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Introduction & Ch Three Layers of E	apter 1: Carth	Section 1 – CORE, MANTLE & CRUST	
Use pages 3–5 of the	e student text to comp	lete the worksheet.	
Choose the Answer. each sentence.	. Circle the answer tha	at correctly completes	
1. A system is a co	<b>1.</b> A system is a combination of parts that work (together, separately).		
2. The atmosphere	is the (air, land) that s	surrounds the earth.	
<b>3.</b> The (hydrospher all living and non	e, biosphere) is the pa lliving things.	art of the earth that holds	
4. The (core, crust)	<b>4.</b> The (core, crust) is the innermost layer of the earth.		
<b>5.</b> Magma is minerative the (crust, mantle	<ol> <li>Magma is minerals in the form of hot liquid rock; it is found in the (crust, mantle).</li> </ol>		
<b>True/False.</b> Decide if in the blank.	each statement is tru	e or false, and write <b>true</b> or <b>false</b>	
6.	The hydrosphere is t	he air that surrounds the earth.	
7.	The mantle is the lay surrounding the earth	er of iron-rich minerals n's core.	
	The asthenosphere is the earth.	s the innermost layer of	
9.	The lithosphere is the including the earth's	e outermost layer of the mantle, crust.	
10.	The crust is the outer the earth.	rmost layer or surface of	

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# Chapter 2 Demonstration

## **OBSERVING & CLASSIFYING ROCKS**

**Background:** A rock is a solid, natural object made from one or more minerals. The rock cycle is the process by which old rock material changes to make new rocks. Outside forces affect rocks as they move through the rock cycle. These forces determine how a rock changes. As a rock moves through the rock cycle, it can change into all three types of rocks—igneous, sedimentary, and metamorphic.

#### Materials:

- an igneous rock
- a sedimentary rock
- a metamorphic rock
- three clear storage bags
- a permanent marker
- a magnifying glass

#### **Directions:**

- Place each rock in a clear storage bag. Use a permanent marker to label the three bags "Rock A," "Rock B," and "Rock C." Then, write the headings "Igneous," "Sedimentary," and "Metamorphic" horizontally across the board.
- **2.** Hold up Rock A. As a class, make observations about the rock's texture, color, and other characteristics.
- 3. Have the students take turns examining the rock using a magnifying glass.
- **4.** Use the class's observations about the rock to determine whether it is igneous, sedimentary, or metamorphic.
- 5. Write "Rock A" under the correct heading on the board.
- 6. Repeat Steps 2–5 for the other two rocks.
- **7.** Verify that the rocks have been correctly identified. Then, discuss how each type of rock might have traveled through the rock cycle.

## Condensation on a Glass

Chapter 4 – LAB ACTIVITY

**Purpose:** Students will observe condensation as it occurs in the atmosphere.

#### Materials Needed:

- drinking glasses
- ice water
- water that is at room temperature

**Time Required:** 15 minutes to prepare, 45 minutes for observation

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#### Directions:

- 1. Give each student or group of students the following materials:
  - 2 drinking glasses
  - ice water
  - water that is at room temperature
- **2.** Explain the lab directions on the following page to the students. Have them follow the step-by-step instructions.
- 3. Have the students answer the questions on the following pages.

#### **Answer Key:**

- **1.** Nothing happened to the glass of water that was at room temperature.
- 2. Water droplets formed on the outside of the glass of ice water.
- **3.** The temperature inside the glass of ice water was colder than the temperature outside the glass. When the air outside the glass began to cool, the water vapor it was holding changed from a gas to a liquid and formed water droplets on the outside of the glass.
- **4.** Water droplets did not form on the glass of water that was at room temperature because the temperature inside the glass was the same as the temperature outside the glass.
- **5.** The water vapor from the air changed to a liquid when it came in contact with the glass of ice water. In the atmosphere, water vapor condenses when it cools to form clouds and rain.
- 6. Answers will vary.

# Condensation on a Glass

### Chapter 4 – LAB DATA SHEET

**Problem:** Under what conditions will condensation appear?

### Materials:

- 2 drinking glasses
- ice water
- water that is at room temperature

**Hypothesis:** If you fill a glass with ice water and another glass with water that is at room temperature, what do you think will happen on the outside of each glass within a few minutes? Explain your answer.

### **Conduct an Experiment:**

- **1.** Fill one glass halfway with ice water and the other glass halfway with water that is at room temperature.
- **2.** Set the glasses side by side on a table.
- **3.** Observe the outside of each glass to see what happens.

## Data Collection and Analysis:

**1.** What happened to the outside of the glass of water that was at room temperature?

2. What happened to the outside of the glass of ice water?

Conclusion:         3. Why did water droplets form on the outside of the glass of ice water?	Conclusion:         3. Why did water droplets form on the outside of the glass of ice water?	Conclusion: 3. Why did water droplets form on the outsid	e of the glass of ice water?
<ul> <li>3. Why did water droplets form on the outside of the glass of ice water?</li> <li>4. Why didn't water droplets form on the outside of the glass of water that was at room temperature?</li> <li>5. How is the glass of ice water similar to the atmosphere?</li> <li>6. Was your hypothesis correct? Explain your answer.</li> </ul>	<ul> <li>3. Why did water droplets form on the outside of the glass of ice water?</li> <li>4. Why didn't water droplets form on the outside of the glass of water that was at room temperature?</li> <li>5. How is the glass of ice water similar to the atmosphere?</li> <li>6. Was your hypothesis correct? Explain your answer.</li> </ul>	3. Why did water droplets form on the outsid	e of the glass of ice water?
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		6. Was your hypothesis correct? Explain you	ır answer.

Cha	pter 4: The Atmosphere	REVIEW
Ch ea	<b>cose the Answer.</b> Circle the answer that correctly completes ch sentence.	
1	<ol> <li>The atmosphere is composed of several (liquids, gases), including oxygen, carbon dioxide, and nitrogen.</li> </ol>	
2	<ol> <li>Ozone, Nitrogen) is a part of the atmosphere that absorbs the sun's dangerous ultraviolet rays.</li> </ol>	
3	<ol> <li>(Cumulus, Cirrus) clouds are thin, wispy clouds that form at high altitudes.</li> </ol>	
	<ol> <li>If water vapor changes into water droplets close to the ground over warm water or low-lying areas, (fog, sleet) will form.</li> </ol>	
5	<b>5.</b> (Condensation, Humidity) is the amount of water vapor in the air.	
c	arbon dioxide air pressure air mass saturated water va	ipor
	<b>6.</b> is a gas that is released into the air and soil during the processes of breathing and decomposition.	
7	. Water in gas form found in the atmosphere is	
8	3. When the air at a specific temperature holds the maximum amoun of water vapor that it can, the air is	nt
9	<b>9.</b> is the weight of the air pressing down on the earth's surface.	
10	A/An is a large body of air in the atmosphere that has the same temperature and humidity throughout.	

Chap	ter 4: The Atmosphere REV	/IEW
Sho	ort Answer. Write the answer to each question in complete sentences.	
1.	How do people and animals use oxygen in the oxygen and carbon dioxide cycle?	
2.	What are the three basic types of clouds?	
3.	What are the four types of fronts?	
4.	What is climate?	
5.	List the earth's three main climate zones.	

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Chapter 5: Water	TEST
Matching. Match each word to its definition, and wri	te the letter in the blank.
1. the process of water moving from the air to the ground to various water	A. current
sources and back into the air	B. salinity
<b>2.</b> water that contains little to no dissolved elements, especially salt	C. water cycle
<b>3.</b> the amount of salt and other dissolved	<b>D.</b> upwelling
minerals that water contains	E. freshwater
4. a large stream of water that moves through the ocean	
5. the process of cold, dense, nutrient-rich water rising to replace warm surface wate lost to wind movement and evaporation	r
Fill in the Blank. Use the words in the word bank to the sentences.frozengroundwatersurfacesurfacetension	o complete
<b>6.</b> The ability something has to stick to itself is	tension.
<ol> <li>Water that seeps into the soil and is stored bel is</li> </ol>	ow ground
8. A glacier is an example of free	eshwater.
9. Of all the liquids, water has the highest surface	e
<b>10.</b> Water when it turns from a li	quid to a gas.

Chapter 5: Water TEST
Multiple Choice. Circle the best answer, and write the letter in the box.
<ul> <li>11. In the water cycle, water can become a</li> <li>A. solid</li> <li>B. liquid</li> <li>C. gas</li> <li>D. all of the above</li> </ul>
<ul> <li>12 help circulate ocean water around the world.</li> <li>A. Springs</li> <li>B. Clouds</li> <li>C. Deep ocean currents</li> <li>D. All of the above</li> </ul>
13. Ocean waters have three levels.         A. salinity         B. depth         C. thermocline         D. surface
<b>Short Answer.</b> Write the answer to each question in complete sentences. <b>14</b> What are four properties of freshwater?
<b>15.</b> Why does salt water vary in salinity?