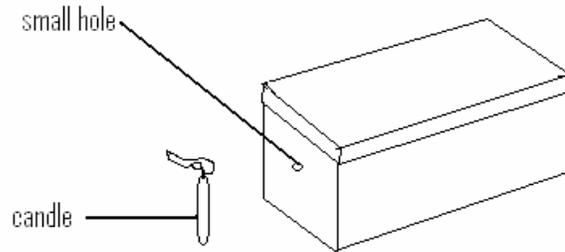


## THE EMPTY BOX CANDLE SNUFFER

**A. Question:** *Does air have power?*



**B. Materials Needed:**

1. One empty shoe box
2. A birthday candles and matches
3. Masking tape

**C: Procedure:**

1. Show the open shoe box to the students and ask: “What is in the box?” (anticipated answer: ‘nothing’)
2. Make a small hole in the shorter, width end of the box (about ½ cm in diameter). The hole should be made at approximately the same height as the candle. Measure this height from the bottom of the box.
3. Light the candle and place it in front of the hole about 5 cm away.
4. Using an open hand, hit the shoe box top with a sudden tap.

**D: Anticipated Results:**

The students should expect to see the candle flame go out when the box top is struck. The force of the strike will push air in the shoebox container out through the hole. And if positioned correctly this air should either blow out the candle or move the direction of the flame. This lighting and snuffing of the candle can be repeated.

**E: Thought Questions for Class Discussion:**

1. What blew the candle flame out?
2. What did the tap do to the volume of the box?
3. How far can you hold the candle from the box and still have the flame be blown out?
4. What would happen to the flame if you pushed the box top gently, instead of giving it a sharp tap.

**F: Explanation:**

The shoe box is occupied with air and by tapping the top of it, the air was forced through the little hole. This blew the candle flame out, just like when we pucker up our lips to blow out a candle. By tapping the box, the volume of it becomes smaller for a brief moment and this action forces air out. Pushing the box in gently is like blowing very lightly against the flame. This demonstration shows that air is occupying all the space around us; it’s even within an “empty” box..