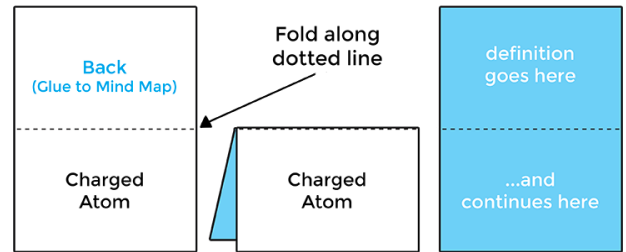




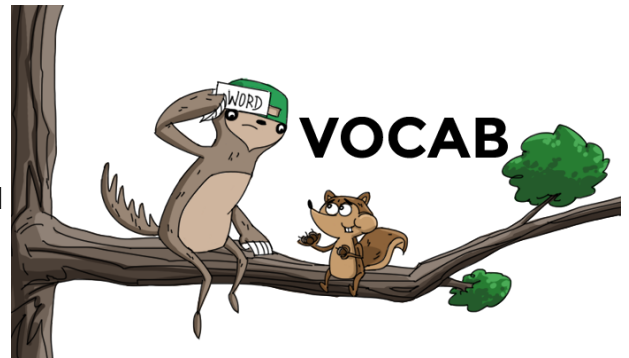
Oceans and Climate Lesson 1: *The Solve* Student Guide

I. Warm Up: Vocabulary Mind Map

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**. Note: Do not cut the cards at the dotted lines.



2. Fold the cards at the dotted lines.
3. Write the definition of the term on the inside of the card using the definitions below.
4. Use the clues from the Mind Map images, definitions, and vocabulary terms to place the cards in the correct location on the Mind Map, explaining your thinking to group members as you go.
5. When you're ready to glue or tape, raise your hand so you can check your Mind Map with your teacher.
6. Use glue or double-sided tape to connect the back of the vocabulary card to the correct place on the Mind Map.
7. Use your completed Mind Map to discuss these questions with your group:
 - a. Why do you think temperature differs so greatly at the equator and polar regions on the earth? What could account for such drastic differences?



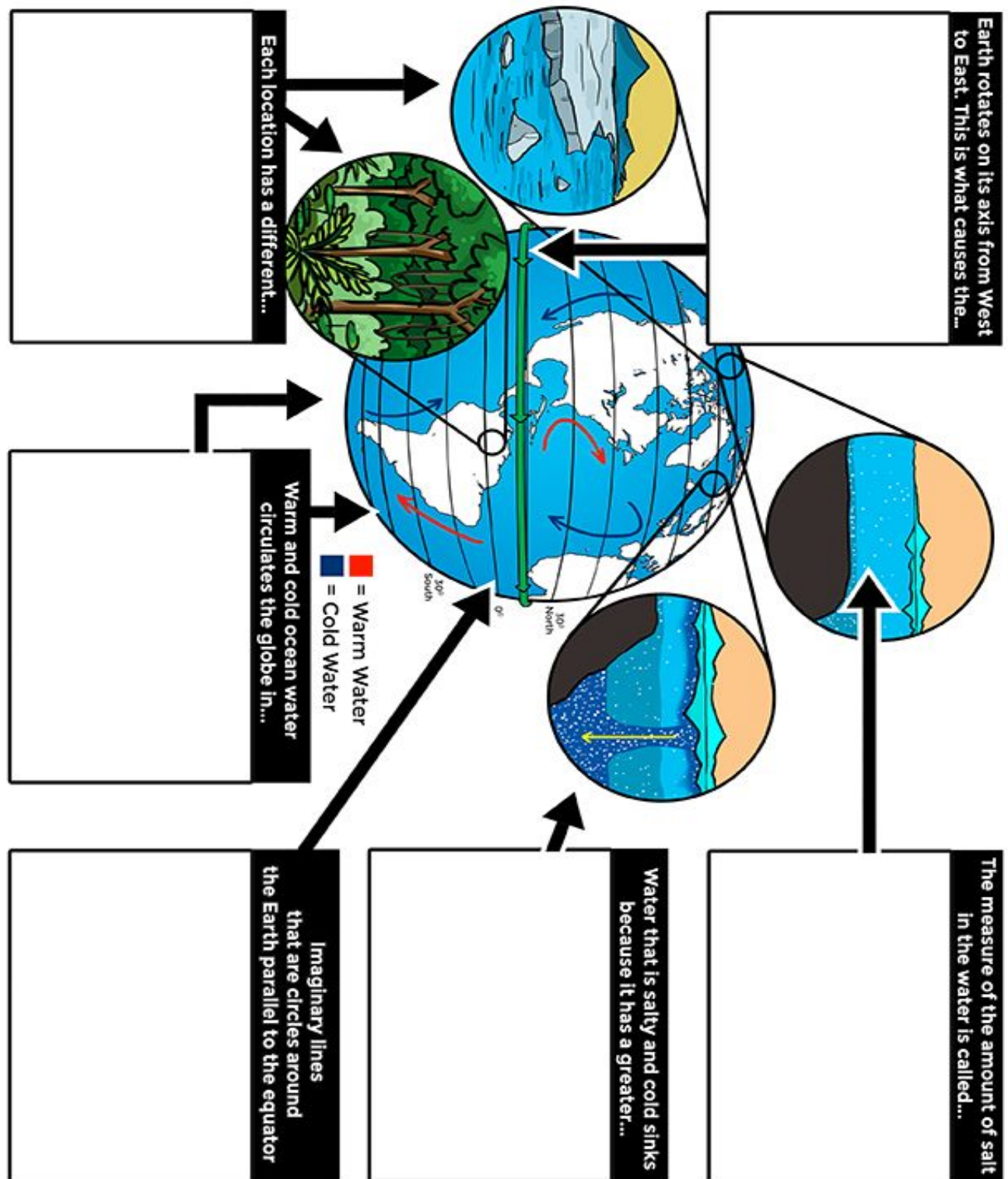
- b. Do warm ocean currents tend to move toward the equator or away from the equator? What about cold ocean currents? Why do you think this is so?



MOSA MACK SCIENCE

STUDENT GUIDE

Oceans and Climate Mind Map





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Oceans and Climate Vocabulary Cards

Salinity	Density	Climate
Latitude	Ocean Currents	Coriolis Effect

Oceans and Climate Vocabulary

- Latitude: A distance of a place north or south of the equator.
- Coriolis effect: An effect due to the rotation of the earth that causes a shift in the movement of surface wind and water.
- Salinity: The amount of dissolved salt in water.
- Density: A measure of the amount of particles in a given space.
- Climate: Weather conditions in a region over an extended period of time.
- Ocean current: The movement of seawater in a particular direction.



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II. Read/Watch Mosa Mack

Either on your own, in a small group, or as a class (your teacher will let you know), read or watch Mosa Mack's mystery on Oceans and Climate. Then answer the questions digitally or on paper. Include a page number or time code in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Episode Questions

1. What are Mosa, Billy, and Dullis trying to find in the ocean and why?
2. How is an ocean current similar to a rollercoaster?
3. How did Mosa discover that wind moves water? Explain her experiment below.
4. Why does cold water sink while warm water floats along the surface? Explain.



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5. Mosa believes that ocean currents help to regulate the climate of the earth. Explain why.

6. How do landmasses impact the direction of ocean currents?

7. Explain why wind and ocean currents curve and do not travel in a straight line.

8. What did Mosa figure out? How was she able to locate the Air-Quotes Gnome?



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III. Quiz: Check for Understanding

Complete the exit ticket below or you can take the quiz online!

Name: _____

Date: _____

Circle one answer for each of the questions below.

1. Floating gnomes moved across the ocean from one location to the other due to:
 - a. Landmasses
 - b. Cargo ships pushing the gnomes
 - c. Ocean currents
 - d. Evaporation
2. Which of the following accurately describes the direction of warm ocean currents?
 - a. Equator-to-pole
 - b. Pole-to-equator
 - c. Pole-to-pole
 - d. Equator-to-equator
3. Density of ocean water is affected by which of the following?
 - a. Amount of salt in the water
 - b. Temperature of the water
 - c. Wind patterns over the water
 - d. Both A. and B.
4. If a ball was thrown from the North Pole to the equator, it would not travel in a straight line. This is because:
 - a. The earth rotates faster at the equator than at the poles
 - b. The earth rotates faster at the poles than at the equator
 - c. The earth does not rotate at all
 - d. The ball would hit into a landmass and change direction once thrown
5. All of the following can affect ocean currents except:
 - a. Wind
 - b. Landmasses
 - c. Rotation of the earth
 - d. Buoyancy