Curiosity Guide #703
Wax Science

Accompanies Curious Crew, Season 7, Episode 3 (#703)

Disappearing Candle

Investigation #3

Description

Where does candle wax go when a candle is burning?

Materials

- Candles
- Match
- Adult supervision
- Timer
- Ruler
- Aluminum foil or wax paper
- Clay or Play-Doh
- Paper
- Pencil
- Scissors
- Goggles

Procedure

1) Measure and record the length of each candle.
2) Tear or cut a 6-inch square piece of foil for each candle.
3) Roll a ball of clay for each candle. Press the clay down into a mound on the center of each piece of foil.
4) Put on goggles.
5) With adult supervision, light each candle. Let each one burn for one minute.

6) What do you observe?
7) Blow out one of the candles. What do you observe now?
8) Let a second candle burn an extra minute before blowing this candle out.
9) Measure the length of each candle.
10) Where did the burned candle wax go?

My Results

Explanation

Candles are made of wax. As the heat of the flame warms the wax, the wax melts, and changes from a solid to a liquid. The liquid wax uses capillary action to climb up the wick. Wax is made of hydrogen and carbon atoms that react with the oxygen and produce water vapor, carbon dioxide, heat, and light. Twenty-five percent of that energy is transferred as heat, but there is enough energy to also melt the surface of the candle continuously. Some of that liquid wax drips down the side of the candle. The dripping wax solidifies again as it moves further away from the heat source and cools. A burning candle is a great example of both a physical and chemical change. The yellow flame of the candle indicates the presence of carbon, typical of the hydrocarbon chains in waxes.

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