

Name: _____ Class: _____ Date: _____

M6.1 Heating and Cooling Air Lab

ELL GUIDE

Fill this out as a guide, then write on real lab packet to turn in.

1. Hypothesis:

Word bank: hot, fall, cold, rise

If the air is _____, the air molecules will _____. If the air is _____, the air molecules will _____.

(Choose ONE procedure below to fill out and write in your lab packet!)

2. Procedure 1: Balloons

Word bank: water, hot, record, balloon, cold, fill line

Step 1: Pour **hot** _____ into one cup, until it reaches the fill line. Pour _____ into the other cup, until it reaches the _____

Step 2: Put the _____ on the top of the bottle.

Step 3: Place the _____ in the cup with **hot** water and observe what happens. _____ your observations.

Step 4: Put the bottle in the other cup, with _____ water and observe what happens. _____ your observations.

OR

Procedure 2: Stopper & Straw

Word bank: water, cold, straw bubbles, stopper, bottle, hot

Step 1: Pour **hot** _____ into one cup, until it reaches the fill line. Pour _____ into the other cup, until it reaches the fill line.

Step 2: Put the _____ with the _____ on top of the bottle.

Step 3: Place the _____ in the cup with _____ water and place the straw in the cup with the _____ solution. Observe what happens.

Step 4: Put the bottle in the other cup, with _____ water and place the straw in the cup with the _____ solution. Observe what happens.

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3. Draw and Label your setup. (You don't need help with this! Do this on your sheet.)

Label word bank: cup, hot water, cold water, bottle, balloon, straw/stopper, bubble solution

4. Explain what happens to air as it is heated and cooled:

Word bank: sinks, volume, rises, expands, heated, contracts, bottom, hot

When air is **hot** it _____ and _____ up to fill the full _____ of the object. When air is **cold** it _____ and _____ down to the _____ of the object.

5. Explain what happens at the molecular level when air is heated/cooled:

Word bank: sink, cold, hot, fast, bounce, together, slow

In **hot** air the molecules move very _____, which makes them _____ off each other and fill the space. In _____ air the molecules move very _____, which makes them group _____ and _____ down to the bottom.

Bottle Drawings...

Use this image to help you!

