

Stair Step Candles

Student Worksheet

Name _____

Overview: Candles don't just give us light and heat ... they also produce carbon dioxide. Where does it go? Let's experiment to find out!

What to Learn: After today you should know that flames produce carbon dioxide, and that hot gas is less dense than air and takes up more volume.

Materials

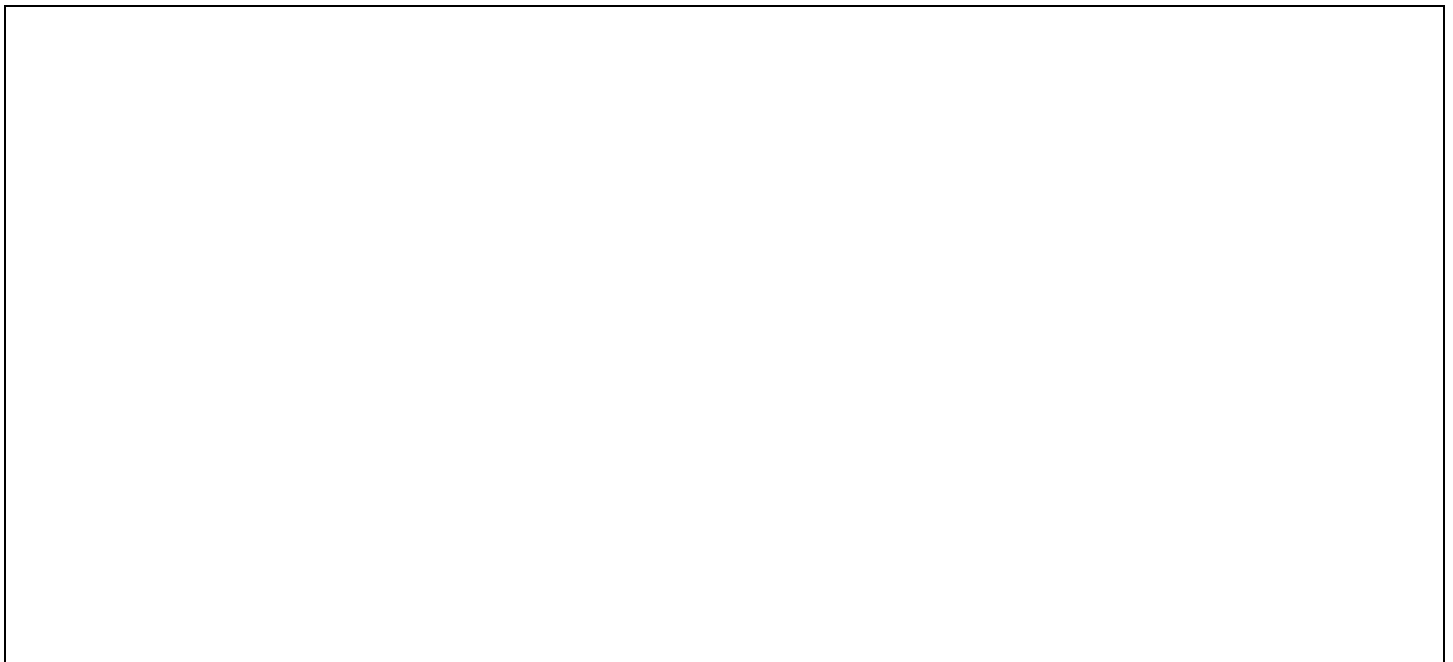
- three candles
- adult help
- blocks or stones
- LARGE jar or container that fits over all three candles

Lab Time

1. Use blocks to make three levels for the candles to sit on.
2. Place the candles on the blocks and light each.
3. Place a jar or container over the top. Observe the order in which the candles are extinguished.

Stair Step Candles Data Table

Make a diagram of this experiment. Label the flow of carbon dioxide and oxygen. Label the order the candles went out (1, 2, and 3).



Exercises Answer the questions below:

1. Could you perform this experiment in outer space? Why or why not?
2. What three things are needed to start a fire?
3. Why did the top candle go out first?
4. How did temperature affect the volume of the CO₂ gas?

Exercises

1. Could you perform this experiment in outer space? Why or why not? (No. You need oxygen to light a flame, and there's no oxygen in outer space.)
2. What three things are needed to start a fire? (oxygen, fuel, and a spark.)
3. Why did the top candle go out first? (The hot carbon dioxide gas was less dense than air so it rose, snuffing out the top candle.)
4. How did temperature affect the volume of the CO₂ gas? (The hotter temperature increased the volume of gas.)

Closure: Before moving on, ask your students if they have any recommendations or unanswered questions that they can work out on their own. Brainstorming extension ideas is a great way to add more science studies to your class time.