dundee science centre 25 YEARS OF WONDER

Let's Talk About

Fireworks.

STEM Education worksheet provided by Dundee Science Centre.

These worksheets work in conjunction with our **Let's Talk About** video series that can be found on our Instagram @dundeesciencecentre.

They are designed to engage and educate on interesting science topics to support the curriculum for learners of all levels.

So What are Fireworks Made of?

Professionals use special chemicals called **metallic salts.** These are a wide range of chemicals that involve a kind of metal sticking to another element to make something totally new.

An example of this that you will have seen before is everyday table salt. If you combine the metal element **Sodium** with the element **Chlorine,** you get Sodium Chloride, which is a metallic salt we put on our food!

These metallic salts, when they get caught in a fire, will turn that fire a specific colour (orange for sodium chloride).

This should only be done by scientists and professionals because not only is fire dangerous, but many metallic salts are toxic and poisonous!

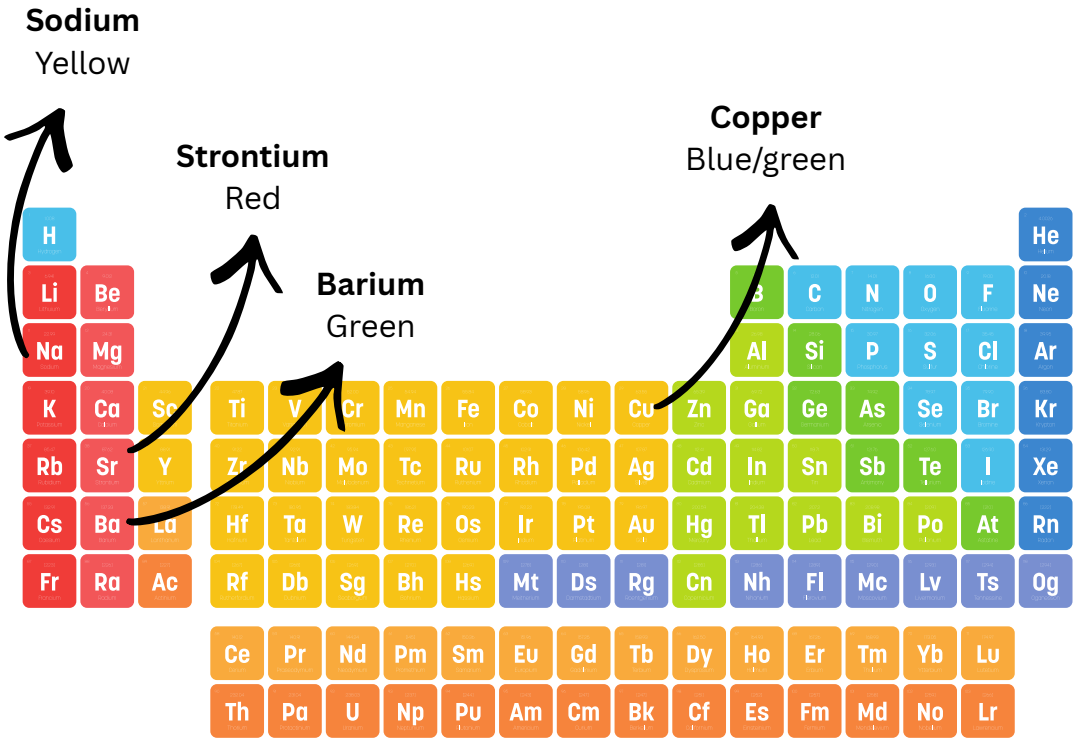
But if you want to safely use some chemistry to make a colour explosion at home, keep reaing!

Ingredients:
Sodium Chlorine

The Periodic Table of Elements

The periodic table of elements displays every element that has ever been discovered. You can think of this like the list of ingredients for everything in the universe. The elements are in order of size, and color is used to group the elements that behave somewhat similarly.

Lots of these groups are considered **metal** because they share things in common, but they can be very different. Here are some common metals used to make fireworks.



Make Your Own Fireworks!

You will need

- 1 tall, clear container for water
- A glass or jar
- Vegetable oil or similar
- Different food colourings
- A tool for stirring, such as a fork
- Roughly room temperature water

Instructions

Step 1: Fill the tall, clear container with room temperature water, leaving a little space at the top.

Step 2: Add about 2 tablespoons of oil to the empty glass or jar.

Step 3: Squeeze a couple of drops of different food colourings into the oil and stir until the food colouring is broken up into little drops.

Step 4: Carefully pour the oil and food colouring into the top of the glass with water.

Step 5: Watch the colour show!

How does it work?

Due to the chemical nature of oil and water, they don't mix! And because oil is lighter than water, you will see the oil float in a layer on top of the water in the glass. The chemicals in food colouring are made so that they dissolve in water, but in oil they stay as little drops.

Look carefully, can you see the colour drops in the oil sinking to the bottom Try to catch the moment the food colouring chemicals touch the water and all of a sudden dissolve into the water in a woosh of colour!