

Birthday Candle Wish

The Action

Using a birthday candle, a match and a drinking glass we will be able to remove a dime from a dish of water without touching the water.

Grade Level

Grade 9 - Fluids and Pressure

Grade 10 - Chemical Reactions or Science Olympics Demonstration

Materials

- A birthday candle
- Plastercine
- A dime
- Clear shallow flat dish
- Water
- Food colouring
- Matches
- Drinking glass (with a smooth rim)

Instructions

- Place a dime in the side of a shallow dish. Fill the dish with coloured water so that the water barely covers the dime. (If you use too much water in this experiment, it will not work).
- Tell the audience that the dime is actually worth \$10,000 and the liquid covering it is toxic. Ask them how to get the dime without tilting the dish or using any other utensil to fish it out. Tell them that you can achieve this using only a birthday candle, a glass and a match.
- Put a small piece of plastercine on the bottom of the candle to act as a candleholder. Place the candle inside the dish and light it. Allow it burn for a few seconds and then cover it with the glass.
- When the candle goes out, the water will be pushed up into the glass. The dish is now dry and you simply reach in and pick up the coin.

Safety

Care must be taken as there is fire involved and be careful not to get food colouring on your clothes.

Hints

- If the experiment doesn't work, try rubbing the dry dish lightly with a bar of soap or a finger moistened with detergent to make sure the water film won't break.
- NOTE: that this trick works the best if you let it sit for a while after the candle goes out. The water will not completely disappear immediately.

Science Principle

In this activity you create a partial vacuum by burning a candle in a closed space. As the candle burns it uses oxygen (oxygen makes up about 20% of the gases in the air). The flame goes out when almost all the oxygen has been used up. The pressure of the air left in the closed space, once the oxygen has been used up, is less than the pressure of the air outside. A layer of water is between this partial vacuum and the outside air. Like dirt being swept into a vacuum cleaner, the water is pushed up into the closed space by the pressure of the outside air.