WELCOME TO YOUR 2024 SCIENCE ADVENT CALENDAR

Prepare for an exciting journey into the captivating realm of **STEAM** (**S**cience, **T**echnology, **E**ngineering, **A**rt and **M**athematics)!

Your 2024 Science Advent Calendar includes:

- **24 festive science experiments** to explore each day, with exciting activities like Santa's Toothpaste and the Exploding Snowman! Each day reveals a new hands-on experiment using simple, household items.
- **Fun facts** and **easy-to-follow instructions** to make every experiment safe, engaging, and a perfect way to celebrate the season with science.

🎉 Join the Community 🎉

Share your discoveries, photos, and festive science moments on social media using **#ScienceAdvent2024** and tagging **@mitoandco** to connect with other science enthusiasts and have a chance to be featured!

TICK THE DAYS OFF AS YOU GO

1 ☐

2 ☐

Get Ready for A Frosty Explosion!

3 ☐

4 ☐

What makes hot chocolate mix disapear so fast?

5 ☐

6 Can Santa clean up this foamy mess? ☐

7 ☐

8 This will leave you with a fizzing surprise! ☐

9 ☐

Can you help Santa fly?

10 ☐

11 ☐

12 Santa's brewing up something bubbly in the lab! ☐

13 ☐

14 Turn ordinary milk into a colourful magic show! ☐

15 ☐

16 Have you ever made fluffy slime? ☐

17 ☐

18 Watch these holiday helpers spring to life! ☐

19 ☐

Send your reindeer flying with a bubbly boost

20 ☐

21 ☐

22 Watch your bubbles freeze in mid-air—it's the perfect winter magic! ☐

23 ☐

24 Stretchy, squishy, and glittery, this slime is full of holiday cheer. ☐

DAY 1
HOT CHOCOLATE DROPS ON A PENNY

INTRODUCTION

How many drops of hot chocolate do you think you can balance on a tiny penny? Let's find out how many drops you can fit before it overflows in this super fun challenge! Get ready to be amazed at how surface tension holds the drops together—until it all comes spilling over!

MATERIALS

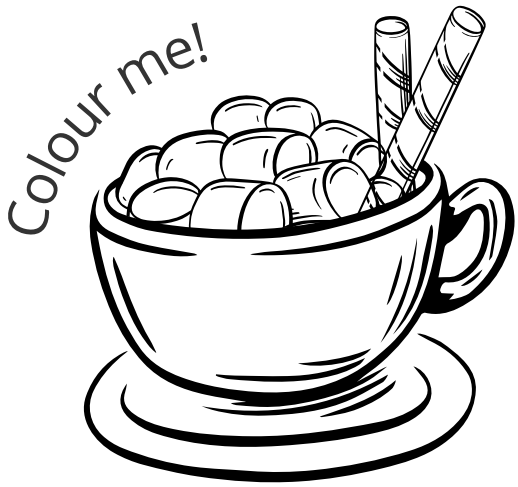
- Penny
- Hot Chocolate Mix
- Water
- Spoon
- Dropper

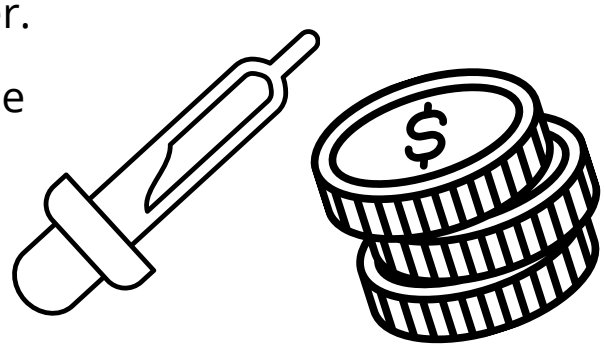
WHAT'S THE SCIENCE

This experiment demonstrates **surface tension**, which is the force created between liquid molecules. This is what allows the liquid to form a sort of skin on the penny's surface, which can hold maybe more drops than you thought it would before breaking.

STEPS

1. Make a cup of hot chocolate.
2. Place a penny on a flat surface.
3. Fill a dropper with hot chocolate.
4. Slowly drop hot chocolate onto the penny, counting how many drops it holds before spilling over.
5. How many drops can you balance on the penny?
6. Enjoy the rest of your hot chocolate!





RESULTS

What did you observe when you slowly dropped hot chocolate onto the penny? What happened next? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 2
EXPLODING SNOWMAN

INTRODUCTION

It's time to build a snowman, but be careful—this one's ready to blow! Add a special ingredient and watch your snowman puff up and explode in a burst of bubbles. It's a snowman like you've never seen before!

MATERIALS

- Sandwich Bag
- Marker
- Baking Soda
- Paper Towel
- Vinegar

DID YOU KNOW?

The gas created in this reaction is carbon dioxide—the same gas that gives soda its fizz!

STEPS

1. Decorate your sandwich bag to look like a snowman's face.
2. Wrap a scoop of baking soda in a sheet of paper towel.
3. Place this inside the sandwich bag.
4. Pour in vinegar and seal quickly.

RESULTS

What did you observe when you combined the baking soda and vinegar? What happened next? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 3
COLOURFUL SKITTLES

INTRODUCTION

Get ready for a colourful surprise! Place your Skittles in a circle and add warm water. Watch the colours race toward the center like a rainbow coming to life. Can you guess what causes the colours to spread?

MATERIALS

- Red and Green Skittles
- White Plate
- Warm Water

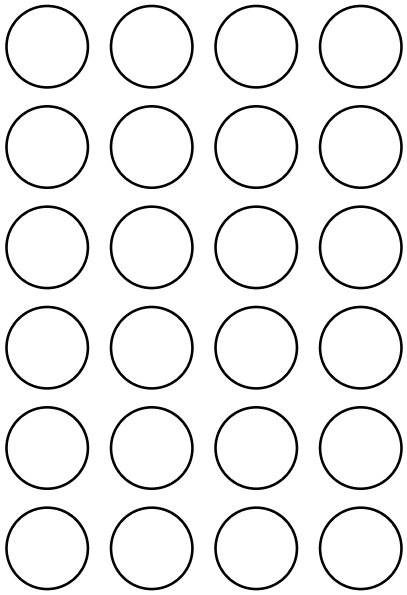
WHAT'S THE SCIENCE

Heat from the warm water helps dissolve the sugar coating, allowing the dye to spread. This process is known as **diffusion**, where molecules move from an area of high concentration to low concentration, creating a beautiful effect.

STEPS

1. Arrange Skittles in a circle on a plate, alternating colours.
2. Pour warm water over the Skittles, just enough to cover the bottom of the plate.
3. Watch as the colours spread toward the center of the plate.
4. What do you notice about the colours?
5. Record your results on the next page!

Create your own candy pattern here!



RESULTS

How did the colours move across the plate? What happens when the colors meet? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 4
HOT CHOCOLATE SCIENCE

INTRODUCTION

Does hot chocolate dissolve faster in hot water or cold water? Let's stir up some science and find out! Watch how the temperature affects the mix—it's like watching magic as the powder disappears!

MATERIALS

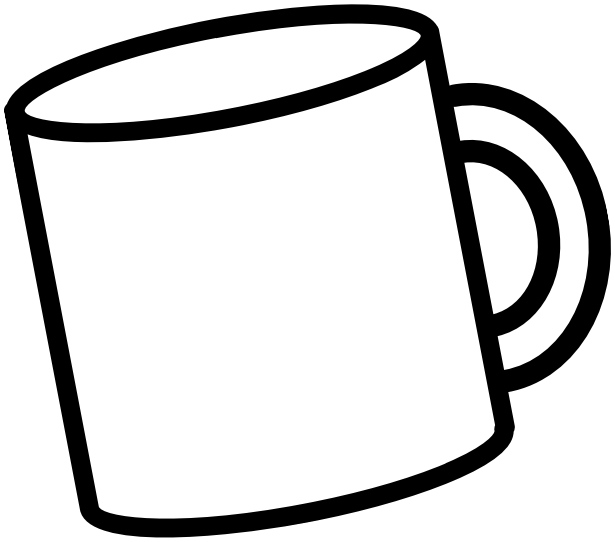
- Hot Chocolate Mix
- Hot Water
- Cold Water
- Cups
- Spoons

WHAT'S THE SCIENCE

Heat increases **solubility**, causing the hot chocolate mix to dissolve faster in hot water compared to cold water.

STEPS

1. Fill one cup with hot water and another with cold water.
2. Add a spoonful of hot chocolate powder to each cup.
3. Stir and observe which dissolves faster.
4. Record what happens in each cup!



Draw your favourite hot chocolate toppings!

RESULTS

What did you predict would happen before you started? What happened next? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 5
INSTANT ICE

INTRODUCTION

Ever wanted to make ice instantly? With just a few simple steps, you'll be able to turn liquid water into ice before your eyes! This supercool experiment will make you feel like a winter magician.

MATERIALS

- Bottled Water
- Glass Bowl
- Plastic Tray
- Ice Cubes
- Freezer

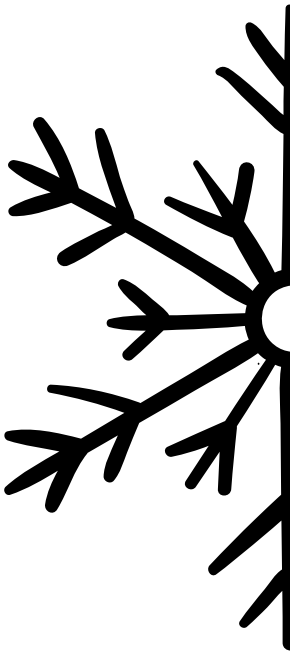
DID YOU KNOW?

Supercooling is a cool phenomenon that can happen in winter when water remains liquid even in freezing temperatures, just like when your drink doesn't freeze outside!

STEPS

1. Place a bottle of water in the freezer for about 2 hours (make sure it doesn't freeze solid).
2. Gently remove it and pour it over a tray of ice cubes.
3. Watch as the water instantly freezes and forms more ice!

Complete this snowflake!



RESULTS

What happened when you poured the water onto the ice? Did the water freeze quickly? Record your observations here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 6
SANTA'S TOOTHPASTE

INTRODUCTION

Santa's got a messy surprise for you! Mix up a magical potion and watch it foam and grow just like the frothiest toothpaste you've ever seen. Get ready for a bubbly adventure!

MATERIALS

- Egg White
- Baking Soda
- Vinegar
- Red Food Colouring
- Cup

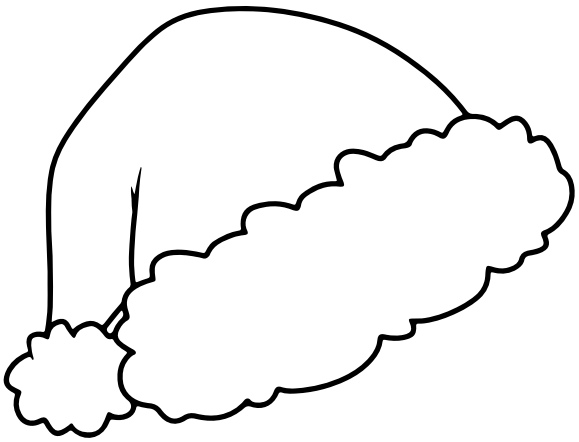
WHAT'S THE SCIENCE

When baking soda (a base) and vinegar (an acid) mix, they undergo **a chemical reaction** that produces carbon dioxide gas. The gas gets trapped in the egg white mixture, causing the red foam to rise and bubble over.

STEPS

1. Pour some egg white into a small jar or cup.
2. Add a spoonful of baking soda and stir.
3. Drop a few drops of red food colouring into the mixture.
4. Slowly pour vinegar into the mixture and watch the magic happen!

Draw foam and bubbles coming from Santa's hat!



RESULTS

What did you observe when you mixed everything together? Did the foam rise quickly or slowly? Write down what you saw!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 7
DANCING JINGLE BELLS

INTRODUCTION

These jingle bells are in for a surprise dance party! Mix some baking soda and vinegar, and watch them rise and fall as they dance in the fizzy fun. Can you guess how the gas makes them move?

MATERIALS

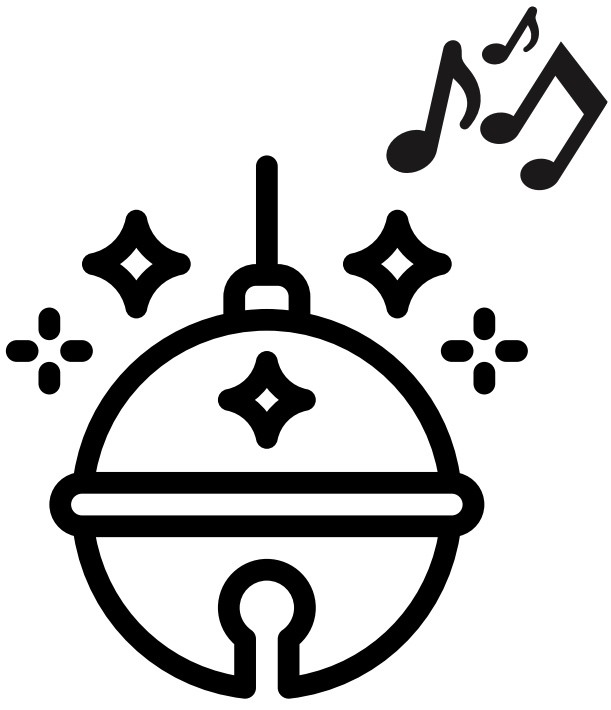
- Clear Cup
- Baking Soda
- Vinegar
- Small Jingle Bells
- Water

DID YOU KNOW?

Jingle bells have been a holiday symbol since the 19th century, and just like the dancing bells, they bring joy and excitement to festive celebrations!

STEPS

1. Half fill a glass with water.
2. Add a scoop of baking soda and mix well.
3. Add the small jingle bells.
4. Slowly pour in vinegar and watch the jingle bells begin to dance!



Colour me!

RESULTS

How did the jingle bells move in the glass? What caused them to rise and fall? Write your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 8
MELTING SNOWMAN

INTRODUCTION

Ever seen a snowman disappear right before your eyes? In this experiment, you'll build a snowman using household ingredients and watch it fizz away into nothing! It's like magic—but with science!

MATERIALS

- Baking soda
- Salt
- Water
- Vinegar
- Small plastic cup
- Spoon
- Tray

DID YOU KNOW?

The world's largest snowman ever built stood over 122 feet tall—that's as high as a 12-story building! Named "Olympia," it was made in Maine, USA, in 2008 and took an entire month to complete.

STEPS

1. Mix baking soda, salt, and a small amount of water in a cup to form a dough-like mixture.
2. Shape the mixture into a snowman on a tray.
3. Pour vinegar over your snowman and watch it fizz as it "melts."

Colour me!

RESULTS

What did you observe when you poured vinegar on the snowman? Record your results here!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 9
CANDY CANE SCIENCE

INTRODUCTION

How fast do you think candy canes dissolve? Let's find out by testing them in different liquids! Will they dissolve faster in hot water or cold water? Let's discover how different liquids affect the rate of erosion.

MATERIALS

- Candy canes
- Cups
- Hot water
- Cold water
- Vinegar

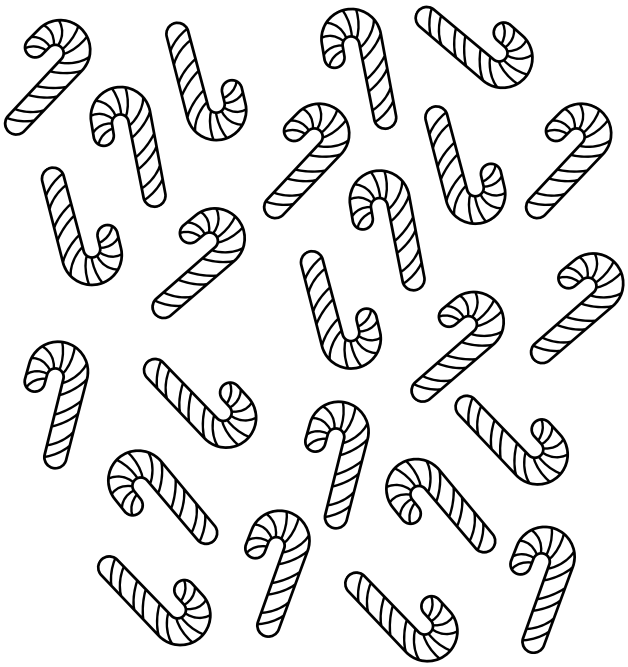
WHAT'S THE SCIENCE?

This experiment demonstrates how temperature and acidity impact the rate of dissolution. Hot water dissolves the candy canes faster because heat increases the solubility of sugar. The vinegar, being acidic, will dissolve the candy canes differently due to its chemical properties.

STEPS

1. Fill one cup with hot water, one with cold water, and one with vinegar.
2. Place a candy cane in each cup.
3. Watch and see how quickly the candy canes dissolve in each liquid.

How many candy canes can you count?



RESULTS

Which liquid dissolved the candy cane the fastest? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 10
SANTA'S SLEIGH RIDE

INTRODUCTION

Get ready to launch Santa on a sleigh ride using nothing but a balloon and some string! In this fun experiment, we'll harness the power of air pressure to send Santa zooming through the air.

MATERIALS

- Balloon
- String
- Tape
- Straw
- Santa template

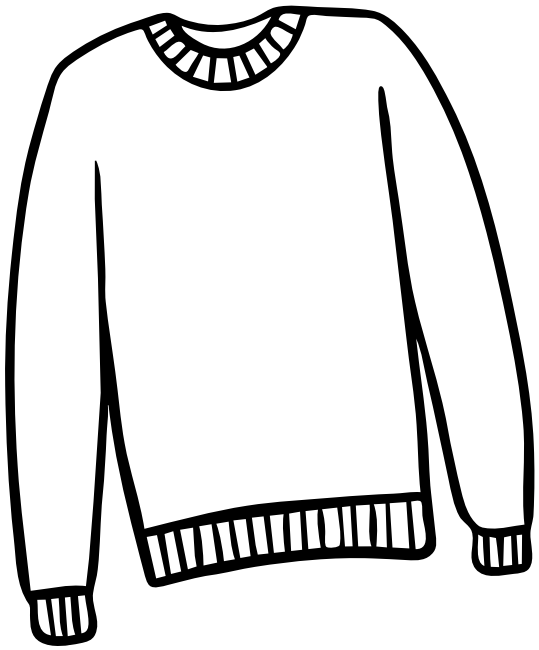
WHAT'S THE SCIENCE?

This experiment demonstrates Newton's Third Law of Motion: for every action, there is an equal and opposite reaction. When the balloon releases air, it pushes back on the air and propels forward, just like how rockets work!

STEPS

1. Thread the string through the straw and tie each end of the string to two chairs.
2. Blow up the balloon and tape it to the straw.
3. Let go of the balloon to send "Santa" zooming along the string like he's riding his sleigh!

Design a sweater you'd wear on a sleigh ride



RESULTS

How far did Santa's sleigh ride go? What happened when you released the balloon? Record your observations here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 11
FIZZING TREES

INTRODUCTION

Let’s build a holiday tree that doesn’t just look cool—it fizzes when it "melts"! In this experiment, we’ll mix up a batch of fizzing magic and watch the colorful tree dissolve.

MATERIALS

- Baking soda
- Salt
- Water
- Vinegar
- Green food colouring
- Small plastic cup
- Spoon
- Tray

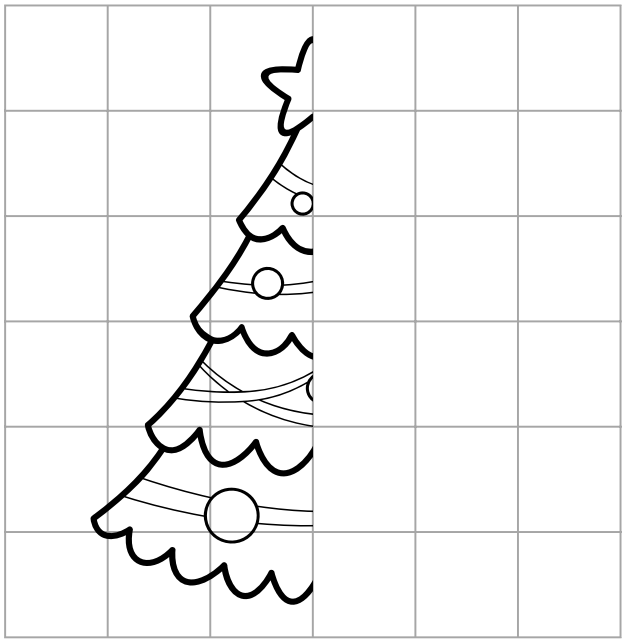
DID YOU KNOW?

The first decorated Christmas tree dates back to 16th-century Germany, where people would bring small trees indoors and decorate them with candles, fruits, and even cookies!

STEPS

1. Mix baking soda, salt, water, and green food coloring together in a cup.
2. Shape the mixture into a small tree on the tray.
3. Pour vinegar over the tree and watch it "melt" as it fizzes away.

Holiday Symmetry: Use the grid to draw the other side of the picture



RESULTS

How fast did your tree dissolve? Did you notice any changes in the color or shape as the tree fizzed? Record your observations!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 12
SANTA'S MAGIC POTION

INTRODUCTION

Santa has a secret potion—and you're going to recreate it! Get ready for a foamy eruption as we mix a few ingredients to form a bubbling, magical potion that overflows like magic!

MATERIALS

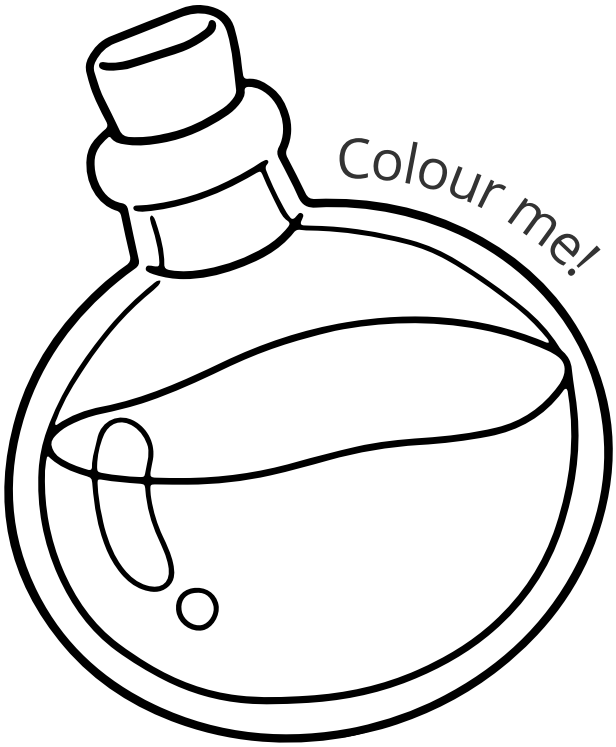
- Baking soda
- Vinegar
- Dish soap
- Red food colouring
- Mason jar

DID YOU KNOW?

Many animals, such as bears, enter a state of hibernation during the winter months. They slow their metabolism and sleep for extended periods, relying on fat reserves until spring when food becomes more abundant.

STEPS

1. Fill a mason jar halfway with baking soda and a squirt of dish soap.
2. Add a few drops of red food coloring to make it festive.
3. Slowly pour vinegar into the jar and watch as Santa's magic potion bubbles over!



RESULTS

What happened when you mixed the ingredients? How high did the bubbles go? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 13
GUMDROP TREE

INTRODUCTION

Let's build a colourful tree using gumdrops and toothpicks! This activity is perfect for getting creative while learning about balance and structure.

MATERIALS

- Gumdrops
- Toothpicks

DID YOU KNOW?

This experiment teaches you about balance and structural integrity. When you connect the gumdrops with toothpicks, you're creating a framework that relies on balance to stay standing. You'll learn how shapes, like triangles, create strong structures!

STEPS

1. Take a gumdrop and stick a toothpick into it.
2. Connect the gumdrops using toothpicks to build a tree shape.
3. Keep adding gumdrops and toothpicks until your tree is complete!

Use this space to plan your gumdrop trees!

RESULTS

Did your tree stay balanced? What shape was the most stable? Record your observations here!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 14
SANTA'S MAGIC MILK

INTRODUCTION

Get ready for a colourful swirl of holiday magic in this experiment! You'll see how a drop of dish soap creates an amazing rainbow effect in milk. It's like Santa's magic, but with a scientific twist!

MATERIALS

- Milk
- Dish soap
- Cotton swab
- Food colouring

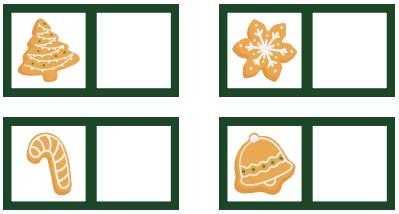
WHAT'S THE SCIENCE?

Milk contains fat molecules that stay evenly spread throughout the liquid. When dish soap is added, it breaks the surface tension and disrupts the arrangement of fat molecules. This causes the food coloring to swirl, showing the movement of molecules as they mix and spread.

STEPS

1. Pour milk into a shallow plate.
2. Place a few drops of different coloured food colouring in the milk.
3. Dip a cotton swab in dish soap, then touch the food colouring with the swab and watch the colours swirl!

What goes perfectly with milk? Cookies! How many of each type can you find?



RESULTS

What happened when you touched the soap-covered swab to the milk? How did the colours move? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 15
HOLIDAY OOBLECK

INTRODUCTION

Is it a solid? Is it a liquid? It's oobleck! This strange substance acts like both. Mix it up and explore the magical world of non-Newtonian fluids with some holiday colors!

MATERIALS

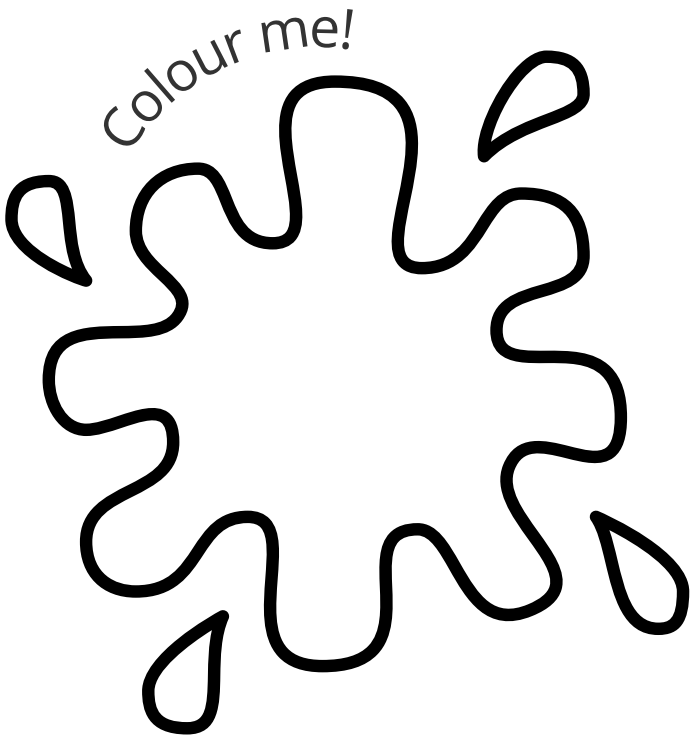
- Cornstarch
- Water
- Food colouring

WHAT'S THE SCIENCE?

Oobleck is a **non-Newtonian fluid**, meaning its viscosity changes depending on the pressure applied. When you press it, oobleck acts like a solid, but when you let it flow, it acts like a liquid.

STEPS

1. Mix cornstarch and water in a bowl until you reach a thick, gooey consistency.
2. Add food coloring to make it holiday-themed.
3. Press and poke the oobleck to see how it behaves!



RESULTS

What happened when you pressed the oobleck? How did it feel when you let it run through your fingers? Record your observations here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 16
CANDY CANE FLUFFY SLIME

INTRODUCTION

Want to make slime that's light and fluffy like a cloud? In this experiment, we'll create fluffy slime with a candy cane twist by swirling in some festive red colouring!

MATERIALS

- ½ cup PVA glue
- ½ cup water
- ¼ teaspoon Borax
- ½ cup warm water
- Shaving cream
- Red food colouring

WHAT'S THE SCIENCE?

Slime is actually made of a substance called a **polymer**, which is a long chain of molecules that can stretch, bend, and even flow! Polymers are found all around us—in things like rubber bands, plastic, and even in our own bodies.

STEPS

1. In a container, mix ½ cup of PVA glue with ½ cup of water.
2. Add shaving cream to the glue mixture.
3. In a separate container, dissolve ¼ teaspoon of borax in ½ cup of warm water, stirring until fully dissolved.
4. Slowly add the borax solution to the fluffy glue mixture a little at a time, stirring continuously. As the slime thickens, switch to kneading with your hands until it reaches a smooth, stretchy consistency.
5. Separate the slime into two parts, leaving one white and adding red food colouring to the other. Twist the two colors together gently to create a candy cane swirl!

RESULTS

What did you observe when you combined the baking soda and vinegar? What happened next? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 17
CHRISTMAS OIL AND WATER

INTRODUCTION

What happens when you mix oil and water? In this experiment, we'll use holiday-coloured ice cubes to explore how oil and water don't mix, even when the ice melts.

MATERIALS

- Red or green food-coloured ice cubes
- Oil

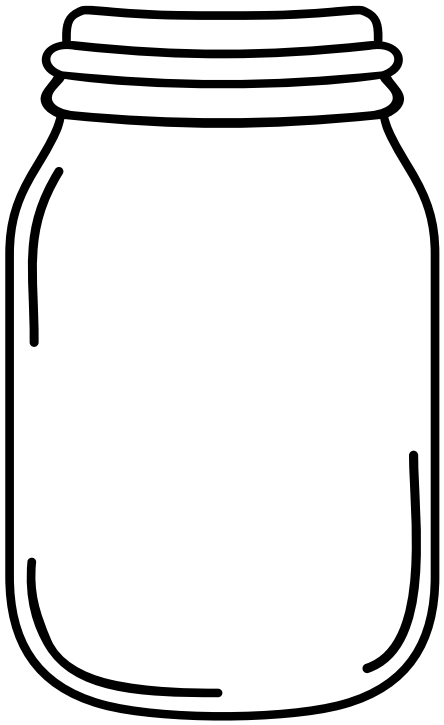
WHAT'S THE SCIENCE?

Oil and water don't mix because they have different densities and polarities. Water is denser than oil, so the water sinks to the bottom, while the oil stays on top. As the ice melts, you'll see the two liquids separate clearly.

STEPS

1. Freeze water with red or green food colouring to make festive ice cubes.
2. Pour oil into a clear container.
3. Drop in the coloured ice cubes and watch them melt, observing how the oil and water interact.

What do you think will happen? Draw your prediction here!



RESULTS

What happened as the ice cubes melted? Did the oil mix with the water? Record your observations here!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 18
JUMPING REINDEER

INTRODUCTION

Make your reindeers jump with the power of a rubber band! In this experiment, you'll build a simple mechanism that makes your reindeers leap high into the air.

MATERIALS

- 2 paper cups
- Rubber band
- Reindeer template
- Scissors
- Tape

DID YOU KNOW?

This experiment demonstrates potential and kinetic energy. When the rubber band is stretched, it stores potential energy. Releasing the rubber band converts that stored energy into kinetic energy, causing the reindeer to jump into the air!

STEPS

1. Cut out the reindeer template and tape it to one of the cups.
2. Stack the two paper cups together with the rubber band stretched between them.
3. Hold the bottom cup and pull back on the top cup, then release to watch your reindeer jump!

Colour in this reindeer and give it a name!

Name: _____

RESULTS

How high did your reindeer jump? Did changing the stretch of the rubber band affect the height? Record your observations here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 19
SNOWSTORM IN A JAR

INTRODUCTION

Create a magical snowstorm in a jar with just a few simple ingredients! You'll mix oil, water, and Alka-Seltzer to create a swirling winter wonderland.

MATERIALS

- Baby oil
- Water
- White paint
- Alka-Seltzer tablets
- Glitter
- Clear jar

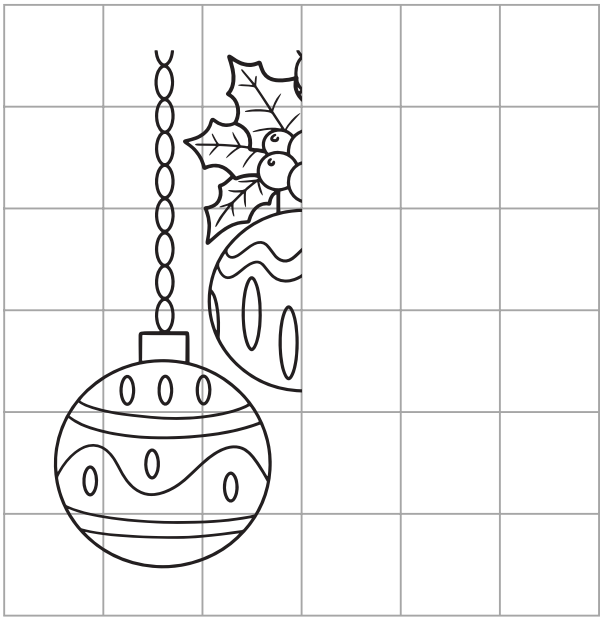
DID YOU KNOW?

A blizzard is defined not just by heavy snowfall but also by strong winds (over 35 mph) and low visibility (less than a quarter-mile). These conditions can make travel extremely dangerous.

STEPS

1. Fill the jar with baby oil, leaving some space at the top.
2. Mix water and white paint together, then pour the mixture into the jar.
3. Sprinkle in some glitter for a festive touch.
4. Drop in an Alka-Seltzer tablet and watch the snowstorm begin!

Holiday Symmetry: Use the grid to draw the other side of the picture



RESULTS

How long did the snowstorm last? What did the bubbles do to the paint and glitter? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 20
REINDEER ROCKET

INTRODUCTION

Send your reindeer flying in this exciting rocket experiment! Using baking soda and vinegar, you'll create a chemical reaction that launches your reindeer high into the sky.

MATERIALS

- Film canister
- Baking soda
- Vinegar
- Red pompom
- Googly eyes
- Brown pipe cleaners

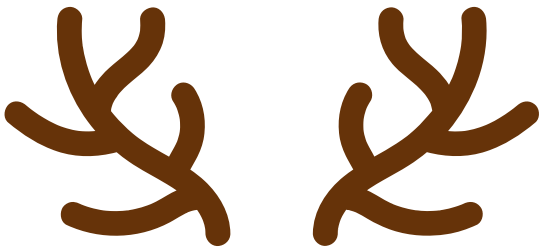
DID YOU KNOW?

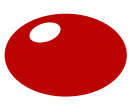
Reindeer, also known as caribou in North America, are unique among the deer family because both males and females grow antlers!

STEPS

1. Decorate the film canister to look like a reindeer by adding a red pompom for the nose, googly eyes, and pipe cleaners for antlers.
2. Fill the canister halfway with vinegar.
3. Quickly add a spoonful of baking soda, snap the lid on, and place the canister on the ground.
4. Step back and watch your reindeer rocket fly!

Complete this reindeer face!





RESULTS

How high did your reindeer fly? Did the amount of baking soda or vinegar affect the launch? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 21
PINE CONE WEATHER STATION

INTRODUCTION

Create your very own weather station with pine cones! In this experiment, you'll observe how pine cones react to changes in moisture, just like they do in nature.

MATERIALS

- Pine cones
- Water
- Tray

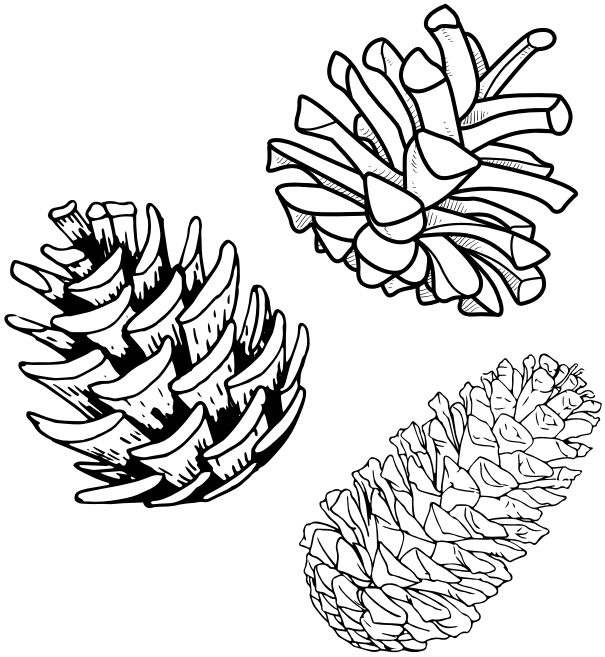
DID YOU KNOW?

Pine cones have a natural adaptation that allows them to open or close depending on moisture levels. When it's dry, pine cones open up to release their seeds. When it's wet, they close to protect the seeds. This experiment shows how plants respond to their environment.

STEPS

1. Collect some pine cones and observe how they look when they're dry.
2. Place the pine cones in a tray of water and watch what happens over time.
3. Let the pine cones dry again and observe any changes.

How many different shape and size pine cones can you find?



RESULTS

Did the pine cones open or close when wet? How long did it take for them to change? Record your observations here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 22
FROZEN BUBBLES

INTRODUCTION

Blow bubbles outside on a very cold day and watch them freeze before they hit the ground! As the bubbles freeze, you can watch delicate ice crystals form on the surface, creating beautiful frosty patterns. This chilly experiment is perfect for exploring winter science!

MATERIALS

- Bubble solution
- Bubble wand
- Freezing cold weather

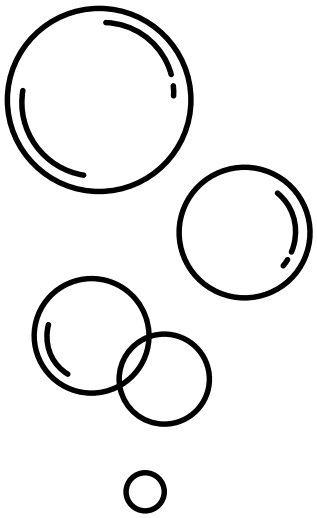
DID YOU KNOW?

When the temperature is cold enough, the water in the bubble freezes and turns into ice. This experiment shows how extreme cold can change the state of matter from liquid to solid, creating frozen bubbles.

STEPS

1. Dip the bubble wand into the bubble solution and gently blow bubbles outside.
2. Watch the bubbles as they float in the cold air. Some might freeze before they hit the ground!
3. Try blowing bubbles at different heights and see what happens.

Fill this space with bubbles!



RESULTS

Did the bubbles freeze in the air? How did they look when frozen? Record your results here!

Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

Use this space to draw your experiment and what you saw!

DAY 23
SNOWFLAKE CRYSTALS

INTRODUCTION

Get ready to make some holiday magic happen right in your kitchen! With just a few simple materials, you can grow beautiful, sparkling crystals on snowflake or candy cane shapes. What a great way to learn about crystallisation and how unique formations, like snowflakes, come to be!

MATERIALS

- Borax
- Pipe cleaners
- Hot water
- Jars
- Food colouring (optional)

DID YOU KNOW?

Snowflakes are nature's crystals, and no two are ever alike —just like the unique creations you'll make in this experiment!

STEPS

1. Twist and bend your pipe cleaners into festive shapes! Try making a classic snowflake.
2. Carefully dissolve borax in hot water (about 3 tablespoons per cup) and stir until the borax is fully dissolved. If you want colourful crystals, add a few drops of food colouring!
3. Pour the borax solution into jars, and carefully submerge your pipe cleaner shapes in each jar. Make sure they aren't touching the sides.
4. Over the next few days, observe as crystals begin to form! The more you wait, the more crystals you'll see.

RESULTS

Take a look at your crystal-covered shapes! Describe what you see—are the crystals big or small? Record what you see here!

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!

DAY 24
HOLIDAY SLIME

INTRODUCTION

Get ready to mix up some holiday magic with this simple, sparkly slime recipe! Using only a few ingredients—PVA glue, water, borax, and glitter—you'll create a stretchy, shimmering slime perfect for festive fun. Let's get started and watch the science of polymers come to life with your own holiday slime creation!

MATERIALS

- ½ cup PVA glue
- ½ cup water
- ¼ teaspoon Borax
- ½ cup warm water
- Glitter

DID YOU KNOW?

Adding glitter to your slime doesn't just make it sparkle—it also shows how tiny particles can get trapped within the slime's stretchy polymer chains. This trapping effect is similar to how snowflakes and dust get caught in sticky spider webs!

STEPS

1. Add ½ cup of PVA glue to a container. Sprinkle in half of the glitter and mix well for a sparkling North Pole effect!
2. In a separate container, dissolve ¼ teaspoon of borax in ½ cup of warm water, stirring until fully dissolved.
3. Slowly add the borax solution to the glittery glue mixture a little at a time, stirring well with each addition. You'll notice the slime start to thicken as it forms.
4. Use your hands to knead the slime until it becomes stretchy and smooth. This will help it reach the perfect slime consistency.

RESULTS

If you made adjustments, like adding more borax solution or extra glitter, how did those changes affect your slime?

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Compare your results to what you thought might happen back at the start of the experiment. Did anything happen that you didnt expect?

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Use this space to draw your experiment and what you saw!