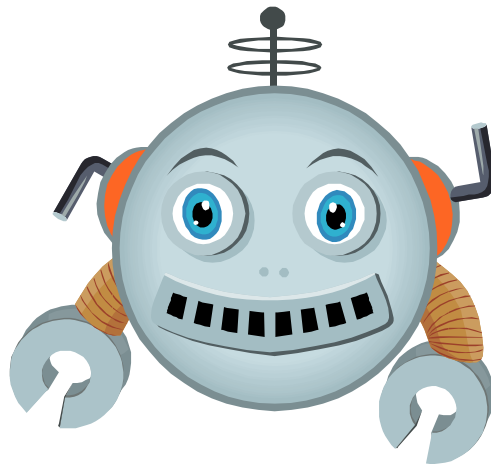


Science Fun



NWT Literacy Council

Science Fun!

Science Fun Overview

Science is a fun way to introduce pre-schoolers to the world around them. Science activities allow children to ask questions, expand their vocabulary, use their five senses to explore different things, and most of all, have fun doing it. We can prepare children for positive learning experiences in school by exposing them to fun science experiments at an early age.

Science activities for children are not the white lab coat experiments you might think of. They are fun hands-on activities that encourage children to expand their knowledge and thinking skills. Science activities encourage:

- Doing activities and playing games.
- Working and talking with others.
- Thinking skills.
- Taking a risk.
- Solving problems.
- Multi sensory exploration (using their sense of touch, smell, taste, hearing and vision to explore).

Research shows that students do better at school when their parents are involved in their education. This How-to-Kit provides an opportunity to engage families in developing positive attitudes towards science. The activities are easy, fun and hands-on. Families work and learn together to have fun with experiments.

What do children learn from early science experiments?

Children learn:

- To use their five senses to gather information.
- To use descriptive words for their observations: I see... I hear... I smell... I feel
- To identify the shape, texture, feel of an object (squishy, soft, sharp, bumpy, round, square, etc.)
- To make connections between what they are learning and what they already know.
- To compare results using measurement terms – bigger, smaller, wider, etc.

Science Fun!

- To talk about what they are observing.
- To share and work with others.
- To begin to use their hypothesis skills when they guess or anticipate what will happen next.
- To ask questions such as “I wonder why”.

From www.kindergarten-lessons.com

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Amazing Ice Cubes

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

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

What you need:

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



Instructions:

Do you think that an ordinary string will be able to lift an ice cube out of the glass? It will, if you follow these steps.

Place an ice cube into a glass of cold water.

1. 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.
2. Hang the string over the ice cube.
3. Place a little more salt over the string.
4. Wait about 3 minutes. Try lifting the ice cube out of the glass. The string should be attached to the ice.

How it works:

This experiment works because the salt will melt the ice and cause some water to form on top of the ice cube. This water will then re-freeze around the string, causing the string to be attached to the ice cube. Water becomes ice at a temperature of 0 degrees Celsius (32 degrees Fahrenheit), which we call the freezing point of water. Adding salt to water lowers the freezing point, and prevents the formation of ice.

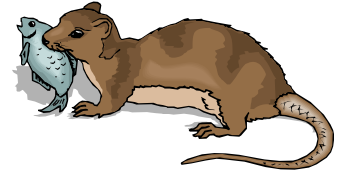
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Whose Fur Is This?

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

What you need:

- About 5 fur frames (instructions follow)
- Blindfold



Instructions:

- 1) Talk about the different types of fur. Which kinds belong 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 the softest, which one is the longest, which one is the shortest, etc.
- 3) Feel the long guard hairs and the softer underhairs. Explain that the long guard hairs protect the animal from things like dirt and insects, while the short, fluffy undercoat helps the animal stay warm. Some animals, like wolves, shed their undercoats in the summer to stay cool.
- 4) Blindfold one child at a time and let her feel and identify the different furs.



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Fur Frame

You will need to make several frames with different types of fur to do the previous activity.



What you need:

- Small scraps of different types of fur
- Synthetic sinew or string
- Sewing awl or large nail
- Tree branch, about 2 cm in diameter
- Knife
- Hacksaw

Instructions

- 1) Strip the bark off the branch.
- 2) Cut the branch into four equal lengths, depending on the size of your fur scrap. Each length should be about 5 cm longer than one side of the fur.
- 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.

Instead of doing this activity with fur from different animals, you may want to try doing it with hide in different stages of preparation.

From: *Mary Rose Sundberg, Goyati Ko*

Science Fun!

We All Scream for Ice Cream!

Book for circle time: *Ice Cream Larry* by: Daniel Pinkwater

This experiment will make some yummy ice cream from scratch.

What you need:

- 1 tablespoon sugar
- ½ cup of milk or half and half
- ¼ teaspoon of vanilla
- 1 sandwich size ziplock baggie
- 1 larger sized ziplock baggie
- 2 tablespoons rock salt
- duct tape
- towel



Instructions:

1. In the smaller ziplock baggie, mix the milk, vanilla and sugar.
2. Squeeze out the extra air and seal the baggie with duct tape so it won't leak.
3. Put the small baggie into the larger baggie and fill it with ice, and salt. Adding salt to the ice will help make the ice cream get colder faster.
4. Squeeze the air out of the large baggie and seal it closed with duct tape, so the baggie won't leak.
5. Now, gently massage the baggies or throw them gently into the air for about 10 -15 minutes. You can wrap a towel around the baggies so that your hands won't freeze.
6. Discard the larger baggie and the ice/salt mixture.
7. When ready, eat the ice cream directly from the baggie.

From: <http://pbskids.org/zoom>

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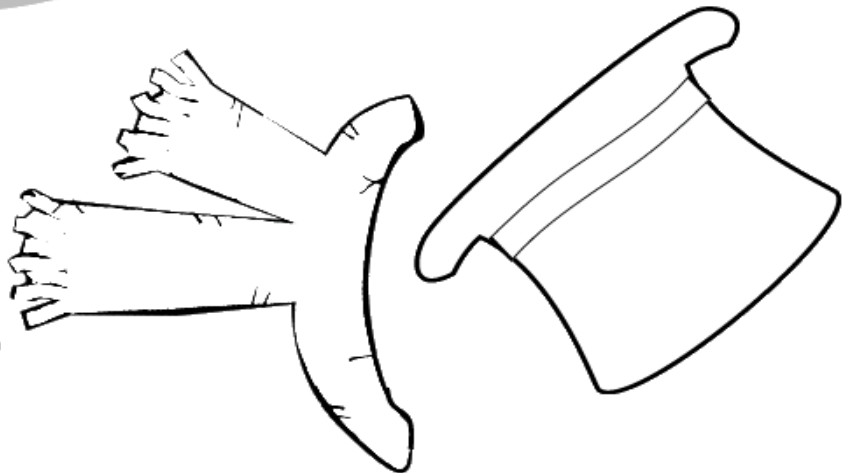
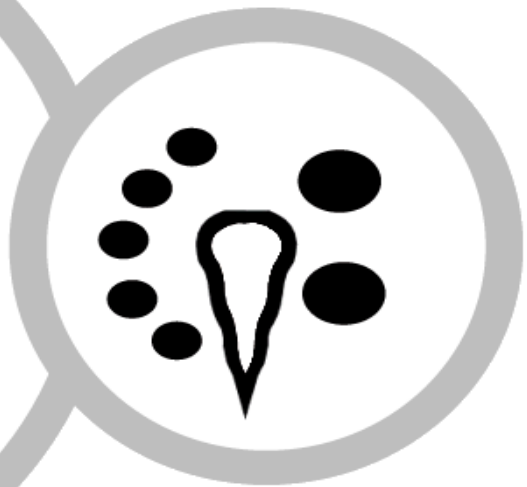
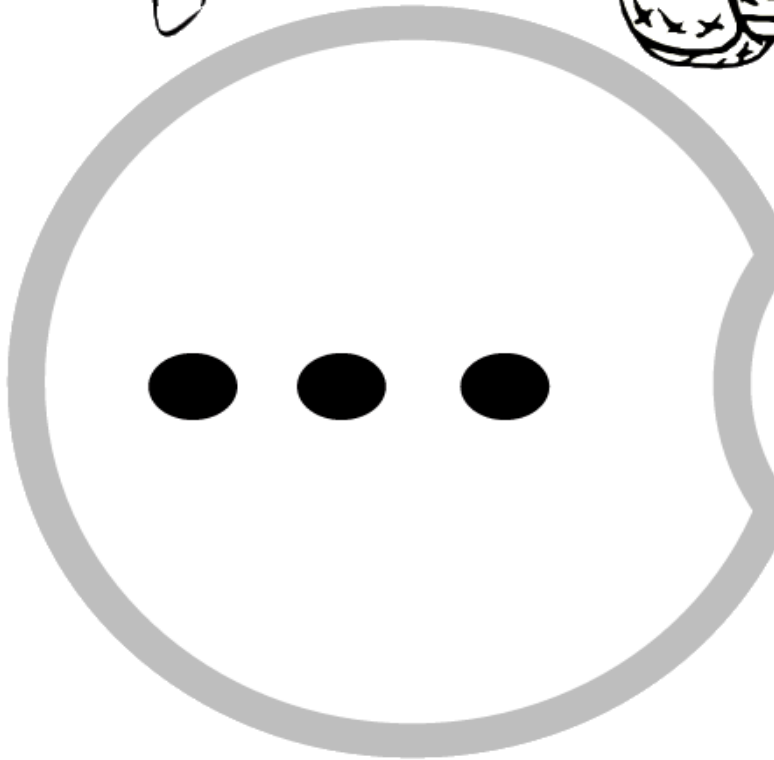
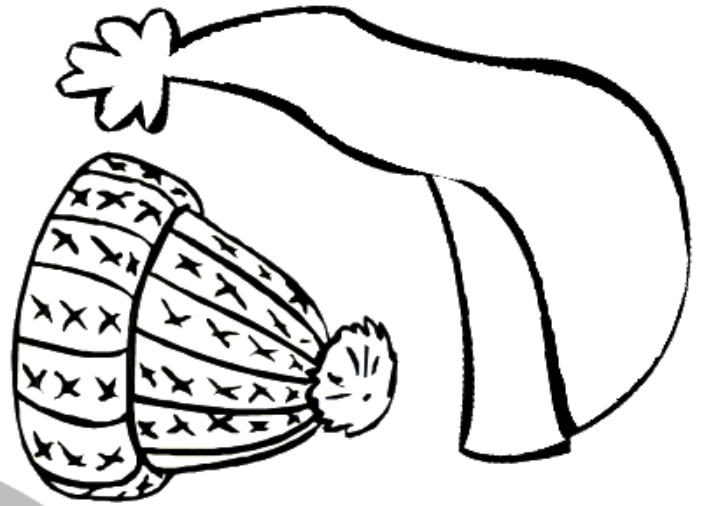
How it works:

- Rock salt forces the ice surrounding the ice cream mix to melt.
- The "brine solution" or liquid that forms absorbs heat from the mix and gradually lowers the temperature of the mix until it begins to freeze.
- If there were no salt added to the ice, it would melt at 0 degrees Celsius (32 degrees Fahrenheit) and eventually the ice water and mix would come to equilibrium at 0 degrees Celsius (32 degrees F)
- The ice cream mix, however, does not begin to freeze until its temperature falls below 2.7 degrees. Therefore, in order to freeze the mix, we need a salt concentration, or a ratio of 5 cups of ice to 1 cup of salt. At this concentration, our brine temperature should remain constant at -11 to -13 degrees Celsius.
- This will give the rapid cooling and freezing that is essential to making smooth creamy ice cream.

On the next page is an activity that you can photocopy as a fun activity.

From: www.makeicecream.com

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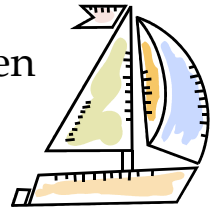


Science Fun!

Sink? or Float?

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

This experiment will allow you to think about why some things sink in water and why others float.



What you need:

- Large plastic tub (clear works best)
- Water
- A variety of items (enough for 1 for each child) such as:
 - an orange
 - plastic action figures
 - toy boat
 - dinkie car
 - ball of aluminum foil
 - rubber ball
 - empty drink container (water bottle)
 - a coin
 - playdough (2 equal sized pieces, 1 rolled in a ball and 1 flattened out)

Instructions:

1. Allow the children to choose an item to place in the water.
2. Before they put their items in the water, ask each child to guess whether her item will sink or float.
3. Drop the items one at a time into the water.
4. Why do some sink, and some float?
5. Why does the ball of playdough sink and the flattened piece float?



Science Fun!

Why do some items sink, and some float?

There are three factors that tell you whether an object will sink or float: density, buoyancy and displacement.

Density refers to how much stuff is packed into a space. If an object is less dense than water, it will float. If it is denser than water, it will sink. This is why a sponge will float, but a rock will sink.

Buoyancy is the force of water pushing upwards on an object. Floating is like a pushing contest between water and objects in the water. Lighter, less dense objects do not push down as hard as water pushes up, so they float. Denser, heavier objects push down harder than water, so they sink.

If you spread the weight of an object out over a larger area, you spread out its downward force. If you spread it out enough, it will be less than the force of water pushing up. This is why humans float when stretched out in the water, but sink when curled up in a ball. It is also why the spread-out playdough floated, and the ball of playdough sank.

Displacement is the amount of water an object pushes aside. An object will float if it weighs less than the amount of water it pushes away.

Science Fun!

It's Getting Foggy Out!!!

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



What you need:

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

Instructions:

1. Fill the large jar/bottle with hot water all the way to the top.
2. Pour most of the water out, leaving about 2 centimeters in the bottom.
3. Set the strainer over the mouth of the jar and put ice cubes in the strainer.
4. Watch what happens!

How it works:

Fog is created from water. In this experiment, the cold air from the ice cubes will cause the warm, moist air in the bottle to condense. This forms fog.

From: http://www.dfo-mpo.gc.ca/canwaters-eauxcan/bbb-lgb/sandbox-sabliere/experiments-experiences/index_e.asp

On the next page is an activity that you can photocopy as a handout for families to take home.

Science Fun!

Mad Libs

Play this game with 2 people. Without letting the other person see the story, one person asks the other for the words listed below. Then she fills in the blank with the same number and reads the wacky story back to the first person. Switch roles for the second mad lib.

The Wacky Science Lab

1. Person's Name: _____
2. -ing Word: _____
3. -ing Word #2: _____
4. 2 Ingredients: _____
5. Action Word: _____
6. Toy: _____
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!

Science Fun!

Do You Feel What I Feel?

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



Introducing a feely bag to children will encourage their thinking, predicting, sorting and analyzing skills. Feely bags will also encourage the use of enriched language skills as children describe what they feel.

What you need:

- A fun bag that can be closed 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 are familiar with such as: a ball, comb, small car, puzzle piece, book, a piece of fur, sunglasses, a padlock, a crayon, a stuffed animal, Kleenex, etc.

Instructions:

1. Allow children to take turns putting their hands into the bag and feeling the object.
2. Ask them to describe the object using words such as hard, soft, flat, round.
3. Record their ideas.
4. After a child has described what she feels, allow her to guess what the object is.

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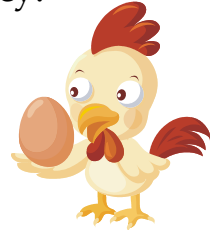
The Incredible Floating Egg

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

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

What You Need:

- A drinking glass or another similar container
- Water (room temperature)
- A teaspoon
- Table salt
- One egg (uncooked)



Instructions:

1. Fill the glass with water (leave enough room so that it won't spill when the egg is added and when stirring takes place).
2. Add the egg to the water.
3. Make note of what happens (the egg will sink).
4. Explain that you are going to add some salt to the water. Ask the children to estimate how much salt it will take to "hold up" the egg.
5. Add salt, one teaspoon full at a time, stirring after each addition.
6. Place the egg in the water after each addition of salt to see if it floats.
7. Record your findings. The egg will eventually float.

How it works:

Eggs are denser than fresh water, so they sink. Adding salt to water increases its density by squeezing more molecules into it. This is why a cup of saltwater will weigh more than a cup of fresh water even though they take up the same amount of room. If you add enough salt, the water will become denser than the egg, and the egg will float.

Science Fun!



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. Since it is made with common kitchen ingredients, it is safe for kids of all ages. Be prepared with smocks for the children to protect their clothes.

What You Need:

- Water (room temperature) about 1 cup
- 1 ½ - 2 cups cornstarch
- Food coloring (optional)
- Mixing bowl
- Spoon

Instructions:

1. Pour the water into the mixing bowl.
2. Begin to add the cornstarch to the water. Start with 1 cup of cornstarch.
3. Stir the water-cornstarch mixture with the spoon.
4. Continue adding the extra ½ cup of cornstarch. You will need to use your hand to mix it.
5. If you think you have too much water, add some more cornstarch, and if it seems too thick, add some extra water.
6. There is no set rule for making goop; you will have to play with it to get the right consistency.
7. When the goop is still it will seem like a solid, and when you try to grab it, it will act like a liquid.
8. When you have the desired mixture, it is time to add your food colouring. Slowly mix the colors around with your hand.

Science Fun!

9. Play with your goop.
10. If children seem to be afraid to touch it, you can put some in a ziplock bag for them to squish and play with.

How it works:

Goop is considered to be a Non-Newtonian fluid. This means that it is in between a liquid and a solid. Goop is a fantastic learning experience for children. They can use their vocabulary to describe how it feels, eg: slimy, squishy, runny, jiggly, soft.

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Colour Mixing

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

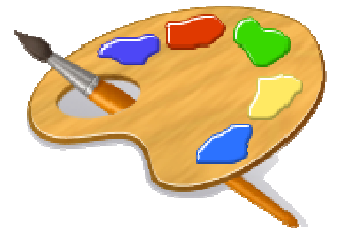
Children love to experiment with mixing colours. Older children can find out the answers to the questions on the next page.

What You Need:

- 3 mixing bowls
- 6-10 clear glasses
- Water
- Red, yellow and blue food colouring
- Measuring cups
- Apron or painting smock
- Old newspapers or plastic for covering your work surface

Instructions:

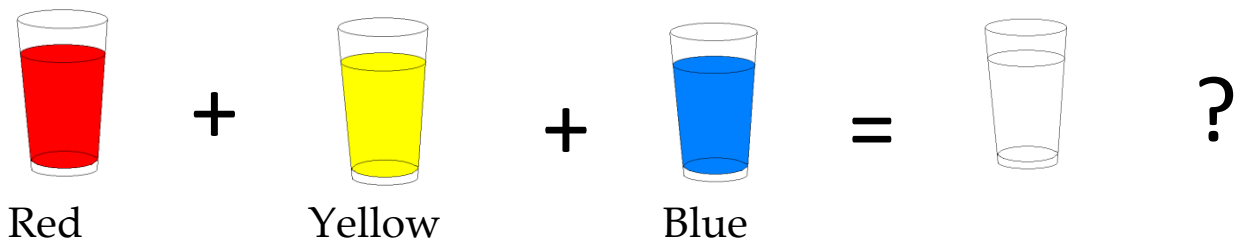
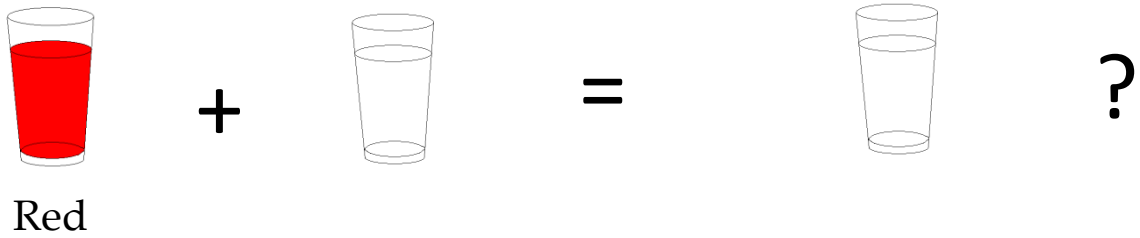
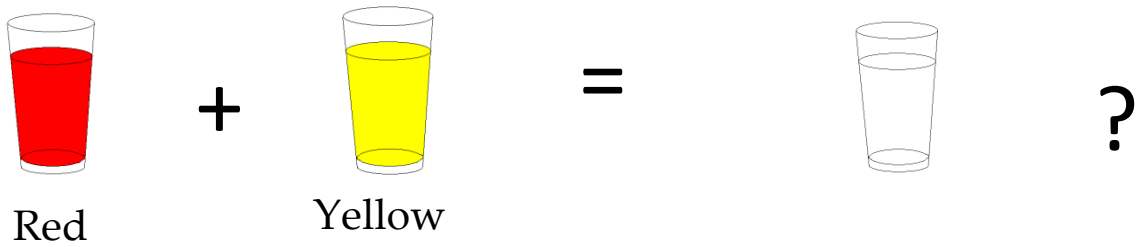
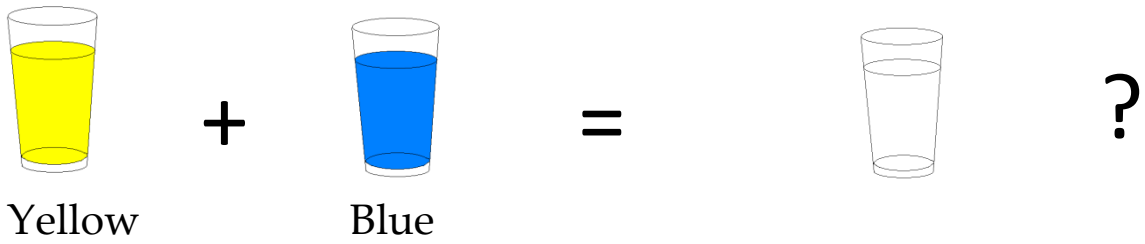
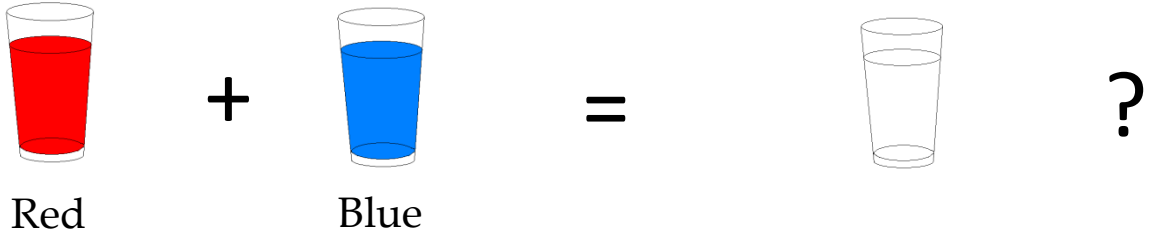
- 1) Fill each mixing bowl with water. Add a few drops of food colouring to each one (adult).
- 2) Spread newspaper or plastic over the table or counter.
- 3) Experiment with mixing the colours together in the glasses. Measuring cups are useful for transferring colours from the bowls to the glasses.
- 4) Older children may want to write out “recipes” for the colours they create. Include specific measurements and a name for the colour. An adult can help younger children write out recipes.



*This experiment was taken from the Books in the Home Kit, *Brown Bear, Brown Bear What Do You See?*

Science Fun!

Use markers or crayons to colour in the answers.



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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:

- Egg carton (break egg carton into individual “eggs” if using), styrofoam cup, margarine tub, etc.
- Potting soil
- Seeds
- Water
- Spoon
- Small rocks or gravel

Instructions:

1. Poke a hole in the egg carton or cup to allow for proper drainage.
2. Scatter a few rocks in the bottom. This will allow the water to come out without taking all the soil with it.
3. Fill the egg carton or cup about $\frac{1}{2}$ full with potting soil.
4. Plant your seed by placing it on the soil in the middle of the cup.
5. Place a small amount of soil on top of your seed until your cup is about $\frac{3}{4}$ full.
6. Water your plant, but don't use too much water.
7. Place your plant in a sunny window.

On the next page is an activity that you can photocopy as a handout for children to take home.

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Plant Colouring Sheet.

Can you find:

Leaf

Flower

Stem

Roots

Petal

