

Name _____

Lesson 8: How can we show that an increase in CO₂ causes an increase in temperature?

Do Now:

- 1) What did we wonder about last class?
- 2) What were the most important things we figured out in our last lesson?
How did we figure those things out?
- 3) What other evidence do we need to collect today?

Initial Ideas:

What are some ways we can use these materials to design a *model* of whether CO₂ can cause temperatures to rise in the atmosphere?

Materials: 2 water bottles, 2 thermometers, water, light source, plastic wrap, rubber bands, and a way to make CO₂ easily (4 tablets of Alka-Seltzer)

Record Your Investigation Plan:

How will you use the **light**? Why is light important in this experiment?

Draw a set-up for the **treatment or test condition**:

Draw the set-up for the **control condition**:

What will you **do that is the same** in each condition?

What will you **measure** in each condition, and **how often** will your group take measurements? Explain your reasoning.

How will this experiment allow you to decide whether CO₂ can cause an increase in temperature?

Results:

Label the table below with your treatment and control conditions, variables, and record your measurements here.

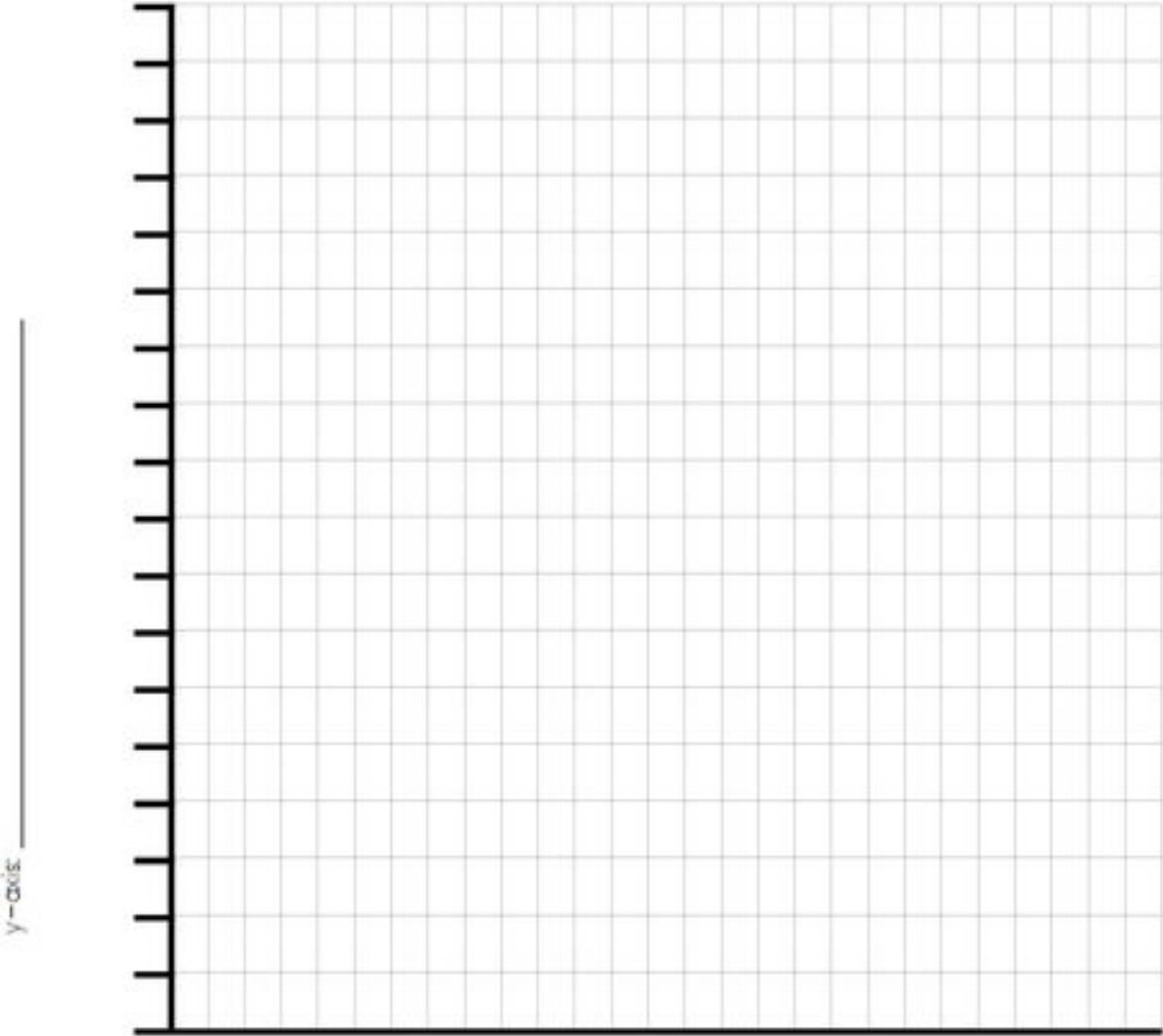
Table Title: _____

	What we are measuring: _____							
	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5	Measure 6	Measure 7	Measure 8
Time								
Treatment								
Control								

What pattern do you see or notice in the data?

Graph your results to help you see the patterns in your data:

Title: _____



x-axis: _____

Making Sense:

Now that we have completed our activity, what can we conclude about the role of CO₂ in the temperature increase?

Additional Evidence:

Your experiment is a model of a closed system (particles do not enter or leave). Scientists say that the Earth is an open system (e.g. meteors can enter our atmosphere). Earth does lose some of its upper atmosphere to space but this happens in small amounts and occurs over a billion-year timescale. Gravity keeps most of Earth’s atmosphere surrounding our planet, which makes our planet habitable and protects life in many ways.

Watch:

“The Mythbusters Test the Global Warming Theory”

<https://www.youtube.com/watch?v=pPRd5GT0v0I>

How does our experiment about figuring out if CO₂ increases temperature compare to how scientists study this question (compare & contrast materials and equipment, experimental design, data recording, etc.)?

Exit Ticket:

Is there anything you are still wondering about for this unit?
