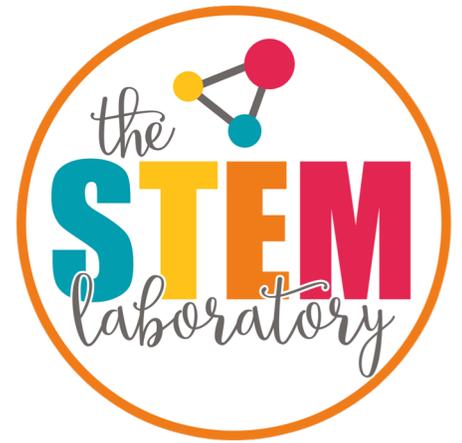


—super cool— science kit



Playdough to PLATO



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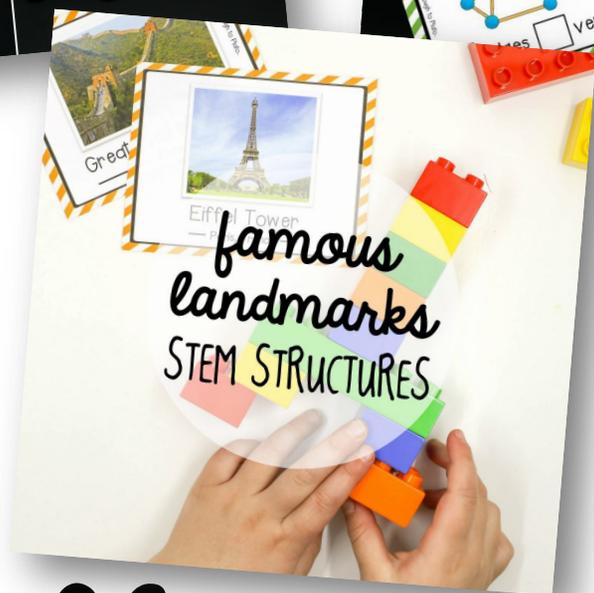
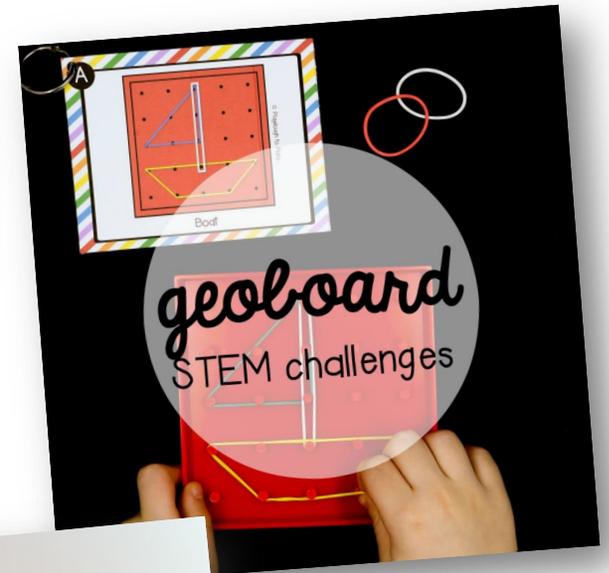
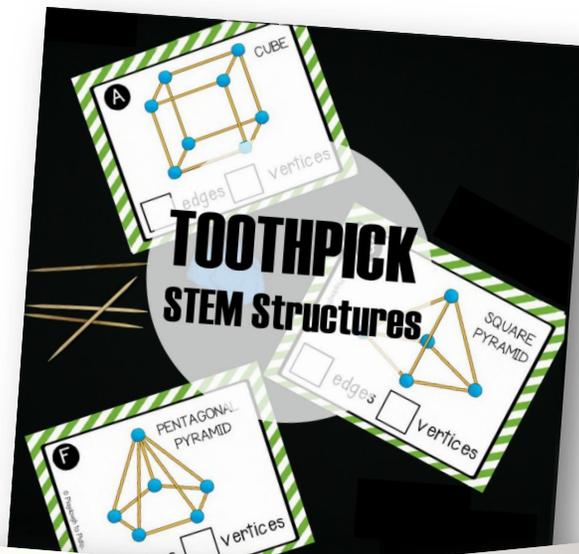
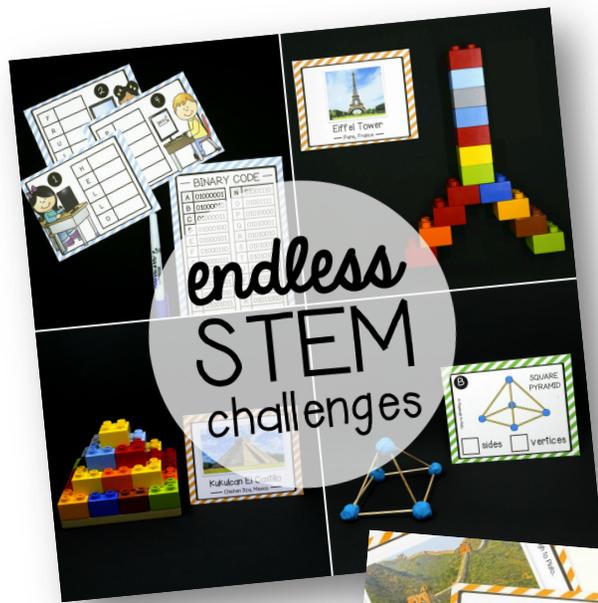
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GETTING STARTED

Hi friend,

I hope you love this science activity kit as much as I do!

This jam packed bundle makes it incredibly easy to add hands-on, engaging science to your classroom.

To get started, print off the easy to follow directions for one of the experiments and grab your supplies.

To help young scientists record their observations, I included ready to print record sheets they can use to track their results. Print and complete them one at a time or bind them together to make a science journal using one of the covers provided.

Most of the activities use common household supplies that you likely have lying around but, to help ensure you're ready for all 30 experiments, I also included a supply list you can print off and take with you to the store.

Enjoy!!

Malia // Playdough to Plato
hello@playdoughtoplato.com

TABLE of CONTENTS

CONTENT	
Getting Started	4
Next Generation Science Standards	6
Supply List	8
Science Journal Covers	9
Science Journal Pages	20
Science Experiments + Record Sheets	52

NEXT GENERATION

science standards

K. FORCES & INTERACTIONS: PUSHES AND PULLS

Tornado in a Jar	53	Will It Sink or Float?	76
Fireworks in a Jar	56	Will It Melt?	85
Walking Water Rainbow	59	Bicolored Flowers	88
Flying Tea Bag Ghosts	61	Lava Lamp	94
Rainbow Milk	64	Racing Pepper	94
Dancing Raisins	73	Is It Magnetic?	100

K. INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS

Sprout House	76		
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K. WEATHER AND CLIMATE

Tornado in a Jar	53	Water Cycle in a Bag	67
Sunscreen Science	100		

1. SPACE SYSTEMS: PATTERNS AND CYCLES

Phases of the Moon	103		
--------------------	-----	--	--

2. STRUCTURE AND PROPERTIES OF MATTER

Rubber Egg	53	Will It Melt?	85
Candy Chromatography	67	Fluffy Soap	88
Crystal Names	70		
Disappearing Letters	70		
Sticky Ice	73		
Making Raisins	85		

SUPPLY LIST

COMMON HOUSEHOLD SUPPLIES

- Bowl
- Plate
- Paper towels
- Cups
- Fork
- Spoon
- Measuring cups
- Dish soap
- Match or lighter (adult supervision required)
- Scissors
- Milk
- Ketchup
- Cotton balls
- Piece of string or yarn
- Wide rimmed jar with a lid
- Toothbrush*
- Ice tray*
- Crayons
- Pepper
- Muffin tin
- Q-tips
- Sharpie
- Pennies
- Egg
- Ziploc bags*
- Pencil*

FROM THE GROCERY STORE

- Vegetable oil*
- Raisins*
- Package of balloons*
- Box of tea bags* Coffee filters*
- Funnel*
- Magnet*
- Skittles*
- Baking soda*
- Pipe cleaners*
- Dish soap*
- Food coloring
- Borax (available in the laundry aisle)
- Round peppermint candy
- Sunscreen
- Sheet of black or dark blue construction paper
- Bar of ivory soap
- Elmer's glue
- White flower or stalk of celery
- Alka Seltzer tablets
- Water bottle*
- Sparkling water*
- Vinegar*
- Corn syrup
- Lemon
- Grapes
- Brown sugar
- Fast sprouting seeds
- Table salt*
- Eye dropper or pipette
- Small orange
- Balloons
- Optional: glitter*

NOTE: supplies marked with an asterisk* are available at the dollar store.

SCIENCE JOURNAL

covers

(In color and black & white.)

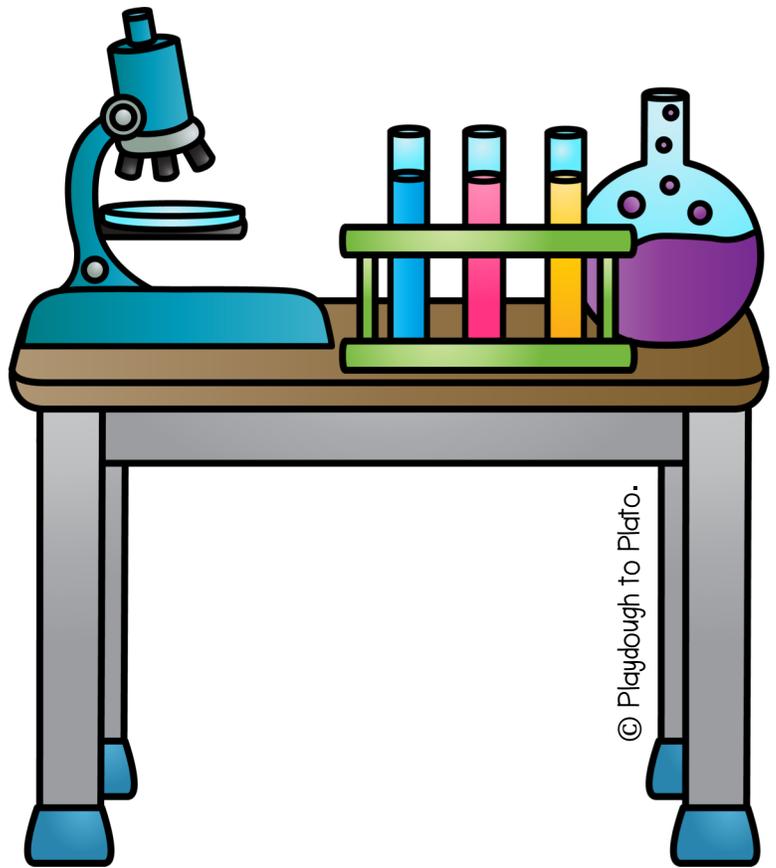
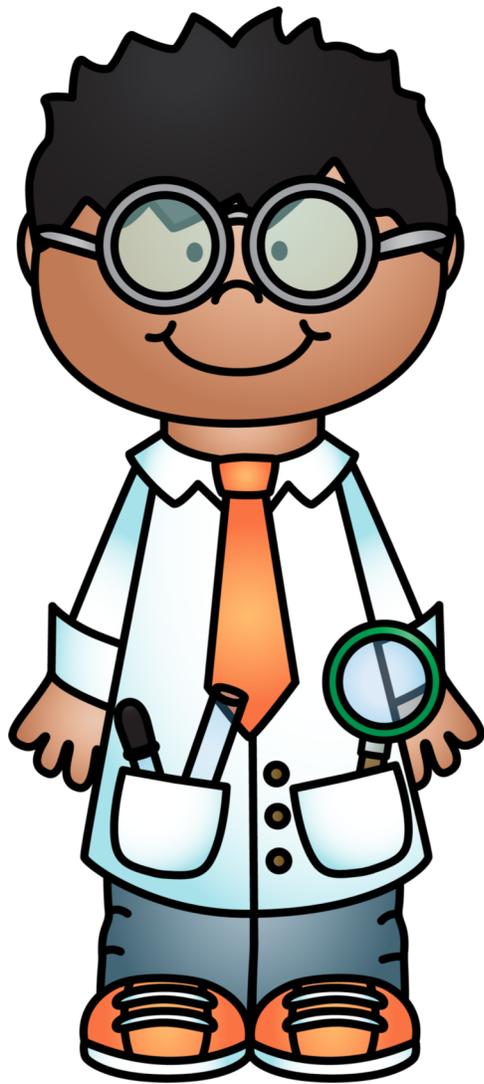
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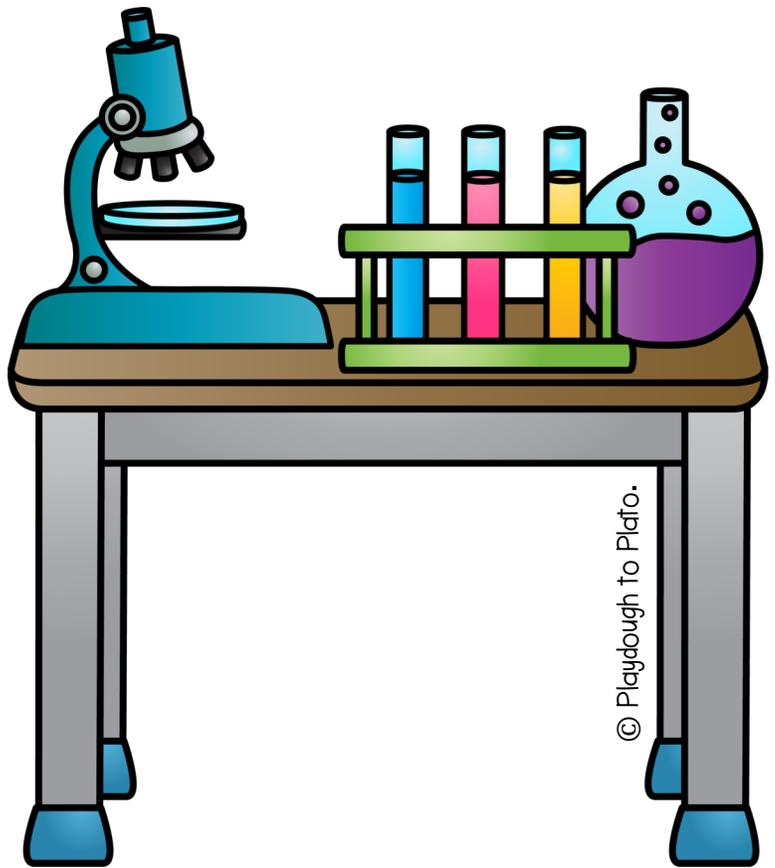
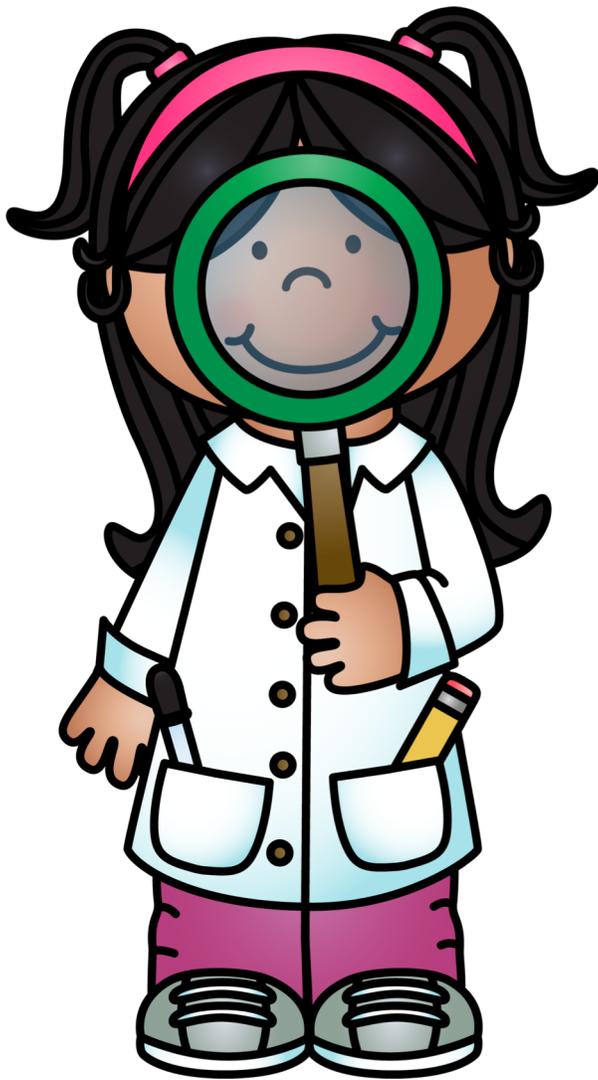
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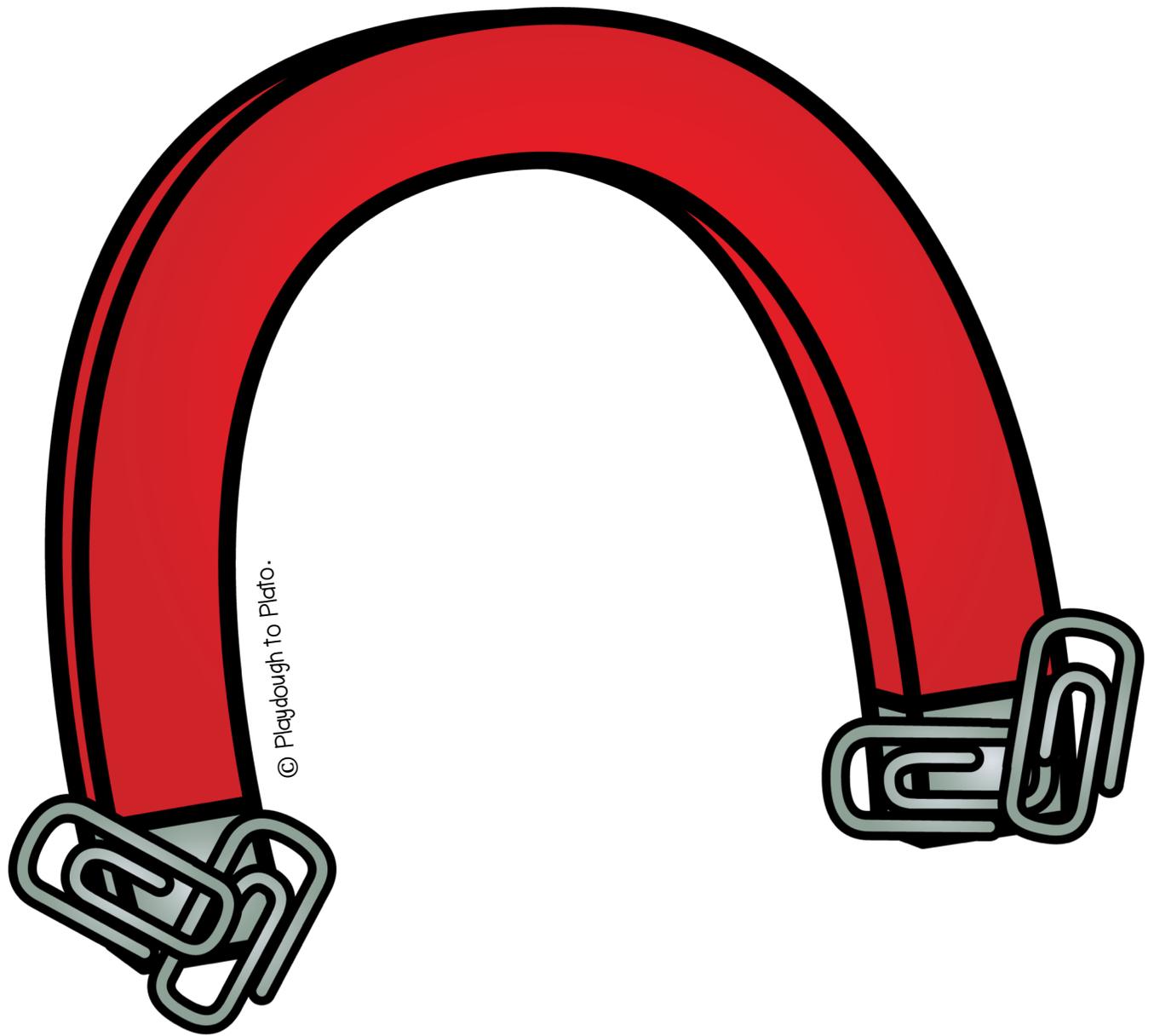
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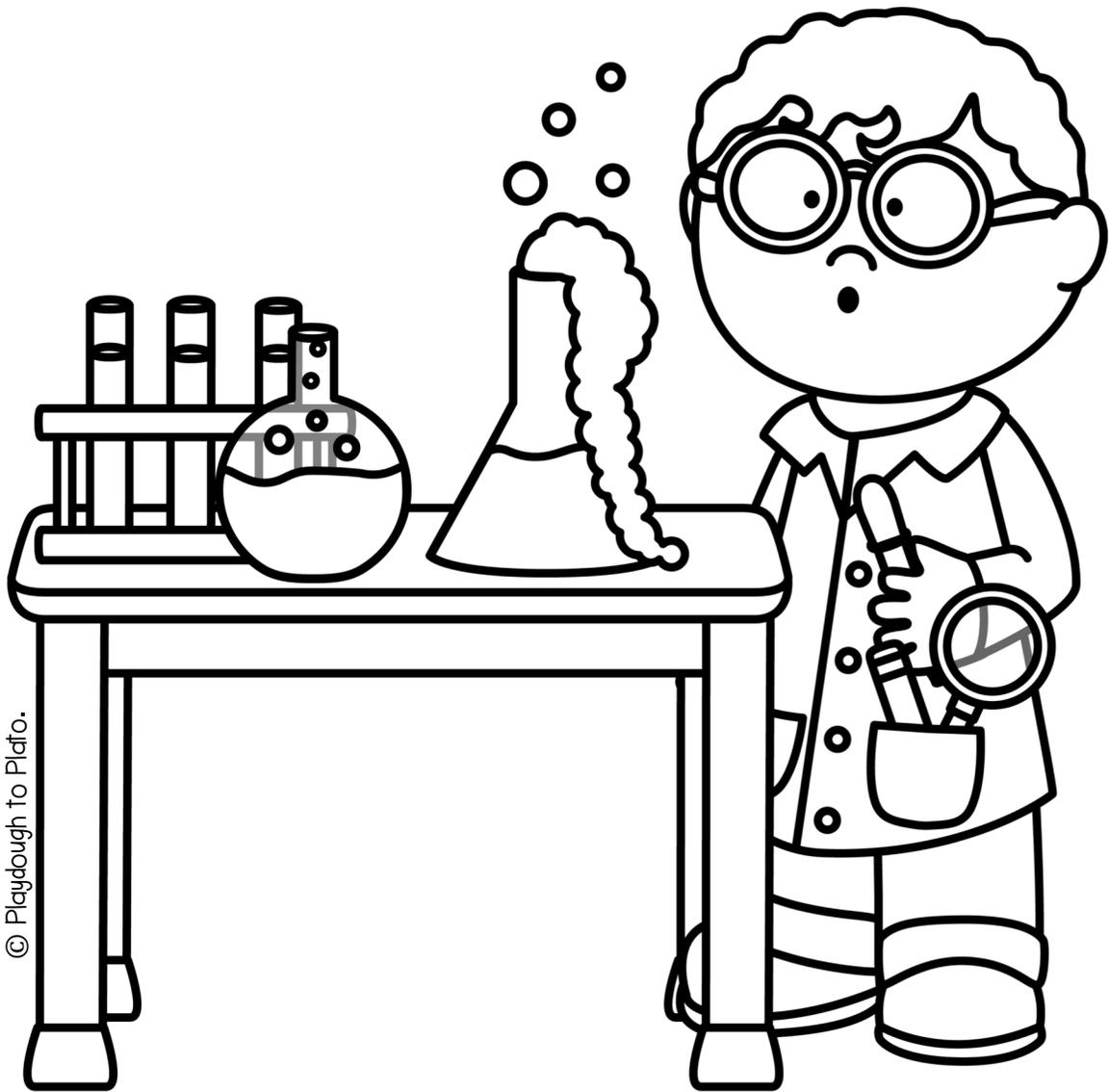
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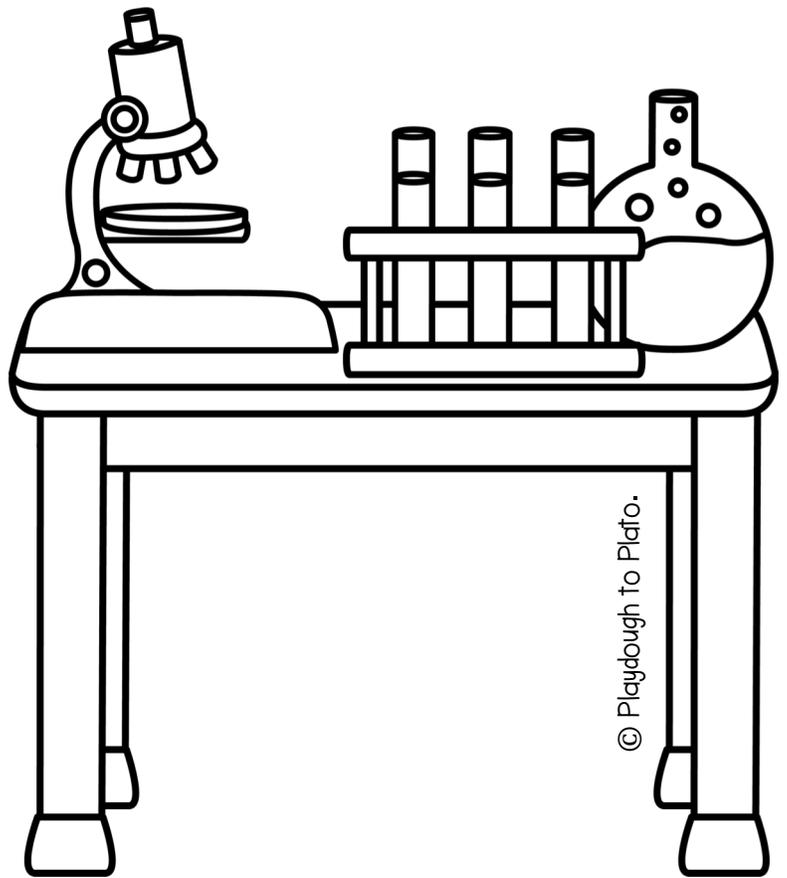
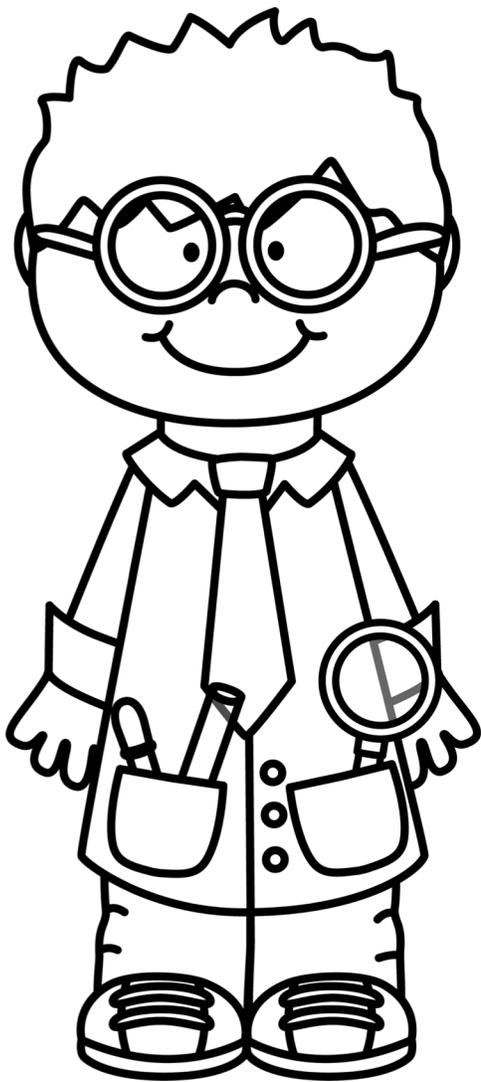
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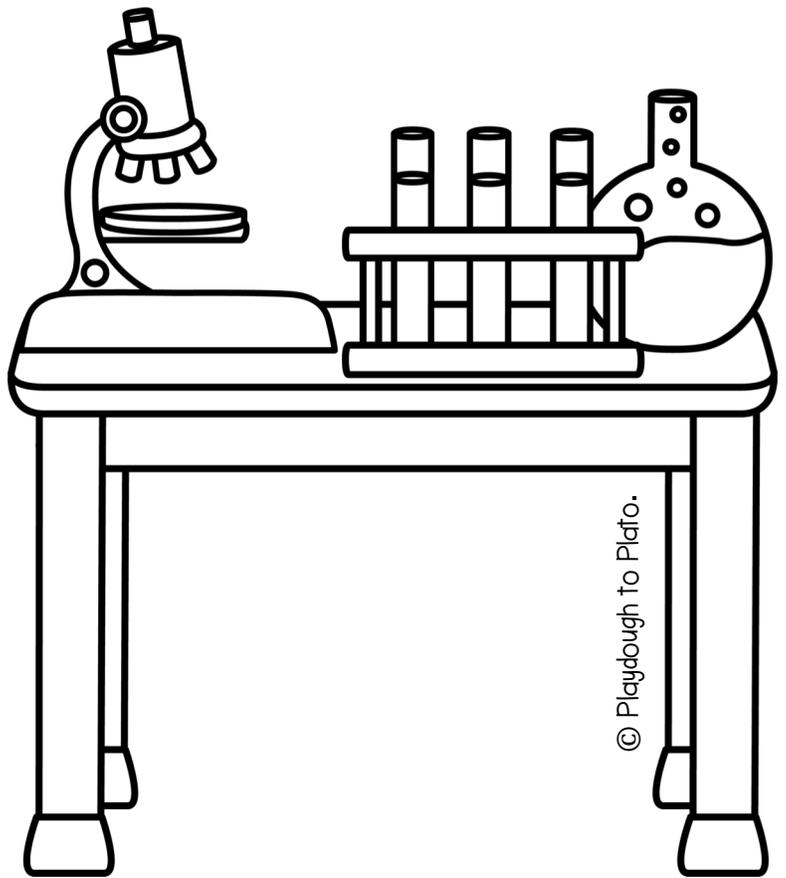
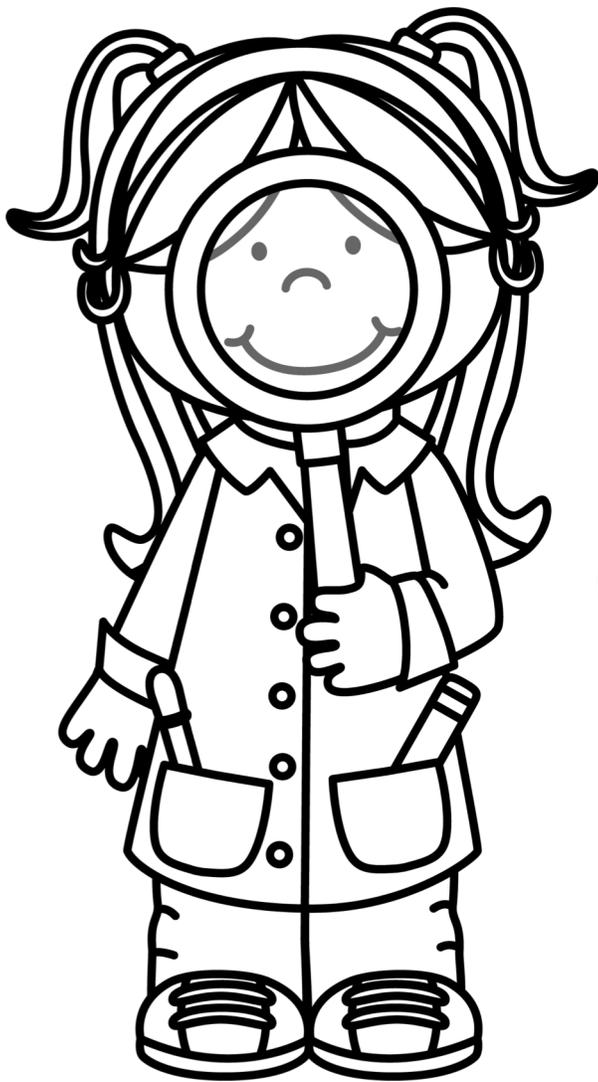
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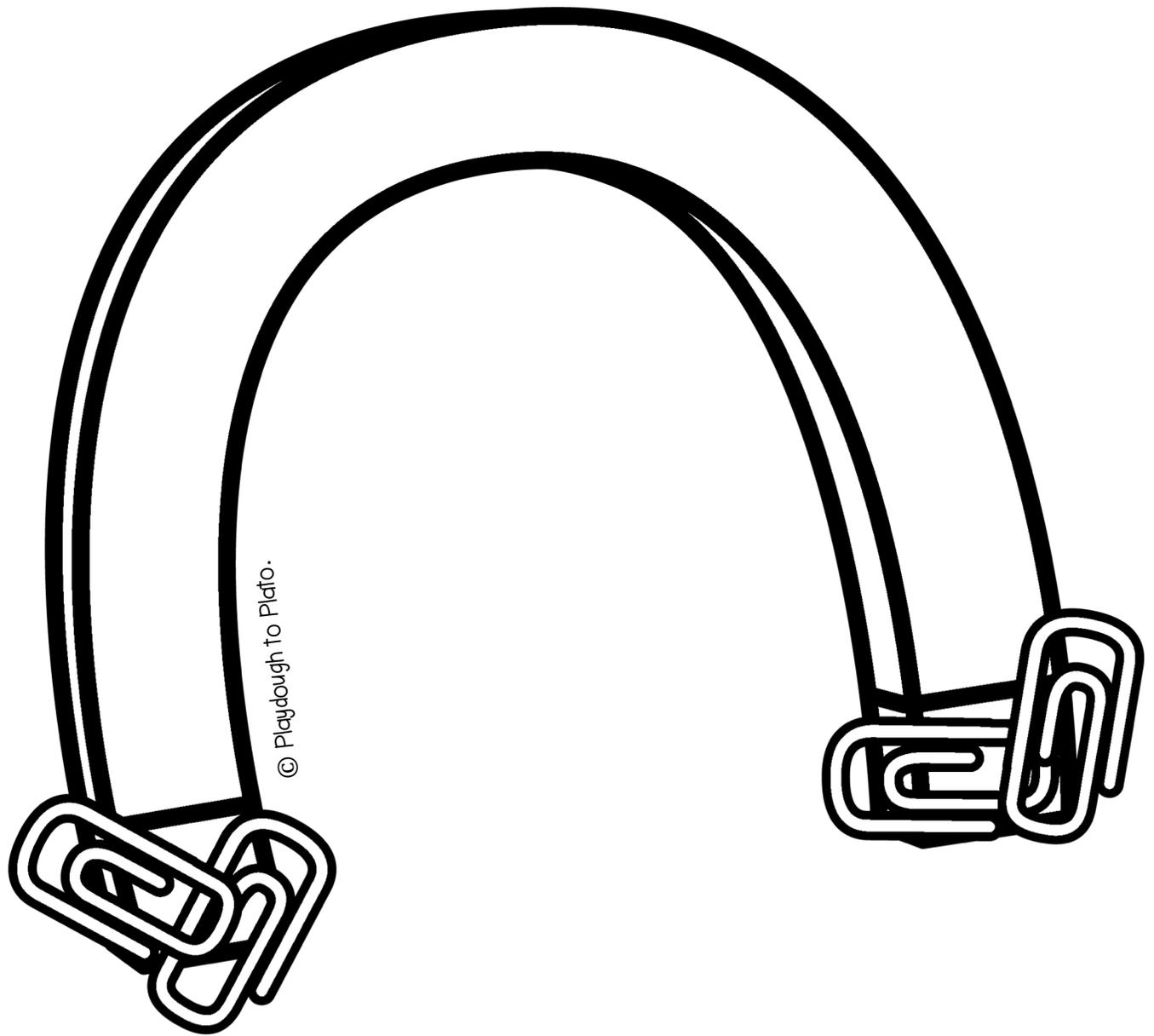
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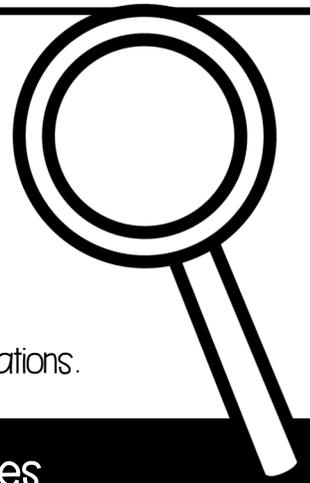


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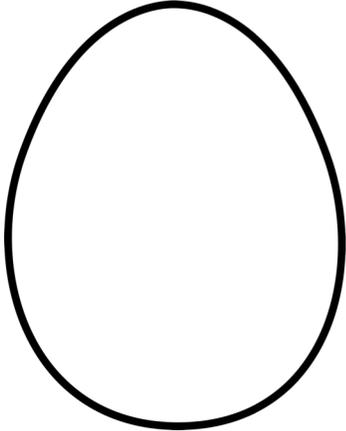
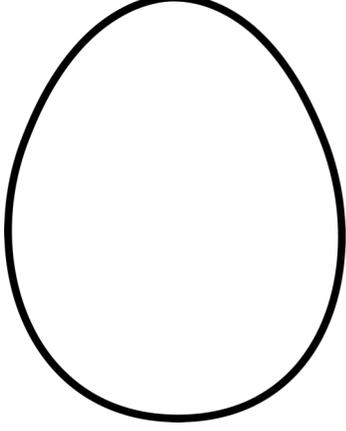
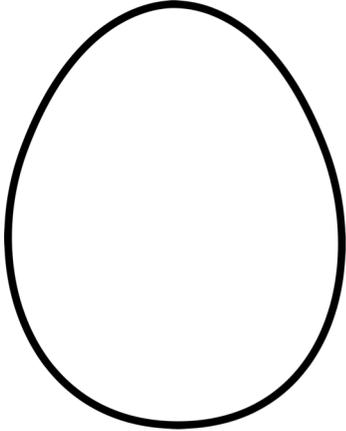
(In case you want to print them all out at one time.)

Name _____



RUBBER EGG

When you check on the egg each day, draw and write about your observations.

Day	Drawing	Notes
1		
2		
3		

Name _____



TORNADO IN A JAR

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

VOLCANO IN A JAR



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

FIREWORKS IN A JAR



Materials

Procedure

Hypothesis

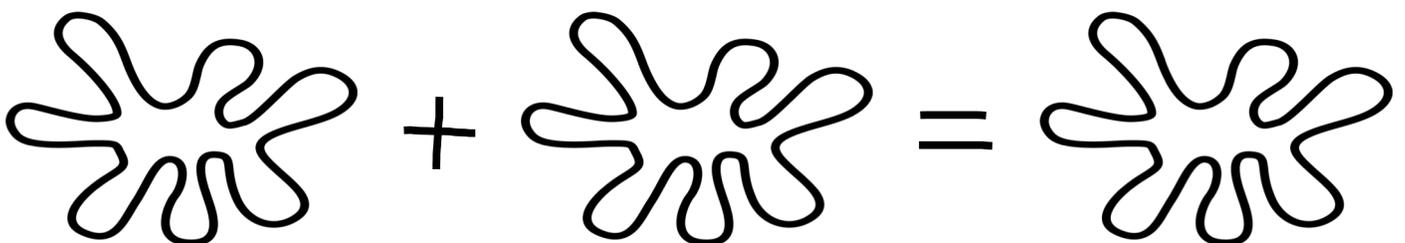
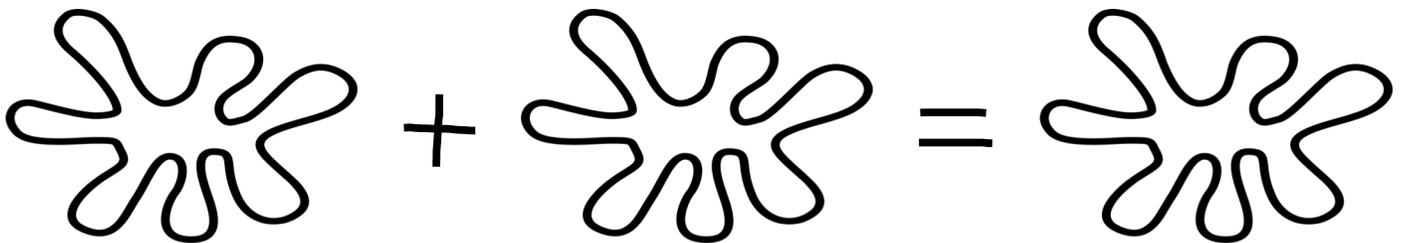
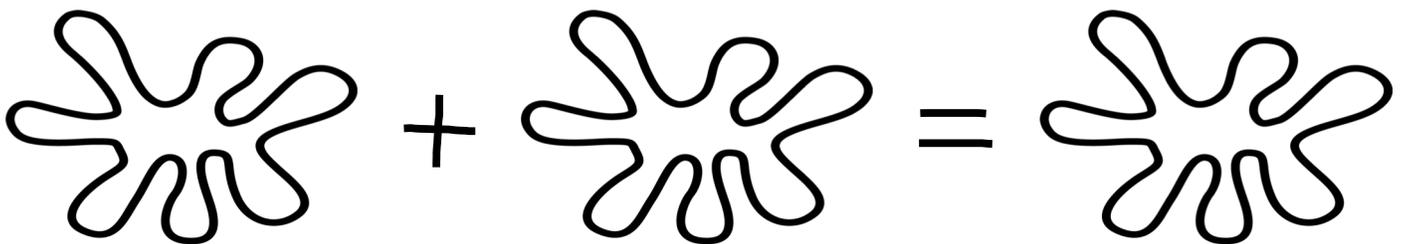
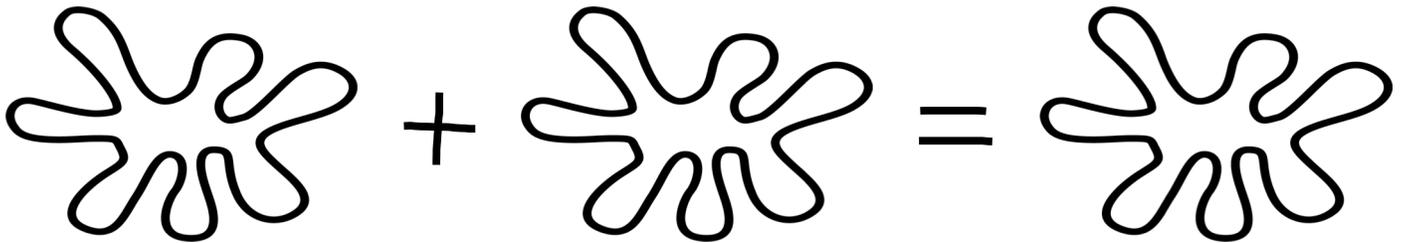
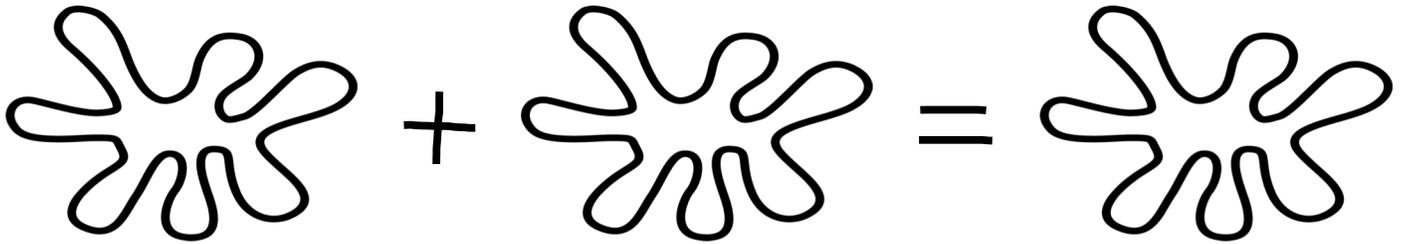
Conclusion

Was your hypothesis correct? yes no

Name _____

WALKING WATER RAINBOW

Show what happens when the colors mix by coloring all of the different combinations you see.



Name _____

FLYING TEA BAG GHOSTS

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____



MAGIC BALLOONS

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____



MYSTERY BALLOONS

BALLOON 1

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

BALLOON 2

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

BALLOON 3

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

Name _____

RAINBOW MILK

Supplies needed:

What do you predict will happen when we dip the clean Q-tip in the milk:

What actually happened?

What happened when we dipped the soapy Q-tip in each type of milk? Draw it below:

FAT FREE

2%

WHOLE

Name _____

CANDY CHROMATOGRAPHY

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____



WATER CYCLE IN A BAG

Hypothesis

Start

Day _____

Time _____ : _____

Check in #1

Day _____

Time _____ : _____

Check in #2

Day _____

Time _____ : _____

Conclusion

Was your hypothesis correct?

yes

no

Name _____

CRYSTAL NAMES

Hypothesis

Start

Day _____

Time _____ : _____

Check in #1

Day _____

Time _____ : _____

Check in #2

Day _____

Time _____ : _____

Conclusion

Was your hypothesis correct?

yes

no

Name _____



DISAPPEARING LETTERS

Hypothesis

Start

End

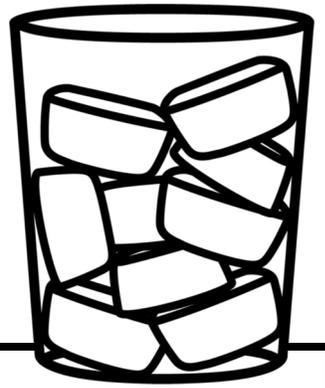
Conclusion

Was your hypothesis correct?

yes

no

Name _____



STICKY ICE

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

DANCING RAISINS

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

WILL IT SINK OR FLOAT?

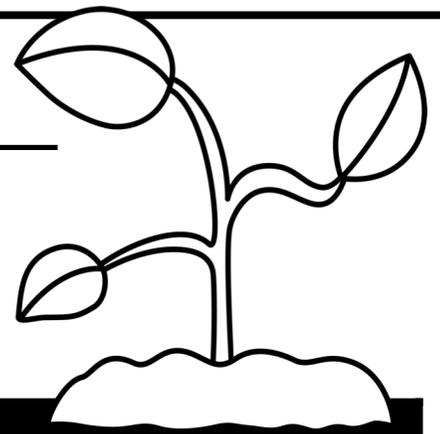
Will each object sink or float? Mark your predictions with an X and the results with an O.

Object	Sink 	Float 

Name _____

SPROUT HOUSE

Keep track of your observations each day below.



Day	Drawing	Notes
1		
14		

Name _____

WILL IT MELT?

Will each object melt in the sun? Mark your predictions with an X and the results with an O.

Object	Yes ✓	No X

Name _____



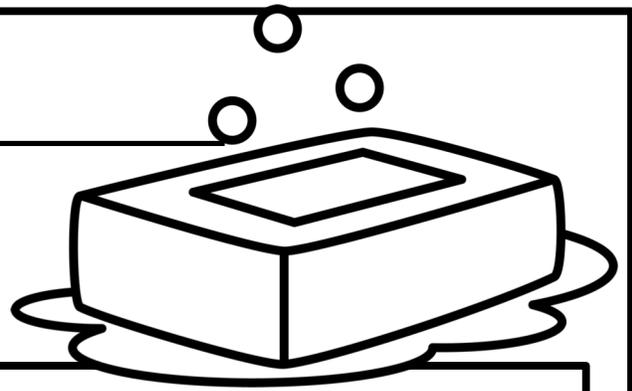
BICOLORED FLOWERS

When you check on the flower each day, draw and write about your observations.

Day	Drawing	Notes
1		
2		
3		

Name _____

FLUFFY SOAP



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

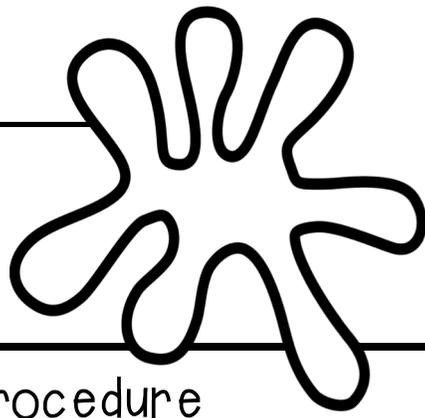


SHINING PENNIES

Mixture	Notes
ketchup and baking soda	
vinegar and salt	
pencil eraser	
lemon and salt	

Name _____

FLUBBER



Materials

Procedure

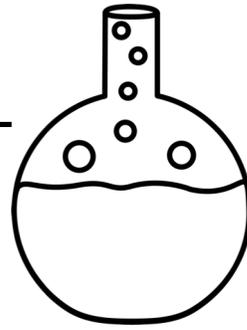
Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

LAVA LAMP



Materials

Procedure

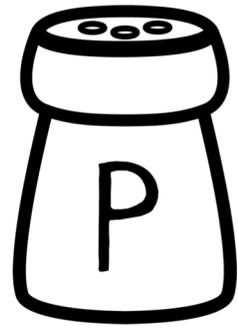
Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

RACING PEPPER



Materials

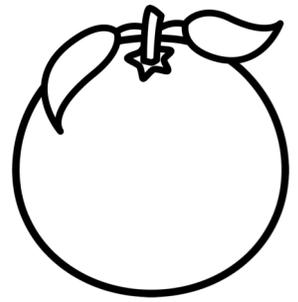
Procedure

Hypothesis

Conclusion

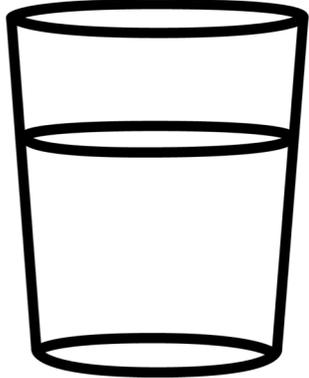
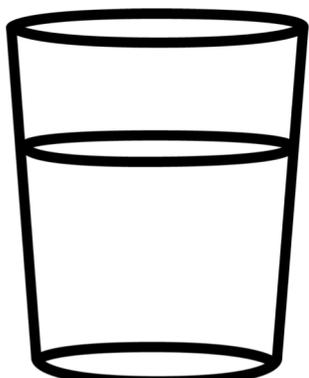
Was your hypothesis correct? yes no

Name _____



SINK & FLOAT ORANGES

Hypothesis

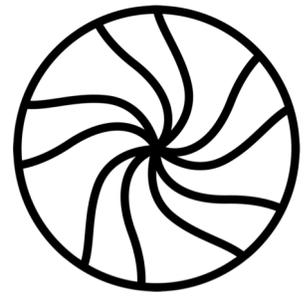
Orange	Drawing	Notes
WITH PEEL		
WITHOUT PEEL		

Was your hypothesis correct?

yes

no

Name _____

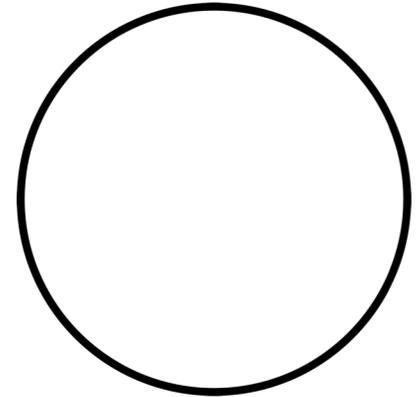
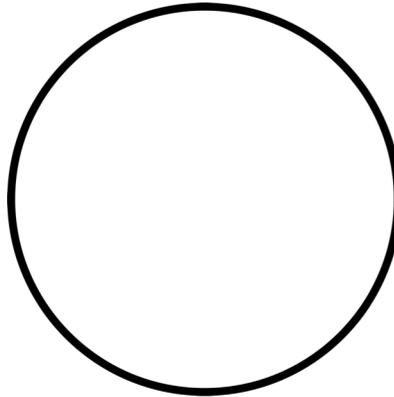
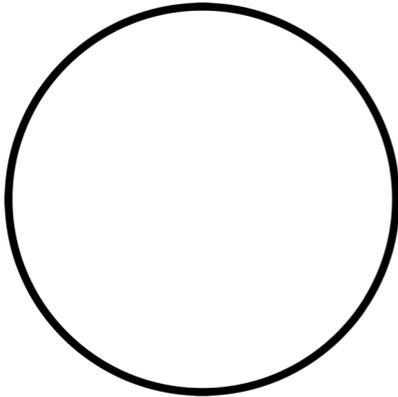


MINT FIREWORKS

The mint looks like this before starting the experiment...

I predict it will look like this after the experiment...

The mint actually looks like this after the experiment...



Conclusion – What happened to the mint?

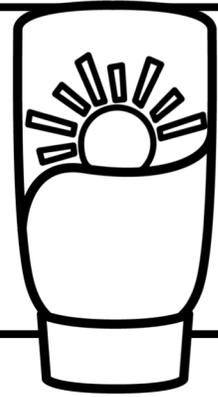
Why did that happen?

Was your hypothesis correct?

yes

no

Name _____



SUNSCREEN SCIENCE

Hypothesis

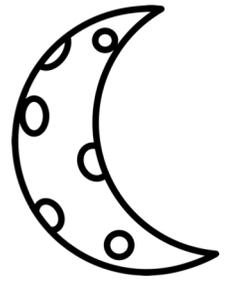
Paper	Draw Your Prediction	Draw Your Results
WITH SUNSCREEN		
WITHOUT SUNSCREEN		

Was your hypothesis correct?

yes

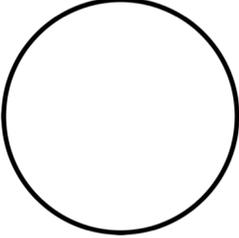
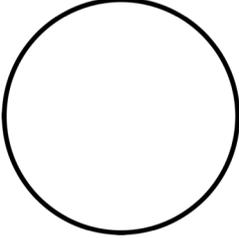
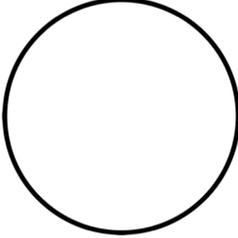
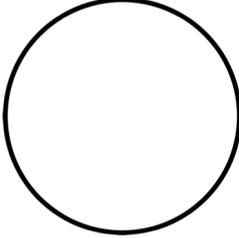
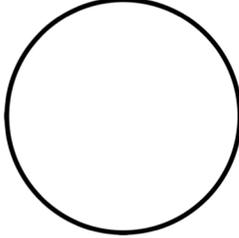
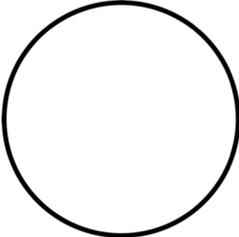
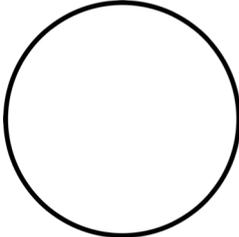
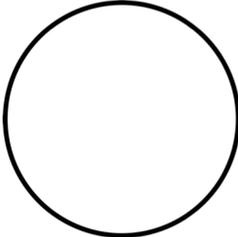
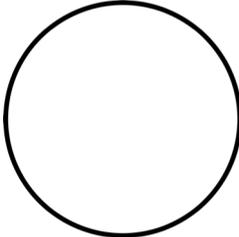
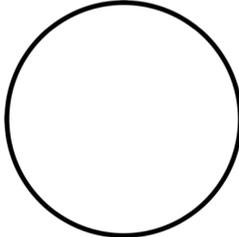
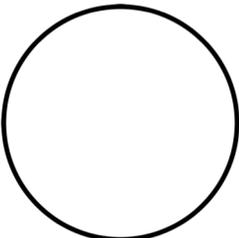
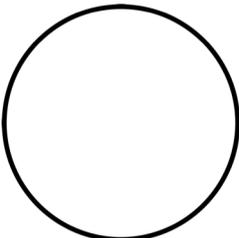
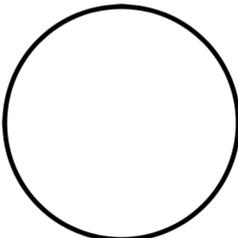
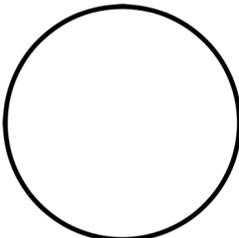
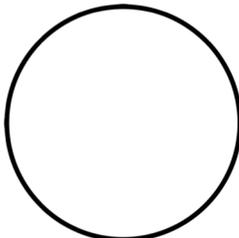
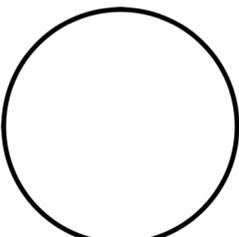
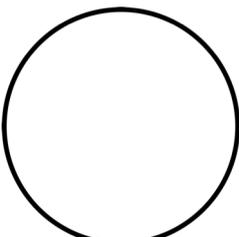
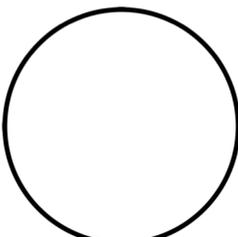
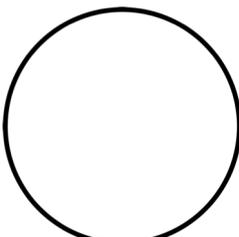
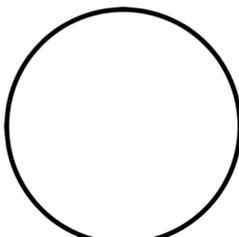
no

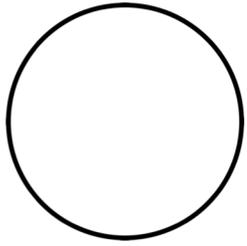
Name _____



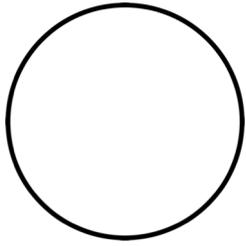
PHASES OF THE MOON

Date started observing _____

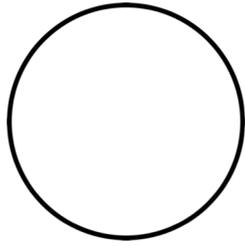
 Day 1	 Day 2	 Day 3	 Day 4	 Day 5
 Day 6	 Day 7	 Day 8	 Day 9	 Day 10
 Day 11	 Day 12	 Day 13	 Day 14	 Day 15
 Day 16	 Day 17	 Day 18	 Day 19	 Day 20



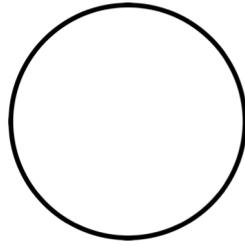
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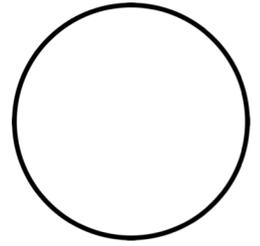
Day 22



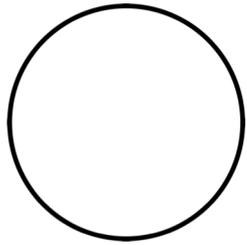
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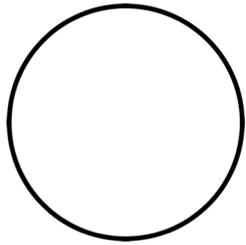
Day 24



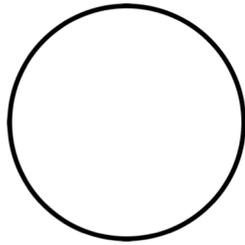
Day 25



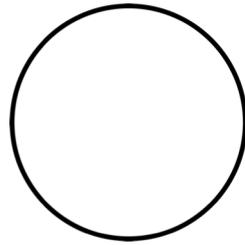
Day 26



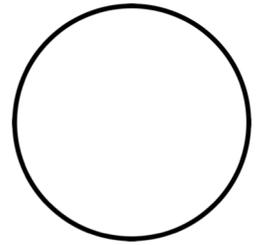
Day 27



Day 28



Day 29



Day 30

Conclusion – What happened to the moon?

Why did that happen?

SCIENCE
EXPERIMENTS
*and record
sheets*

RUBBER EGG

Supplies- raw brown egg, vinegar, corn syrup wide rimmed jar with a lid, observation chart

Experiment- Touch and feel the egg. Write your observations on the chart.

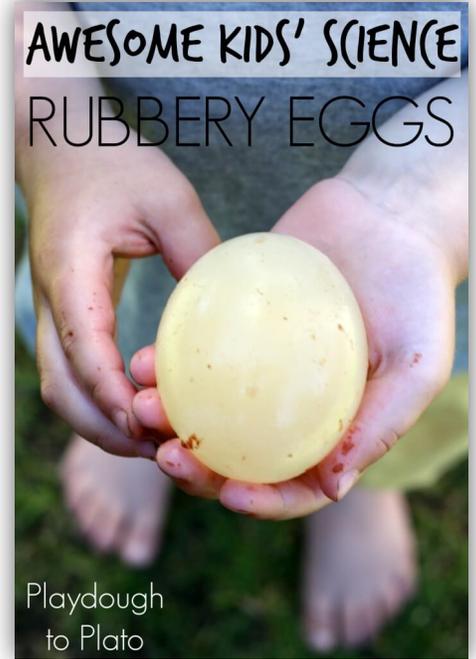
Place the egg in the jar and cover it with vinegar. Seal the lid tightly.

Watch what happens over the next 3 days, recording your observations on the chart.

On the third day, take out the egg and gently feel it. What do you notice?

Science Behind It- The acid in the vinegar breaks down the calcium carbonate egg shell creating carbon dioxide bubbles and making the shell disappear.

The vinegar is made up of mostly water. It travels in and out of the egg membrane through a process called **osmosis**. This process causes the egg to expand and get bigger.



TORNADO IN A JAR

Supplies- empty bottle, tap water, dish soap, vinegar, glitter [optional]

Experiment- Fill your bottle with water, leaving about an inch of space at the top.

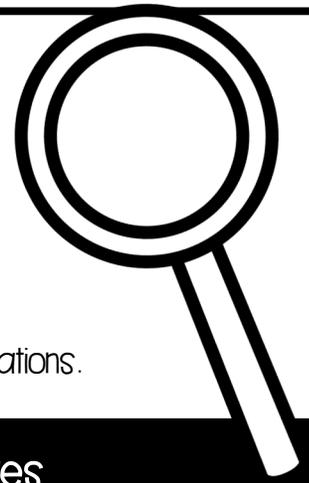
Drop in 1 tsp. vinegar, 1 tsp. dish soap and a pinch of glitter.

Swirl the jar for about 5 seconds. Then set it down on a flat surface and watch the tornado.

Science Behind It- When you spin the water, it creates a **vortex** in the center, centripetal force causes the water to spin around that vortex making a tornado.

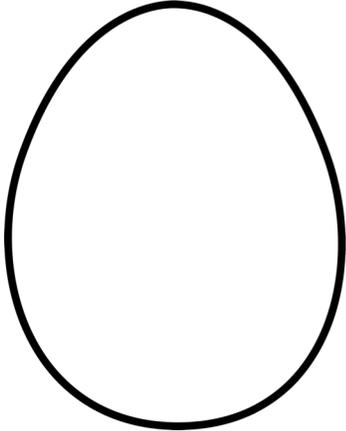
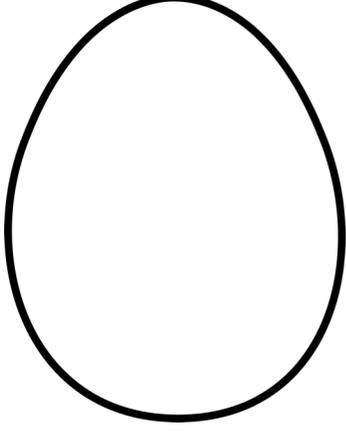
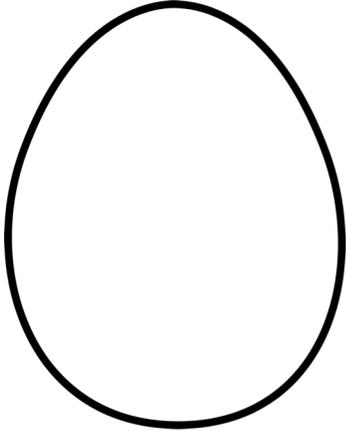


Name _____

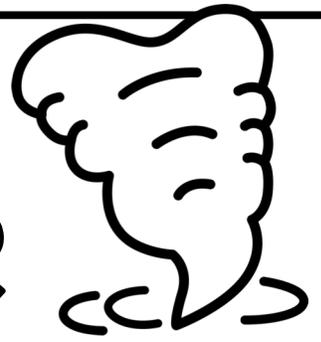


RUBBER EGG

When you check on the egg each day, draw and write about your observations.

Day	Drawing	Notes
1		
2		
3		

Name _____



TORNADO IN A JAR

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

VOLCANO IN A JAR

Supplies- empty bottle, dish soap, vinegar, baking soda

Experiment- Add $\frac{1}{4}$ cup of baking soda to the bottom of your bottle.

Add several drops of dish soap on top.

Pour in 1 cup of vinegar. Then watch the volcano erupt!

Science Behind It- When you mix vinegar and baking soda together, it causes an acid-base reaction that forms a gas called **carbon dioxide**. That gas bubbles and foams in the vinegar-baking soda mixture creating an "eruption". The dish soap makes the foam extra frothy and bubbly.

FIREWORKS IN A JAR

Supplies- empty bottle, tap water, oil, food coloring, bowl, fork

Experiment- Fill your bottle with water, leaving about two inches of space at the top.

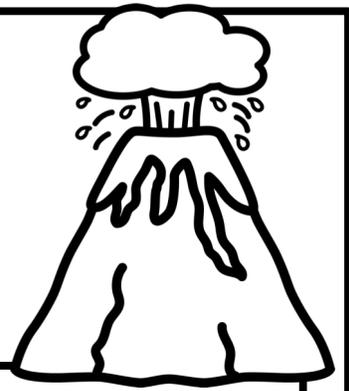
Pour about 2 tablespoons of oil on your bowl.

Add several drops of food coloring to the oil and stir with a fork.

Pour the oil into the bottle and watch the food coloring sink out of the oil and into the water.

Science Behind It- Food coloring and oil do not mix. Oil is less dense than water so it will sit at the top of the bottle. The food coloring is heavier than the oil so it drops out of the oil and begins dissolving in the water.

Name _____



VOLCANO IN A JAR

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

FIREWORKS IN A JAR



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

WALKING WATER RAINBOW

Supplies- 3 glasses, water, food coloring, paper towels, one of the color mixing record pages, crayons

Experiment- Place the cups side by side in a line. Fill the first cup with water and food coloring.

Leave the second cup empty.

Fill the third cup with water and a different color of food coloring. For instance, one cup could be red, the next empty and the third blue.

Cut a paper towel in half and fold it lengthwise two times. Place one end in the first cup and the other end in the cup next to it.

Fold a second paper towel the same way, placing one end in the second cup and the other end in the third cup.

Watch the colors mix. Write the color combination on your record sheet.

What other color combinations can you mix? Can you add a 4th or 5th cup?

Science Behind It- The colored water travels up the paper towel by a process called **capillary action**. Capillary action is the ability of a liquid to flow upward, against gravity, in narrow spaces. This is the same thing that helps water climb from a plant's roots to the leaves in the tree tops.

Paper towels, and all paper products, are made from fibers found in plants called **cellulose**. In this demonstration, the water flowed upwards through the tiny gaps between the cellulose fibers. The gaps in the towel acted like capillary tubes, pulling the water upwards.

The water is able to defy gravity as it travels upward due to the attractive forces between the water and the cellulose fibers.

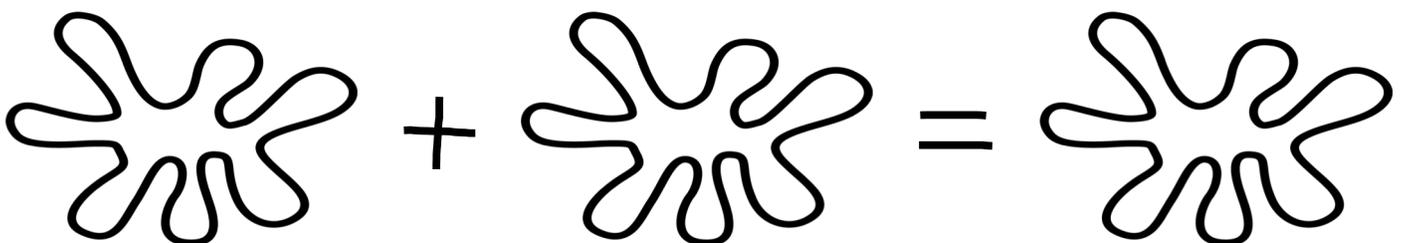
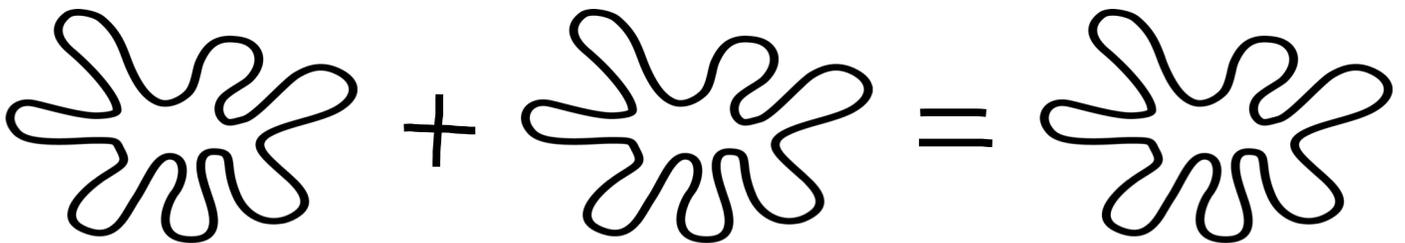
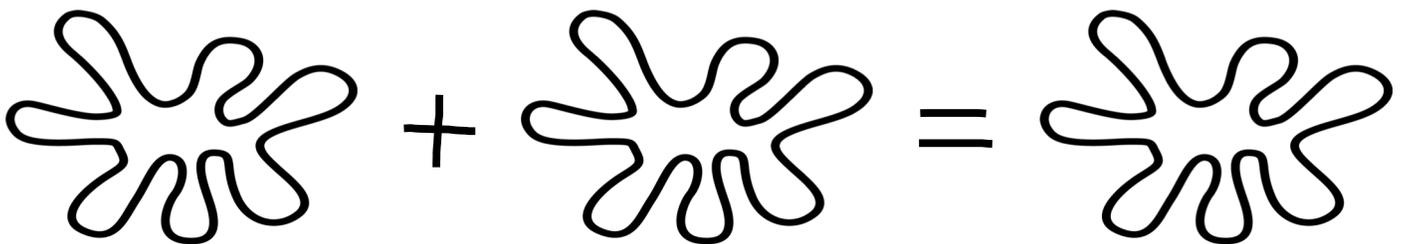
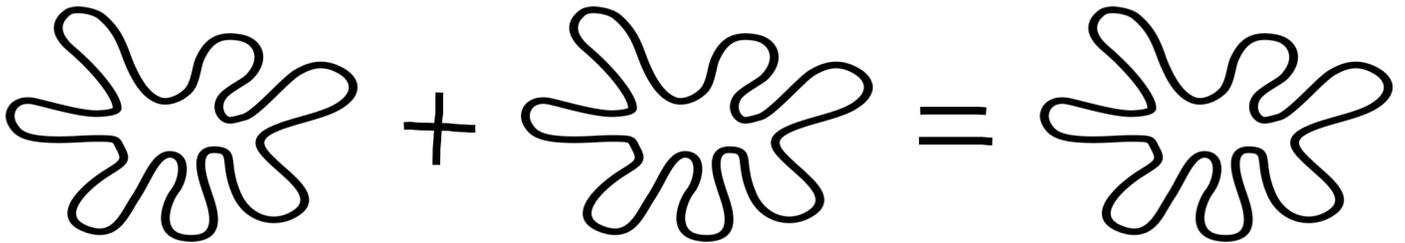
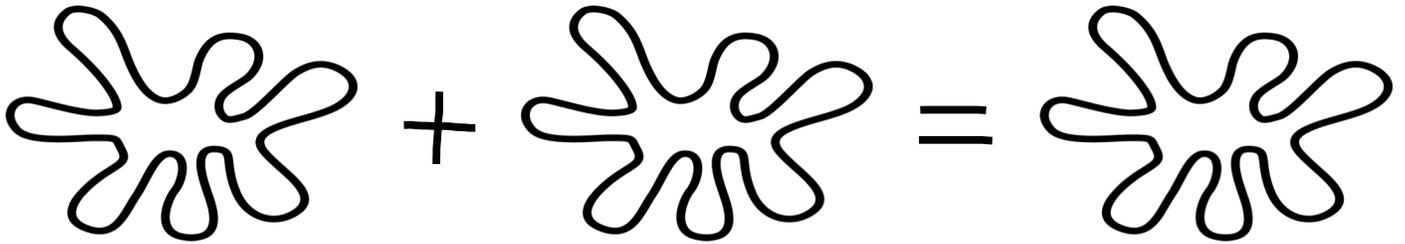
Walking Water →
rainbow



Name _____

WALKING WATER RAINBOW

Show what happens when the colors mix by coloring all of the different combinations you see.



FLYING TEA BAG GHOSTS

ADULT SUPERVISION REQUIRED

Supplies- tea bag, scissors, match or lighter

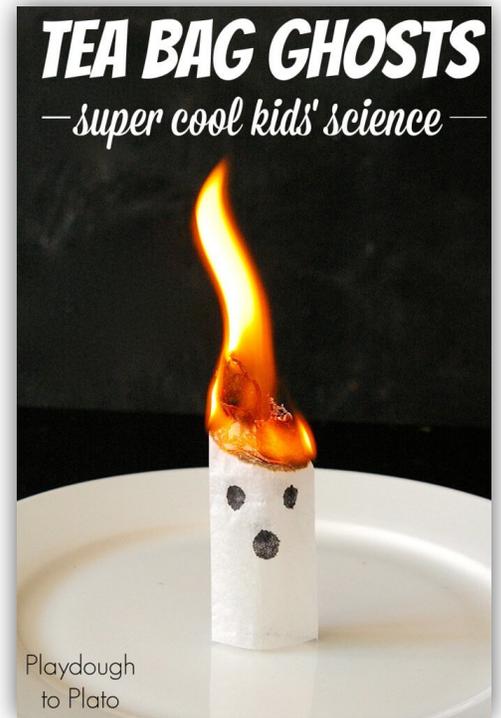
Experiment- Cut off the top of the tea bag and dump out the tea leaves.

Flatten the tea bag and shape it into a cylinder. Stand the tea bag up on one end.

Have a grown up light the top of the tea bag with a match or lighter.

Watch the bag fly into the air.

Science Behind It- The air inside the tea bag gets hot when the fire is lit and the air molecules begin moving around quickly inside the tea bag. The hotter, less dense air rises above the cooler, denser air outside the tea bag creating a **convection current** that causes it to lift into the air.



MAGIC BALLOONS

Supplies- empty bottle, balloon, Alka Seltzer, water

Experiment- Break 4 Alka Seltzer tablets into small pieces and drop them into the bottle.

Fill the bottle with about 1 cup of water and quickly stretch the balloon over the top of the bottle. Watch the balloon fill!

Science Behind It- When you mix Alka Seltzer and water together it causes an acid-base reaction that forms a gas called **carbon dioxide**. This gas floats to the top of the bottle, filling the balloon with carbon dioxide and making it expand.

Name _____

FLYING TEA BAG GHOSTS

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

MAGIC BALLOONS



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

MYSTERY BALLOONS

Supplies- 3 balloons, water, record sheet, pencil

Experiment- Fill one balloon with water and place it in the freezer overnight.

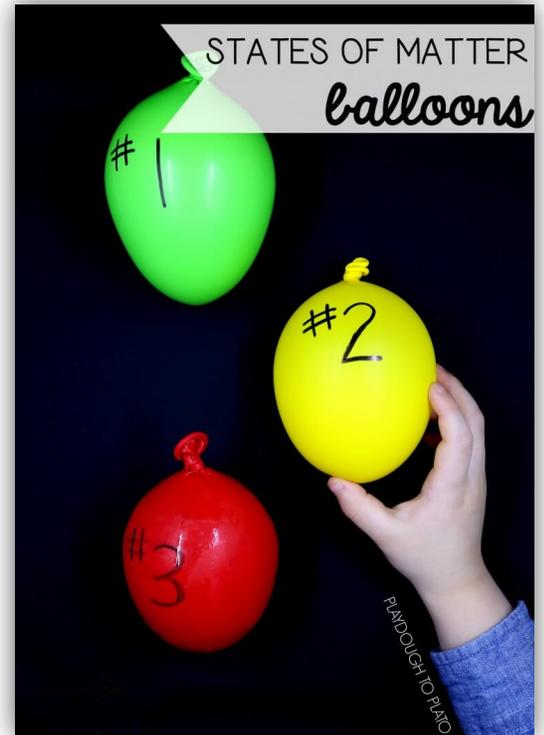
The next morning, blow up a second balloon with air.

Fill a third balloon with tap water.

When the water in the first balloon has frozen completely, place the three balloons side by side. Squeeze, poke and explore them. What is the same? What is different? Complete the record sheet.

Science Behind It- The three balloons are filled with three different states of matter: gas [air], liquid [water] and solid [ice].

Gas molecules are the most spread out. They move freely to fill their container. **Liquid** molecules are together more closely and take the shape of their container. **Solid** molecules are the closest together and do not move.



MAGIC RAINBOW MILK

Supplies- 3 plates, fat free milk, 2% milk, whole milk, food coloring, dish soap, Q-tips

Experiment- Pour one type of milk on each plate to cover it.

Randomly drop several different colors of food coloring in the center of the milks.

Dip your clean Q-tip in the milk. Does anything happen?

Now dip a new Q-tip in dish soap.

Touch the Q-tip to the surface of the milk in several spots and watch the colors swirl around. Does each milk act the same?

Science Behind It- Milk is made of many things including water and fats that act like oil. Oil and water don't like each other. One part of soap likes fat and one part likes water so when the soap touches the milk, the soap molecules move through the milk searching for fat and water-mixing up the food coloring in its path.



—RAINBOW milk—



Name _____



MYSTERY BALLOONS

BALLOON 1

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

BALLOON 2

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

BALLOON 3

Observations-

I think it is a:

gas

liquid

solid

It really is a:

gas

liquid

solid

Name _____

RAINBOW MILK

Supplies needed:

What do you predict will happen when we dip the clean Q-tip in the milk:

What actually happened?

What happened when we dipped the soapy Q-tip in each type of milk? Draw it below:

FAT FREE

2%

WHOLE

CANDY CHROMATOGRAPHY

Supplies- Skittles, coffee filters, warm water

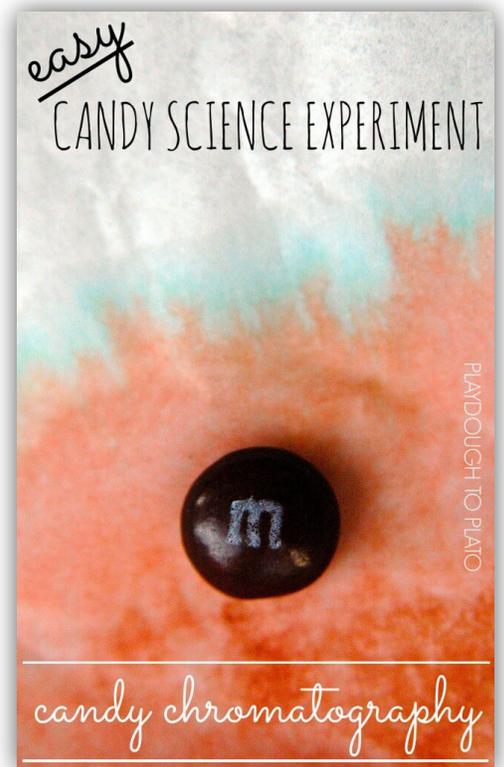
Experiment- Flatten several coffee filters onto separate plates.

Dip one color Skittle into the warm water and lay it on a coffee filter.

Repeat that step with several different colored Skittles.

Watch the colors separate into different components. For instance, green spreads into yellow and blue. Purple separates into blue and red, etc.

Science Behind It- Candy makers combine different colors of dye to color their candies. For instance, brown is made of red and blue dyes. Some dyes are more attracted to the coffee filter paper and move up higher while other dyes like red dissolve more easily in water and are less attracted to the filter paper so they don't move as far. Separating the colors is a process called **chromatography**.



WATER CYCLE IN A BAG

Supplies- Ziploc bag, water, blue food coloring, Sharpie, tape

Experiment- Draw a sun and cloud at the top of your bag. Mix one cup of tap water with 4 drops of blue food coloring. Pour it into the bag.

Tape the bag to the window and watch what happens over the next 3-4 days.

Science Behind It- When the sun warms the water, it **evaporates** into vapor and rises to the top of the bag. a cloud is formed when enough of that vapor collects. As the vapor cools, it begins changing back into liquid. This is called **condensation**. When enough water condensates, the water falls down in the form of **precipitation** (rain or snow).



Name _____

CANDY CHROMATOGRAPHY

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____



WATER CYCLE IN A BAG

Hypothesis

Start

Day _____

Time _____ : _____

Check in #1

Day _____

Time _____ : _____

Check in #2

Day _____

Time _____ : _____

Conclusion

Was your hypothesis correct?

yes

no

CRYSTAL NAMES

Supplies- tall clear glass cup or jar, borax, water, pipe cleaners, string, pencil, measuring cups

Experiment- Bend each pipe cleaner into a letter of your name. tie one end of the string to your pipe cleaner and the other end around the middle of a pencil.

Fill your cup with very warm water. pour $\frac{1}{2}$ cup of borax into the water and stir until it dissolves. continue adding and stirring borax until it begins leaving residue at the bottom.

Balance your pencil across the top of your cup. drop in your pipe cleaner so that it's submerged in the solution. wait several days and watch the crystals form.

Science Behind It- When the borax dissolves in the water, it creates a suspension. As the borax begins to settle, it begins settling on all the surfaces it comes in contact with including the pipe cleaners.



DISAPPEARING LETTERS

Supplies- Skittles, warm water, clear glass cup

Experiment- Fill your cup with warm water.

Drop a Skittle into the bottom.

Watch the S melt off the Skittle.

Science Behind It- Skittles are made with sugar. When sugar is placed in water, it **dissolves** and changes from a solid to a liquid, making the S disappear.

Name _____

CRYSTAL NAMES

Hypothesis

Start

Day _____

Time _____ : _____

Check in #1

Day _____

Time _____ : _____

Check in #2

Day _____

Time _____ : _____

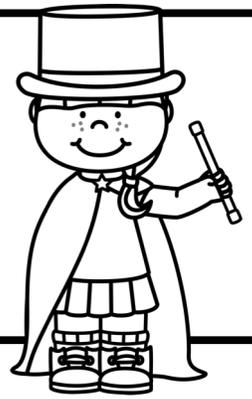
Conclusion

Was your hypothesis correct?

yes

no

Name _____



DISAPPEARING LETTERS

Hypothesis

Start

End

Conclusion

Was your hypothesis correct?

yes

no

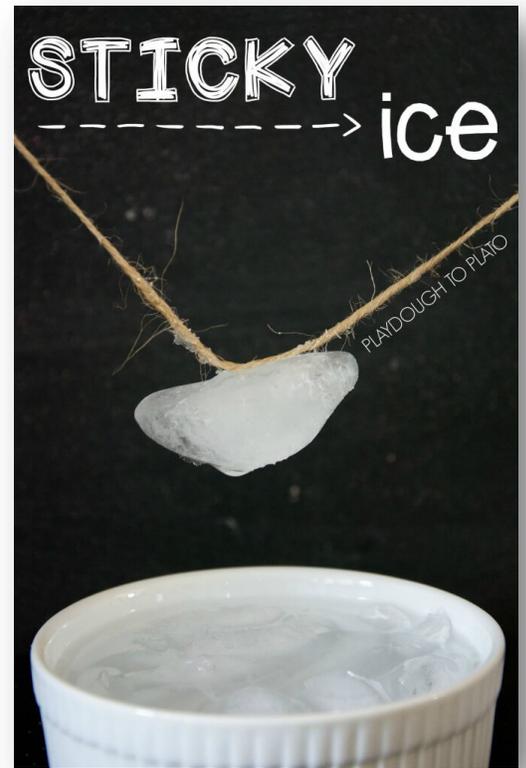
STICKY ICE

Supplies- ice cubes, water, cup, piece of string, salt

Experiment- Fill a cup $\frac{1}{2}$ way with water. Place several ice cubes on top. Try sticking the string to the top of an ice cube. What happens?

Now place the string on top of an ice cube and sprinkle some salt on top. Count to 30 and lift the string out of the water. What happens to the ice cubes now? Can you catch two ice cubes at once?

Science Behind It- Water typically freezes at 32 degrees Fahrenheit (0 degrees Celsius). When salt is sprinkled on top, it lowers the **freezing point**, making the ice melt slightly. Since you sprinkle such a small amount of salt, however, the ice quickly refreezes, trapping the string.



DANCING RAISINS

Supplies- raisins, glass cup, 4 Alka Seltzer tablets, sparkling water, measuring cups

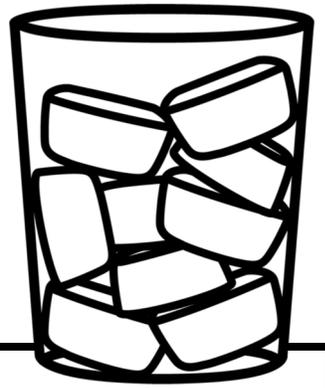
Experiment- Crush 4 Alka Seltzer tablets in the bottom of your glass.

Drop 5-7 raisins on top.

Then pour in 1 cup of carbonated water and watch the raisins start to dance.

Science Behind It- When you pour water on the Alka Seltzer tabs, it begins creating **carbon dioxide** bubbles that are less dense than the water so they rise to the top of the glass. Those gas bubbles start sticking to the raisins. When enough bubbles stick, the raisin becomes less **dense** enough to rise to the top of the water. When they pop, the raisin becomes more dense and drops down.

Name _____



STICKY ICE

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

DANCING RAISINS

Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

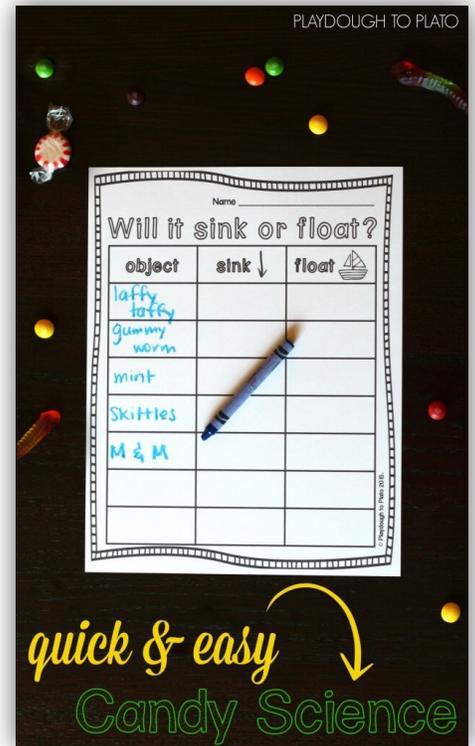
SINK OR FLOAT

Supplies- Large bowl or jar, water, chart, pencil, small items from around the room (LEGOS, coins, pom poms, etc.)

Experiment- Write down the name of each object on the chart.

Fill your bowl with water. Drop the first object in and see whether it sinks or floats. Add an x in the right spot on your chart. Continue testing and recording your results until you have used all of your objects.

Science Behind It- You figure out an object's density by seeing how much empty space it has compared to the amount of its mass. A LEGO, for instance, has a lot of empty space inside and just a little mass in its shell on the outside. It is not very dense. When you drop an object in water, it will float if it is less dense than that water. This is called being **buoyant**.



SPROUT HOUSE

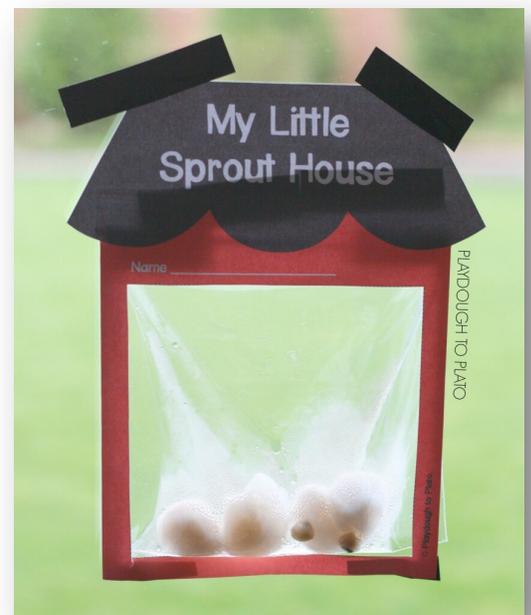
Supplies- seeds, 6 cotton balls, cup, water, sprout house, scissors, Ziploc bag, tape, observation sheet, pencil

Experiment- Place several seeds in the bottom of your ziploc.

Soak 6 cotton balls in water. Squeeze out the water so the balls are damp but not dripping. Place them in the bag on top of the seeds. Seal the top of the bag.

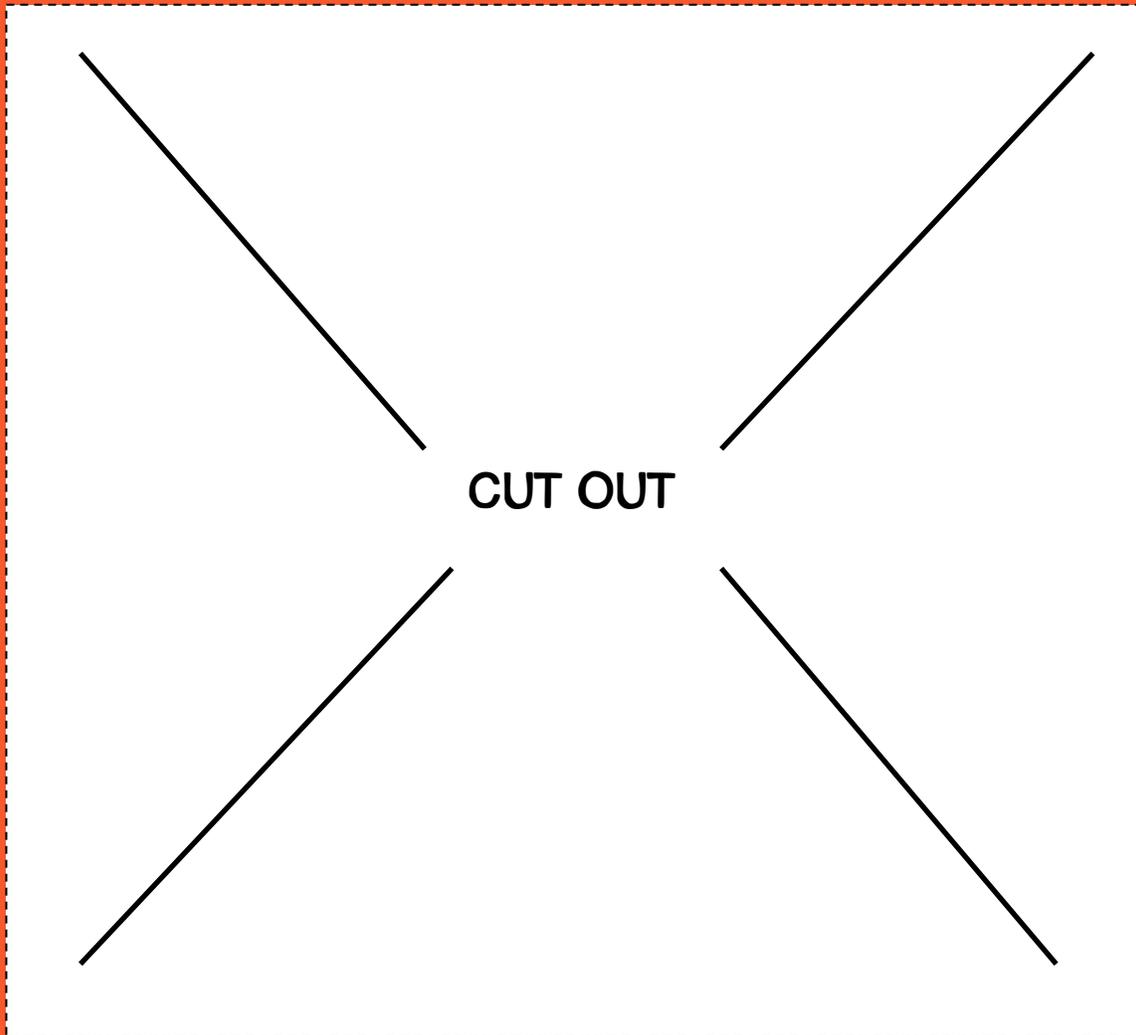
Cut out the sprout house and tape it on top of the bag so that the ziploc is showing in the middle. Tape the sprout house to a window that gets plenty of sun and watch what happens over the next few weeks.

Science Behind It- A seed needs water and warmth to grow. The ziploc bag creates a mini **green house** that makes warm, moist air from the sunlight shining through the window and the water contained in the cotton balls. The happy seed sprouts.



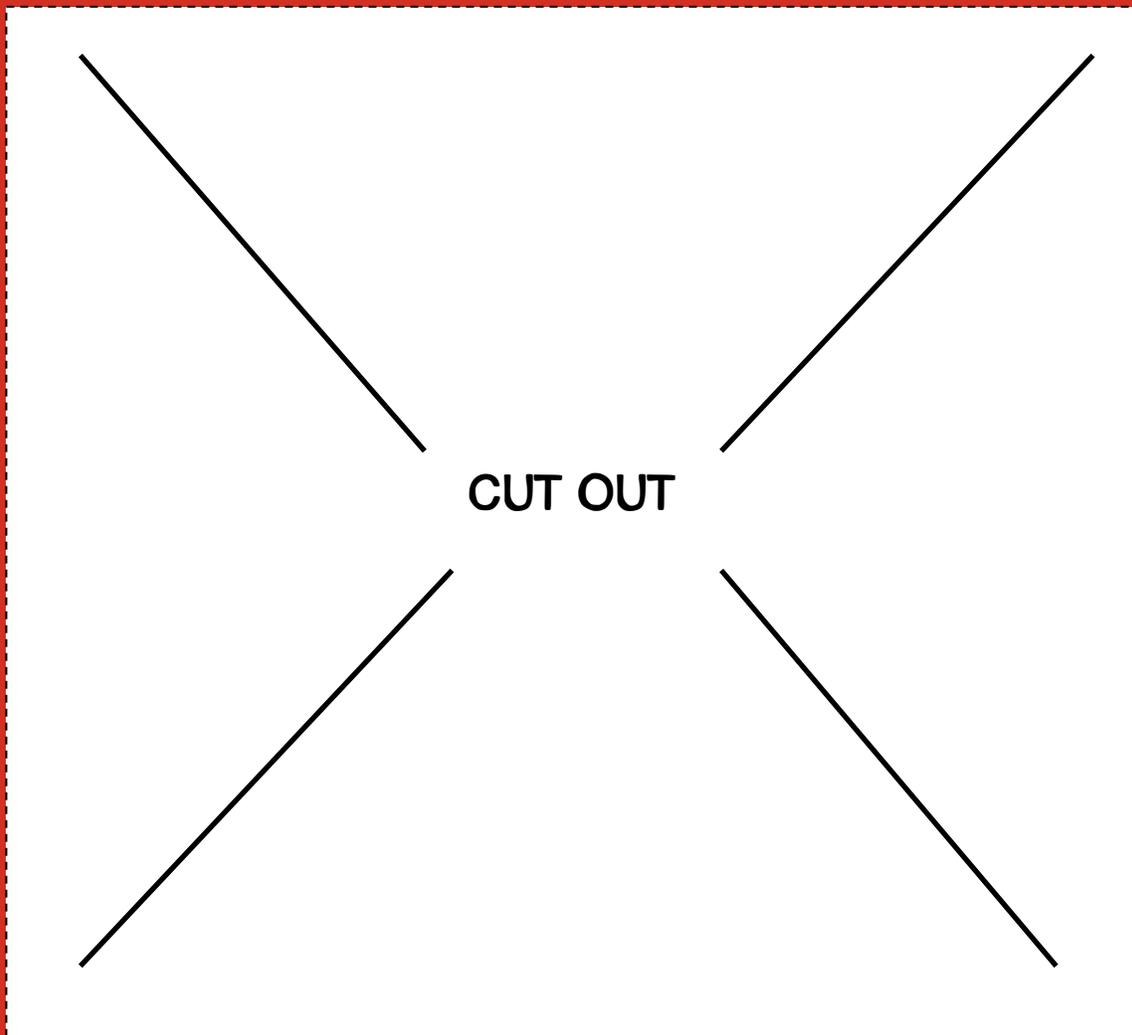
My Little Sprout House

Name _____



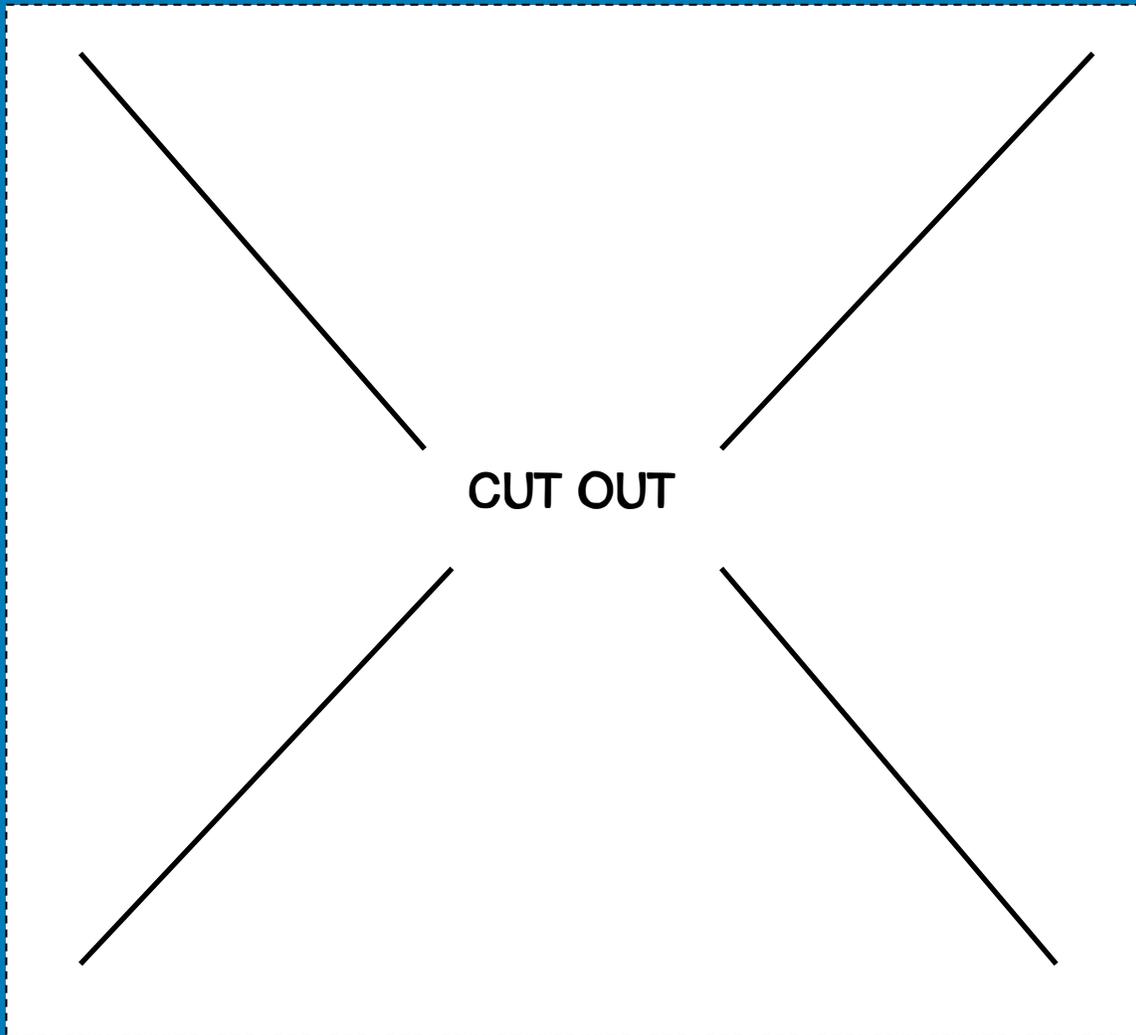
My Little Sprout House

Name _____



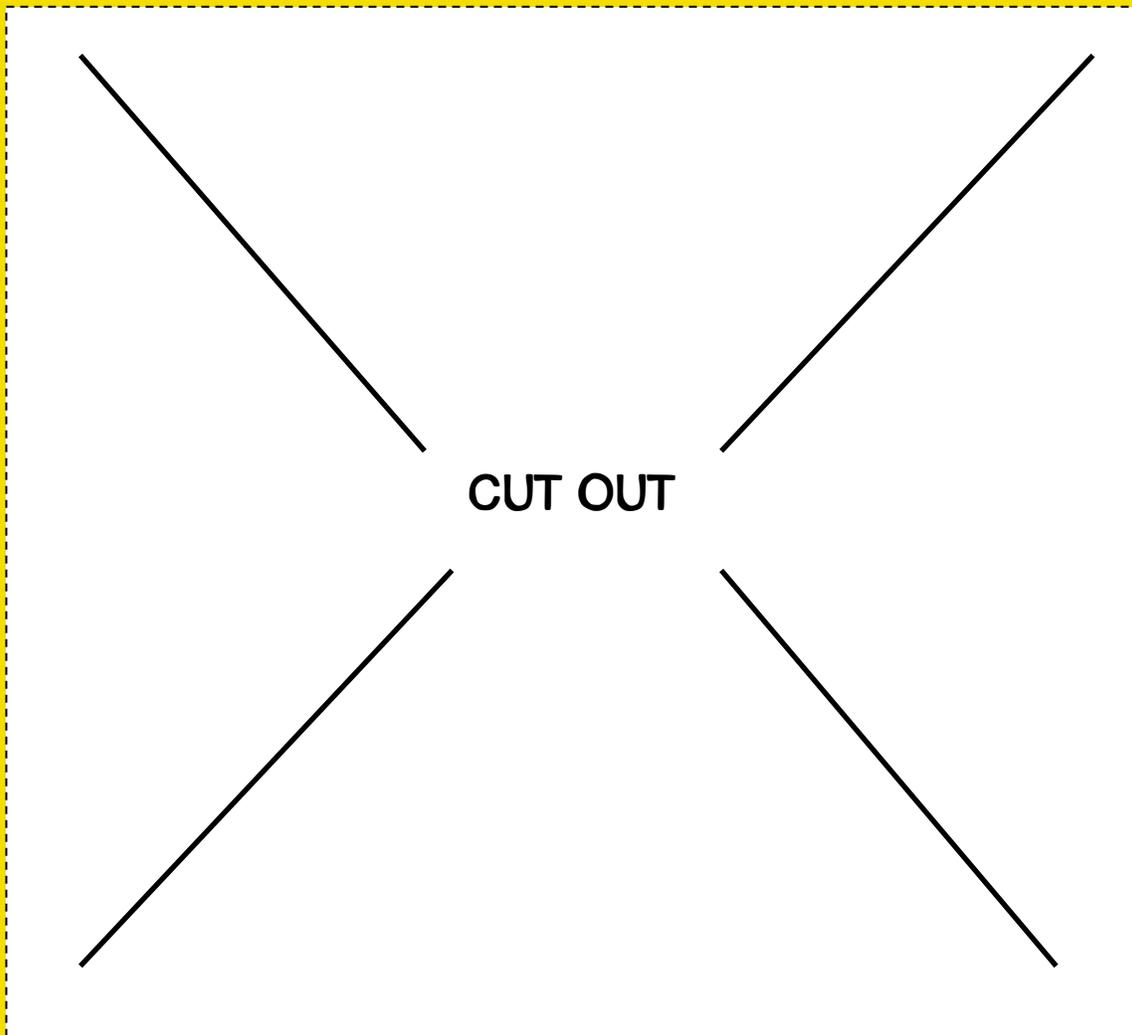
My Little Sprout House

Name _____



My Little Sprout House

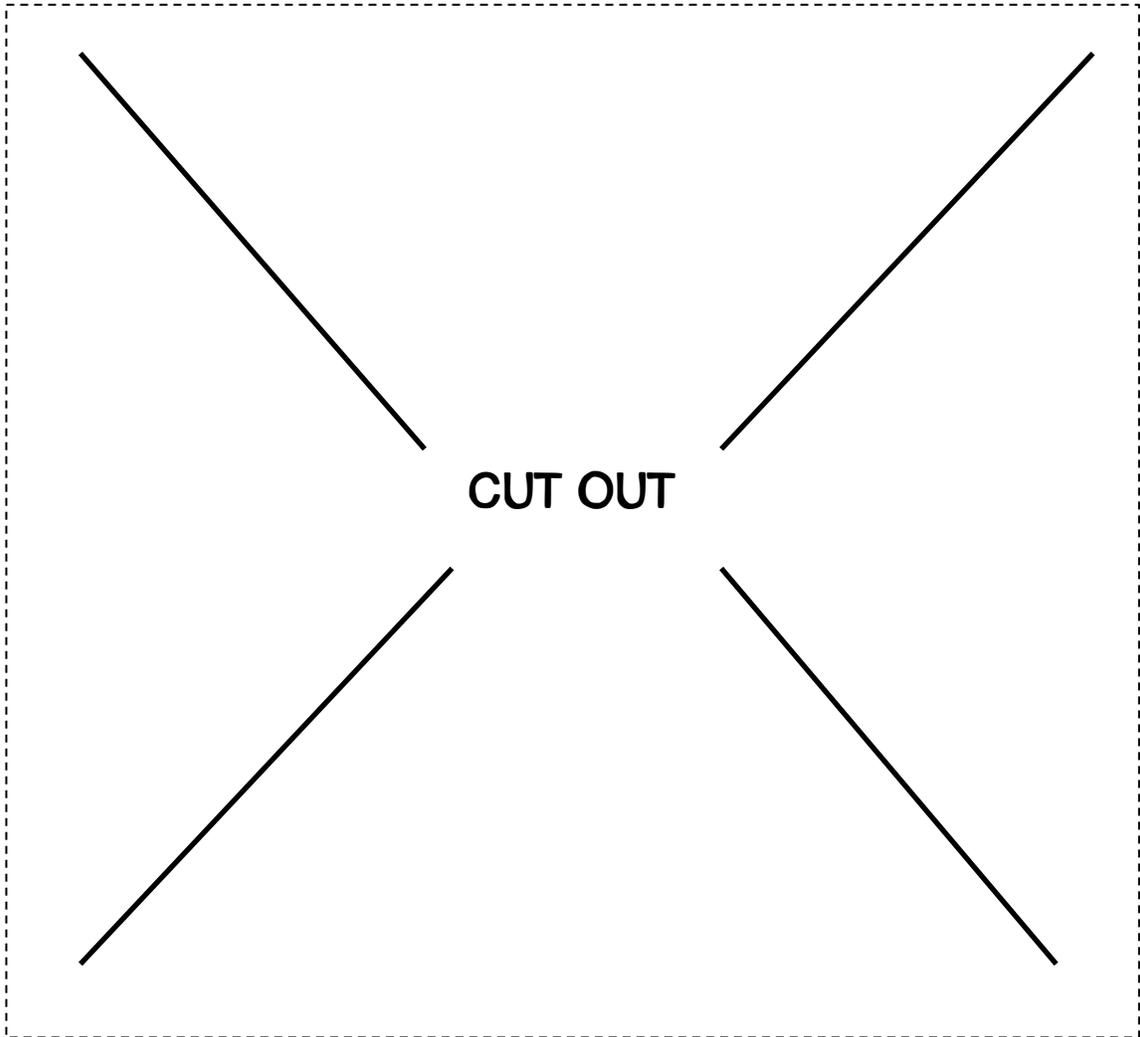
Name _____



Print on colored cardstock.

My Little Sprout House

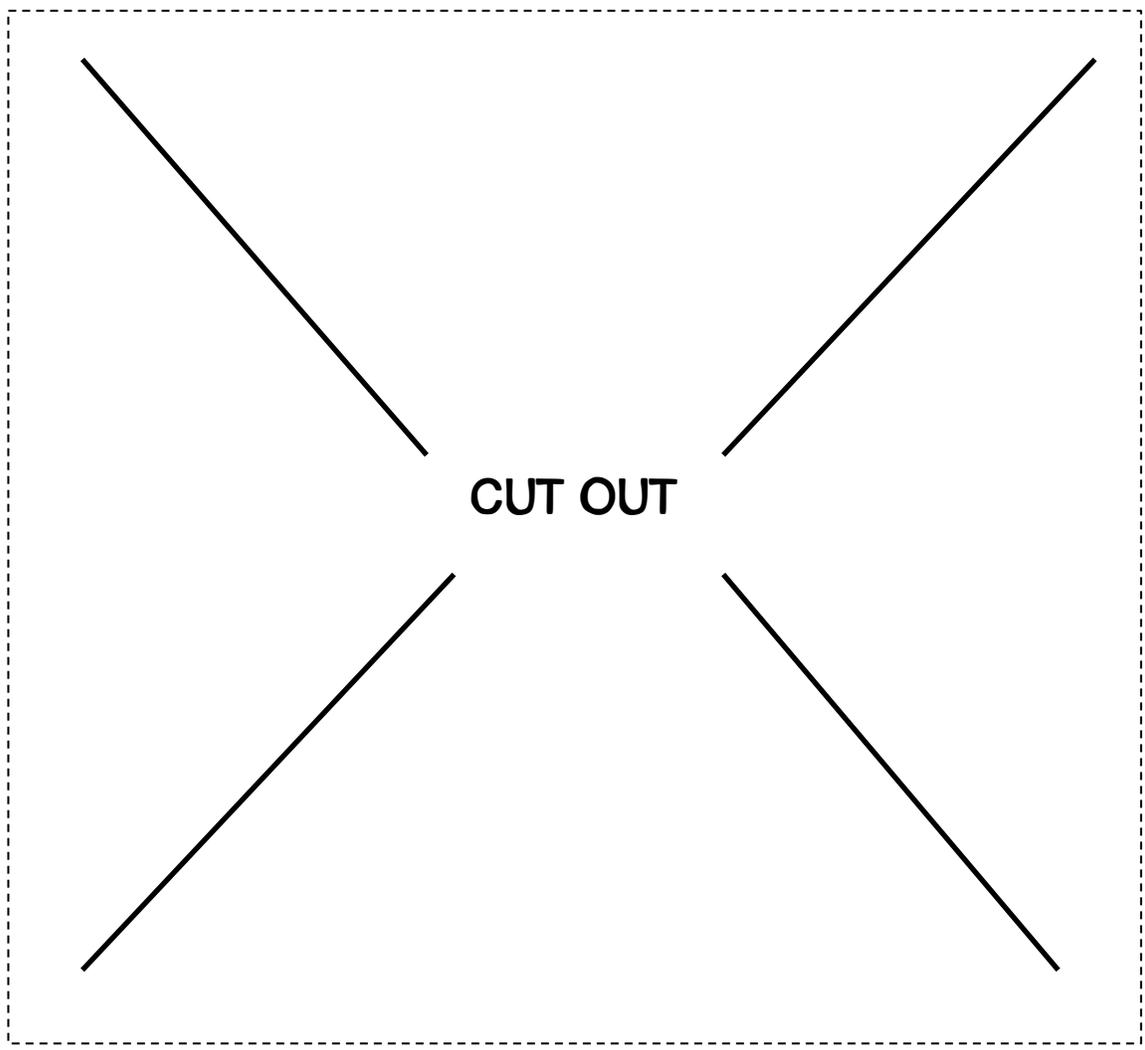
Name _____



Print on colored cardstock.

My Little Sprout House

Name _____



MAKING RAISINS

Supplies- grapes, sunlight, paper towel, plate, grape observation sheet, pencil

Experiment- Place a paper towel on top of your plate.

Wash your grapes and place them on top of the paper towel.

Place the plate in a sunny window or outdoors in a spot that can't be reached by any animals.

Watch the grapes for two weeks. What happens? Record your results in your journal.

Science Behind It- There's a lot of water inside grapes. When the grapes sit in the sunlight, that water heats up and **evaporates** into the air, shriveling the grape into a small, wrinkly raisin.

WILL IT MELT?

Supplies- ice tray, variety of objects

Experiment- Fill an ice cube tray with different objects (a LEGO in one compartment, an M&M in another, etc.)

Write down each object and your prediction about whether it will melt by marking it with an X on the record sheet.

Set the tray in direct sunlight for several hours. Then record the results by marking them with an O.

Science Behind It- When objects get hot enough, their molecules start moving around and won't stay in one spot anymore so they melt. Each object has a different melting point so some objects melt at a lower temperature than others.



Name _____

WILL IT MELT?

Will each object melt in the sun? Mark your predictions with an X and the results with an O.

Object	Yes ✓	No X

BICOLORED FLOWERS

Supplies- a white flower or celery stem, food coloring, 2 glass cups, water

Experiment- Add 10 drops of food coloring to the bottom of a glass and 10 drops of a different food coloring to the second glass.

Fill both cups with water, leaving about 1 inch at the top.

Slice the flower stem lengthwise and place one side of the stem in the first cup and the other side in the second cup.

Watch what happens in 1-2 days.

Science Behind It- When a plant is growing in the ground, its roots "drink" water. That water travels up the roots, into tiny tubes called **xylem** that bring the water up the stem to the plant's leaves and flower petals. Adding food coloring to the water allows you to see the water traveling through the xylem and, consequently, coloring the leaves and flower petals.

-Kids' Science-
Bicolor Flowers



FLUFFY SOAP

ADULT SUPERVISION REQUIRED

Supplies- bar of Ivory Soap, microwave safe bowl, microwave

Experiment- Hold the soap and talk about how it feels. Is it hard? Soft? Squishy? Make predictions about what will happen when you place the soap in the microwave.

Place the bar of soap in your microwave safe bowl and "cook" it in the microwave for 90 seconds.

Wait until the soap cools, then play with it. What does it feel like now? Was your prediction correct?

Science Behind It- Inside Ivory Soap are bubbles that contain tiny droplets of water. When that water gets hot, it **vaporizes**, forming bubbles of hot air. Those bubbles expand, making the bar turn into a fluffy soap cloud.



Name _____



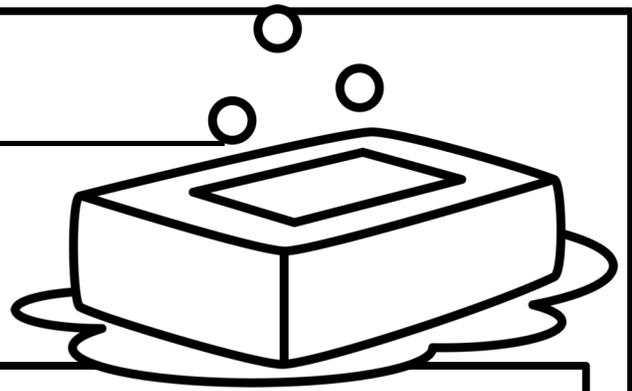
BICOLORED FLOWERS

When you check on the flower each day, draw and write about your observations.

Day	Drawing	Notes
1		
2		
3		

Name _____

FLUFFY SOAP



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

SHINING PENNIES

Supplies- 10 dull pennies, pencil, ketchup, baking soda, lemon juice, water, vinegar, salt, toothbrush, record sheet, pencil

Experiment- Scrubbing with a toothbrush, test different combinations of ingredients to clean each penny:

- ketchup and baking soda
- vinegar and salt
- rubbing it with a pencil eraser
- lemon and salt

What cleans it the best? The worst? What other household supplies could you try? Record your results on the sheet.

Science Behind It- Pennies get dull because the copper reacts with oxygen in the air, forming copper oxide. Some combinations of ingredients (like vinegar and salt) react together and remove it.

FLUBBER

Supplies- $\frac{3}{4}$ cup cold water, $\frac{1}{2}$ cup hot water, 1 cup Elmer's glue, food coloring, 1 teaspoon borax, 2 bowls, 1 spoon

Experiment- Mix together the cold water, glue and food coloring in a bowl.

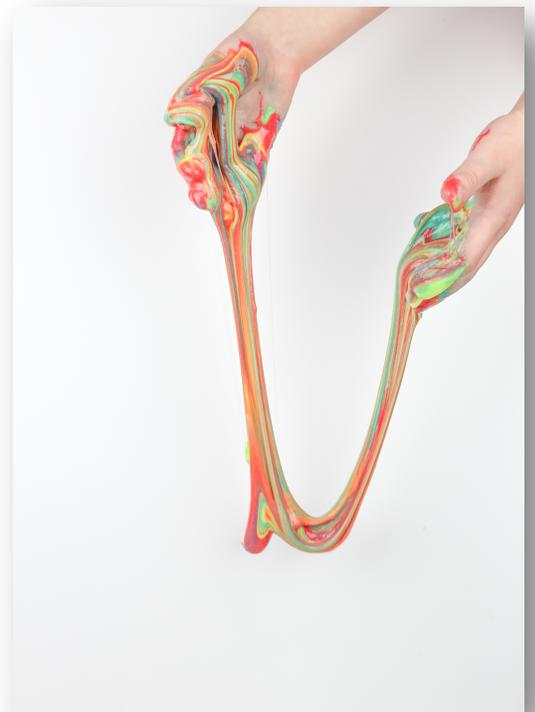
In the second bowl, mix the hot water and borax, stirring until it has completely dissolved.

Slowly add the glue mixture to the borax, stirring constantly.

Pour off any extra water that settles on top.

Squish, stretch and play with your flubber.

Science Behind It- When the glue and borax mix, the borax hooks together the glue molecules making a polymer – a long chain of molecules like spaghetti.



Name _____

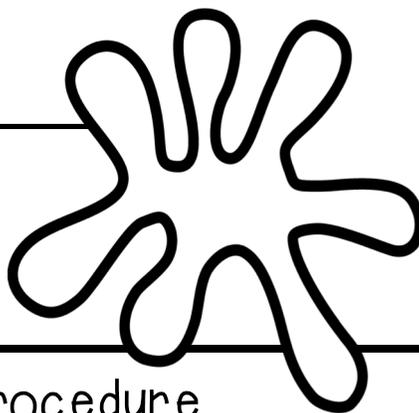


SHINING PENNIES

Mixture	Notes
ketchup and baking soda	
vinegar and salt	
pencil eraser	
lemon and salt	

Name _____

FLUBBER



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

DIY LAVA LAMP

Supplies- a clear glass, $\frac{1}{4}$ cup vegetable oil, 1 teaspoon salt, water, food coloring

Experiment- Fill the glass about $\frac{3}{4}$ full of water and add 5 drops of your favorite food coloring.

Slowly pour in the vegetable oil. Then sprinkle the salt on top of the oil and watch as "lava bubbles" move in your glass.

Science Behind It- Oil floats on top of water because it's lighter. Since the salt is heavier than oil, it sinks into the water, taking some of the oil with it. When that salt dissolves in the water, the oil floats back up to the top again.



RACING PEPPER

Supplies- pie tin, glass of water, pepper, dropper, dish soap

Experiment- Pour the water into the pie tin, making sure that it covers the bottom completely.

Shake a little bit of pepper across the surface.

Add a drop or two of dish soap in the middle of the water.

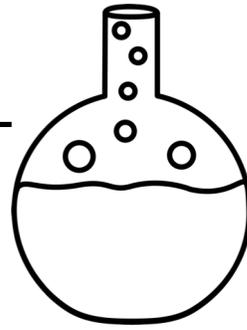
Record your observations.

Science Behind It- The water has **surface tension** that keeps everything in its spot. When you drop in the soap, it breaks that surface tension, causing the water to pull the pepper away from the soap.



Name _____

LAVA LAMP



Materials

Procedure

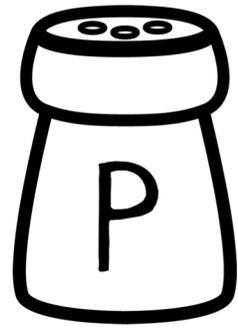
Hypothesis

Conclusion

Was your hypothesis correct? yes no

Name _____

RACING PEPPER



Materials

Procedure

Hypothesis

Conclusion

Was your hypothesis correct? yes no

SINK & FLOAT ORANGES

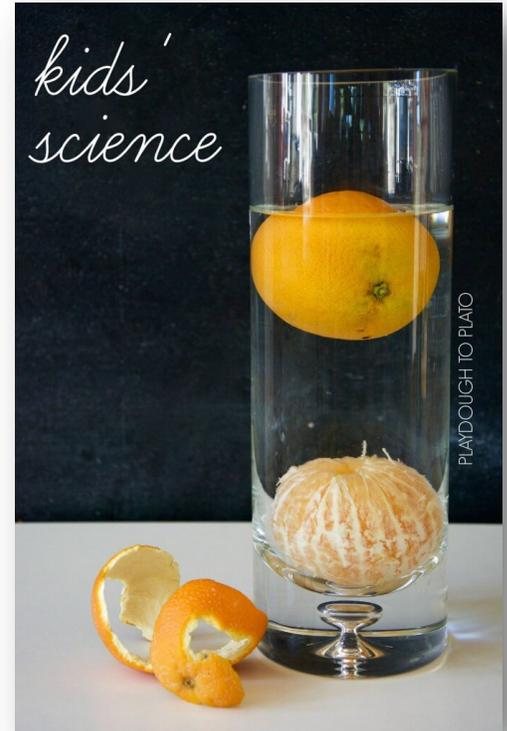
Supplies- one small orange, a tall glass of water

Experiment- What do you think will happen when you drop a peeled orange and an unpeeled orange in a glass of water? Write your hypothesis on the sheet.

Drop the unpeeled orange in the water. Draw a picture of what happens and describe it with words in the notes section.

Now take off the peel and drop it in the water again. Draw a picture and write notes describing what happened this time.

Science Behind It- An object floats when it pushes away the same or more water than it weighs. That is called being **buoyant**. When an orange has a peel on it, the orange displaces enough water to make it buoyant but when the peel is removed, it no longer pushes away enough water and so it sinks.



PEPPERMINT FIREWORKS

Supplies- a round peppermint candy, a flat plate (preferably white), a cup of water

Experiment- Place your peppermint in the center of the plate.

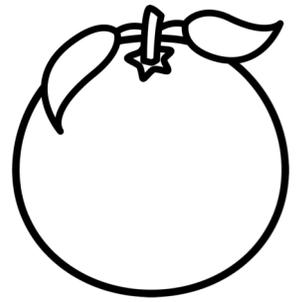
Carefully pour water on top of the mint.

Watch what happens and record your observations.

Science Behind It- Sugar dissolves in water. The candy is made of sugar. The red food coloring that's mixed into that sugar spreads away from the candy as it dissolves in the water.

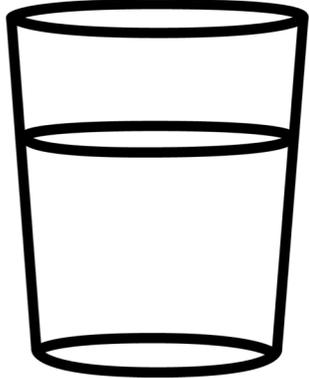
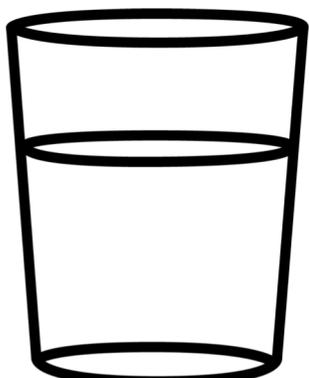


Name _____



SINK & FLOAT ORANGES

Hypothesis

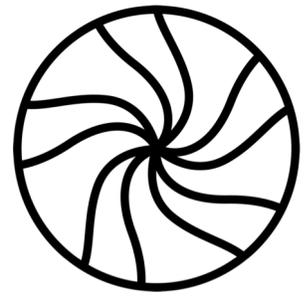
Orange	Drawing	Notes
WITH PEEL		
WITHOUT PEEL		

Was your hypothesis correct?

yes

no

Name _____

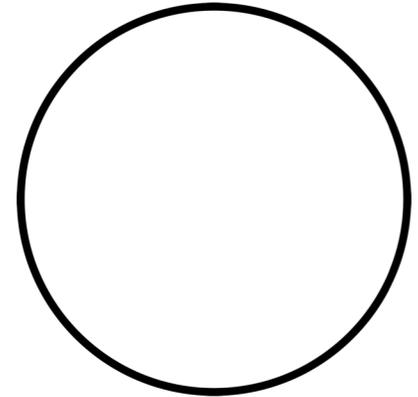
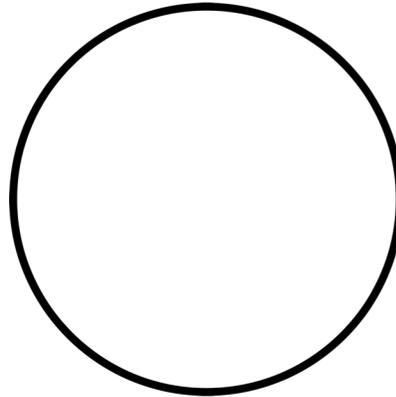
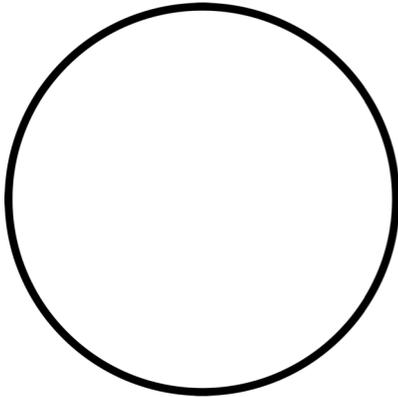


MINT FIREWORKS

The mint looks like this before starting the experiment...

I predict it will look like this after the experiment...

The mint actually looks like this after the experiment...



Conclusion – What happened to the mint?

Why did that happen?

Was your hypothesis correct?

yes

no

SUNSCREEN SCIENCE

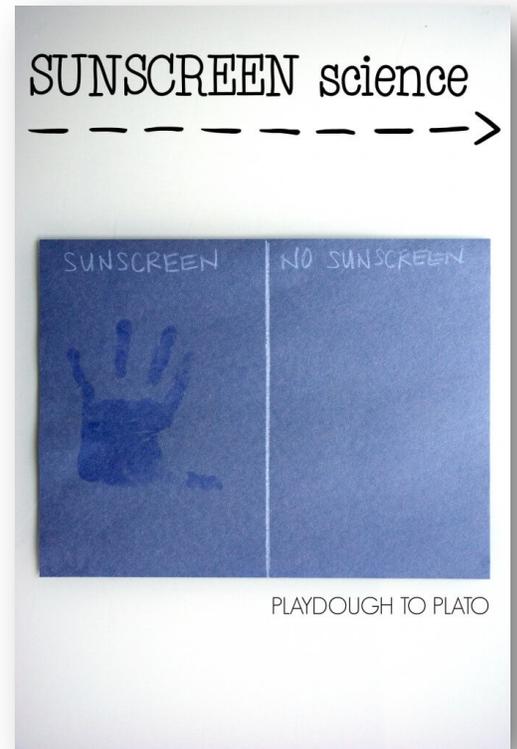
Supplies- a bottle of sunscreen, a piece of dark construction paper, a white crayon

Experiment- Draw a line down the center of your paper. Label one side "no sunscreen" and the other side "sunscreen".

Cover the palm of your hand with a thin layer of sunscreen and press your hand against the side of the paper marked "sunscreen."

Place the paper in direct sunlight for a couple of hours. Then look at the paper to see what happened to each side.

Science Behind It- The sun emits UV rays that bleach the color of the paper. Sunscreen blocks those rays, protecting the paper from discoloring when it's exposed to sunlight.



IS IT MAGNETIC?

Supplies- a magnet, 8 objects

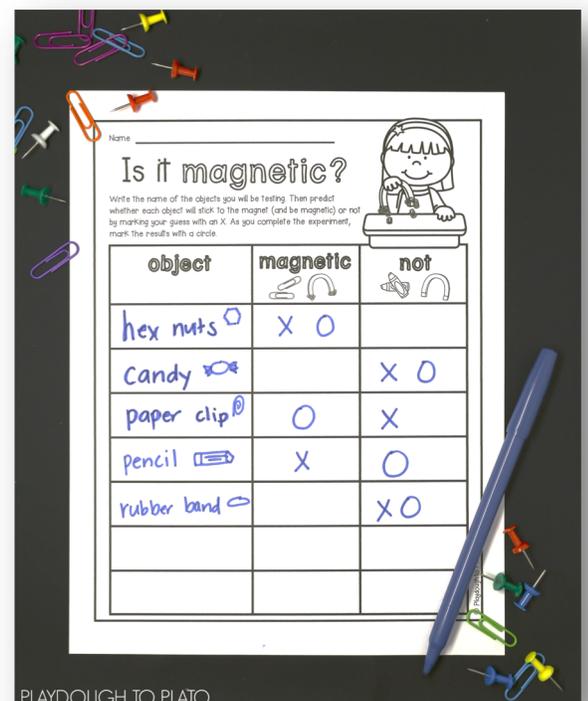
Experiment- Write down the names of the objects you will be testing on your sheet.

Then mark your predictions about whether or not they will be magnetic with an X.

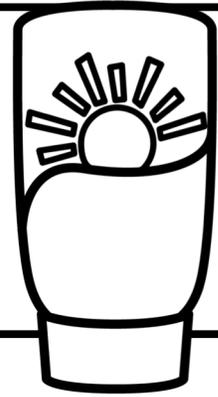
Test each of the objects by waving the magnet about 1/2 inch above it. If the object sticks to the magnet, it is magnetic. If it does not stick, it is not magnetic.

Mark the results of the experiment by writing an O in the correct spots on your sheet.

Science Behind It- A magnet has an invisible magnetic field around it. If an object is magnetic, the magnet will pull it closer using something called "magnetic force". It's almost like magic!



Name _____



SUNSCREEN SCIENCE

Hypothesis

Paper	Draw Your Prediction	Draw Your Results
WITH SUNSCREEN		
WITHOUT SUNSCREEN		

Was your hypothesis correct?

yes

no

PHASES OF THE MOON

Supplies- moon phases sheets, pencil or crayon

Experiment- Go outside for a few minutes each night and draw a picture of the moon.

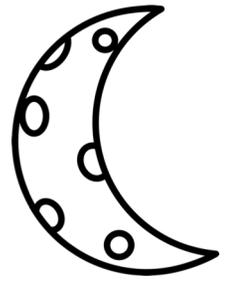
Is it getting bigger? Smaller? Do you notice a dark part?

Science Behind It- Moonlight is really the sunlight reflecting off the moon's surface. The moon does not produce any light of its own.

It takes about 29.5 days for the moon to travel all the way around Earth. As it moves, its position to the earth and the sun changes. During part of the trip, it's between the earth and the sun. That's when it looks like there's no moon in the sky because the sunlight is shining on the back side of the moon. That phase is called a "new moon".

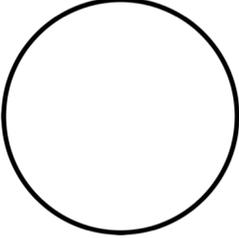
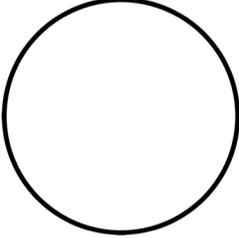
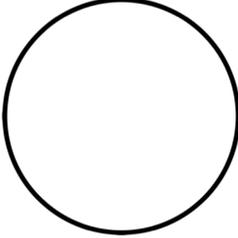
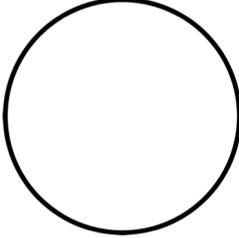
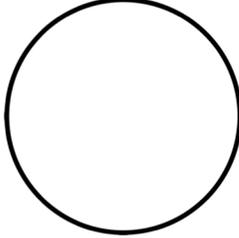
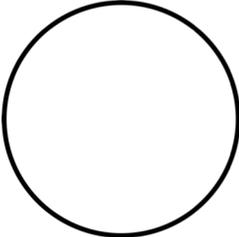
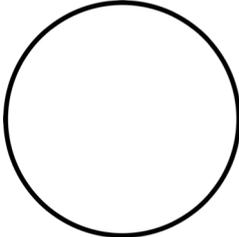
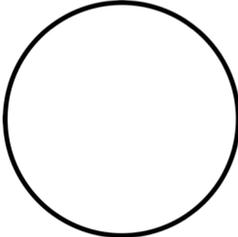
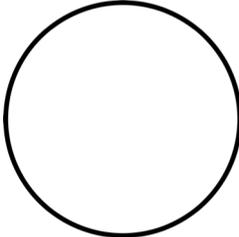
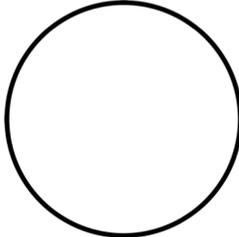
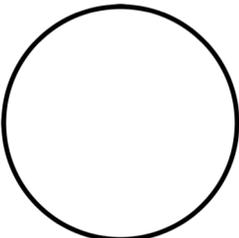
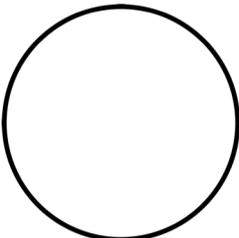
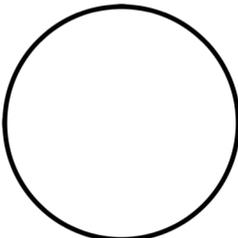
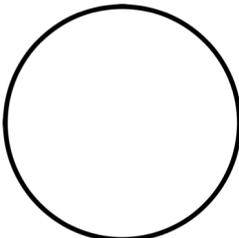
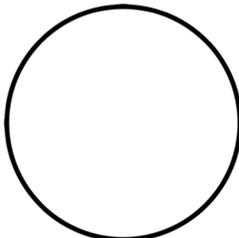
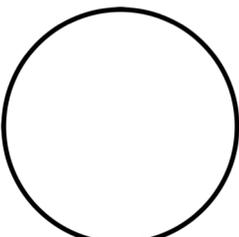
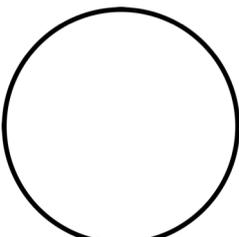
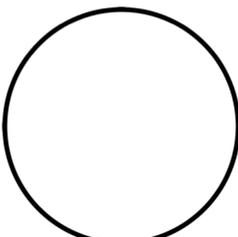
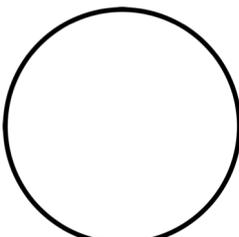
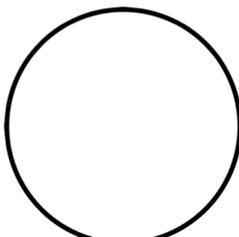
A few days later, it is off to one side and we can see half of the moon. These changes are called "phases" and there are eight of them: new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, third quarter and waning crescent.

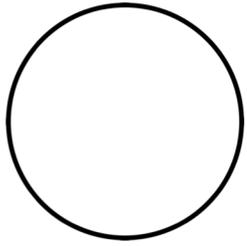
Name _____



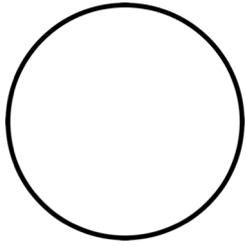
PHASES OF THE MOON

Date started observing _____

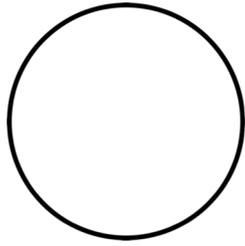
 Day 1	 Day 2	 Day 3	 Day 4	 Day 5
 Day 6	 Day 7	 Day 8	 Day 9	 Day 10
 Day 11	 Day 12	 Day 13	 Day 14	 Day 15
 Day 16	 Day 17	 Day 18	 Day 19	 Day 20



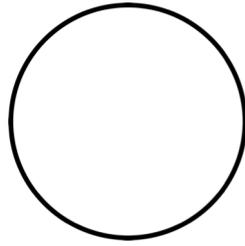
Day 21



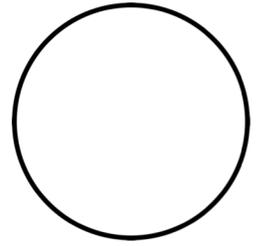
Day 22



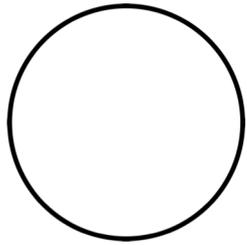
Day 23



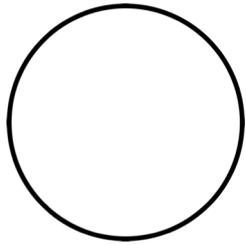
Day 24



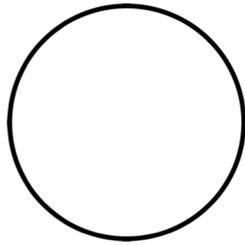
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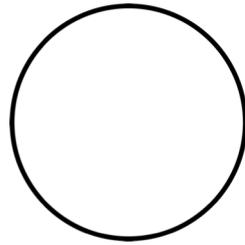
Day 26



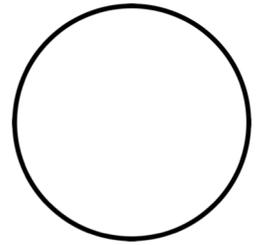
Day 27



Day 28



Day 29



Day 30

Conclusion – What happened to the moon?

Why did that happen?
