PLAY TIME

a REAP Wairarapa eResource

No: 9
2020

CANDLE AND JAR EXPERIMENT

You will need

Large Jar	Water coloured with food colouring
Candle	Blue tack
Matches	Plate with high outside lip

Safety: Talk about matches- they are a tool not a toy, if children find them, take them to an adult, ask who is an adult in their house? e.g Mum or Dad, not a brother or sister.

Together ...

1) Using a blob of blu tack secure the candle at the centre of the plate.
2) Light the candle and talk about what it might be burning.
3) Ask what might happen when you place the bottle over the candle - hypothesis (place candle over) watch and observe. Why has the candle gone out? What else can you see in the jar?- smoke, condensation...
4) Remove the jar and light the candle, then gently poor coloured water into plate.
5) Carefully place the jar over the candle.
6) Watch what happens. Why does the candle go out? Why does the water rise inside the jar? Whats happening?

Listen to your children's explanations, and accept these as their working theories/ ideas. The idea is to create curiosity about experimenting, not the answers.

Scientific explanation

The thermal expansion and contraction of the air inside the bottle is the main effect in this activity. Heat from the candle flame causes the air inside the bottle to expand. Some of the air escapes from the mouth of the bottle, which can be observed as bubbles accompanied by a gurgling sound. Combustion does consume oxygen (but not all of it), and when the oxygen level is too low, the flame expires (goes out). The carbon dioxide produced by the flame also contributes to extinguishing the flame, and it is often argued whether it's lack of oxygen or the carbon dioxide that is the main factor that the flame expires.

Once the flame expires, the air begins to cool. The cooling gas inside the bottle contracts to create a partial vacuum. The pressure in the bottle becomes lower than the pressure outside the bottle. The higher external pressure forces water up inside the bottle until the internal and external pressures are equal.

www.sciencelearn.org.nz/content/.../The+great+candle+experiment.doc

eResource provided by Shirley Jones - Playgroup Support

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