



Make Your Own Sunset

About CHaOS

Cambridge Hands-On Science - CHaOS for short - is a volunteer led group from the University of Cambridge.

We believe that science is fun and relevant to everyone! CHaOS take our wide range of hands-on science experiments & enthusiastic student demonstrators to venues across the country!

We always love to hear what you think of our experiments - so to get in touch, find even more experiments, and see more of what we do, visit our website!

www.chaossience.org.uk



Disclaimer

This experiments should only be carried out **under supervision of a responsible adult**.

Teachers should perform a risk assessment before use.

I'm Boris Bones, the friendly CHaOS skeleton. I'm going to guide you through this experiment!



YOU'LL NEED

Milk Powder, a clear flat-bottomed glass or beaker, water, a teaspoon, a jug, a phone with torch or other flat light source

The **sky is blue** in the day, but the **sunset** can often appear **pink or orange** - why is this? **Have a go at making your own sunset** to find out!

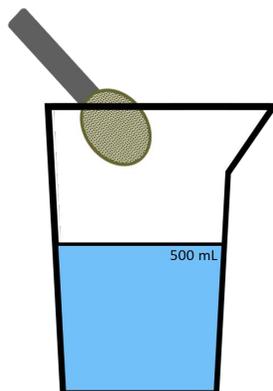


SAFETY

Be careful of **spills** - wipe them up straight away to avoid **slippages**. **Protect the electronics** by always **pouring liquids away** from them and ensuring the beaker is kept **stable**.

Step 1

Add half a teaspoon of milk powder to a jug. Top up with half a litre of water. Stir until the milk powder is all dissolved.



You should see light coming from the side - what colour does it look? Is it the same all the way up?

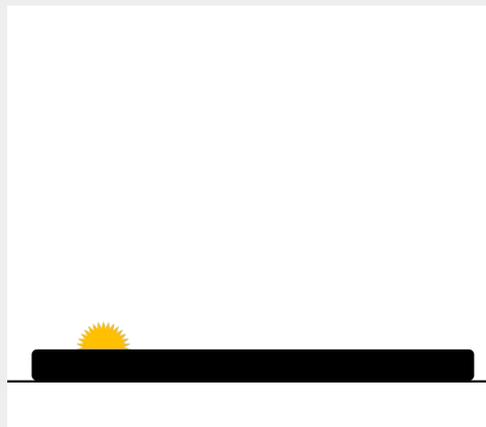
What colour does the light source look from the top?

TOP TIP

If you can't directly see the light from the top, the milk is too cloudy. Try adding more water.

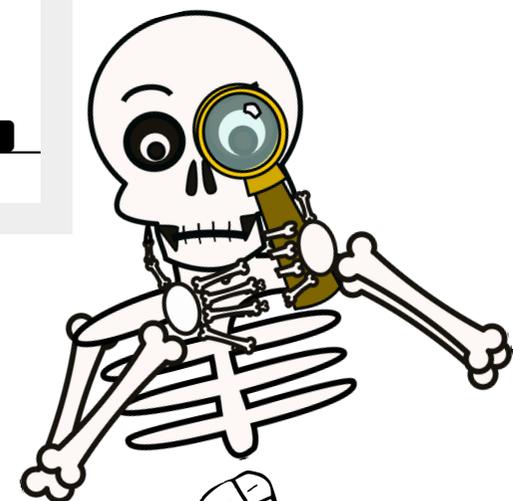
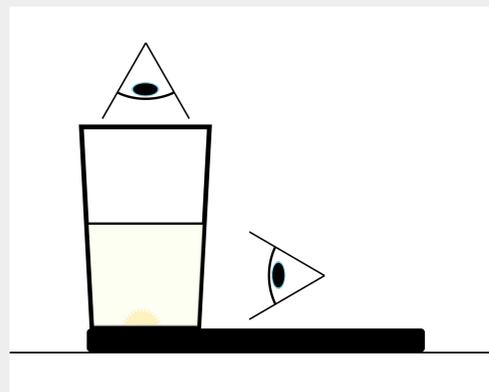
Step 2

Place a flat light source on a surface with the light on and pointing up. Try wrapping it in a layer of cling film or a plastic bag to protect it from spillages.



Step 3

Carefully pour a small amount of milk solution into the flat-bottomed beaker (try to avoid too many bubbles). Place the beaker on top of the light. Observe from the side and top.



Explanation

“White” lights like the Sun, or most phone torches, are made up of a mix of colours, which we can split up into the colour of the rainbow. When sunlight enters the Earth’s atmosphere the light can be bent or “scattered” in all directions by the nitrogen and oxygen that make up most of air. Blue light is scattered the most, which makes the sky blue. The red and orange colours are not scattered as much and come nearly straight through. This is why the sky looks orange or pink in the direction of a sunset. Can you see these same colours in the milk solution? Milk contains lots of small fat particles that have the same effect as the molecules in the air.

Add more milk solution to the beaker and see what happens!
Why does the colour of the light change?

Fun fact!

Mars has a red sky - this is because it has a lot of dust which gets put into the air by storms.

Want more?

Check out more experiments involving light! Why not try “*Oil and Pyrex*”?

Or, why not find out what happens when you add “*Cornflour*” to water?

