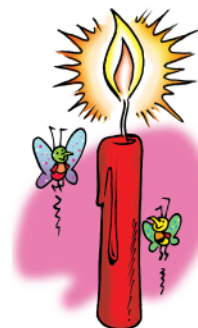
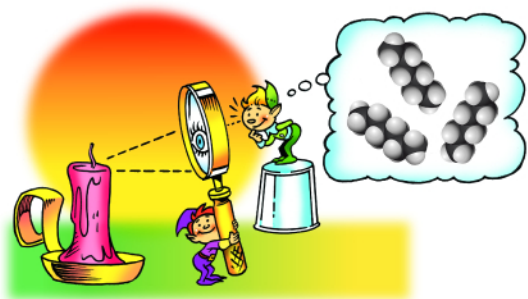


The Secret Science of...

FLAMES

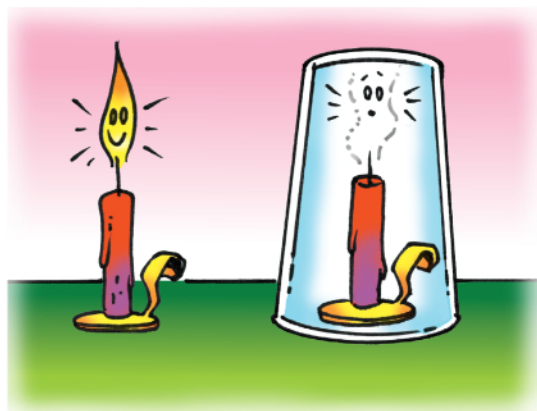


The Wax Facts

If you could look way down into a candle, you'd see that wax is made up of long molecules. Each molecule is made up of carbon atoms, shown in dark gray and hydrogen atoms, shown in white.

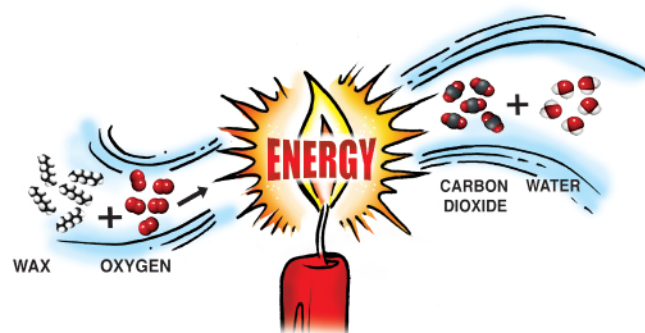
Wick Trick

The wick is made of string and is covered in wax so that it lights easily. Once the wick is lit, heat from the flame melts some candle wax. Some of this liquid moves up the wick. The liquid evaporates and becomes a gas, which is the fuel for the flame.



Wax Is Not Enough

You need more than wax to make a flame. You also need oxygen. The oxygen that's needed to make the flame is in the air. If you cover a flame with a glass cup or jar, the flame uses up the oxygen and goes out.



One Hot Reaction!

Here is a picture showing the wax gas and the oxygen molecules coming together to make a flame. This is called a chemical reaction. This reaction also makes carbon dioxide and water. Both of these invisible gases go into the air.

Find Out More.

Why does blowing on a flame make it go out?

The answer could be a few different reasons.

- Your breath has a lot of carbon dioxide. When you blow, the carbon dioxide pushes oxygen out of the way and the flame goes out.
- Your breath blows away some of the hot air around the flame. If the liquid wax cools down enough, it can't become a gas. Without wax gas, the flame won't burn.
- Your breath blows some of the wax gas away. Without this fuel, the flame will go out.



Why does a flame have different colors?

The colors of a flame are caused by bits of wax molecules that didn't get completely reacted. These glow a certain color when they get to be a certain temperature. Since different parts of the flame have different temperatures, these bits of wax molecules make those areas of the flame glow with different colors.



How do candles with different colored flames work?

There are some special types of candles that have flames of different colors. These candles are made by adding certain chemicals to the wax. When they get hot enough, these chemicals glow a particular color like red, green, purple, or blue. Here, there is a regular candle in the middle and special color-flame candles on either side.

