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EXPERIMENT NO.1

The Explosive Colour Experiment



Directions/Leader Speak

For this experiment we are going split the surface tension of liquids to make an explosive picture in a bowl...

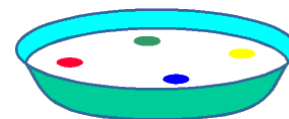
Materials Needed

- 1 x Very Wide Rimmed Clear Dish
- Full Fat Milk - enough for half an inch for the dish
- Food colouring - four drops (four different colours if you wish)
- Liquid dish soap very small amount

Directions/Leader Speak

NOTE: Use where possible a different child for each part of the experiment.

1. Pour the milk into a wide rimmed dish, and let sit until it warms to room temperature (it will probably be at room temperature already because it's been sitting on the main table)
2. Carefully put one drop of **each** food colour onto the surface of the milk, widely separated, and not in the centre of the dish. See picture to the right...
3. Add a small drop of dish soap into the middle of the dish and watch what happens!
4. Try adding another drop of soap after the colours have stopped moving or if you haven't had much movement



What Happened

Leader Speak - Get the children to consider the following:

- What happened to the food colouring when you first put it on the milk? Why do you think that is?
- What happens when you add the drop of soap?
- What direction does the food colour move when you first add the drop of soap?
- What direction does the food colour move after the experiment has been running for a while?
- Does the movement go on forever?

EXPERIMENT NO.2

Make Carbon Dioxide Blow up a Balloon



Directions/Leader Speak

WARNING: The balloon may pop in this experiment; please do not put your face near the balloon.

For this experiment we are going to see how we can blow up a balloon without using our mouth.

Materials Needed

- 1 **Balloon** (one that hasn't been blown up before)
- 12 Teaspoons of **Baking soda** (basically fill up half of a regular size balloon)
- 15 Tablespoons of **Vinegar** (or make sure your bottle is about $\frac{1}{4}$ full)
- Small clean empty **Plastic Bottle** (roughly 500ml)
- A **Teaspoon**
- A **Tablespoon**

NOTE: You can use a larger bottle you need to increase the amount of baking soda and vinegar.

Directions/Leader Speak

1. Place your empty, clean plastic bottle without the lid on a flat surface
2. Put 15 tablespoons of vinegar into the bottle or $\frac{1}{4}$ fill it
3. The adult should stretch open the balloon as wide as possible whilst the child puts in the baking soda in the balloon (do not use the same spoon as the vinegar)
4. Stretch the mouth of the balloon over the mouth of the bottle with the vinegar. Try not to spill any of the baking soda as you attach the balloon
5. Hold up the balloon and try to tap it so that the baking soda falls into the vinegar
6. Watch what happens to the inside of the bottle. Watch the balloon as it expands and **cover your ears** in case it **pops**.

What Happened

Leader Speak

The vinegar mixes with the baking soda to create a chemical reaction that produces carbon dioxide gas this gas then blows up the balloon.

NOTE/WARNING:

- If the balloon does not blow up immediately, shake the bottle just a little to get the baking soda and vinegar to mix.
- Ask the children not to put their face near the bottle

EXPERIMENT NO.3 - Is black really black?

Questions For The Children Before You Start

What colour is black?

Leader/Parent Speak

If you have ever run out of black paint you can make the colour black by mixing a little blue with red and yellow and green and orange and purple and you finally make the colour black. We are now going to do an experiment to see what makes up the colour black. The technique we are going to use is called **chromatography**.



Materials Needed

- Round **Filter Paper** (it's like a coffee filter... only thicker!)
- Scissors
- Small plastic **Cup**
- **Thick Black Felt Tip Pen** (water soluble) - **NOTE:** Please try your pens before the evening because some may not work. You will get different affects from different pens
- **Pipe Cleaner**

Directions/Leader Speak

1. Using the black pen mark a thick dot in the centre of the filter paper
2. Draw a thick circle of dots around the dot in the middle of the paper
3. Use the scissors to cut a piece of pipe cleaner about 3 inches long
4. Fill one of the plastic cups about halfway with water
5. Dip the pip cleaner into the water so that it's very wet then carefully push it into the centre of the filter paper where you placed the centre dot
6. Put the pipe cleaner into the plastic cup so that the paper is resting on top of the cup and the pipe cleaner is getting wet
7. As the pipe cleaner gets wet, the water will slowly crawl up to the filter paper and start to get it wet, too. This may take a while, so be patient. It's worth the wait! **(you will need to start the next experiment because this takes a while but remember to do step 8)**
8. Take the paper and the pipe cleaner off the cup of water when the "design" is about half the size of the paper. If you let the paper soak up too much water, the design gets blurry and faded. Leave your paper on your table to dry.

What Happened

Leader/Parent Speak

What happened to the black dots when they got wet?

How did the colours get on the paper?

EXPERIMENT NO.4

Air Pressure - The Balloon Rocket Race



NOTE: For this experiment get each table to put their chairs next to each other. Ask them all to stop at step 7. Get the children to let go after your count of 3. By having a race it will make it more exciting. They might want to have another go.

Directions/Leader Speak

Now, we're going to make a balloon 'rocket' that shoots along a string.

Materials Needed

- A **Balloon** (round ones will work but the airship ones work best (you may need some spares))
- A **plastic straw**
- **String** (preferably 20 feet long it will be more fun cut the string ready on the main table. Each table need to have the same size because they are going to have a race)
- **Tape** (sellotape) - small amount
- Two **chairs**
- **Scissors**

Directions/Leader Speak

1. Cut a plastic straw in half
2. Tie a length of string between two chairs or legs of tables
3. Before you tie the second knot in the string, slip the straw on to the string
4. Try to get the string fairly tight (the two chairs work well because you can pull the chairs apart to get the string tight)
5. Blow up a balloon, but don't tie off the end. Pinch the end of the balloon so that it doesn't lose the air
6. Now tape it to the straw so that it resembles the drawing below



7. Let go of the balloon and the 'rocket' should shoot along the string (very quickly) towards the other chair.

What Happened

Leader/Parent Speak

As the air rushes out of the balloon, it pushes against the air that is in your room. The air rushes out one direction and the balloon moves the other direction.

EXPERIMENT NO.5 - Growing A Plant In A Balloon

NOTE: If you are running out of time because the children want to have more balloon races then you could leave this experiment until next week.



Questions For The Children Before You Start

Do you think that a plant will grow in a balloon?

Materials Needed

- A large **Balloon** - pale colour or transparent
- Half a cup of **Soil** (dirt from the garden)
- **Radish Seeds** (or other fast growing seeds)
- Funnel (make one by cutting the corner off an envelope if you don't have one) to hand
- Half a cup of **Water**
- Ribbon

Directions/Leader Speak

1. Stretch the balloon in your hands a little to loosen it
2. Blow up the balloon once or twice to loosen it further, this makes the experiment easier
3. The adult should stretch the mouth of the balloon as much as possible allowing the child to carefully pour about 1/2 cup of soil into the balloon, followed by about 1/4 cup of water and a few seeds. Tap the balloon gently so that everything falls to the bottom
4. Clean the neck of the balloon carefully, then blow up the balloon again and tie to seal
5. Tie a ribbon around the knot
6. Tie the balloon to a hook or other place near a window (the neck should be the top)
7. Watch your plants grow!

Note: Do not use potting compost or mix, which might have been treated with chemicals.

What Happened

Leader/Parent Speak

Next week we can see what has happened to our balloon plant.

EXPERIMENT NO.6

How Much Salt Does It Take To Float An Egg



Directions/Leader Speak

For this experiment we are going to see how much salt it takes to float an egg.

Questions For The Children Before You Start

Let's all guess how many teaspoons of salt it's going take to make the egg float.

Materials Needed

- An Egg
- A bowl of Table Salt
- A Teaspoon
- A Glass
- A Glass of Water for each table
- 1 Piece of paper and pen for each table

Directions/Leader Speak

NOTE: Use where possible a different child for each part of the experiment.

1. Ask one child to note down every time you add a teaspoon of salt to the glass of water
2. Place your egg in the glass
3. Fill the glass about three-quarters full with water
4. Add one teaspoon of salt (don't forget to record this)
5. Continue adding the salt one teaspoon at time until the egg begins to float

What Happened

Leader/Parent Speak

How many teaspoons of salt did it take to float the egg?