

A twist on the candle mystery

Activity 3 worksheet: Explanation

When burning individual candles covered by beakers, why do the candles go out at similar times?

Read this explanation and compare it to your own.

During combustion, the high temperature of the flame causes the carbon dioxide gas to become less dense compared to the surrounding air. As a result, carbon dioxide rises and accumulates at the top of the gas jar.

When three candles of different heights are placed under the same gas jar, significantly more carbon dioxide is produced. Carbon dioxide rises to the top and accumulates, making the tallest candle go out first.

However, when burning individual candles of different heights each covered by a beaker, less carbon dioxide builds up and rises to the top. As the concentration of carbon dioxide increases over time, the amount of oxygen available for combustion is reduced. It becomes difficult for both candles to sustain a flame. This causes the burning candles go out at similar times in this closed system.

Self-evaluation

1. What did I do well in my explanation?

2. What could I improve?