Family Literacy

Science Fun

Experiments and Activities for Family Literacy Groups

NWT Literacy Council

Acknowledgements

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The NWT Literacy Council is a territorial non-profit group that promotes and supports literacy in all official languages of the NWT. Our Program areas include Aboriginal languages, family literacy, adult literacy and essential skills, youth literacy and plain language.

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Science Fun Contents

Introduction to *Science Fun*

Science Fun gives family literacy groups the information they need to carry out easy, fun, hands-on science activities. Each experiment includes a suggested book to use during circle time. These experiments and activities introduce pre-schoolers to the world around them and help them develop positive attitudes towards science.

Science Fun experiments and activities encourage children to:

- Ask questions. For example "I wonder why?"
- Develop thinking and problem-solving skills. Children start to develop hypothesis skills when they guess or anticipate what happens next. They use their five senses (touch, smell, taste, hearing, sight) to explore different things and gather information.
- Work, share, and talk with others.
- Expand their vocabulary. Children describe their observations—I see… I hear… I smell… I feel. They use measurement terms to compare results—bigger, smaller, wider, softer, etc. They identify the shape and texture of an object—squishy, soft, sharp, bumpy, round, square, rough, etc.
- Make connections between what they learn and what they already know, and talk about it.

Have fun! When we expose children to science at an early age, we help prepare them for positive learning experiences in school and in life.

Science Experiment Report[1]

An experiment report helps you keep track of what happens during an experiment. Use this template for each experiment, or make your own.

Experiment name

Question

Equipment needed (write or draw)

[1] www.teachingideas.co.uk/science/contents.htm

Method: What did we do? (write or draw)

Predictions: What do we think will happen? (write or draw)

Results: What happened? (write or draw)

Why did it happen?

Science Vocabulary

One of the great things about science experiments is that children expand their vocabulary as they describe all of the interesting things that they see.

Here is a list of words that you can encourage the children to use. Choose some words from the list for each experiment or activity.

Frothy	Fast	Broad	Many
Scaly	Slow	Crooked	Heavy
Smooth	Gritty	Curved	Numerous
Rough	Wet	Deep	Sparse
Brittle	Warm	Flat	Substantial
Soft	Hot	High	Smells
Bumpy	Full	Hollow	Tastes
Oily	Empty	Low	Sounds
Sticky	Hard	Narrow	Feels
Pointy	Sweet	Shallow	Looks
Pointed	Sour	Steep	Colours
Bubbly	Big	Straight	High
Round	Huge	Wide	Low
Square	Immense	Bumpy	Liquid
Cold	Large	Chilly	Solid

Icy	Little	Cool	Gas
Moist	Miniature	Dusty	Easy
Dry	Short	Fluffy	Hard
Small	Tall	Freezing	Light
Heavy	Measurement	Seasons	Explosive

Science Fun—States of Matter

When children do the experiments and activities in this section, they learn different things about matter and the different states of matter.

Experiments

An experiment starts with a question and an idea of what might happen (hypothesis). To see what actually happens, we do a test. To enhance the children's experience, copy and use the Science Experiment Report template (pg 2–4) and the Science Vocabulary (pg 5–6).

- What's the Matter? States of Matter
- Amazing Ice Cubes
- Current Event
- Hot Air Bottle Collapse
- Sink? Or Float?
- It's Getting Foggy Out

Activities

These fun crafts and games support the theme of the experiments and reinforce the ideas presented there.

- Mad Libs
- Rainbow Bubble Snakes

What's the Matter? States of Matter

Book for circle time: *What is the World Made of?* by Kathleen Zoehfeld

Matter is an object that takes up space and has mass (weight). Matter can have three states: solid, liquid, gas.

- The **solid** state is usually when the matter is hard and always has the same shape.
- The **liquid** state is when the matter can be poured and takes the shape of the container that holds it.
- The **gas** state is when matter has no definite volume or shape. It takes the shape of the container that holds it. Gases are everywhere; they are light and may seem to float. Sometimes you can see them; sometimes you can't.

Water is one substance that can exist in all three states of matter.

What you need

- Items in the room
- Take a field trip in the spring and have a campfire

Instructions

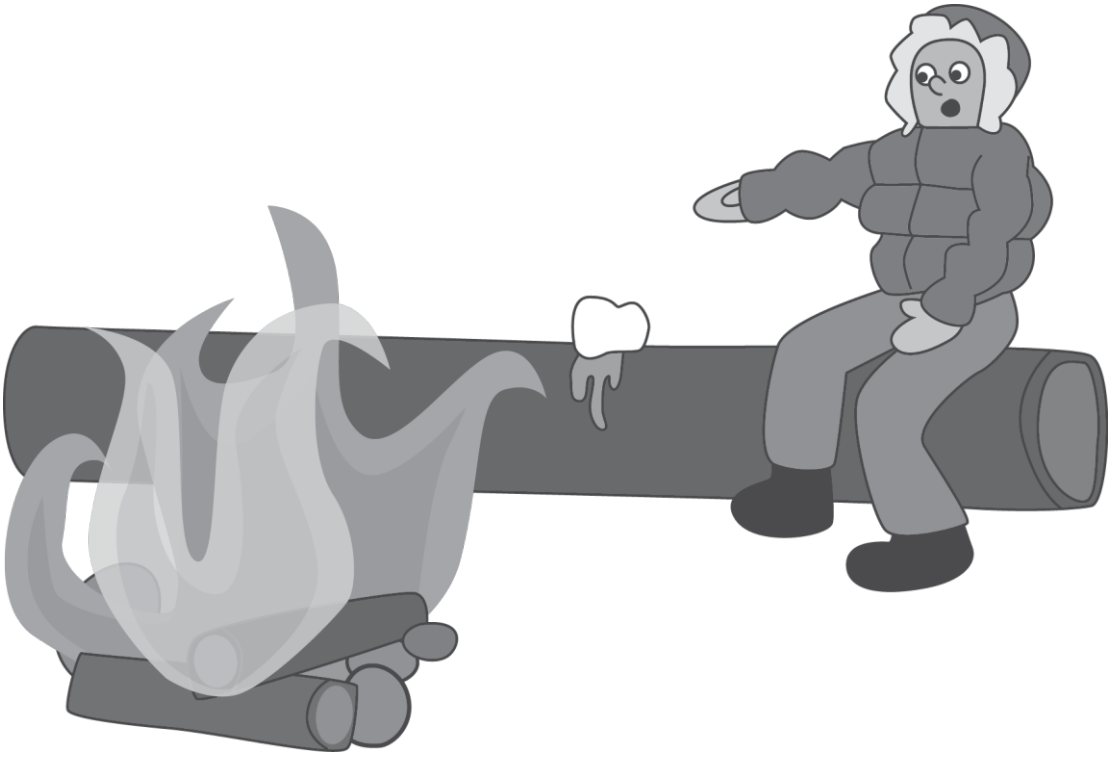
Ask the children to look around the room and identify matter. Anything that they see is matter: a toy, a book, a table, chairs, etc. To explain it to them, say "yes, any object that takes up space and has weight is matter."

Classify different kinds of matter in the room. Ask the children to say if an item is a solid, liquid, or gas (most are solid). Blow up a balloon to demonstrate a gas.

Field trip[2]

Take a trip outside in the spring when there is still snow on the ground. If possible, find a stream or lake, and talk about water in a liquid state. Discuss how ice is water in a solid state.

To see water as a gas, build a campfire and place a snowball on one of the logs. You see the snow melt and then you see the vapour rise from the fire.



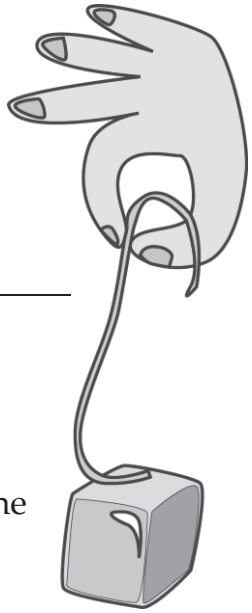
[2] http://learning.innerchildfun.com/2013/01/exploring-waters-3-states-of-matter-2.html

Amazing Ice Cubes

Book for circle time: *50 Below Zero* by Robert Munsch

This experiment allows you to lift up an ice cube with a string.

What you need



- A drinking glass full of cold water
- Ice cubes (one or two per person)
- Salt (regular table salt)
- String

Instructions

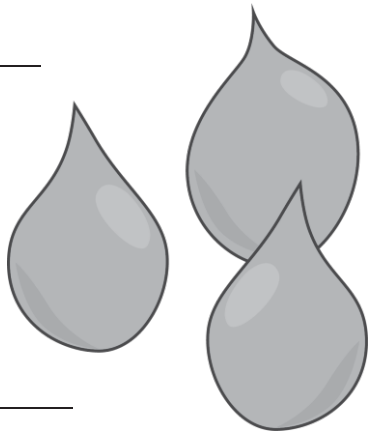
1. Place an ice cube into a glass of cold water.
2. Put a little bit of salt (a pinch) on top of the ice cube. Be careful to keep the ice cube upright in the glass.
3. Hang the string over the ice cube.
4. Place a little more salt over the string.
5. Wait about 3 minutes. Try lifting the ice cube out of the glass. The string should be attached to the ice.

To understand what happens during this experiment, see "How it Works—States of Matter" on pages 21–23.

Current Event[3]

Book for circle time: *Over in the Ocean* by Marianne Berkes

In this experiment, children explore how fresh water and salt water may affect ocean currents.

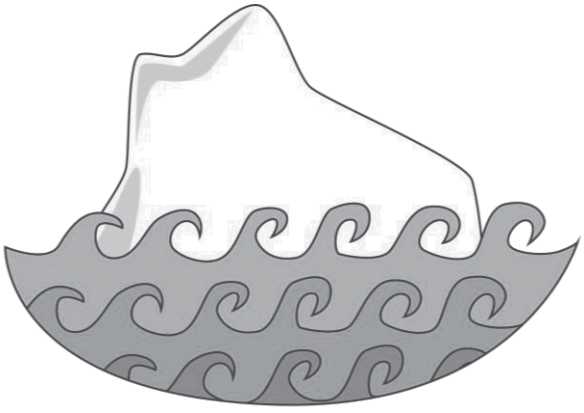


What you need

- Glass bread pan
- 2 Tablespoons (30 ml) salt
- Blue food colouring
- Water

Instructions

1. Mix the salt and 1 quart (1 litre) of water in the glass bread pan.
2. Put the bread pan into the freezer until ice forms on the surface of the water. Do not let it freeze solid.
3. Take the pan out of the freezer and very carefully drip a few drops of food colouring onto the surface of the ice.
4. What happens as the ice melts?



To understand what happens during this experiment, see "How it Works—States of Matter" on pages 21–23.

[3] www.billnye.com/for-kids-teachers/home-demo-details/

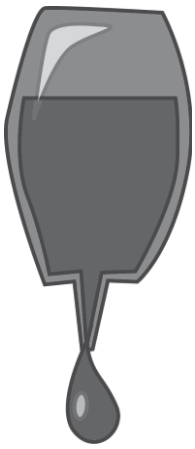
Melt Down! Colourful Melting Ice

Book for circle time: *Winston of Churchill* by Jean Davies Okimoto

This experiment shows how salt changes the way that ice melts.

What you need

- Plastic containers (different sizes of yogurt or other containers)—one for each child plus a few extra
- Water
- Cookie sheets or trays with edges
- Salt
- Food colouring or diluted paint
- Eye droppers
- Spoon
- Turkey baster
- Large towel



Instructions

1. The day before the activity, fill the plastic containers with water and freeze them.
2. Remove the ice blocks from the containers and place them on the cookie sheets.
3. Spread the towel on a table and place the cookie sheets on top. The towel helps control all the drips.
4. Using the spoon, sprinkle the ice blocks with salt. Wait a few minutes.
5. Using the eye dropper, drip food colouring or diluted paint onto the top of the ice blocks.

6. Watch the different colours drip into the cracks in the ice.
7. Use the turkey baster to suck the water from the bottom of the tray.

To understand what happens during this experiment, see "How it Works—States of Matter" on pages 21–23.

Hot Air Bottle Collapse

Book for circle time: *The Adventures of a Plastic Bottle* by Alison Inches

This experiment shows how a change in air pressure collapses a bottle.

What you need

- Two empty plastic bottles with caps
- A freezer

Instructions

1. Put the caps on the bottles.
2. Put one bottle in the freezer.
3. Leave the second bottle on the counter or table.
4. Wait for about five minutes.
5. Take the bottle out of the freezer. What happens?
6. Take the cap off the bottle that was in the freezer. What happens?

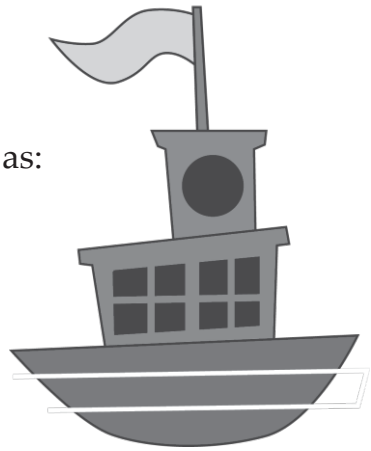
To understand what happens during this experiment, see "How it Works—States of Matter" on pages 21–23.

Sink? or Float?

Book for circle time: *Who Sank the Boat?* by Pamela Allen

This experiment shows why some things sink in water and others float.

What you need



- Large plastic tub (clear works best)
- Water
- A variety of items (one for each child) such as:
  - Orange or apple
  - Plastic action figures
  - Toy boat
  - Dinky car
  - Ball of aluminum foil
  - Rubber ball
  - Coin
  - Empty plastic drink container (water bottle)
  - Playdough: two pieces the same size: one rolled in a ball and one flattened out

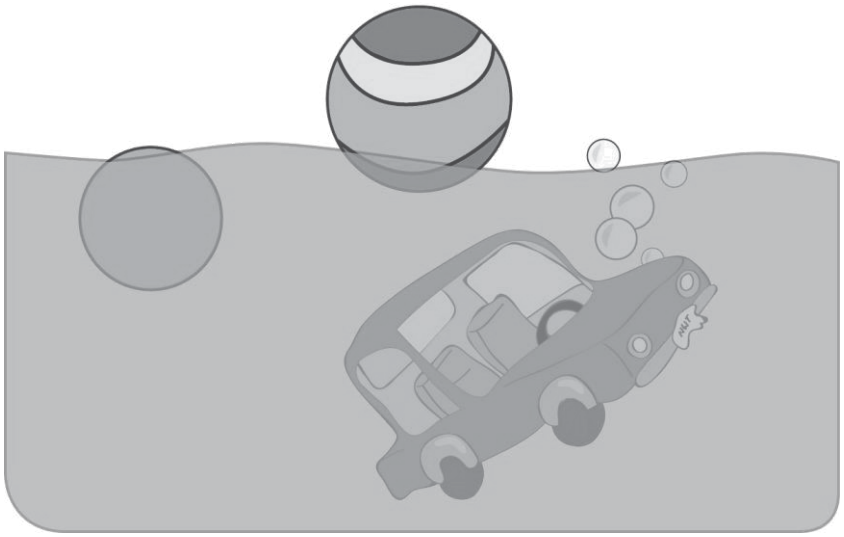
Instructions

1. Fill the large tub with water.
2. Ask each child to place an item in the water. Before they do that, ask them to guess if the item will sink or float.
3. Drop the items one at a time into the water.

   What happens? Why do some items sink, and others float?

4. Why does the ball of playdough sink? Why does the flattened piece float?

To understand what happens during this experiment, see "How it Works—States of Matter" on pages 21–23.



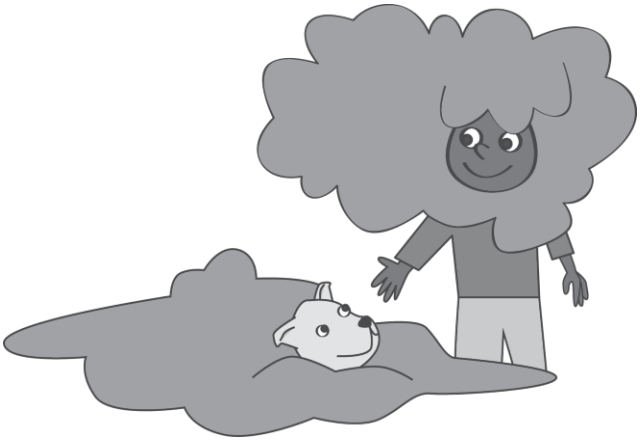
It's Getting Foggy Out

Book for circle time: *Hide and Seek Fog* by Alvin Tressell

This experiment shows the conditions that can create fog.

What you need

- A large jar or wide mouth bottle
- Hot water
- Ice cubes
- A strainer



Instructions

1. Fill the large jar or bottle with hot water all the way to the top.
2. Pour most of the water out. Leave about one inch (2 centimetres) in the bottom of the jar.
3. Set the strainer over the mouth of the jar and put ice cubes in the strainer.
4. Watch what happens.

To understand what happens during this experiment, see "How it Works – States of Matter" on pages 21-23.

Mad Libs

Play this game in pairs. Without seeing the story, one person fills in the words in the list below. The second person fills in the blanks in the story with the word that matches the number, and reads the wacky story back to the first person.

Change places and make another story.

The Wacky Science Lab

(1) Person's name: _____

(2) -ing word #1: _____

(3) -ing word #2:_____

(4) Two ingredients: _____

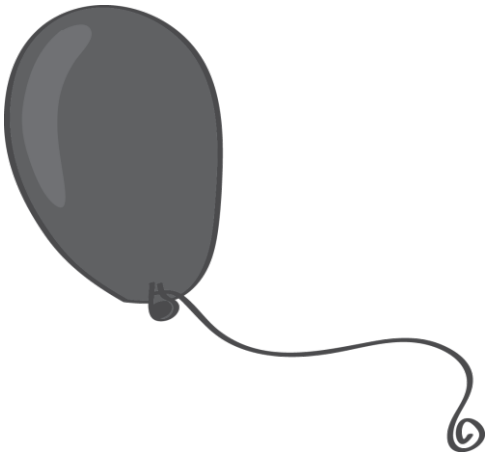
(5) Action word #1: _____

(6) Toy #1: _____

(7) Toy # 2: _____

(8) Action Word # 2: _____

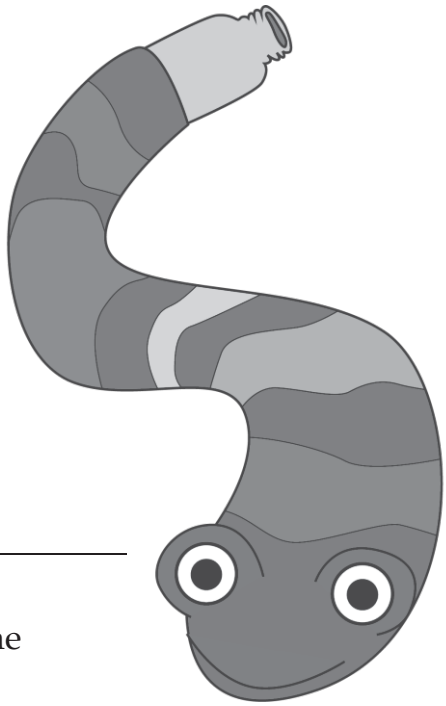
(1) _____ was a scientist who was always (2)_____ her experiments. For example, one day, (1) _____ was (3) _____ some (4) _____ when all of a sudden it started to (5) _____. From that day on, (1) _____ promised to only work on (6) _____ and (7) _____, and to never (8) _____ blindfolded in the lab again.



Rainbow Bubble Snakes

Create amazing bubbles.

What you need



- A shallow container
- Water
- Scissors
- Empty water bottle
- Duct tape
- Old sock ("gym" style works best)
- Liquid dish soap
- Food colouring

Instructions

1. Cut about 1 inch (2 centimetres) off the bottom of the water bottle.
2. Slide the sock over the bottom of the bottle.
3. Pull the sock tightly against the bottom and tape it to the bottle.
4. Pour dish soap into the shallow container.
5. Add water to the container.
6. Dip the sock end of the bottle into the dish soap mixture.
7. If you wish, drop different colours of food colouring onto the sock, to give your bubble snake a rainbow effect.
8. Blow into the bottle from the drinking spout and watch your bubble snake grow.

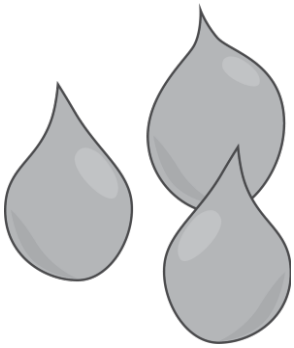
How it Works—States of Matter

Use this information to understand what happens in these "States of Matter" experiments.

Amazing Ice Cubes—How it works

Water becomes ice at 0 degrees Celsius (32 degrees Fahrenheit). This is the freezing point of water. When we add salt, the freezing point gets lower. The salt melts the ice and causes some water to form on top of the ice cube. This water then re-freezes around the string and causes the string to stick to the ice cube.

Current Event—How it works



When the water partially freezes, the freezing action "squeezes" the salt out of the water. The dark blue water is not salty so it won't sink. When the ice melts, it is fresh water (there is no salt). Since salty water is heavier (denser) than fresh water, the fresh water floats on top of the salt water.

In ocean currents icebergs are always melting and the water from them is fresh water. Fresh water floats on top of salt water for quite a while before it gets mixed in. The melting of the iceberg helps to cool the ocean water. Cool water and salt affect ocean currents.

Meltdown! Colourful Melting Ice—How it works

The ice starts to melt when you take it out of the freezer. Wherever the salt touches the ice, it melts much faster and creates tunnels or cracks or holes. The food colouring or diluted paint drips into the cracks in the ice that the salt creates.

Hot Air Bottle Collapse—How it works

The air in the freezer causes the air inside the bottle to become colder. When the air temperature inside the bottle drops, the air pressure inside the bottle also drops. This makes the sides of the bottle collapse.

The air warms up when you take the cap off the bottle—it returns to its former shape. The bottle on the counter should not change.

Sink or Float—How it works

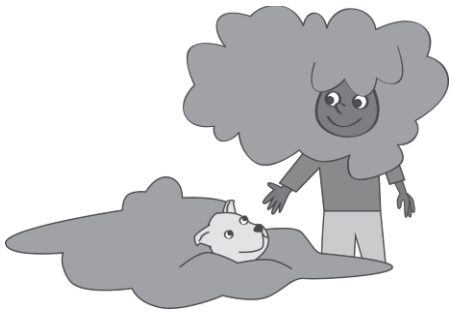
Whether an object sinks or floats depends on three factors: displacement, density, and buoyancy.

- **Displacement** is the amount of water an object pushes aside. An object floats if it weighs less than the water it pushes aside.
- **Density** is the amount of stuff in a space. A sponge is less dense than water—it floats. A rock is denser than water—it sinks.
- **Buoyancy** is the force of water pushing up. A lighter object floats—water pushes up more than the object pushes down. A heavier object sinks—pushing down more than water pushes up.

If you spread an object's weight over a larger area, you spread out the downward force. If you spread it out enough, the downward force is less than the force of water pushing up. This is why humans float when stretched out in the water, and sink when curled up in a ball. This is also why the spread-out playdough floats, and the ball of playdough sinks.

It's Getting Foggy Out—How it works

Fog is created from water. The cold air from the ice cubes causes the warm, moist air in the bottle to condense. This makes fog.



Science Fun with Food

When children do the experiments and activities in this section, they use food to learn different things.

Experiments

An experiment starts with a question and an idea of what might happen (hypothesis). To see what actually happens, we do a test. To enhance the children's experience, copy and use the Science Experiment Report template (pg 2–4) and the Science Vocabulary (pg 5–6).

- The Incredible Floating Egg
- Magic Mixture—Apple Dunk
- Let's Make Lemonade
- We All Scream for Ice Cream
- Amazing Raisins

Activities

These fun crafts and games support the theme of the experiments and reinforce the ideas presented there.

- Frosty Friend
- Sponge Painted Apple Trees
- Ice Cream Cone Crafts

The Incredible Floating Egg

Book for circle time: *Little Grunt and the Big Egg* by Tomie dePaola

The incredible floating egg is another lesson in density and buoyancy.

Everything is made up of molecules. Density measures how tightly molecules are packed together in a solid (e.g. apple), liquid (e.g. water), or gas (e.g. air). To change the density, you can add things to liquids and gases.

What you need

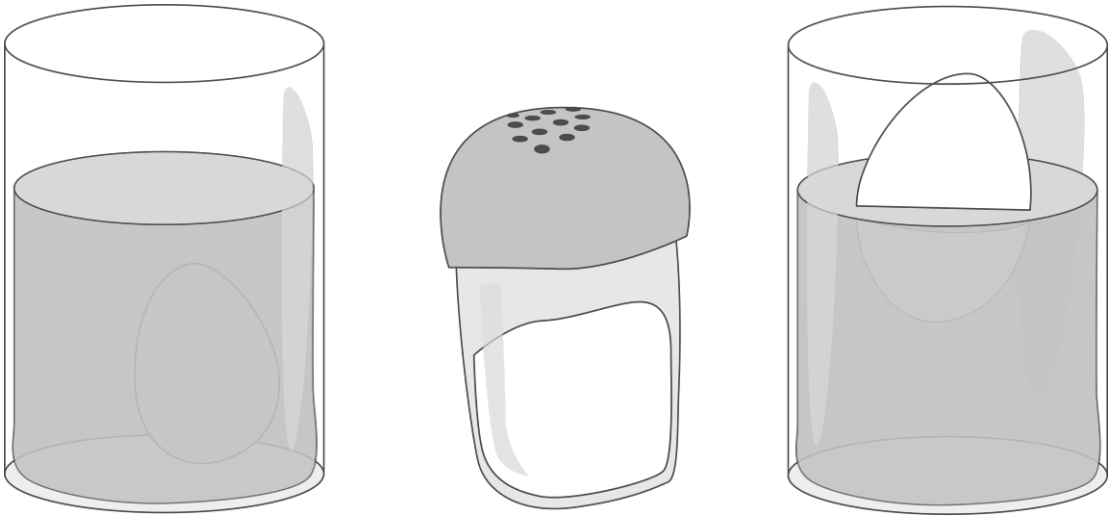
- A drinking glass or other container
- Water (room temperature)
- A teaspoon
- Table salt
- One egg, uncooked, in the shell

Instructions

1. Fill the glass about $^{2}/_{3}$ full with water. Leave enough room so that when you add the egg the water doesn't overflow.
2. Put the egg in the water.
3. See what happens (the egg sinks).
4. Take the egg out and add 1 teaspoon (5 millilitres) salt to the water and stir it. Put the egg back in. What happens?
5. Repeat step 4: Take the egg out and add another teaspoon (5 millilitres) salt and stir. Put the egg back in. What happens?

6. Ask the children to guess how much salt you need to add to 'hold up' the egg—to make it float (eventually the egg floats).
7. Record your findings.

To understand what happens during this experiment, see "How it Works—Science Fun with Food" on pages 37 and 38.



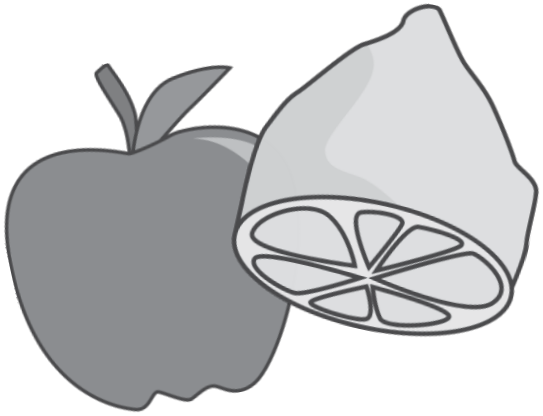
Magic Mixture—Apple Dunk

Book for circle time: *Ten Apples Up On Top!* by Dr. Seuss

This experiment looks at what happens to slices of apple in three different environments: open air, water, and lemon juice.

What you need

- Apple
- Half a lemon
- Shallow bowl
- Plate
- Water
- Knife



Instructions

1. Peel the apple. Then slice it into several pieces.
2. Put one slice into the shallow bowl and cover it with water.
3. Put a second slice of apple onto a plate. Squeeze the juice from the lemon and sprinkle it over the slice.
4. Put a third slice of apple on a plate and leave it exposed to the air.
5. Wait for about one hour.
6. Compare the three pieces of apple. How are the three slices different?

To understand what happens during this experiment, see "How it Works—Science Fun with Food" on pages 37 and 38.

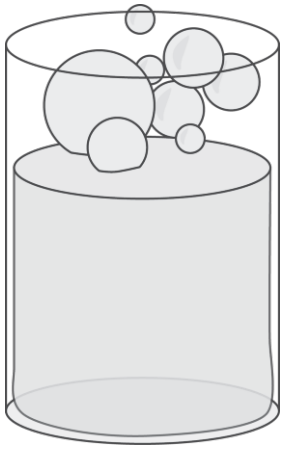
Let's Make Lemonade[4]

Book for circle time: *Maisy Makes Lemonade* by Lucy Cousins

In this experiment, the lemonade produces carbon dioxide.

What you need

- 1/4 cup(59 millilitres) lemon juice from a fresh lemon or ReaLemon™
- 1/2 cup (118 millilitres) cold water
- 1/8 teaspoon (1/2 millilitre) baking soda
- Sugar to taste
- Drinking glass
- Spoon



Instructions

1. Pour lemon juice into the drinking glass.
2. Add the water.
3. Add sugar. Start with 1 teaspoon (5 millilitres) and add more until it tastes good.
4. Add baking soda. Stir.

To understand what happens during this experiment, see "How it Works—Science Fun with Food" on pages 37 and 38.

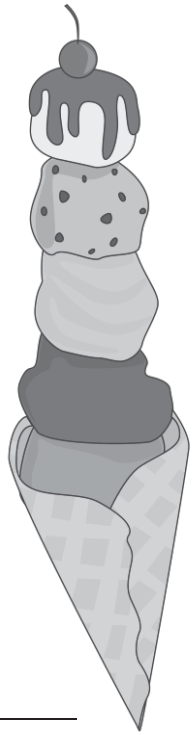
[4] www.sciencekids.co.nz/experiments/lemonade.html

We All Scream for Ice Cream

Book for circle time: *Give Me Back My Dad!* by Robert Munsch

In this experiment, you make some yummy ice cream from scratch.

What you need



- 1/2 cup (118 millilitres) milk or half and half
- 1/2 cup (118 millilitres) whipping cream
- 1/4 cup (59 millilitres) sugar
- 1/4 teaspoon (1 1/4 millilitres) vanilla
- 1 smaller Ziplock™ bag
- 1 large Ziplock™ bag
- 1/2 to 3/4 cup (118 to 178 millilitres) table salt or rock salt
- 2 cups (474 millilitres) ice
- Duct tape
- Towel

Instructions

1. Mix the milk, vanilla, and sugar in the smaller Ziplock™ bag.
2. Squeeze out the extra air and seal the bag with duct tape so it doesn't leak.
3. Put the smaller bag into the large Ziplock™ bag. Add the ice and salt to fill the large bag.
4. Squeeze the air out of the large bag and seal it closed with duct tape, so the bag doesn't leak.

5. Gently rock or massage the bags for 10 to 15 minutes. Wrap a towel around them to protect your hands from the cold and to keep the heat from your hands from melting the ice too quickly. Keep doing this until the contents in the quart bag turn to ice cream.
6. Open the large bag and take out the small bag. Discard the larger bag and the ice/salt mixture.
7. When ready, eat the ice cream directly from the baggie, or serve in bowls.

To understand what happens during this experiment, see "How it Works—Science Fun with Food" on pages 37 and 38.

Amazing Raisins

Book for circle time: *What if your Mom made raisin buns?* by Catherine Hogan Safer

In this experiment, you see some effects of carbon dioxide.

What you need

- 5 raisins
- 7 Up or Sprite, or any other brand of clear pop
- Large clear glass bottle or jar

Instructions

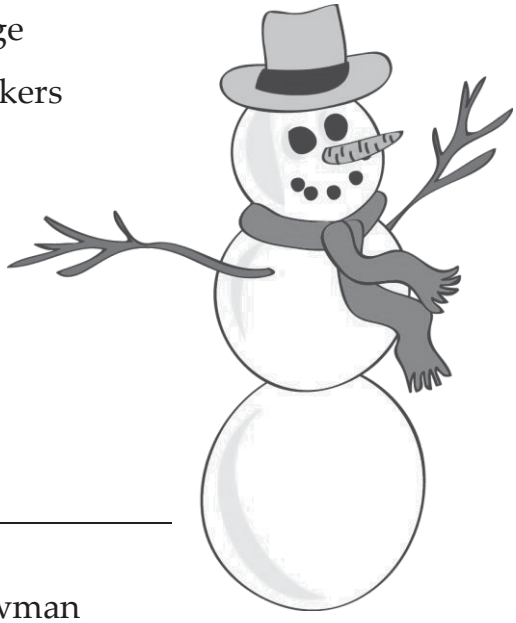
1. Fill the jar with the clear pop.
2. Drop the raisins into the jar.
3. Watch what happens.

To understand what happens during this experiment, see "How it Works—Science Fun with Food" on pages 37 and 38.

Frosty Friend

Have fun colouring, cutting, and gluing this frosty friend.

What you need



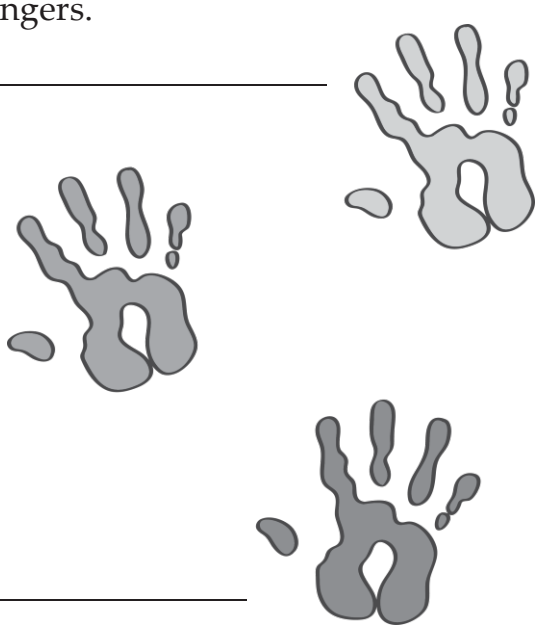
- Snowman pieces on following page
- Crayons, coloured pencils, or markers
- Scissors
- Glue or a glue stick
- Construction paper or other paper
- Cotton balls (optional)
- Glitter (optional)

Instructions

1. Give each child a copy of the snowman pieces.
2. Colour the snowman and his hat and scarf.
3. Cut out the coloured snowman pieces.
4. Glue the coloured pieces onto another piece of paper.
5. Use cotton balls or glitter to decorate the snowman.

Sponge Painted Apple Trees

Have fun painting with sponges and fingers.

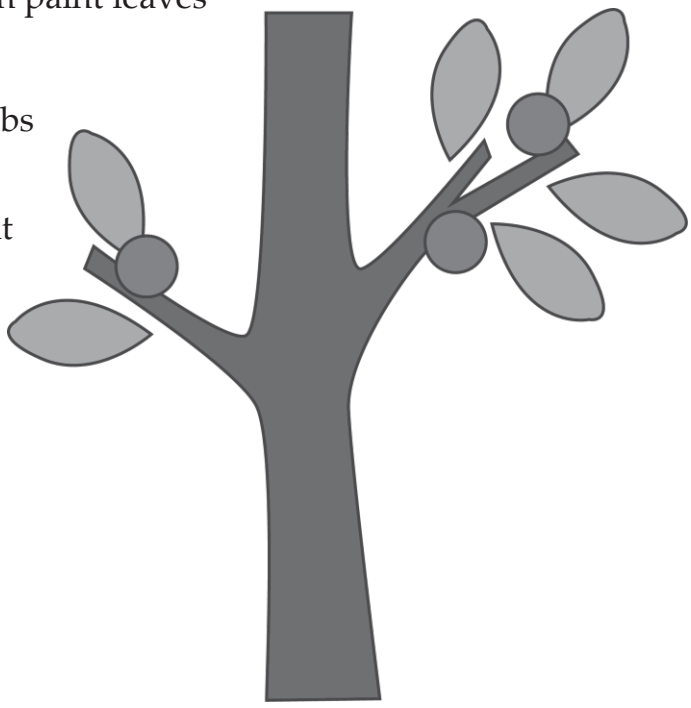


What you need

- Cardstock or construction paper
- Sponges
- Red, green, and brown paint
- Paint brush
- Water
- Container

Instructions

1. Use the paint brush to paint a tree trunk onto the paper.
2. Use a sponge to dab green paint leaves onto the trunk.
3. Paint the children's thumbs or fingers red, and use them to make finger-paint apples in the tree.



Ice Cream Cone Crafts

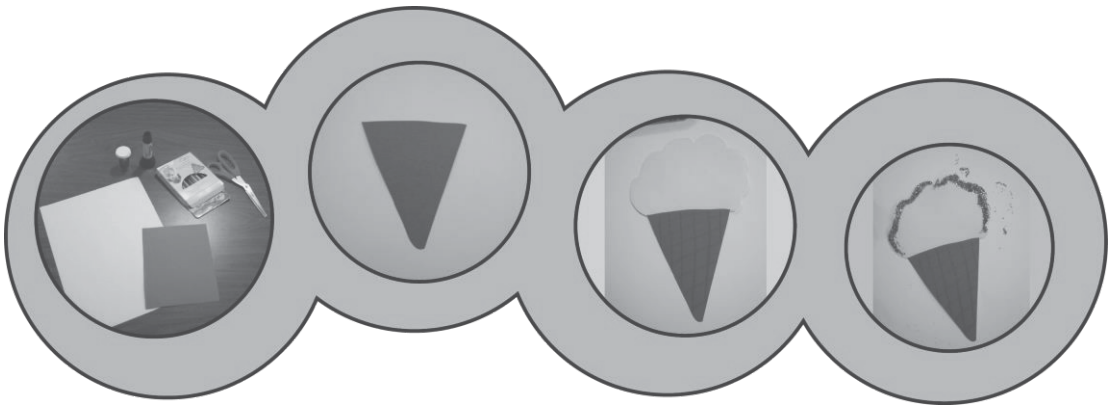
Have fun making ice cream cones out of paper or felt.

What you need

- Construction paper or felt
- Scissors
- Glue or glue sticks
- Markers, crayons, coloured pencils
- Glitter, sequins, collage items

Instructions

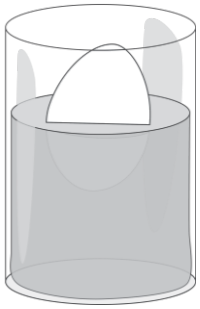
1. For the ice cream cone, cut a long, narrow triangle out of construction paper or felt.
2. Cut ice cream shapes out of paper or felt.
3. Decorate the ice cream shapes and cones.
4. Glue ice cream shapes to cones.



How it Works—Fun with Food

Use this information to understand what happens in these "Science Fun with Food" experiments.

The Incredible Floating Egg—How it works

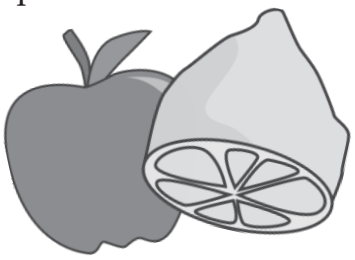


An egg is denser than fresh water, so it sinks. When you add salt to water the water density increases.

That is why a cup of salt water weighs more than a cup of fresh water, even though they take up the same amount of space. If you add enough salt, the water becomes denser than the egg, and the egg floats.

Magic Mixture—Apple Dunk—How it works

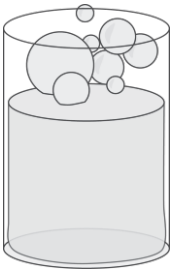
When you peel or cut open an apple, the exposed parts of the apple turn brown. Chemicals inside the apple combine with oxygen from the air to form a brown coating. The brown coating protects the rest of the apple and helps to keep oxygen from getting deeper into it.



When you cover an apple slice with water, the oxygen in the air doesn't come in contact with the apple, so it stays white.

When you put lemon juice on the apple slice, the Vitamin C in the juice attaches itself to the oxygen. This keeps the oxygen away from the apple slice, so it stays white the longest.

Let's Make Lemonade—How it works



The drink becomes bubbly and tastes like lemon "pop". The bubbles are carbon dioxide (CO_2)—the same bubbles you find in pop. Carbon dioxide forms when you add an acid (lemon) to a base (baking soda).

We All Scream for Ice Cream—How it works

To melt and change from a solid to a liquid, ice must absorb energy. The ice in the bag absorbs energy from the ingredients for ice cream. It also absorbs energy from your hands and from the air around you, which is why you use a towel as insulation against the cold.

When you add salt to the ice, it lowers the freezing point—the ice has to absorb even more energy to melt. This makes the ice colder than it was without the salt. And that is how the ice cream ingredients freeze.

Amazing Raisins—How it works

The raisins sink to the bottom of the jar when you drop them in, because they are denser than the pop. Gas bubbles from the carbon dioxide in the pop stick to the wrinkles on the raisins. The raisins become less dense than the pop when they have enough gas bubbles attached. Then the raisins with the bubbles attached rise to the surface.

When the raisins reach the surface the bubbles burst, and the raisins sink to the bottom again. This cycle of rising and sinking continues for about one hour—until the carbon dioxide bubbles are gone from the pop—when the pop becomes 'flat'.

Science Fun—My Five Senses

When children do the experiments and activities in this section, they learn different things about their five senses: taste, smell, hearing, sight, and touch.

Experiments

An experiment starts with a question and an idea of what might happen (hypothesis). To see what actually happens, we do a test. To enhance the children's experience, copy and use the Science Experiment Report template (pg 2-4) and the Science Vocabulary (pg 5–6).

- Be Dazzled—Make Your Own Kaleidoscope
- Do You Feel What I Feel?
- Let's Make A Mess
- Colour Mixing

Activities

This fun craft supports the theme of the experiments and reinforces the ideas presented there.

- Touch and Texture

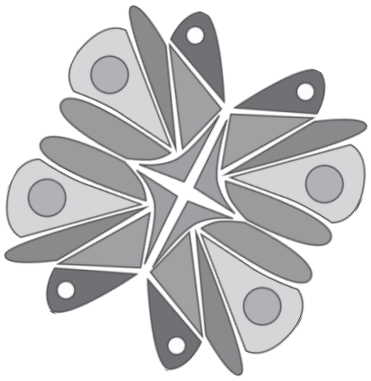
Be Dazzled—Make Your Own Kaleidoscope[5]

Book for circle time: *The Magic School Bus Makes a Rainbow* by Joanna Cole

In this experiment you make a kaleidoscope and experience the play of light it produces.

What you need

- Paper towel tube—8 inches (20 centimetres) long
- Clear plastic report cover
- Ruler
- Pen or marker
- Paring knife or utility knife
- Three squares: 4 inches X 4 inches (10 centimetres X 10 centimetres)—one each of black construction paper, plastic wrap, and waxed paper
- Scissors
- Rubber band
- Clear tape
- Coloured transparent beads
- Small sequins
- Shiny (metallic) confetti
- Stickers
- Wrapping paper

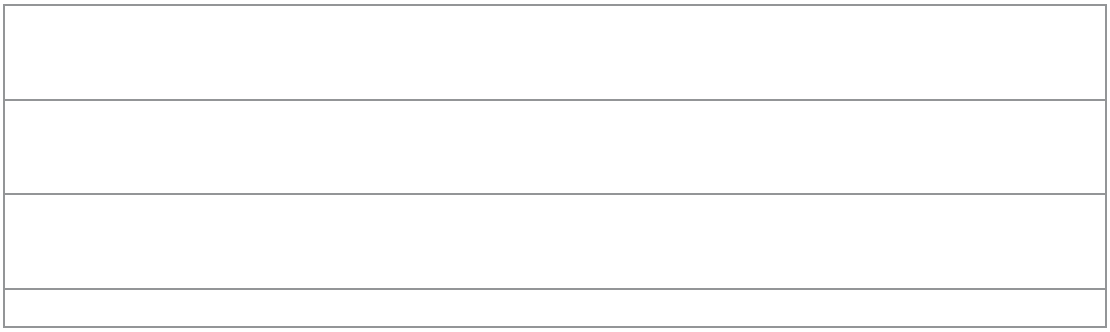


[5] http://kids.nationalgeographic.com/kids/activities/funscience/be-dazzled/

Instructions

To make the kaleidoscope

1. Use the ruler to draw a rectangle on the report cover: 8 inches (20 centimetres) X 4 inches (10 centimetres).Cut out the rectangle.
2. Draw three lines across the long side of the rectangle:
   - The first line 1 1/4 inches (3 centimetres) from the top edge
   - The second line 2 1/2 inches (6 centimetres) from the edge
   - The third line 3 3/4 inches (9 centimetres) from the edge. The third line is 1/4 inch (1/2 centimetre) from the bottom of the rectangle.

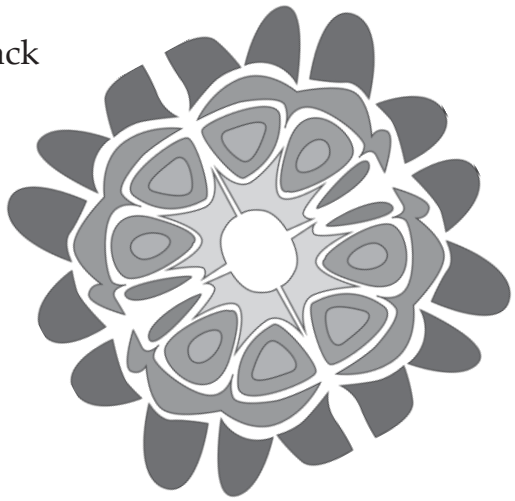


3. Fold the rectangle along the lines to form a triangular shape. Put the 1/4 inch (1/2 centimetre) strip on the outside. Tape it along the edge so the triangular shape stays closed.
4. Slide the triangular shape into the paper towel tube.
5. Turn the paper towel tube on one end. Trace a circle around the end onto the construction paper square. Use a pencil to poke a hole through the center of the circle. Tape it over one end of the tube.

6. Turn the tube on the other end. Place the plastic wrap square over the end. Press down on the plastic wrap to create a pouch in the end of the plastic triangle.
7. Put some beads, sequins, and confetti in the pouch. Place the waxed paper square over the pouch. Stretch the rubber band over both the waxed paper and the plastic wrap. Be sure it's on tight so nothing spills out.
8. Trim the corners of the plastic wrap and waxed paper squares.
9. Decorate the paper towel roll with stickers, wrapping paper, or markers.

To use the kaleidoscope

- Hold the end of the tube with the black construction paper square up to one eye. Look through the hole.
- Turn it and watch your own light show.



To understand what happens during this experiment, see "How it Works—My Five Senses" on page 50.

Do You Feel What I Feel?

Book for circle time: *My Five Senses* by Aliki

In this activity you make and play with feely bags—a cloth bag with various objects inside. When you introduce children to feely bags you encourage their skills to think, predict, sort, and analyze. Feely bags also encourage children to develop enriched language skills as they describe what they feel.

What you need

- A fun bag that you can close at the top. A fabric bag such as a pillowcase with some ribbon or cord to close it is ideal.
- Various objects that the children know such as: a ball, a comb, a small car, a puzzle piece, a book, a piece of fur, sunglasses, a padlock, a crayon, a stuffed animal, Kleenex, etc.

Instructions

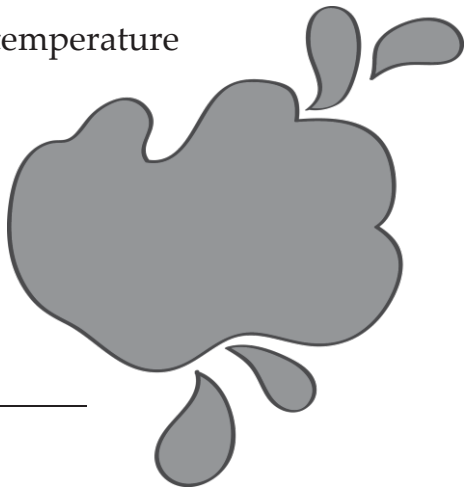
1. Put the objects into the bag.
2. Ask the children to take turns—(without looking) to put their hands into the bag and feel the objects.
3. Ask them to describe the object using words such as hard, soft, flat, round.
4. Record their ideas.
5. After the children describe what they feel, ask them to guess what the object is.

Let's Make a Mess

Book for circle time: *The Mud Puddle* by Robert Munsch

GOOP (also known as Oobleck) is a fun substance to make with children. You make it with common kitchen ingredients and it is safe for children of all ages. Use smocks or aprons to protect children's clothes.

What you need



- 1 cup (237 millilitres) water at room temperature
- 1 1/2 to 2 cups (356 to 474 millilitres) cornstarch
- Mixing bowl
- Spoon
- Food colouring (optional)

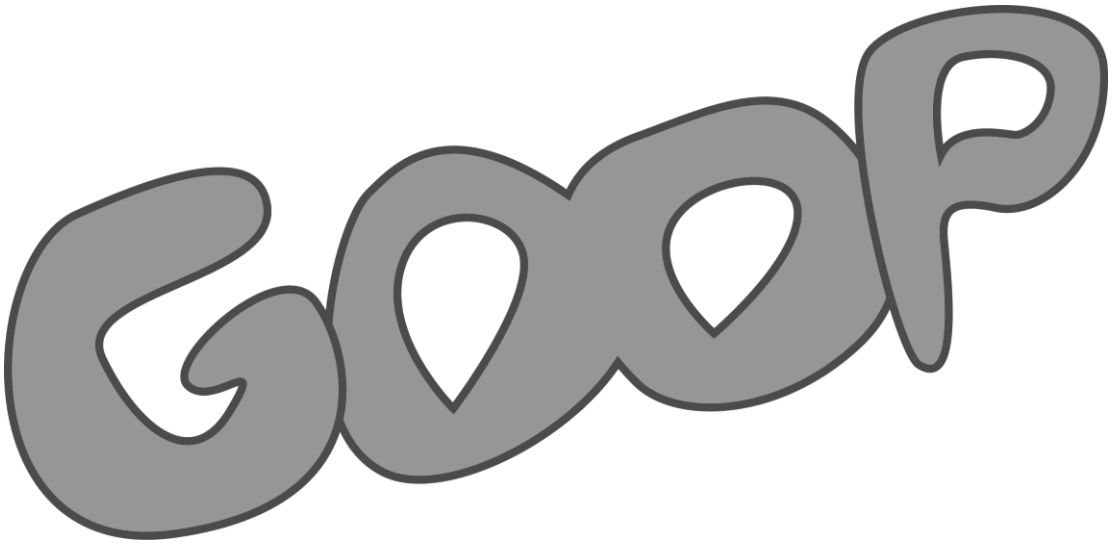
Instructions

1. Pour the water into the mixing bowl.
2. Add 1 cup (237 millilitres) cornstarch to the water.
3. Stir the water-cornstarch mixture with the spoon.
4. Add the other 1/2 cup (118 millilitres) cornstarch. Use your hands to mix it.
5. If the mixture is too thin, add more cornstarch. If the mixture is too thick, add more water.
6. Play with it to get the right texture. There are no set rules for making GOOP. When GOOP is still it seems like a solid; when you try to grab it, it acts like a liquid.

7. Add the food colouring when you get the texture you like. Slowly mix the colours around with your hands.
8. Play with the GOOP.

If any children seem afraid to touch it, put some GOOP in a ziplock bag so they can squish and play with it and not touch it directly.

To understand what happens during this experiment, see "How it Works—My Five Senses" on page 50.



Colour Mixing[6]

Book for circle time: *Brown Bear, Brown Bear, What Do You See?* by Eric Carle

Children love to experiment with mixing colours. Older children can fill out the answers to the questions on the next page.

What you need

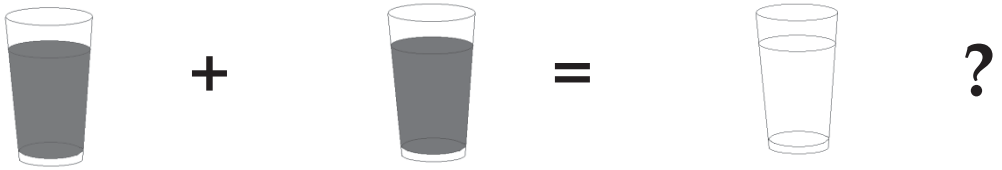
- 3 mixing bowls
- 6 to 10 clear glasses
- Water
- Red, yellow, and blue food colouring
- Measuring cups
- Apron or painting smock
- Newspapers or plastic to cover the work surface

Instructions

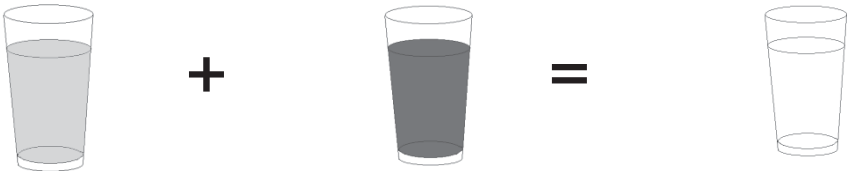
1. Spread newspaper or plastic over the table or counter.
2. Fill the three mixing bowls with water. Add a few drops of food colouring to each. Make one red, one blue, and one yellow bowl.
3. Mix the coloured water together in the glasses. Use measuring cups to move the coloured water from the bowls to the glasses. Try different amounts and mixtures.
4. Encourage older children to write out 'recipes' for the colours they make. Include exact amounts and a name for the colour. An adult can help younger children write out recipes.

[6] NWT Literacy Council, 2010 *Books in the Home Classic Books* Yellowknife

Use markers or crayons to colour in the answers.



Red + Blue = ?



Yellow + Blue = ?

Red + Yellow = ?

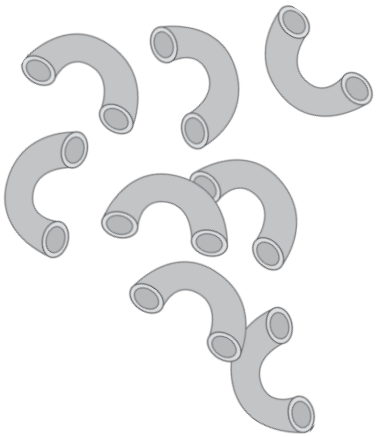
Red + = ?

Red + Yellow+ + Blue = ?

Touch and Texture[7]

In this activity, children explore touch with texture.

What you need



- Heavy paper, such as construction paper or cardstock—one piece per child
- Scissors
- Glue stick
- A few cotton balls
- A small amount of waxed paper
- One sheet of sandpaper
- One piece of uncooked macaroni per child
- Three uncooked lentils per child

Instructions

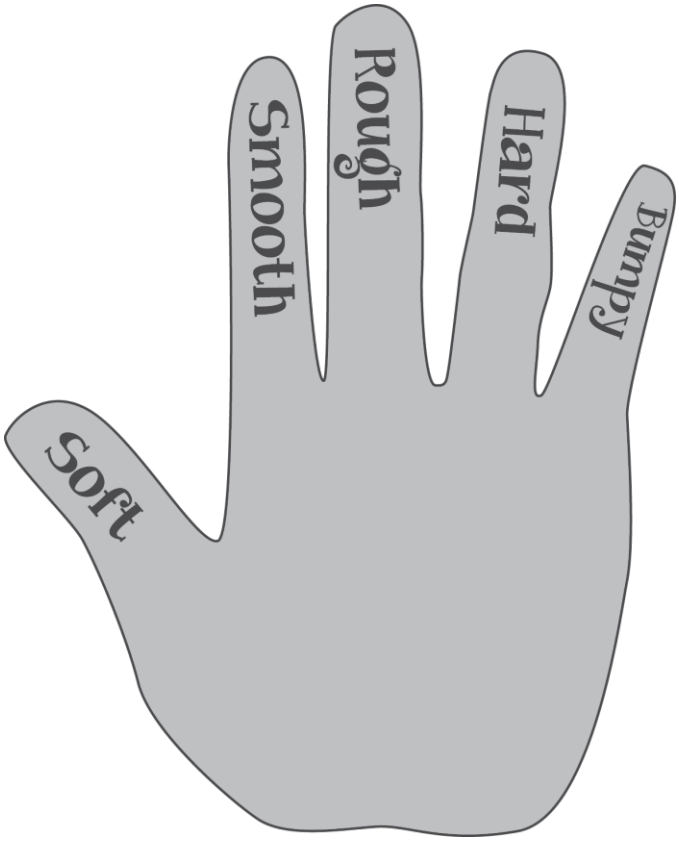
1. Trace an adult's hand onto a heavy piece of paper.
2. Make enough copies of the hand so that each child has one.
3. On the palm of each hand, write the words "texture: how something feels". Write one of the following words on each finger: "soft", "smooth", "rough", "hard", and "bumpy".

   Note: If the children cannot write, complete this step before you make the copies.

4. Cut small squares from the waxed paper and sandpaper (about 1/2 inch X 1/2 inch or 1 1/4 centimetres X 1 1/4 centimetres).

[7] www.bainbridgeclass.blogspot.com

5. On the "soft" finger, ask the children to glue a small piece of cotton ball.
6. On the "smooth" finger, ask the children to glue a square of waxed paper.
7. On the "rough" finger, ask the children to glue a square of sandpaper.
8. On the "hard" finger, ask the children to glue a piece of macaroni.
9. On the "bumpy" finger, ask the children to glue three lentils.
10. Discuss the different textures with the children. Talk about other things that have the same textures.

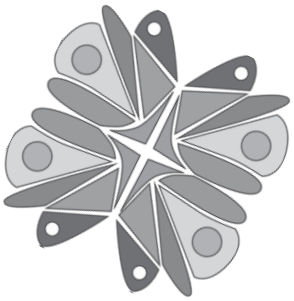


How it Works—My Five Senses

Use this information to understand what happens in these "My Five Senses" experiments.

Be Dazzled—Make Your Own Kaleidoscope—How it works

Although you can't see it, light generally travels in a straight line. But if it hits an object, it refracts or changes direction—like a ball bouncing off a wall. Usually when light hits a shiny surface like the plastic triangle, it reflects back to you.



The sides of the plastic triangle inside the kaleidoscope reflect the images of the beads, sequins, and confetti. The reflections bounce back and forth, and around inside the kaleidoscope. This causes you to see many images. When you turn the kaleidoscope the beads, sequins, and confetti move around, causing you to see different designs.

Let's Make a Mess—How it works

We consider GOOP a non-Newtonian fluid—something in between a liquid and a solid. GOOP is a fantastic learning experience for children. Encourage them to describe how GOOP feels—for example slimy, squishy, runny, jiggly, soft, wiggly, spongy, slippery, and gooey.

Science Fun with Nature

When children do the experiments and activities in this section, they use nature to explore science.

Experiments

An experiment starts with a question and an idea of what might happen (hypothesis). To see what actually happens, we do a test. To enhance the children's experience, copy and use the Science Experiment Report template (pg 2–4) and the Science Vocabulary (pg 5–6).

- Whose Fur is This?
- Here We Grow Again
- Self-watering Plants
- Two-toned Celery
- Blubber Glove
- Identifying Tracks
- Track Booklets
- Tracking Field Trip

Activities

These fun crafts and games support the theme of the experiments and reinforce the ideas presented there.

- Animal Match-up
- Nature Names
- Wiggle Worms

Whose Fur Is This?[8]

Book for circle time: *We Feel Good Out Here* by Mindy Willett and Julie-Ann André

Children explore different kinds of wild furs.

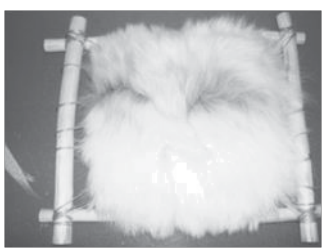
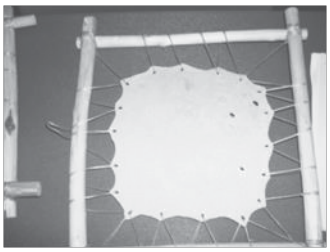
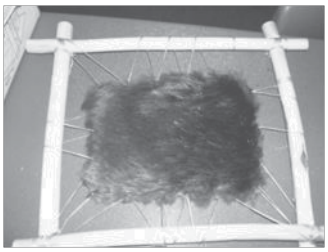
What you need

- About five fur frames (see instructions below)
- Blindfold

Instructions to make fur frames

1. Gather together these supplies:
   - Pieces of different types of fur
   - Synthetic sinew or string
   - Sewing awl or large nail
   - Tree branches, about 3/4 inch (2 centimetres) in diameter
   - Knife and saw
2. Strip the bark off the branches. Cut each branch in lengths—each length about 2 inches (5 centimetres) longer than one side of the fur piece.
3. Use the sinew to tie the branches together into a square.
4. Use the awl to punch holes around the edge of the piece of fur.
5. Lace the string or sinew through the holes and around the frame. Pull it tight and tie off the end. See the photos on the next page.

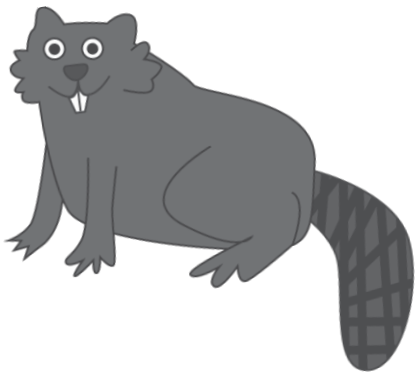
[8] Mary Rose Sundberg, Goyatiko Culture and Language Centre, Dettah, NWT

Instructions to do the activity

1. Talk about the different types of fur. Which kind belongs to which animal? Why do different animals have different kinds of fur?
2. Let the children feel all the different types of fur. Talk about which one is softest, which one is longest, which one is shortest, etc.
3. Feel the long guard hairs and the softer under-hairs. Explain that the long guard hairs protect the animal from things like dirt and insects; that the short, fluffy undercoat helps the animal stay warm. Some animals, like wolves, shed their undercoats in the summer to stay cool.
4. Blindfold the children one at a time. Let each one feel and identify the different furs.

You can do this activity with an animal hide in different stages of preparation, instead of using the furs from different animals.



Here We Grow Again

Book for circle time: *The Tiny Seed* by Eric Carle

Planting seeds allows children to see up close the way we grow our food.

What you need

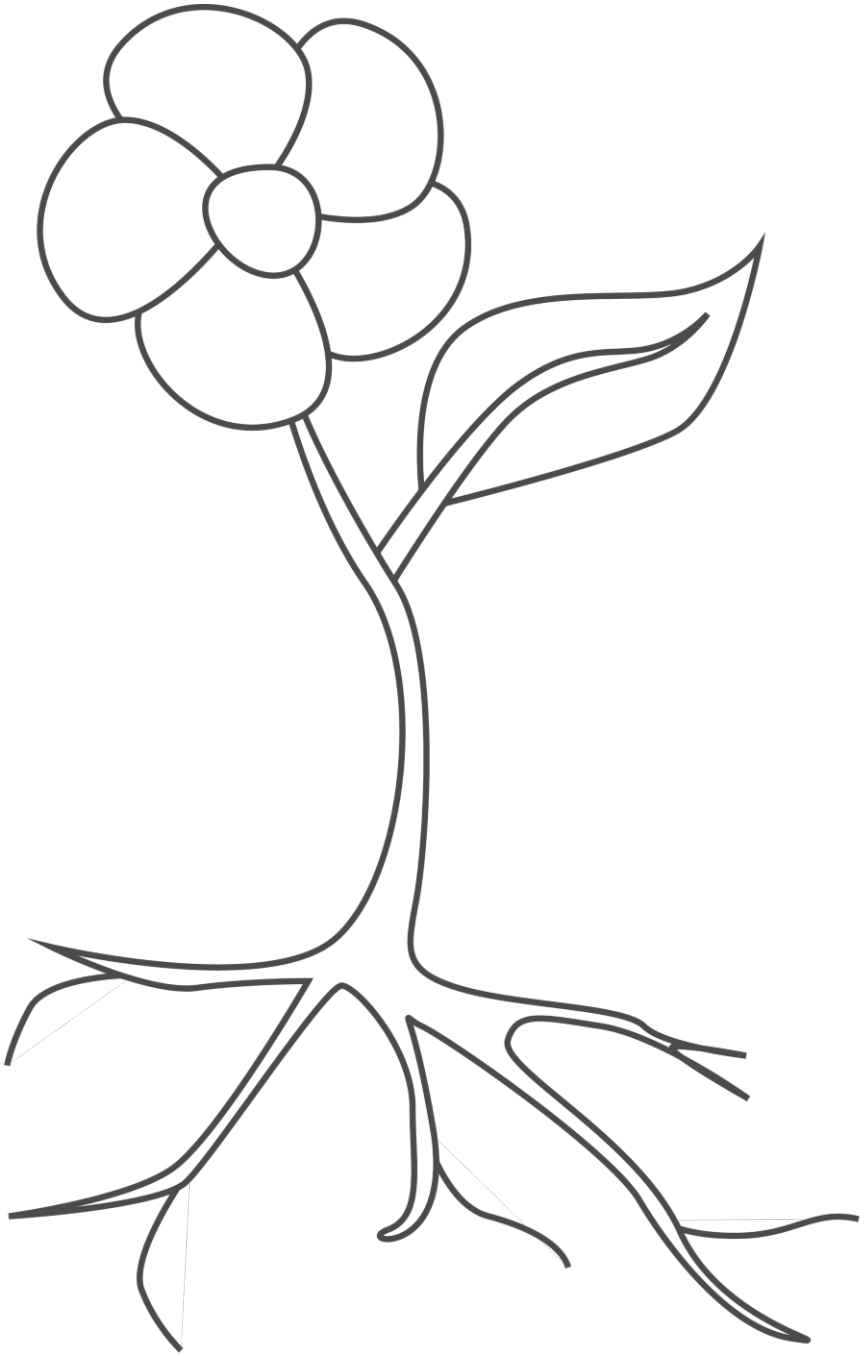
- Containers—for example, egg carton, styrofoam cup, yogurt, margarine or milk carton, etc.
- Potting soil
- Seeds (bean seeds work well—easy to handle and they grow quickly)
- Water
- Spoon

Instructions

1. Poke a small hole in the bottom of the container so water can drain out.
2. Fill the container almost full with potting soil.
3. Poke a small hole in the soil in the middle of the container. Plant your seed in the hole and cover it with some soil. The amount of soil that covers the seed should be about the same thickness as the seed itself.
4. Water the soil. Be careful to not disturb the soil too much.
5. Place the container in a sunny window. Watch for the seeds to sprout.
6. Water the soil to keep it moist, but don't water too much.

Photocopy this page as a handout. Give each child a copy to take home; or they can do it together at the program.

Plant Colouring Sheet



Can you find:

- Leaf?
- Flower?
- Stem?
- Roots?

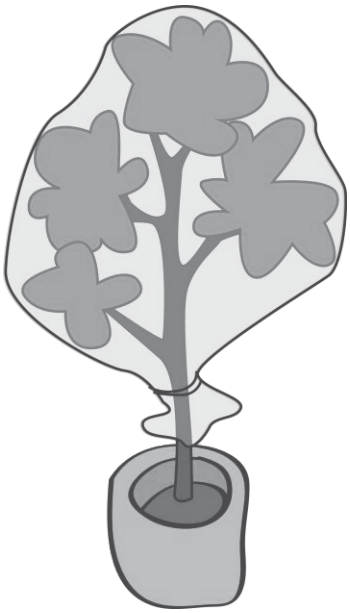
Self-watering Plants

Book for circle time: *The Lorax* by Dr. Seuss

Children explore some things that happen when you water a plant.

What you need

- Wilted plant in a pot. You can use any plant in a pot. Don't water it until you see it wilting.
- Plastic bag
- String
- Water



Instructions

1. Water the wilting plant.
2. Wait 30 minutes. You should notice that the wilted plant comes back to life.
3. Tie the plastic bag around a leaf on the plant.
4. Look at it the next day. This works best if you wait 24 hours.
5. What do you notice?

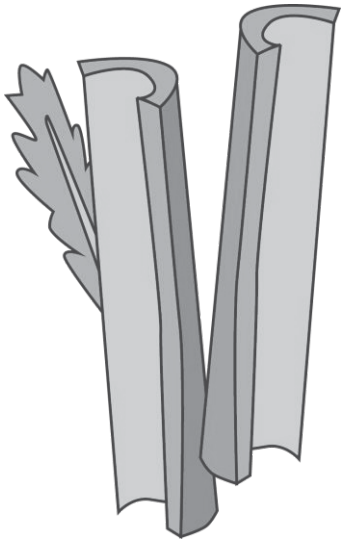
To understand what happens during this experiment, see "How it Works—Science Fun with Nature" on page 75.

Two-toned Celery

Book for circle time: *A Color of His Own* by Leo Leoni

Children explore another aspect of water and plants.

What you need



- Celery stalk with leaves on top
- Two colours of food colouring
- Scissors or knife
- Two plastic containers, each about 3 inches (7 1/2 centimetres) high—yogurt or other container
- Water

Instructions

1. Cut the celery stalk lengthwise—from the bottom up a few inches (7 centimetres) towards the middle.
2. Place each side of the cut end of the celery stalk into a different container. Put the containers close together so the stalk stands up.
3. Fill each container half full with water. Put a few drops of different food colouring in each container.
4. Look at the celery after one hour.
5. Leave the celery for 12 hours and look again.
6. What do you notice?

To understand what happens during this experiment, see "How it Works—Science Fun with Nature" on page 75.

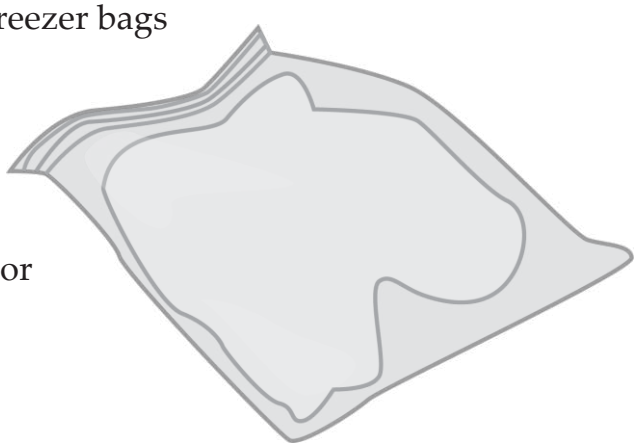
The Blubber Glove

Book for circle time: *The Magic School Bus in the Arctic* by Joanna Cole

This experiment helps us understand how animals in the Arctic and Antarctic regions survive in very cold environments.

What you need

- Three large zipper lock freezer bags
- One box of shortening
- Spoon
- Duct tape
- Two large mixing bowls or plastic tubs
- One bag of ice
- Water



Instructions

To make the bag

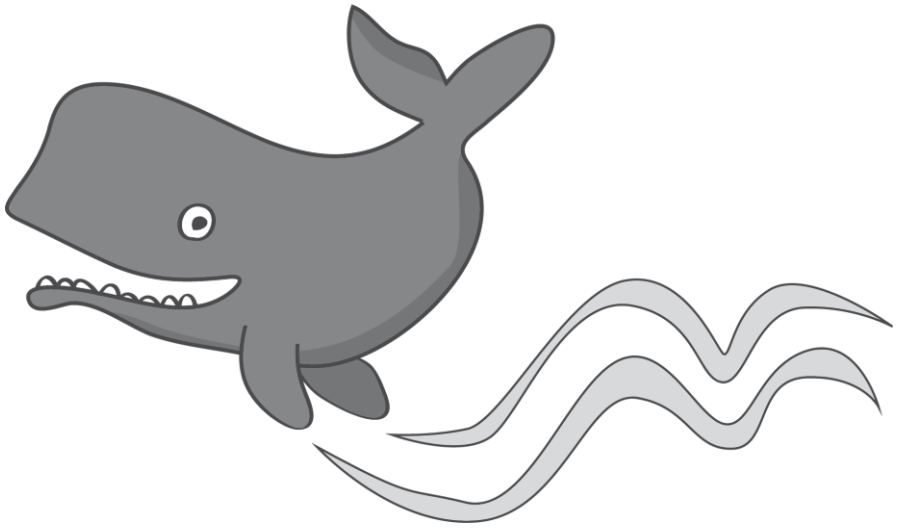
1. Use the spoon to spread half of the box of shortening into one zipper lock bag.
2. Place the second zipper lock bag into the first bag.
3. Place your hand into the second zipper lock bag and squish the shortening all around one side.
4. Use the spoon to spread the other half of the box of shortening between the first and second zipper lock bags on the second side.
5. Pull the second bag out a little bit and fold the top down over the first bag.

6. Place duct tape all around the folded tops of the bags, so that the shortening cannot get out, but you can still put your hand into the second zipper lock bag.

To carry out the experiment

1. Fill each mixing bowl or plastic tub with ice and add some cold water to each bowl.
2. Place one hand into the blubber glove and one hand into the third zipper lock bag.
3. Place each hand into an ice and water filled bowl. What do you feel?

To understand what happens during this experiment, see "How it Works—Science Fun with Nature" on page 75.



Identifying Tracks

Book for circle time: *Big Tracks, Little Tracks: Following Animal Prints* by Millicent E. Selsam and Marlene Hill Donnelly

Children explore different animal tracks.

What you need

- Pictures of local animal tracks (see the following pages)
- Children's paint or large non-toxic ink pads
- Paint brushes
- Large paper roll or construction paper
- Baby wipes

Instructions

1. Look at the different animal tracks.
2. Talk about the various parts of the animal's foot. Do they have toes? Where is the front of the foot; where is the back? Is the animal's foot smooth or scaly? Does it have claws? What shape is the foot? Is the front of the foot different from the back?
3. Once the discussion is over, make prints of the children's feet and hands.

   Gently cover each child's foot with paint. Then press the foot onto the paper. Use a long roll of paper, so everyone's footprint is on the same roll. Decorate the rest of the paper to create a scene.

4. Use baby wipes to clean the children's feet.

Track Booklets[9]

Book for circle time: *In the Snow: Who's Been Here?* and *Into the Woods: Who's Been Here?* by Lindsay Barrett George

Children match tracks with the animals that make them.

What you need

- Pictures of animal tracks (one track per page)
- Pictures of the animals that made the tracks
- Scissors
- Glue
- Markers, crayons, and coloured pencils

Instructions

1. Give each child a set of animal tracks pictures. Each track should be on one page. (see following pages)
2. Give the children clip art or other pictures of the animals that make the tracks.
3. Ask the children to cut and glue the animals onto their track pages.
4. Help the children to label each animal. If possible, include a name in the Aboriginal language of your region.
5. Ask the children to decorate their pages and staple them together into a booklet.

[9] www.parentingscience.com/kindergarten-science-activities-tracking-animals.html

Tracking Field Trip[10]

A field trip is a great way to investigate tracks and animal movement. This works best in winter, so bundle up the children and head outdoors for a fun walk to see what kind of tracks you can find. Involve an Elder or local hunter/trapper to help you on your field trip.

When you find some animal tracks, ask the children questions, such as:

- Which direction is the animal going?
- Is the animal walking or running?
- Is there one animal or more than one animal?
- Which animal made the tracks?

Using the track cards, children can try and match the card with the track to decide what kind of animal tracks they saw.

Take along a camera to take pictures, a ruler or tape to measure the tracks, and a notebook to record observations.

[10] www.cehd.umn.edu/stem/Projects/Ah-Neen-Dush/default.html (scroll down to Animal tracks unit)

Bear

Beaver

Lynx

Caribou

Muskrat

Fox

Animal Match-up

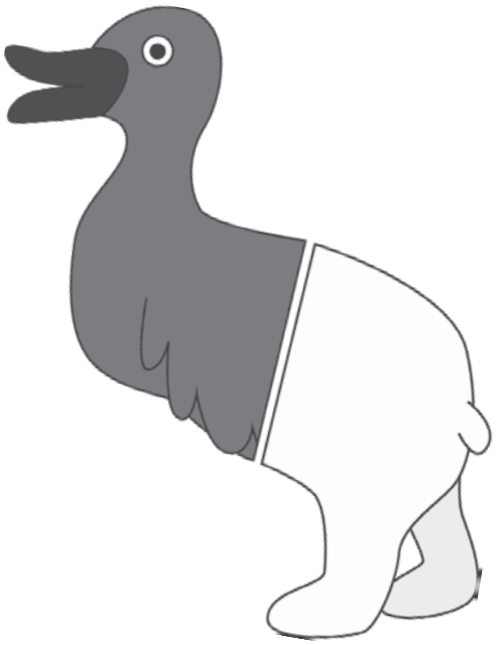
Children match shapes to make animal cards.

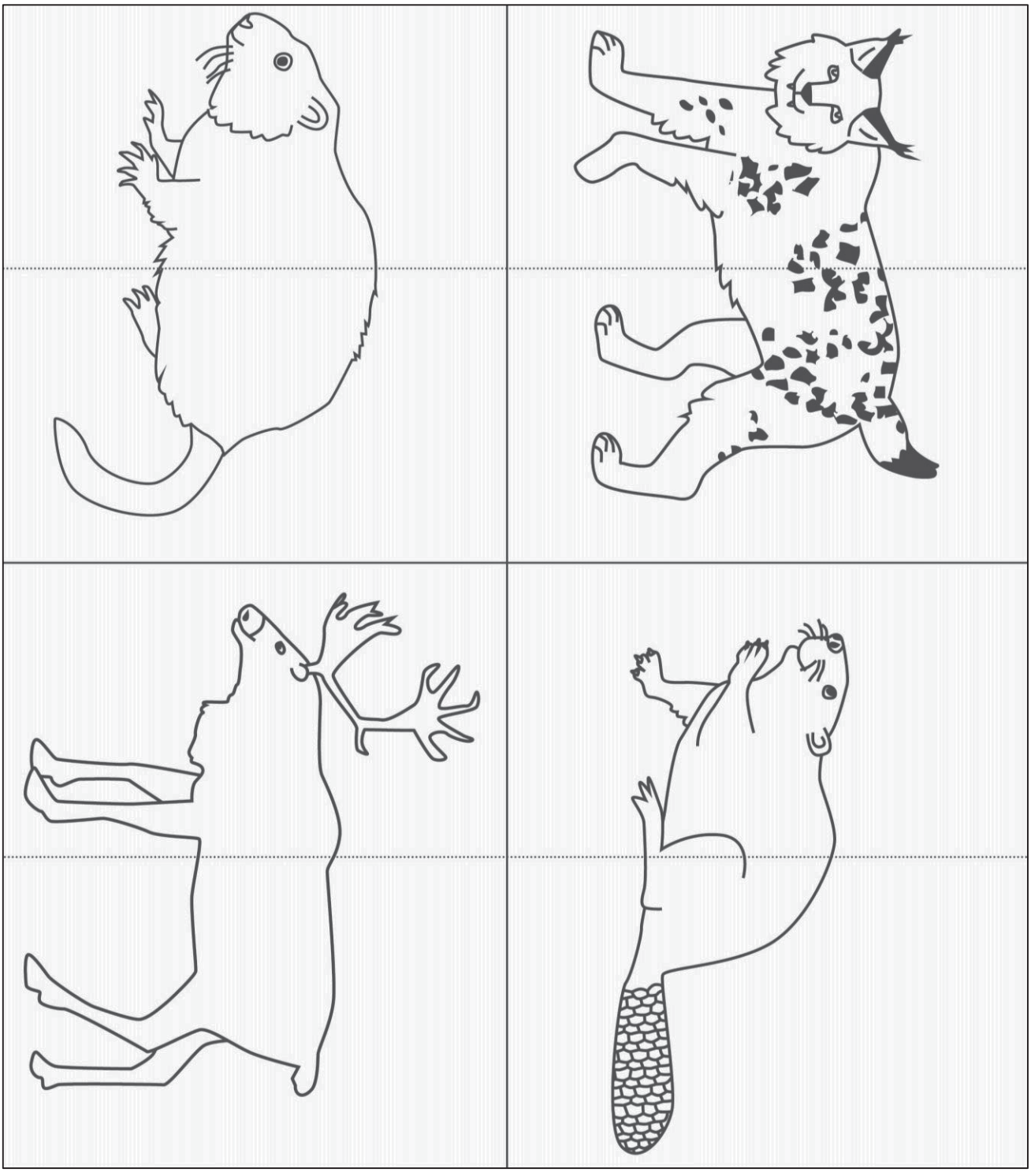
What you need

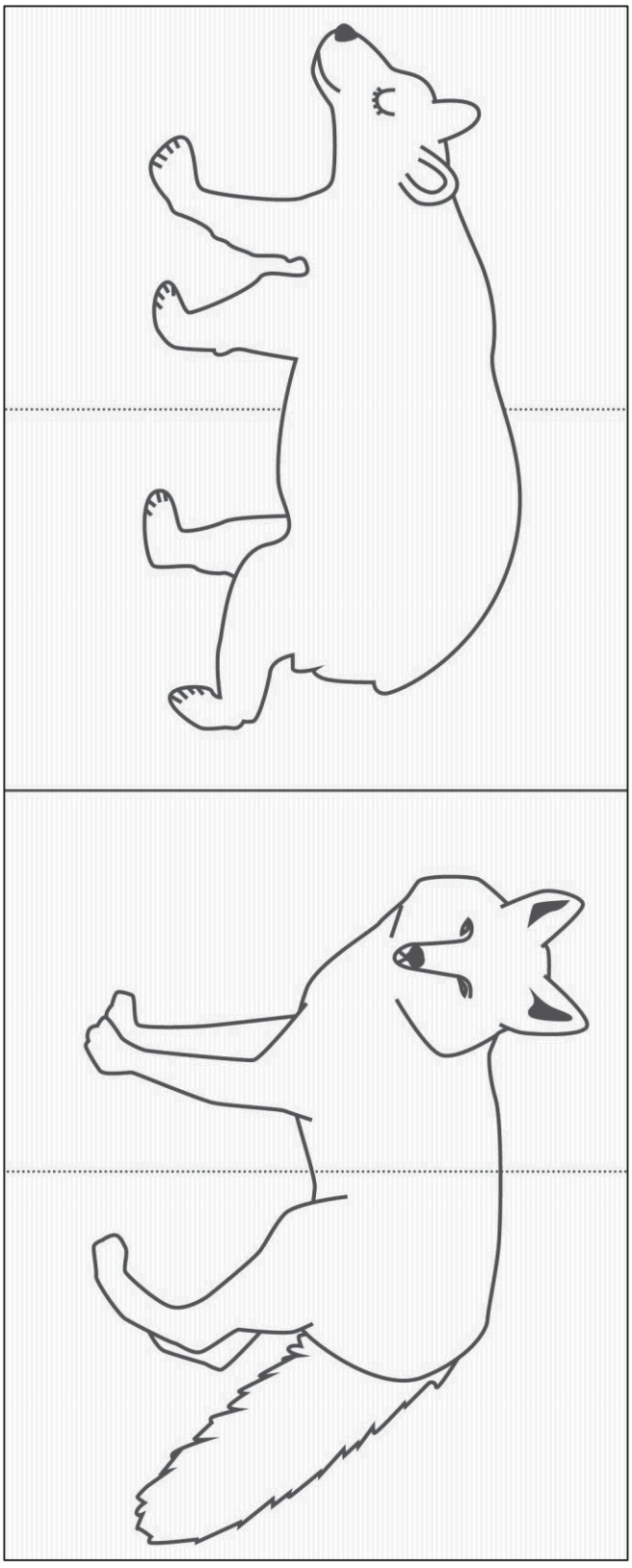
- Picture cards of animals (provided) or make your own.
- Packing tape to laminate (optional)
- Scissors

Instructions

1. Photocopy and cut out the animal shape cards.
2. Colour the animals.
3. Cut each shape in half, so that there is a head card and a tail card.
4. Laminate each card with packing tape for durability (optional).
5. Lay the cards out in front of the children. Ask them to take turns to match the head and tail of each animal to make a whole.







Nature Names

Children gather natural things and spell their name with them.

What you need

- Cardstock or construction paper—one piece for each child
- A pencil
- Glue
- A place to walk where children can gather various natural things such as leaves, twigs, flowers, moss

Instructions

1. Take the children on a nature walk. Gather natural things such as leaves, twigs, flowers, etc. Show children how to do this without killing any plants.
2. Use a pencil to write each child's name on a piece of paper, in big letters.
3. Glue the natural things onto the letters of the written name—spell your name in nature.

Wiggle Worms[11]

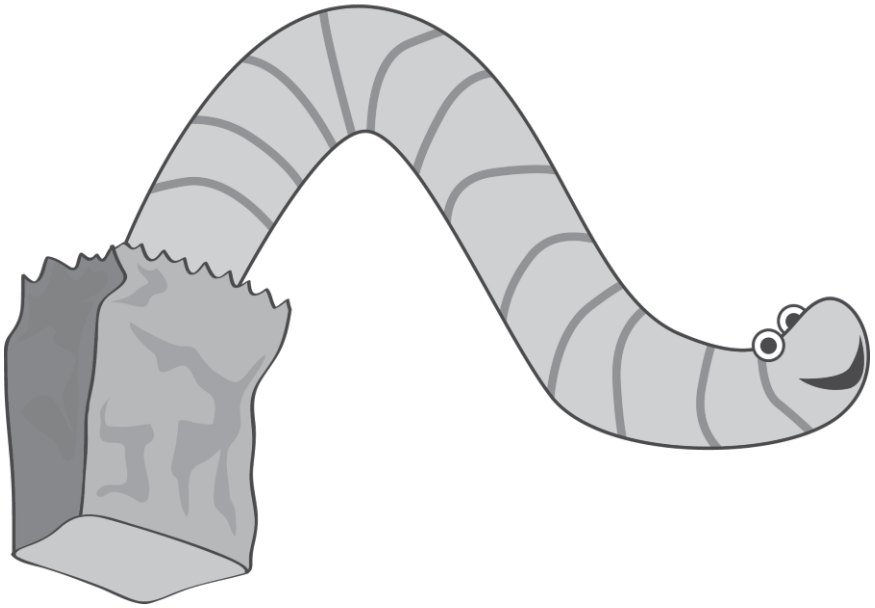
Like charades—children act out various activities, including wiggle worms.

What you need

- A paper bag
- Strips of paper
- Marker

Instructions

1. Write various activities, each on a separate strip of paper (e.g. sing a song, clap hands, hop on two feet).
2. Include three or four pictures of a little worm.
3. Put the strips of paper into the paper bag.



[11] www.littlefamilyfun.com

4. Ask the children to take turns choosing a piece of paper from the bag. Each time a child chooses a piece of paper, the whole group does the activity on the paper.
5. When they choose a worm, they wiggle like a worm.

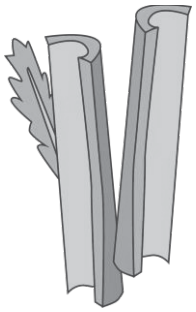
How it Works—Fun with Nature

Use this information to understand what happens in these "Science Fun with Nature" experiments.

Self-watering Plants—How it works

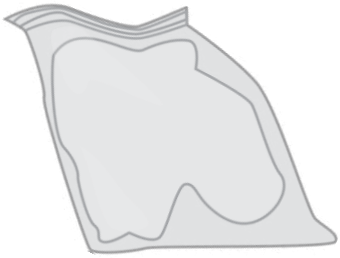
Did you see water drops inside the bag? Plants absorb water through their roots and then expel it through their leaves. These water drops usually evaporate into the air. But when you place a bag over the leaf the water can't evaporate. It gathers inside the bag and you can see it.

Two-toned Celery—How it works



As the celery leaves expel water, they drink more to keep from drying out. They gather water through a system of thin tunnels called xylem. Each xylem vessel goes to a different part of the celery plant. This is why the celery turns two colours.

The Blubber Glove—How it works



The shortening keeps out the cold. Shortening is fat. It works as an insulator, just like blubber. Blubber is good at keeping heat in and cold out. This is called thermoregulation. When you put your hand in the blubber glove, the fat keeps the cold away.

Science Fun with Chemistry

When children do the experiments and activities in this section, they use chemistry to explore science fun.

Experiments

An experiment starts with a question and an idea of what might happen (hypothesis). To see what actually happens, we do a test. To enhance the children's experience, copy and use the Science Experiment Report template (pg 2–4) and the Science Vocabulary (pg 5–6).

- Marvellous Marbling
- 3–2–1 Blast Off!
- Rock On
- Acid Attack
- Good Clean Fun! Ivory Soap Clouds
- Volcanic Eruption

Activities

These fun crafts and games support the theme of the experiments and reinforce the ideas presented there.

- Northern Lights
- Rocket Craft
- Painting with Marbles
- Pet Rocks

Marvellous Marbling[12]

Book for circle time: *Andrew's Marble* by Katie Machoskie

This fun experiment is a little bit of science and a little bit of art.

What you need

- White construction paper
- Food coloring
- Aluminum baking pan
- Cooking oil (do NOT use peanut oil as some children are allergic)
- Three plastic cups
- Fork
- Measuring spoons
- Clothespins

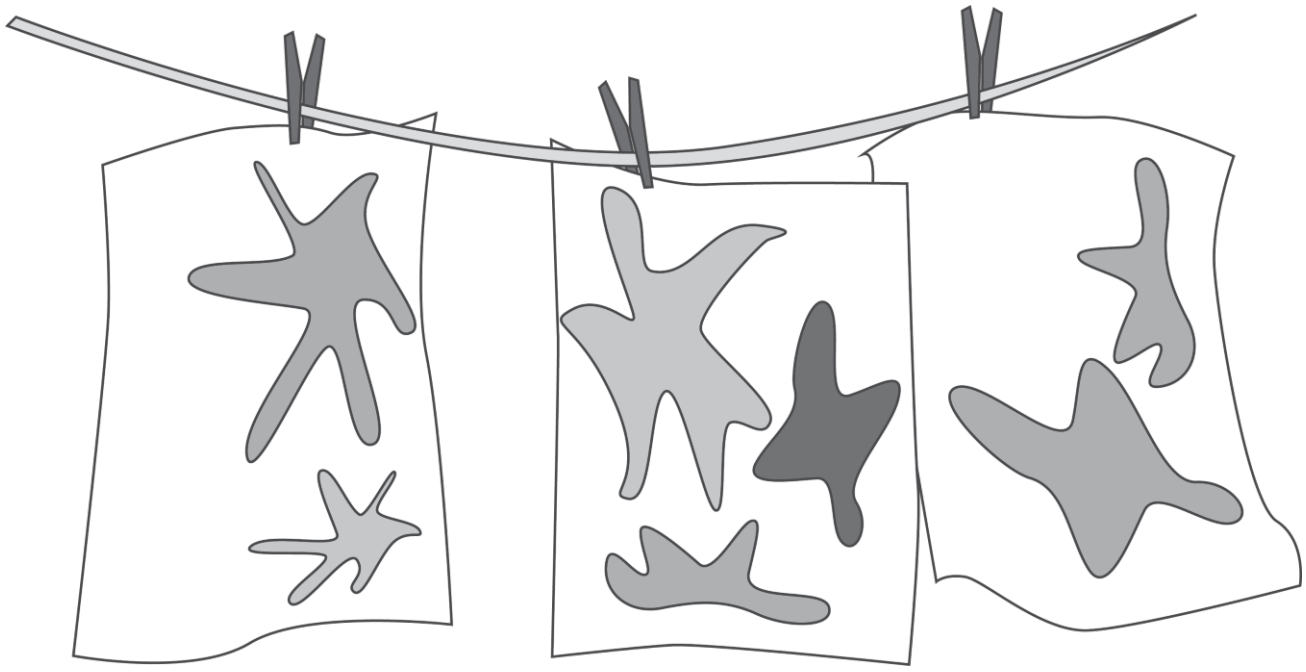
Instructions

1. Into each plastic cup, measure 1 Tablespoon (15 millilitres) oil and 1 teaspoon (5 millilitres) food colouring. Use one colour per cup or mix some colours together.
2. Use a fork to beat the oil and food colouring until they mix well together. This takes a few minutes of beating.
3. Pour some water into the roasting pan—enough so the water is about 1 inch (2 1/2 centimetres) deep.

[12] www.billnye.com

4. Pour some of each of the three food coloring/oil mixtures onto different parts of the pan. The oil spreads out.
5. Carefully place a piece of construction paper on top of the water. Let it sit for about 30 seconds; then carefully lift it off.
6. Hang the paper to dry with the clothespins. It takes a few hours.
7. What do you see?

To understand what happens during this experiment, see "How it Works—Science Fun with Chemistry" on pages 94 and 95.



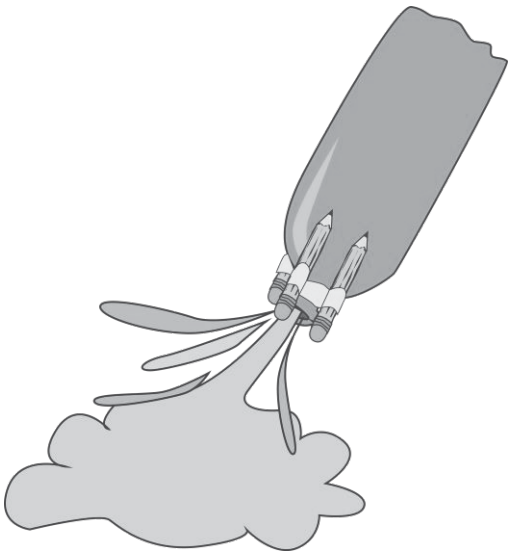
3-2-1 Blast Off!

Book for circle time: *How to Catch a Star* by Oliver Jeffers

Have fun with this rocket, but make sure you do the experiment outside. Things can get messy. Adults should do the final steps and make sure the children stand back from the rocket when it blasts off.

What you need

- Small, empty water or pop bottle—about 750 millilitre size
- 3 pencils with erasers
- Duct tape
- Baking soda
- Vinegar
- A cork that fits the top of the bottle
- Paper towel



Instructions:

1. Use the duct tape to tape the three pencils to the bottle, with the erasers pointing up to the spout. The ends of the pencils need to be about one inch (2 1/2 centimetres) above the top of the bottle.
2. Put a spoon full of baking soda in the middle of a square of paper towel that measures about 6 inches X 6 inches (15 centimetres X 15 centimetres).
3. Roll up the paper towel and twist the ends together to seal it.
4. Pour vinegar into the water bottle until it is about 1/4 full.
5. Wrap the cork in a little bit of paper towel.

6. Quickly put the paper towel full of baking soda into the bottle.
7. Twist the cork on the spout.
8. Give the bottle a little shake and put it on a flat surface, sitting on the end with the pencils.
9. Step back. The rocket flies through the air.

Rock On

Book for circle time: *Boom Chicka Rock* by John Archambault

Find out if a rock contains calcite. Why? If you find rocks that contain calcite, you might find oil or gold nearby.

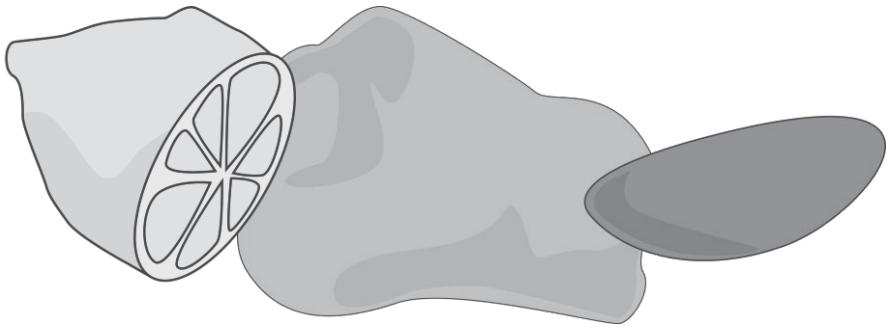
What you need

- Several rocks—different shapes and colours
- A nail
- One lemon, cut in half

Instructions

1. Scratch the rocks with the nail.
2. Squeeze some lemon juice onto each scratch mark. If the scratch fizzes, that means that the rock contains calcite.

To understand what happens during this experiment, see "How it Works—Science Fun with Chemistry" on pages 94 and 95.



Acid Attack[13]

Book for circle time: *Chalk* by Bill Thomson

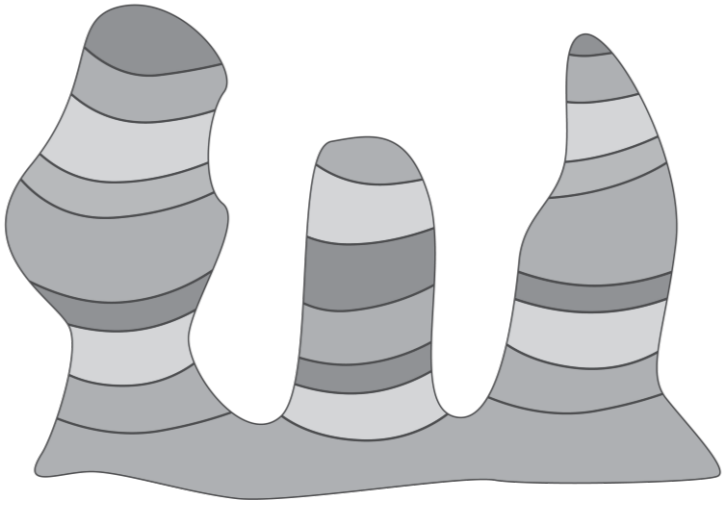
New rocks constantly form inside the Earth. Earthquakes, volcanoes, and the movement of tectonic plates push these new rocks to the earth's surface.

Erosion is a natural process that wears down the rocks over time. The earth is always changing. Since the earth began, rocks have been wearing down and building up.

Gases such as carbon dioxide dissolve in the atmosphere. Rain becomes acidic when this happens. Acid rain can dissolve rocks and cause them to erode. This experiment shows how chemical erosion works.

What you need

- 3 drinking glasses
- Lemon juice
- Vinegar
- Tap water
- 3 pieces of white chalk

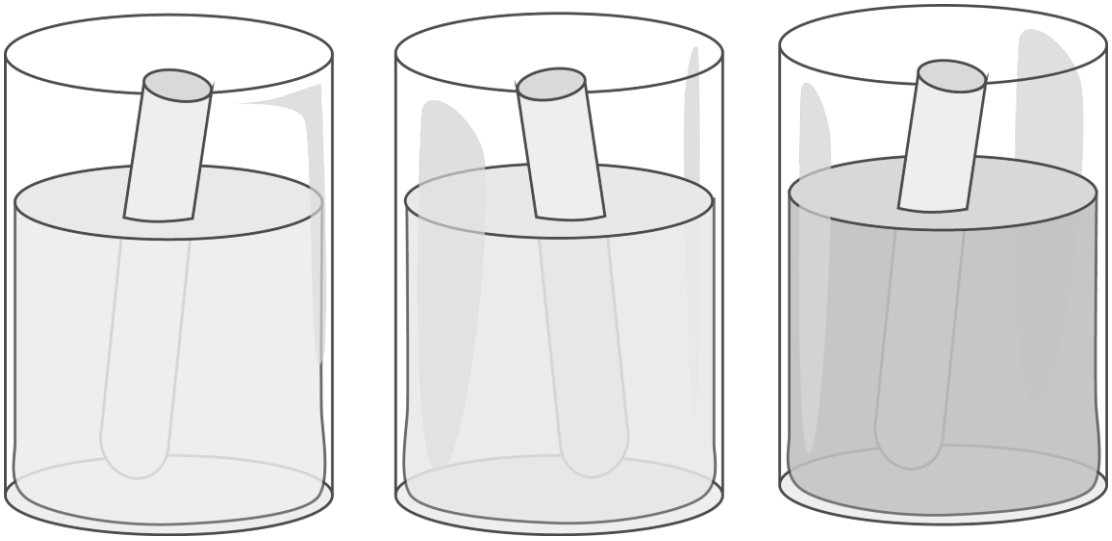


[13] www.billnye.com/for-kids-teachers/home-demo-details/

Instructions

1. Place one piece of chalk in each of the three glasses.
2. Pour lemon juice into one glass, vinegar into the second glass, and water into the third glass—enough to cover about $^{3}/_{4}$ of the chalk in each glass.
3. Leave the chalk in the liquids and check them every few days over about one week.

To understand what happens during this experiment, see "How it Works—Science Fun with Chemistry" on pages 94 and 95.



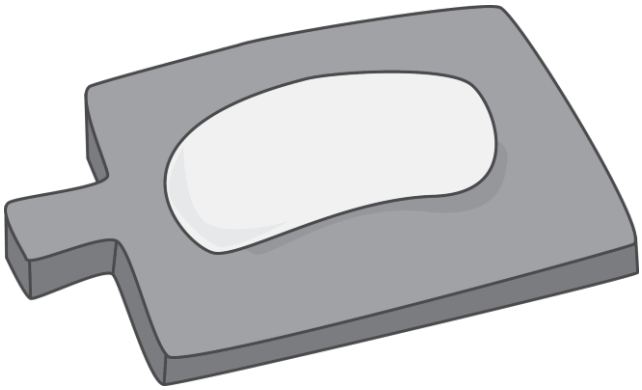
Good, Clean Fun! Ivory Soap Clouds[14]

Book for circle time: *It's Snowing!* by Gail Gibbons

Use the air in Ivory™ soap to explore changes from liquid to gas.

What you need

- One bar of Ivory™ soap (must be Ivory™ brand)
- One mixing bowl
- Water
- Paper towel sheets
- Microwave
- Bars of other brands of soap
- Knife
- Cutting board



Instructions

1. Fill the bowl with water.
2. Drop the bars of soap into the water.
3. What happens?

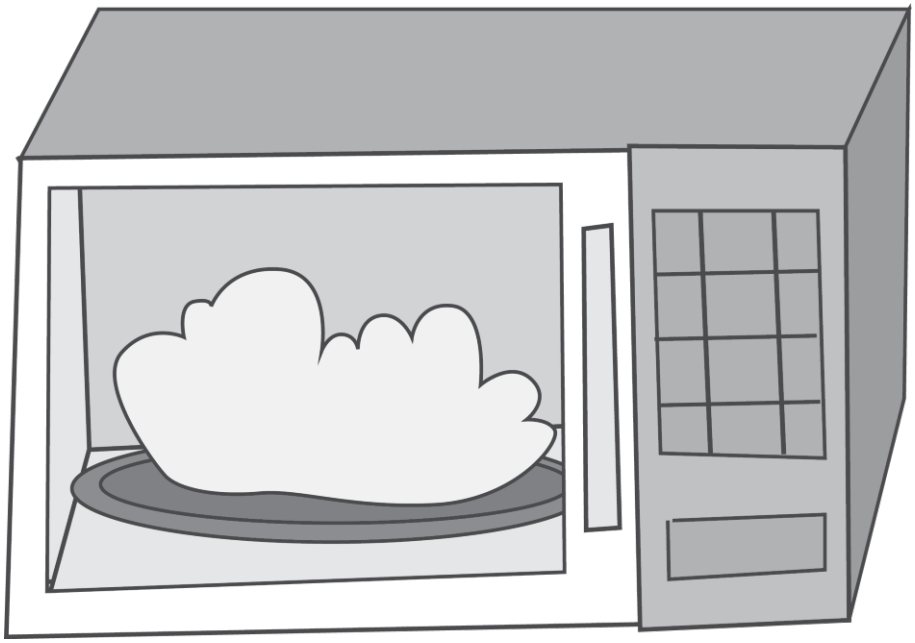
   The bar of Ivory™ should float; the other types of soap should sink.

4. Cut the Ivory™ soap in half.

   Can you see the air pockets?

[14] www.stevespenglerscience.com/experiement/soap-souffle

5. Place the bar of Ivory™ soap into the microwave for 1 to 2 minutes. Watch carefully as it expands into a big puffy cloud. Make sure that you don't overcook the soap and burn it.



6. Allow the soap to cool before you handle it. You can still use the soap in the bathtub.

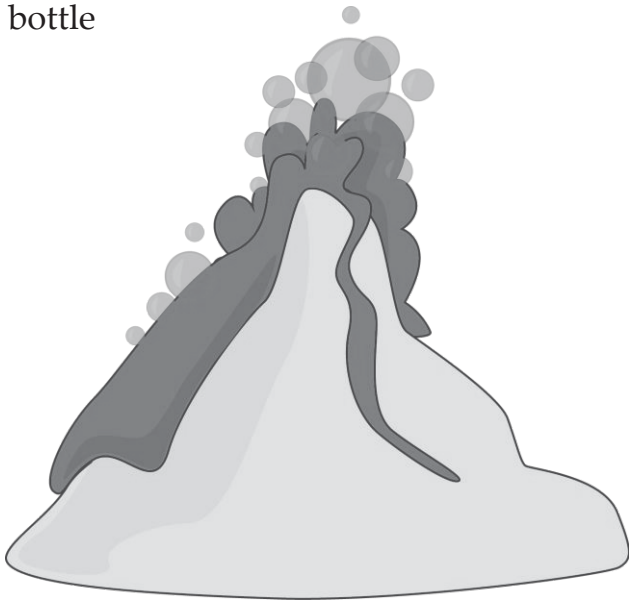
To understand what happens during this experiment, see "How it Works—Science Fun with Chemistry" on pages 94 and 95.

Volcanic Eruption!

Book for circle time: *The Magic School Bus Blows its Top: A Book about Volcanoes* by Joanne Cole

Have some messy fun with this easy volcano. The volcano erupts as soon as you pour in the vinegar, so be prepared!

What you need



- An empty two-litre plastic bottle
- A tray or plastic tub
- Vinegar
- Baking soda
- Flour
- Salt
- Cooking oil
- Warm water
- Dish detergent
- Food colouring
- A large mixing bowl
- Measuring cups and spoons
- Funnel

Instructions

1. First, make the "cone" of the volcano—the land part at the bottom. In the large bowl, mix together:

   - 6 cups (1 1/2 litres) flour
   - 2 cups (474 millilitres) salt
   - 4 Tablespoons (60 millilitres) oil
   - 2 cups (474 millilitres) water

   Stir and knead the dough until it is smooth. If needed, add more water.

2. Place the empty plastic bottle on the tray or plastic tub.

   Form the dough around the bottom of the empty bottle, so that the bottle is in the middle of the dough. Be careful not to cover the hole at the top of the bottle and don't drop any dough into it.

3. Put 5 or 6 drops of food colouring into the bottle. You can use red or a combination of colours.
4. Use the funnel to fill the bottle about 3/4 full with warm water.
5. Add 5 or 6 drops of dish detergent. This helps to trap the bubbles and make the lava more "frothy".
6. Use the funnel to add 2 Tablespoons (30 millilitres) baking soda to the water.
7. Use the funnel to quickly pour some vinegar into the bottle.
8. Watch out for the frothy eruption!

To understand what happens during this experiment, see "How it Works—Science Fun with Chemistry" on pages 94 and 95.

Northern Lights

Children create their own version of the northern lights.

What you need

- Coloured chalk
- Black construction paper
- White paper
- Glue

Instructions

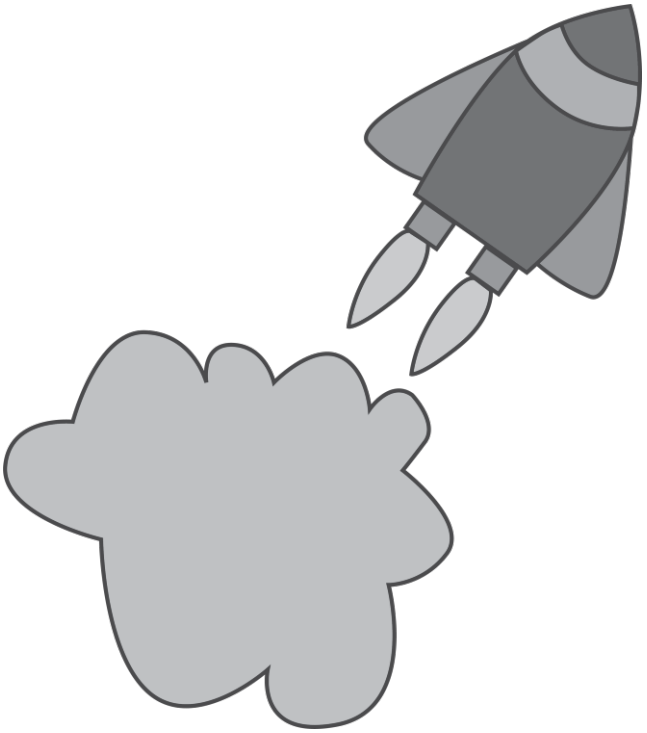
1. Draw lines on the black paper with the chalk and brush them up with your finger, to smudge them.
2. Use the white paper to make a snow-scape.
3. You can add whatever you like to your scene.

Rocket Craft

Children create their own rocket.

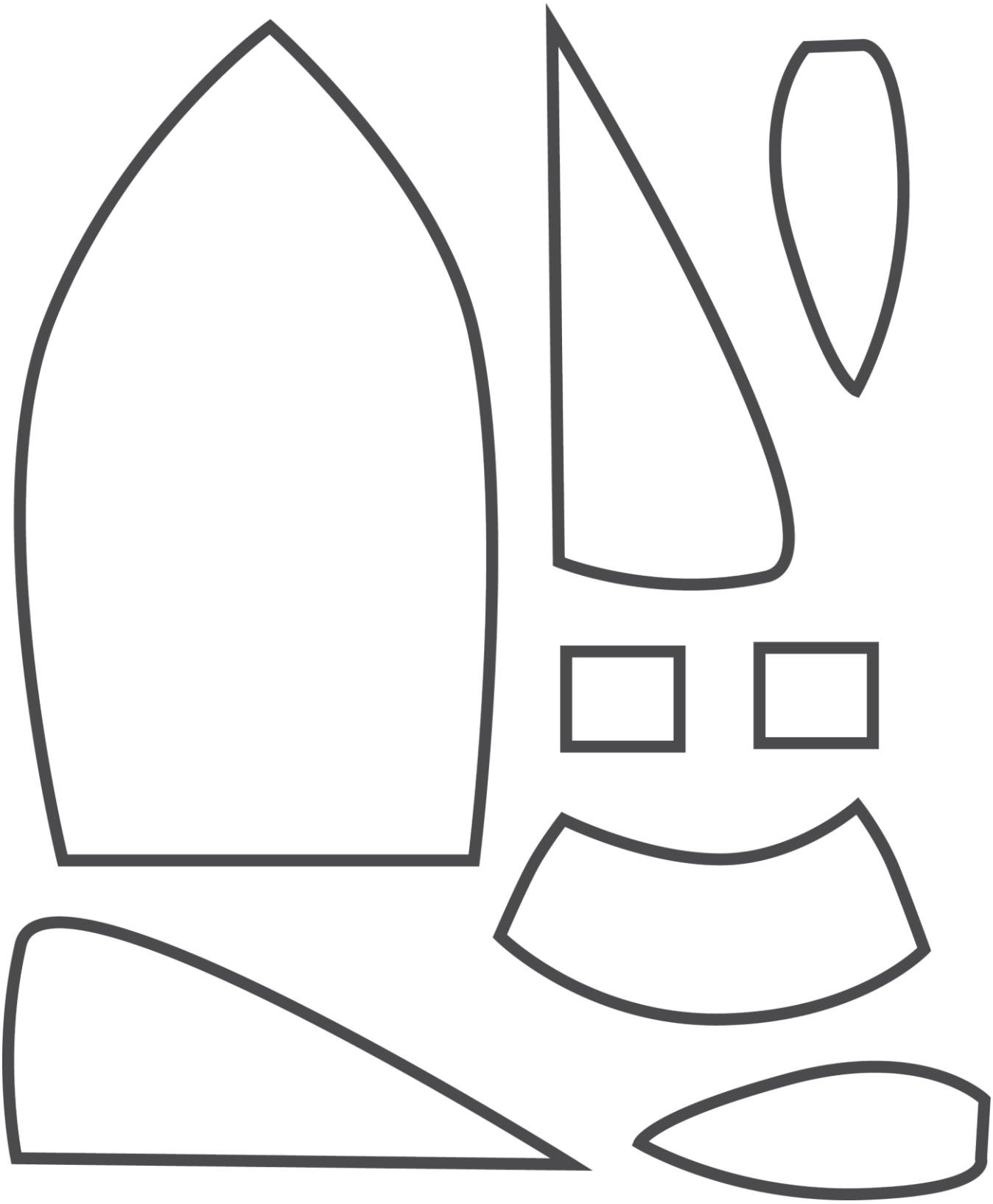
What you need

- Craft foam
- Cardstock
- Scissors
- Glue
- Marker



Instructions

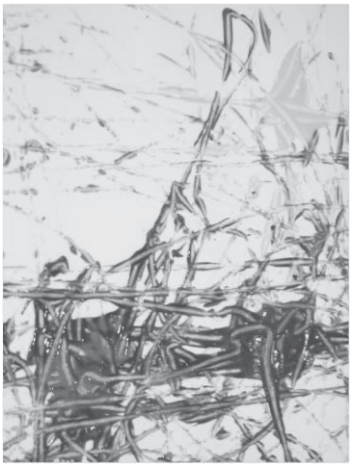
1. Cut out the following shape from craft foam:
   - One large rocket shape
   - One green curved strip
   - Two red rocket fins
   - Two red boosters
   - Two orange fires
2. Glue the shapes onto the cardstock to create your rocket.



Painting with Marbles

Children create their own marble painting.

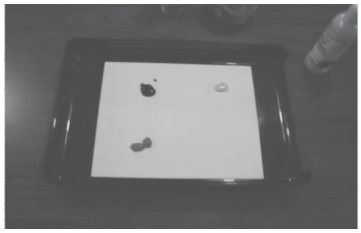
What you need

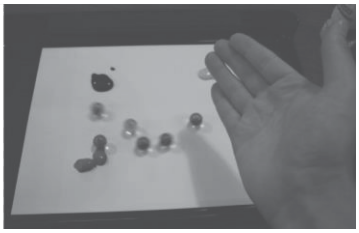


- Marbles (about 6 or 8 for each painting)
- Paint—three or four different colors
- Container such as a box lid or plastic bin
- Plastic wrap (optional)
- Paper

Instructions

1. Place a piece of paper into the container and make sure that it lays flat.
2. Pour a few blobs of paint onto the paper, in different areas—each blob a different colour.
3. Put the marbles into the container.
4. Tilt the container and let the marbles roll around the paper, making a pretty pattern as they glide through the paint. Put plastic wrap over the top of the container if it helps children keep the marbles in the container.
5. Rinse off the marbles each time you use a new piece of paper.



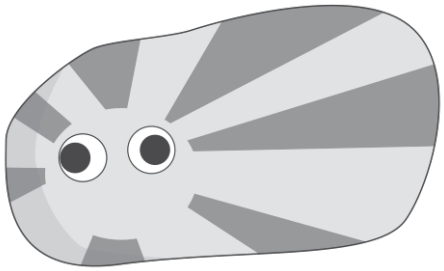


Pet Rocks

Children make their own pet rock.

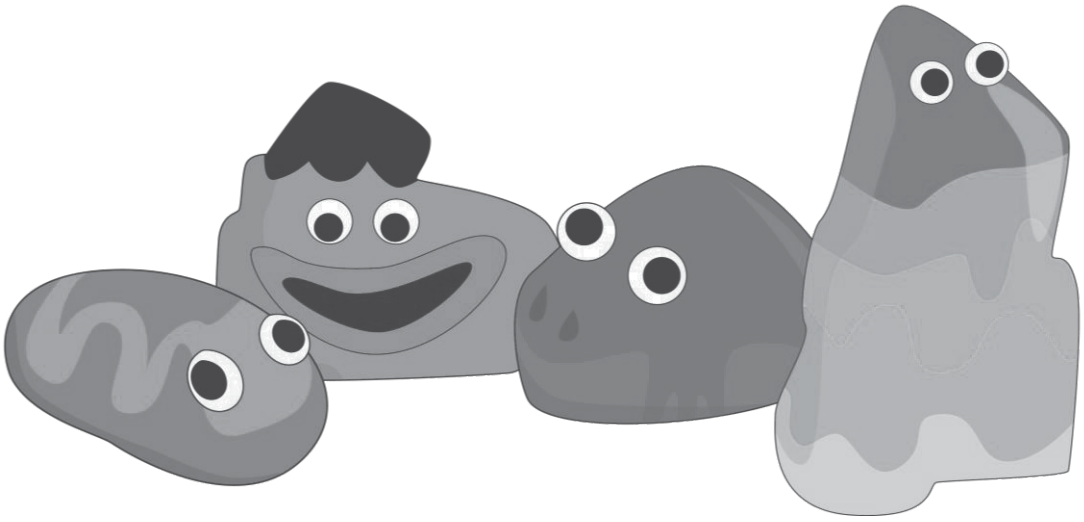
What you need

- Rocks of different sizes and shapes
- Paint
- Paint brush
- Google eyes
- Glue



Instructions

1. Paint and decorate rocks. If you have time and the weather is nice, go on an outing to collect the rocks.
2. Add google eyes with glue.
3. Give your pet rock a name.



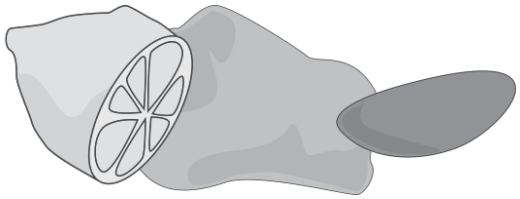
How it Works—Fun with Chemistry

Use this information to understand what happens in these "Science Fun with Chemistry" experiments.

Marvellous Marbling—How it works

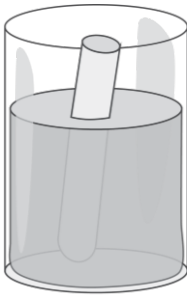
Oil floats on water because it is less dense than water. When there is an oil spill, the oil floats on water and quickly spreads out. This is one reason why oil spills are so bad for the environment. It doesn't take long for the oil to spread out and cover a lot of water.

Rock On—How it works



Calcite is an alkali (like baking soda). When the calcite combines with an acid (lemon juice), it creates carbon dioxide (a gas), which bubbles up.

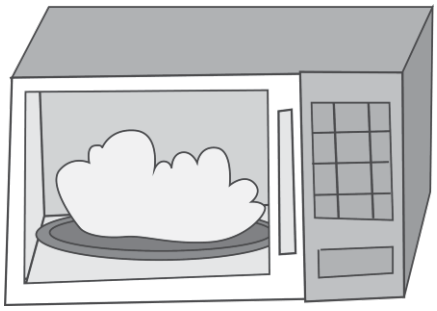
Acid Attack—How it works



Lemon juice and vinegar are acids. Chalk is made from a rock called limestone. Acids react with the limestone, and break apart the compounds that make limestone (compounds are a mix of elements).

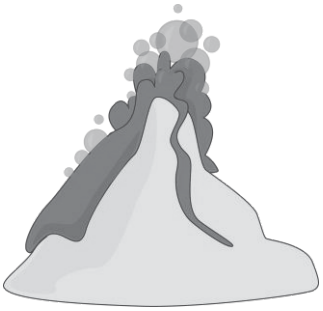
Acid rain is not as strong as vinegar or lemon juice. But acid rain can wear away or erode the rocks over a long period of time.

Good Clean Fun—How it works



Although you can't see them, there are pockets of air in Ivory™ soap. During the manufacturing process, Ivory™ soap has air whipped into it. The air bubbles contain water. When we heat the soap in the microwave, the water gets hot and it vaporizes, or becomes a gas. This causes bubbles to form. The heat makes the air in the bubbles expand. Soap that doesn't have air whipped into it will usually heat up and then melt in the microwave.

Volcanic Eruption—How it works



The eruption is the result of a chemical reaction between the baking soda and vinegar. The chemical reaction produces carbon dioxide gas, which also occurs in a real volcano. The carbon dioxide creates pressure in the bottle. The detergent creates bubbles that overflow because of the pressure.

Science Fun Resources

Here are some resources that you can explore for more ideas for science fun.

Web sites

www.discoverydaysandmontessorimoments.blogspot.ca

www.billnye.com

www.stevespanglerscience.com

www.kids.nationalgeographic.com

Books

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