**Best Answers are below**

Weather, Currents, and Seasons Lab

Lab Station 1: Catching a Cloud

**Caution: Hot Plate is hot. DO NOT touch hot plate.**

Materials provided: Hot Plate and two beakers

Directions:

1. Make sure there is 100 mL of water in beaker not on the ring stand.
2. Place the beaker with water on the hot plate.
3. Turn Hot Plate up to 10.
4. You may very carefully adjust the placenta of the ring stand to make sure the steam goes into the beaker hanging upside down.
5. Record your observations.
6. Answer the questions below.

Questions:

1. Record your observations.

Flask fogged up. Some water dripped from the mouth of the flask.

1. What happened inside the upside down beaker? Why?

The warm, moist air rose from the beaker and entered the flask. The air then cooled and condensed inside the flask. The moisture was squeezed out of the air and created a “cloud” on the flask.

1. Why must the water be heated for this to happen?

For condensation or cloud formation, warm air must be cooled. Placing a flask over a beaker with ice will not get the same results because the air would be warming and holding more moisture.

1. How does this model cloud formation?

In nature, warm air rises into the atmosphere and cools down. The now cooler air cannot hold as much moisture and it squeezed out what it cannot hold. That moisture collects together and forms a cloud.

Lab Station 2: Red versus Blue

Directions:

* 1. Use your iPad to go to [worleyscience.com](http://worleyscience.com).
	2. Tap on the 8th grade tab.
	3. Tap on the red versus blue button.
	4. Watch the video.
	5. Answer the questions below.

Questions:

1. What is the difference between the red water and blue water?

The red water is hot and the blue water is cold.

1. Why do the red and blue waters mix?

When the red water is on the bottom, the warm water rises up because it is less dense and the cold water falls down because it is more dense.

1. Does this model ocean currents? Why or why not?

Yes, because warm waters from the equator will travel towards the poles and cold waters from the poles will travel towards the equator creating a convection current.

1. Why do the waters not mix?

When the blue water is on the bottom, the warm, less dense water is already at the top and does not need to rise. The cold, more dense water is already on the bottom and does not need to fall.

1. Does this model ocean currents? Why or why not?

No, because there are convection currents in the ocean and there is not one in the jars.

Lab Station 3: Pressure Test

Materials provided: Tray, beaker, and sponge

Directions:

Barely dampen the sponge.

Pour 100 mL of water into the tray.

Squeeze the sponge into the smallest ball you can.

Without unsqueezing the sponge, place it in the water.

Release the sponge.

Answer questions 1 and 2 below.

Hold the sponge flat in your hand over the tray. Try not to squeeze it.

Answer questions 3 and 4 below.

Slowly squeeze the sponge over the tray.

Answer questions 5-7 below.

Questions:

1. What happened to the water in the tray after you released the sponge?

It was soaked up and disappeared into the sponge.

1. Is this modeling cooling air down or warming air up? Why?

Warming up, because air expands when it is warmed and can hold more water.

1. How much water comes out of the sponge when it lies flat on your hand?

Just a little

1. What would you need to do to get the water out of the sponge?

Squeeze the sponge

1. What happens when you slowly squeezed the sponge?

Water falls from the sponge onto the tray.

1. Is this modeling cooling the air down or warming air up? Why?

Cooling down, because when air cools down, it cannot hold as much water and it squeezes out the water it cannot hold.

1. What is the water coming out of the sponge modeling?

Rain (or any precipation)

Lab Station 4: Treasure Map

Directions:

* 1. Use your iPad to go to [worleyscience.com](http://worleyscience.com).
	2. Tap on the 8th grade tab.
	3. Tap on the treasure map button.
	4. Answer the questions below.

Questions:

1. What type of front is above Billings?

Stationary Front

1. What weather is associated with that type front?

Cloudy with the possibility lingering rains

1. What type of weather is Denver having?

Sunny skies because it is in a high pressure area.

1. What front just went through Seattle?

Occluded front

1. What will happen to the temperature in Louisiana if the front in the gulf keeps moving north?

The temperature will start to rise.

1. What is happening to the temperature for us?

The temperature is dropping.

1. What type of weather are we having?

Cold and stormy

Bonus: What is the treasure you found from doing this lab?