testing. They can reflect on their predictions and draw conclusions on the properties of rocks that make them more or less likely to be weathered and eroded.

(PREDICT) Question 1: What did you see in the halite cup?
Answer: The cup's contents were clear, but had an iridescent or shiny quality to it.

(PREDICT) Question 2: What did you see in the red sandstone cup?
Answer: The cup's contents contained pieces of red and brown dirt.

(PREDICT) Question 3: How did the contents of the halite cup compare to the red sandstone cup?
Answer: Both cups contained particles from the specimens, but the amount and type of particles differed.

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Not a Drop to Drink

- This subsection introduces the hydrosphere, geosphere, and cryosphere, and how they are related to the water cycle.
- The following vocabulary terms are defined for your student: cryosphere, erosion, geosphere, glacier, hydrosphere, and weathering.
- There are several instances where statistical averages are provided for your student, including the ratio of freshwater to saltwater on Earth and the salt parts per thousand in different bodies of water. These values are important on the broad scale, but do not need to be values that your student memorizes.
- If your student is interested in weathering and erosion, Unusual Structures is a Launch level Science Unlocked kit they might enjoy.

THINK ABOUT IT!

Question 1: Can we run out of water? Explain.
Answer: The water cycle moves water throughout the earth. The water it moves is in liquid or gaseous form. Because the water is moving, there can be more or less in different areas over time, but the same amount of water is still present on Earth.
How to Help: *Students in areas where drought is common may struggle with this question because they have experienced times where there is not enough water. However, this doesn't mean that the entire world has run out of water.*

Question 2: Where does more water come from?
Answer: The water cycle moves water throughout the earth, meaning that areas with less water will likely get more water as the water cycle occurs.
How to Help: *Students may want to say that more water comes from glaciers, but unless the glaciers melt that water isn't accessible.*

Question 3: Where is water stored?
Answer: Water is stored in many places around the earth, including in glaciers, clouds, and groundwater.
How to Help: *Students may also state that humans store water for our homes and in bottled water. In this case, encourage them to think about where water is stored naturally, without the presence of humans.*

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Kit	SU-WHATGO
Instructions	IN-WHATGOT
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