

STUFF AND SUBSTANCE: A LIGHTED CANDLE

Candle wax is a substance made from hydrogen and carbon atoms. A flame is a reaction between two substances in the gas state which gives out a lot of energy. You are going to investigate a candle flame.



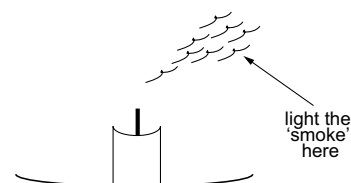
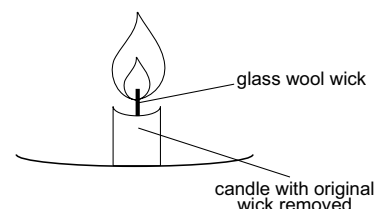
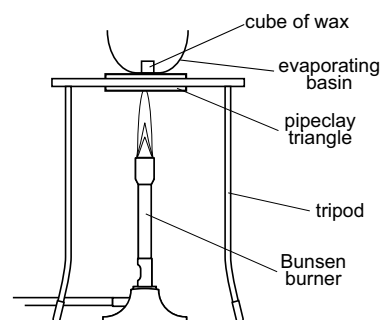
Boiling wax is very hot. Take care not to get it on your skin as it could cause a severe burn. If you need to put out the wax use tongs to pick up a gauze mat and lower it onto the basin to smother the flame. Do not spray water onto the hot wax.

Task A Will boiling wax set alight?

1. Your teacher will use a Bunsen burner to heat a piece of wax in a glass evaporating basin. What do you observe?
2. Your teacher will now put a lighted splint over the boiling wax. What do you observe?

Task B A glass wick candle

3. You will need a candle which has had the string wick replaced with glass wool. Put the candle on a watch glass and set it alight.
4. Look carefully at what is happening. What do you observe? What is happening to the wax and what part does the wick play in this?
5. Blow out the candle. Notice the 'white smoke' that comes off the wick for a short time while the glass is still hot. Re-light the candle. Blow out the candle and try to light the 'smoke' about 1 cm away from the wick.
6. Can you explain what this 'white smoke' might be?
7. Repeatedly blow out and re-light the candle. How far can you make the flame jump?



STUFF & SUBSTANCE:**A LIGHTED CANDLE****Task C Testing the products**

8. Re-light the candle. Cover the lighted candle with a beaker until the candle goes out.
9. Why do you think the candle goes out?
10. Notice the condensation around the sides of the beaker. Which substance is this? Test it with a piece of cobalt chloride paper. Were you right?
11. Re-light the candle and again cover it with a beaker until the candle goes out.
12. Remove the beaker and add a small amount of limewater to the beaker. Swill the limewater around, using a plastic lid to stop any limewater spilling out.
13. What do you observe? What conclusion can you make?



Cobalt chloride is toxic – avoid prolonged skin contact with the cobalt chloride paper. Wear eye protection and wash hands after the practical.

