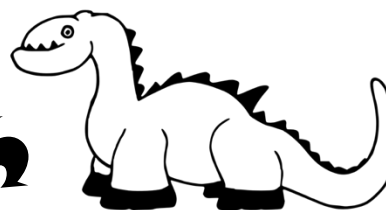


Name: _____



Dinosaur Breath

Background: After reading the background information, answer the following questions.

1. What does the term “carbon cycle” mean?
2. How do all animals, from dinosaurs to humans, relate to the carbon cycle?
3. Explain how a carbon atom that existed as carbon dioxide (CO₂) during the Carboniferous Period could have ended up at the bottom of a murky swamp.
4. How did this carbon atom eventually form coal? What is coal used for today?
5. Now explain how the same carbon atom (that existed as CO₂ during the Carboniferous Period) could have ended up in a dinosaur’s stomach.
6. How did this carbon atom become re-released into the atmosphere?
7. How did the carbon atom meet a tiny marine organism? What did the carbon atom help the marine organism build?
8. How did the carbon atom become natural chalk?
9. How can we release the carbon contained in the natural chalk, which could be from the exhaled breath of a dinosaur?

Materials: crushed chalk, vinegar, 2 beakers, 2 medicine cups, plastic spoon

Procedures:

1. Measure 1 tablespoon of chalk & put in beaker #1.
2. Weigh the beaker and chalk and record.
3. Measure 30 mL of vinegar & put in beaker #2.
4. Weigh the beaker and vinegar and record.
5. Add the total of steps 2 and 4 and record.
6. Pour the vinegar onto the chalk.
Stir the mixture until it stops bubbling.
7. Weigh the beaker with the chalk and vinegar and record
8. Weigh the empty vinegar beaker and record.
9. Add the total of steps 7 and 8.
10. Subtract step 9 from step 5 and record.

Data Table:

Mass of beaker #1 & chalk	
Mass of beaker #2 & vinegar	
Total mass of beaker #1 & #2 with chalk & vinegar	
Mass of beaker with chalk & vinegar after reaction	
Mass of empty beaker (that had vinegar)	
Total mass of both beakers after reaction	
Subtract the total mass after the reaction from the total mass before the reaction	

Questions:

1. Why is there a difference in the masses of #9 and #5?
2. Where did that missing mass go?
3. Explain the reaction resulting from the addition of vinegar to chalk. In other words, what happened when you added the vinegar? What resulted from this reaction? What did you see, hear and smell?
4. Explain the carbon cycle and how it is possible that dinosaur breath was released when vinegar was added to chalk. It might be helpful to refer to the background reading to answer this question.
5. Explain why people are concerned with the rising level of carbon dioxide in the atmosphere (CO₂). What can *you* do to help rebalance the carbon cycle?