Science

Welcome to the wonderful world of science. In our labs you will learn all about the amazing world around you, how it works and why things happen. You will cover:

- How particles affect and react with each other
- What forces keep your body, your phone and even our planet together
- What keeps animals, such as humans alive
- How important plants are to us
- What happens when you mix chemicals together - hopefully without things going bang!
- How we see and hear information, and how that information travels - what is faster, lightning or thunder?

And much, much more. So, why not try these two experiments for starters:

Rainbow in a jar experiment

In science, one of the things we learn is density in solids and liquids. Some liquids don't mix because they are more or less dense than others. By colouring them with dye, you can create a rainbow!

Materials

A large, clear jar or container (at least 2 1/2 cups of liquid)
A smaller container for mixing in the food dyes
Olive oil
Water
Rubbing alcohol
Corn syrup
Blue liquid dish soap
Food dye (in red, blue and green)

Method

Purple: In a smaller container, mix one-half cup of corn syrup with one drop of blue and one drop of red food dye so it turns purple.
Pour it into the large jar and rinse the small container.
Blue: in the small container, mix one-half cup of blue dish soap.
Pour this blue layer slowly into the large jar and rinse the small container.
TIP: when pouring the liquids into the jar, pour very slowly. This also works best if you tip the jar and pour the liquid down the side of the jar.
Green: in the small container, mix one-half cup of water with two drops of green food dye.
Pour this green layer slowly into the large jar and rinse the small container.
Yellow: in the small container, place one-half cup of olive oil.
Pour this yellow layer slowly into the large jar and rinse the small container.
Red: in the small container, mix one-half cup of rubbing alcohol with two drops of red food colouring.
Pour this red layer slowly into the large jar.

The learning

Why don't the liquids mix?

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Which was the densest liquid?

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Which was the least dense liquid?

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Why must we tilt the jar and pour the liquids in very slowly?

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How would you improve your experiment?

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Grow a rainbow experiment

In Science, one of the things we learn about is chromatography. We have a method here that you can use to grow a rainbow using the chromatography method.

Materials

Kitchen roll
Water
Washable marker pens
2 Small glasses

Method

Fold over a piece of kitchen roll (so you have 2 pieces on top of each other).
Trim the length to be 7.5 inches (any longer and the rainbow may not connect fully).
TIP: The shorter your piece of kitchen roll, the better it will connect. Also make sure you are using an absorbent paper towel. We used Bounty.

Draw rectangles of the rainbow colours on each end.
TIP: Add lots of marker to the ends, you want a good amount of dye to travel up the kitchen roll.
Place 2 cups with water filled 3/4 full. You only want the bottom of the kitchen roll in so leave some space from the top of the cup.

Then place the kitchen roll into the cups, with one end in each cup.
TIP: Do not place the ends too deep in the water or the dye may dissolve into the water instead of moving up the kitchen roll.
The washable marker dye will slowly make its way up with the water to meet the other side in the centre of the kitchen roll.
Leave the kitchen roll for 10-15 minutes and it will eventually connect the colours together.

The learning:

What happens during chromatography?

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Why did we have to use washable marker pen?

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Why did we only dip the ends of the kitchen roll in the water rather than putting the whole coloured in section underwater?

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How would you improve your experiment?

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Task 3

Once you have tried both experiments , decide which one you enjoyed best, and think about why? Write your reasons here

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