



## Curiosity Guide #406

### Torque

Accompanies Curious Crew, Season 4, Episode 6 (#406)

#### Candle See-Saw

Investigation #1

#### Description

When is a candle not a candle? When it's a see-saw!

#### Materials

- Candle with wick exposed on both ends
- Candle in jar, stand, or candlestick
- Lighter
- 2 drinking glasses of similar height
- Piece of paper
- Knife
- Knitting needle
- Pliers
- Drill
- Drill bit
- Measuring tape
- Safety glasses

#### Procedure

1. Carefully cut the first candle to expose the wick on both ends.
2. Lay the candle on its side. Measure the candle to find the center. Mark the center with the knitting needle.
3. Light the second candle that is safely standing in a holder. Hold the knitting needle with pliers. Place the knitting needle in the flame and heat it.

4. Slide the heated knitting needle through the candle so that the needle sticks out several inches on either side of the candle.
5. Lay the paper on the floor. Center the drinking glasses on the paper, leaving about three inches between them.
6. Balance the knitting needle on the glasses so the candle hangs between them like a see saw.
7. Put on the safety glasses and light both ends of the candle.
8. What do you notice?

## My Results

## Explanation

Torque is any kind of force that applies rotation. At the beginning, the candle is stationary, so there is no torque being applied. Because one side of the candle hangs a bit lower than the other, the flame melts more of the wax on that side, which drips down onto the paper. The loss in mass on that end causes the total mass on the other side to apply a torque and causes the candle to lower. With each drop of wax, the other end of the candle applies a torque. This causes the candle to lower on one side and then the other.

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