PLAYING WITH SCIENCE

Experiment of the Month:

Brown Bears & Polar Bears

Age Group: 2 years and up

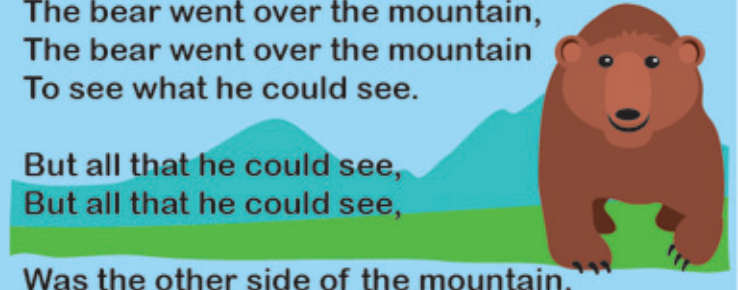
You will need:

Pictures of brown bears and polar bears
Shortening or lard
Disposable rubber gloves
Rubber bands
Bowl of ice water
Tables
Bed sheets

Sing a Song:

The Bear Went Over the Mountain

The bear went over the mountain,
The bear went over the mountain,
The bear went over the mountain
To see what he could see.



But all that he could see,
But all that he could see,

Was the other side of the mountain,
The other side of the mountain.
The other side of the mountain
Was all that he could see.

Sing other verses substituting river, glacier, tundra, iceberg, etc. for mountain. For the tune, search for "The bear went over the mountain" on youtube.com.

Read a Story:

Little Bear
by Elsa Holmelund Minarik.
Harper Collins, 1957.

The Mitten
by Jan Brett.
Putnam Juvenile, 1989.

1. Discuss pictures of brown bears and polar bears and their habitats.
2. Have everyone put on two gloves with rubber bands on their wrists to hold them.
3. Smear shortening completely covering one hand for each child.
4. Invite a couple of children at a time to hold both hands in the ice water.
5. Help children remove their gloves by grasping the wrist opening and pulling it off, so that the glove ends up inside out, with the shortening on the inside.
6. After the activity, have children hang bed sheets around the tables to make caves underneath where they can hibernate. Read them a story in the caves.

Ask Questions:

- How do your two hands feel different in the ice water? Why? Polar bears have a layer of fat called blubber that keeps them warm.
- Brown bears do not have blubber. Do you know what they do to keep warm? They go to sleep in a cave or "hibernate."
- What do you do to keep warm in the winter?

Play At Home:

What's in your closet that keeps you warm? Dress up and sing "Hat, Scarf, Coat, Pants and Boots" instead of "Head, Shoulders, Knees and Toes."

Written by Kaitlin Clear and Jennifer Jovanovic
Illustrated by Dennis Smith
October 2014

Science Beyond the Boundaries · Institute of Museum and Library Services · Virginia Discovery Museum · Saint Louis Science Center

PLAYING WITH SCIENCE

Age Group: 1-5 years

Experiment of the Month: Little Builders

You will need an assortment of sturdy building materials such as:

6”x6” flat, square pieces of cardboard
Cardboard tubes
Paper plates
Paper or plastic cups
Yogurt containers
Strawberry baskets
Pool noodles cut into 3-4” pieces
Flat egg carton tops
Old CDs
Craft sticks
(No tape needed!)

Allow children to freely decide how to design and build their structures. Through play and experimentation they develop:

- problem solving skills
- concepts of cause and effect
- an understanding of gravity, balance, strength and stability
- measurement concepts (such as “taller than” or “smaller than”)

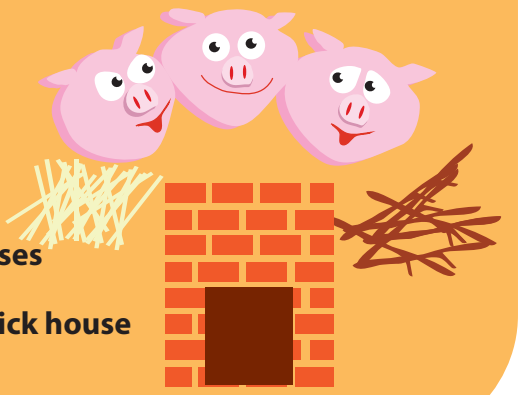
Read a Story:

The Three Little Pigs (folktale) or
The True Story of the Three Little Pigs by Jon Scieszka and Lane Smith. Viking Press, 1989.

Sing a Song:

Three Little Pigs
(sung to the tune of “Three Blind Mice”)

Three little pigs,
Three little pigs,
Each built a house,
Each built a house.
The wolf came by and
he huffed and puffed.
The straw and stick houses
were not so tough.
Thank goodness, the brick house
was strong enough
For three little pigs.



Ask Questions:

What do you think you could build with these materials?
I noticed the first tower you built fell down; what are you doing differently this time?
I noticed you put the cups (or whatever) on the bottom. How come?
Can you make a tower as tall as you are?

Play At Home:

You can build wonderful homes for your toy animals, dolls and cars using cardboard tubes, small boxes, yogurt containers and disposable cups!

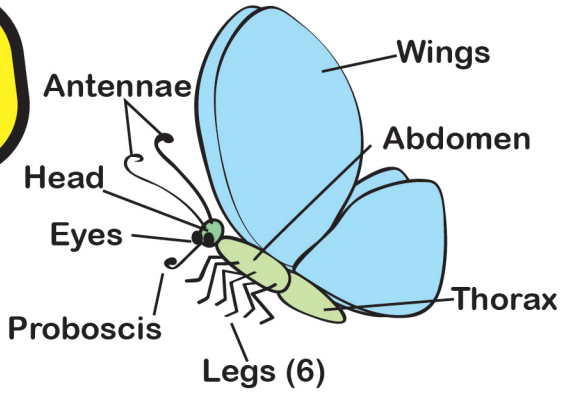
Written by Ellen Blinderman and Jennifer Jovanovic
Illustrated by Dennis Smith
July 2015

SCIENCE BEYOND the BOUNDARIES
INSTITUTE of Museum and Library SERVICES
THE LAWRENCE HALL OF SCIENCE UNIVERSITY OF CALIFORNIA, BERKELEY
SAINT LOUIS sciencecenter

PLAYING WITH SCIENCE

Age Group: 2-4 years

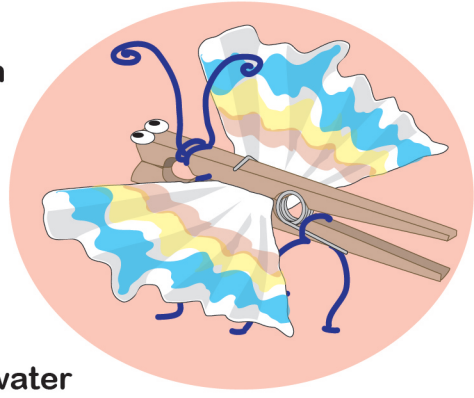
Experiment of the Month: Butterflies



You will need:

- Butterfly model or chart
- Clothespins
- Black pipe cleaners
- Googly eyes
- Glue
- Coffee filters
- Washable colored markers
- Aluminum pan
- Spray bottle of water

1. Twist the pipe cleaners (antennae and feet) to attach them to the clothespin.
2. Glue the eyes to the clothespin "head."
3. Color circles on the coffee filters with the markers.
4. Place the coffee filters in the aluminum pan.
5. Spray the filters lightly with water and discuss what happens. (Each marker color is made up of other colors mixed together. As the water moves, the colors spread out. This is called paper chromatography.)
6. After the filter dries, attach it to the clothespin to make wings, as shown.



Sing a Song:

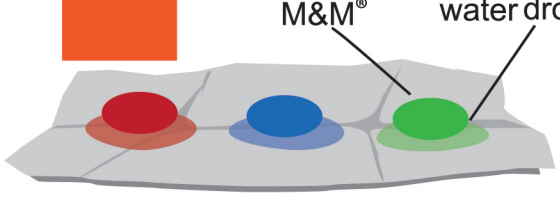
Fly, fly, fly, the butterfly
In the garden is flying high,
In the meadow is flying low,
Fly, fly, fly, the butterfly.

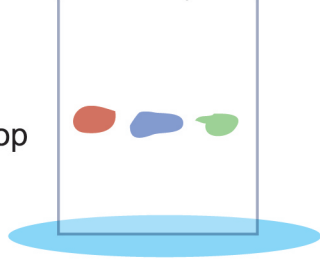
For the song's tune, search for "Fly, Fly, Butterfly" on youtube.com.

Ask Questions:

Have the children compare the butterfly model to their own bodies.
How many legs does the butterfly have? How many do you have?
The butterfly has wings. Do you?
How does the butterfly see?
How does the butterfly use its antennae? (for smell and touch)

Play At Home:





On a piece of foil, put different M&Ms® in separate drops of water so that the candy's color transfers into the water. Put one drop of each colored water across the middle of a strip of coffee filter. What happens when you dip one end of the filter in clean water?

Read a Story:

The Very Hungry Caterpillar
by Eric Carle.
Scholastic, 1987.

Written by Diane Robaina, Michelle Kortenaar and Jennifer Jovanovic
Illustrated by Dennis Smith
May 2014

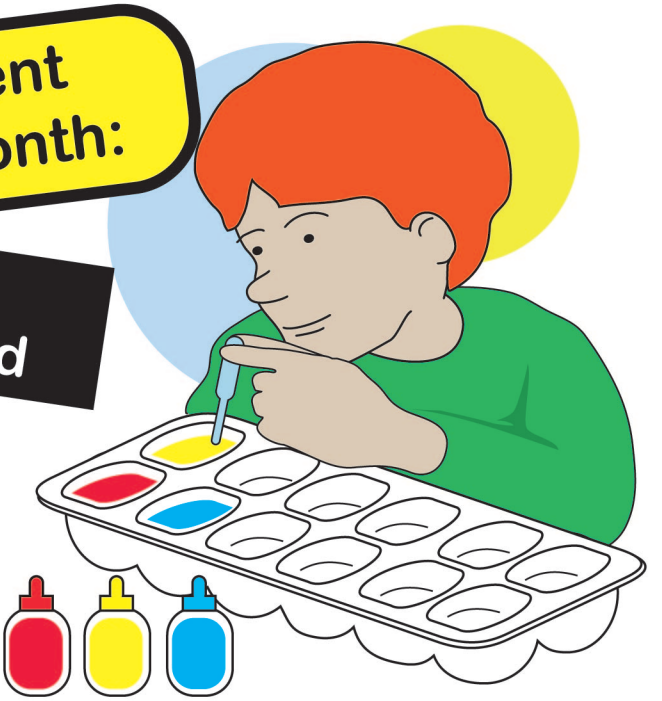
SCIENCE BEYOND the BOUNDARIES
INSTITUTE of Museum and Library SERVICES
MUSEUM OF DISCOVERY & SCIENCE
Sciencenter Ithaca, New York
SAINT LOUIS science center

PLAYING WITH SCIENCE

Age Group: 2-4 years

Experiment of the Month:

Color My World



You will need:

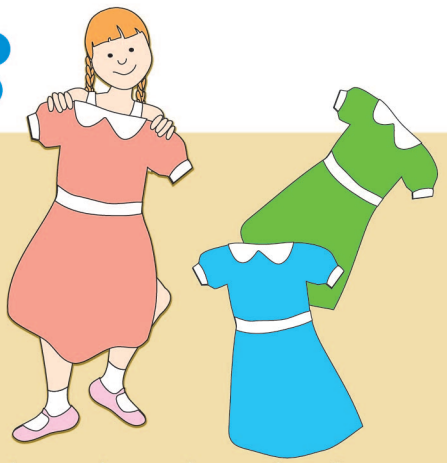
White ice cube trays
Water
Red, yellow and blue food coloring
Pipettes

1. Fill three cubes on the end of each tray with water.
2. Add one drop of red, yellow or blue food coloring to each cube. Explain that these "primary" colors can be mixed together to make all the colors in the world.
3. Distribute trays and pipettes.
4. Ask children to make new colors by moving water from filled cubes to empty cubes.

Ask Questions:

What colors did you make?
How do you make purple? (or orange or green)
How many colors did you mix together in one cube?
When you look around the room, can you find something that matches a color you made?

Sing a Song:



Jennie Jenkins

Will you wear red, oh my dear, oh my dear?
Will you wear red, Jennie Jenkins?
No, I won't wear red; it's the color of my head.

Chorus: I'll buy me a fol-de-rol-dy, til-de-tol-dy
Seek-a-double, use-a-cause-a, roll-a-find-me
Roll, Jennie Jenkins, roll.

Will you wear blue, oh my dear, oh my dear?
Will you wear blue, Jennie Jenkins?
No, I won't wear blue 'cause blue won't do.
(Repeat Chorus)

Will you wear green, oh my dear, oh my dear?
Will you wear green, Jennie Jenkins?
No, I won't wear green; it's the color of a bean.
(Repeat Chorus)

Make up your own rhymes for other colors. For more verses and the song's tune, search for "Jennie Jenkins" on youtube.com.

Read a Story:

Mouse Paint
by Ellen Stoll Walsh.
Harcourt, 1995.

Play At Home:

Play "I Spy" finding colors around your house or at the grocery store.

Written by Laura Christian and Jennifer Jovanovic
Illustrated by Dennis Smith
April 2014

SCIENCE BEYOND the BOUNDARIES
INSTITUTE of Museum and Library SERVICES
DISCOVERY Children's Museum
SAINT LOUIS science center

PLAYING WITH SCIENCE

Age Group: 3-5 years

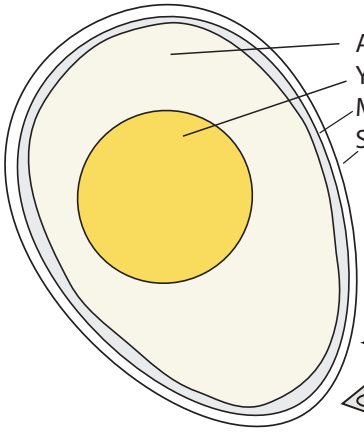
Experiment of the Month: EGGS

You will need:

Eggs, Plate, Styrofoam, Egg cartons, Bubble wrap, Plastic bags, String, Scissors, Masking tape, Stairs, Yardstick

Before doing this activity, confirm that no one is allergic to eggs.

1. Break an egg on a plate. Invite the children to take a close look and touch it, if they like. Discuss the parts of the egg.
2. Spread out the materials and recycled supplies. How can you protect an egg from breaking when it is dropped?
3. Ask the children to work in teams to design a structure to protect their eggs.
4. Test the structures by dropping them first from a small distance.
5. Measure each drop with the yardstick so that all eggs start at the same height, going higher and higher up the stairs.



Sing a Song:

The Green Grass Grew All Around (Excerpt)

by William Jerome and Harry Von Tilze

The leader sings the first part and the group repeats.

There was a nest (There was a nest)
Upon a tree (Upon a tree)
The prettiest nest (The prettiest nest)
That you ever did see (That you ever did see).
Well, the nest in the tree
And the tree in the ground
And the green grass grew all around, all around
And the green grass grew all around.

And in this nest (And in this nest)
There was an egg (There was an egg)
The prettiest egg (The prettiest egg)
That you ever did see (That you ever did see).
Well, the egg in the nest
And the nest in the tree
And the tree in the ground
And the green grass grew all around, all around
And the green grass grew all around.

And on the egg (And on the egg)
There was a bird (There was a bird)…

Song continues as above. For the tune and more verses, search for "The Green Grass Grew All Around" on youtube.com.

Ask Questions:

How do the parts of the egg look and feel different?
What is the purpose of the eggshell?
What materials and what thickness work best to protect the egg?
What can you make with the plastic bag to slow the egg down as it falls?

Play At Home:

Ask an adult to separate an egg white from the yolk. Whisk the egg white until it starts to get bubbly. What happens if you keep whisking?

Read a Story:

An Extraordinary Egg
by Leo Lionni.
Dragonfly Books, 1998.

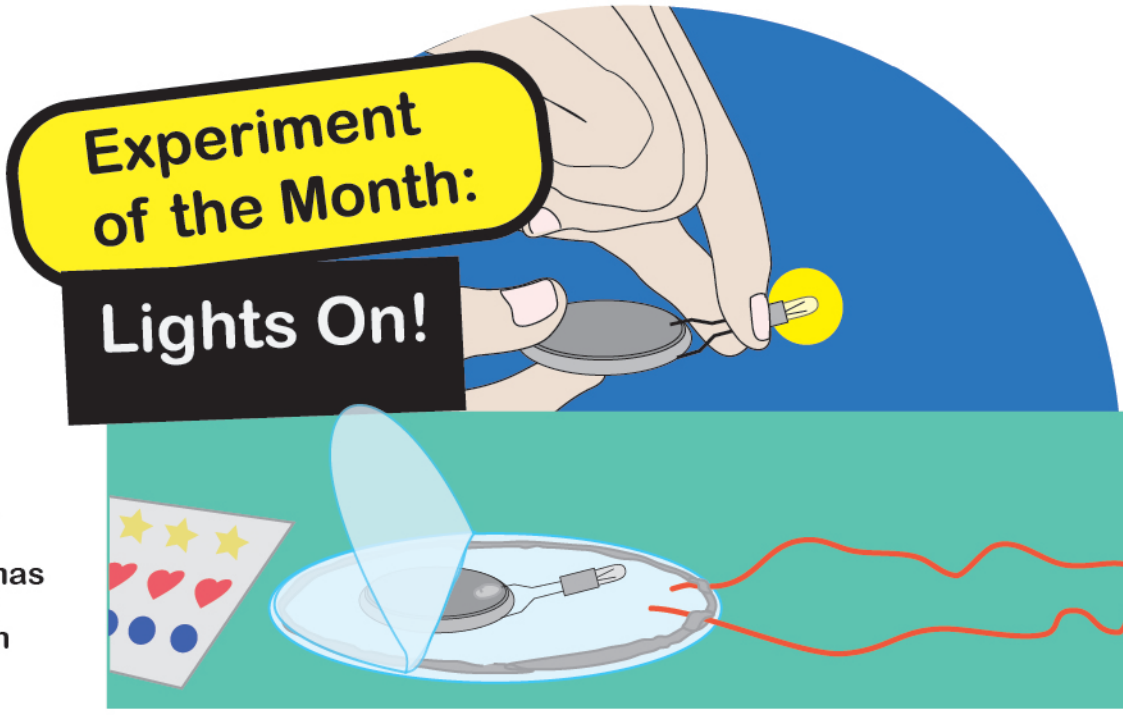
Written by Sandy Henry and Jennifer Jovanovic
Illustrated by Dennis Smith
June 2015

SCIENCE BEYOND the BOUNDARIES a program of the Saint Louis Science Center
INSTITUTE of Museum and Library SERVICES
SCIENCE SPECTRUM
SAINT LOUIS science center

PLAYING WITH SCIENCE

Age Group: 3-7 years

Experiment of the Month: Lights On!



You will need:

Transparent, plastic tablecloth
Scissors
3V calculator battery
Adhesive putty
LED, or small Christmas tree lights, cut apart
Key chain and/or yarn
Decorative stickers

1. Cut the tablecloth into two circles per child, 2″ diameter.
2. Let children experiment with the LED and the battery to make it light up, creating a simple circuit.
3. Use the putty to attach the circuit in the middle of one plastic circle.
4. Put putty around the edge of the circle and attach the second circle on top.
5. Attach the chain or yarn to make a key chain or necklace. Decorate with stickers.

Sing a Song:

Electricity
by Bob Dorough,
"Schoolhouse Rock"

When you're in the dark and you want to see
You need, uh . . . electricity, electricity.
Flip that switch and what do you get?
You get, uh . . . electricity, electricity.
Every room can now be lit
With just, uh . . . electricity, electricity.

Where do you think it all comes from
This powerful . . . electricity, electricity?
Through high wires to here it comes.
They're bringing, uh . . . electricity, electricity.

For the song's tune and last verses, search for Electricity and Schoolhouse Rock on youtube.com.

Ask Questions:

What is electricity? It's a type of energy that can move from one place to another.

What things need electricity to work? What things don't?

What do you need to do to make the bulb light or turn off?

What's a circuit? It's a path where electricity flows. Your circuit made the bulb light up.

Read a Story:

When Charlie McButton Lost Power
by Suzanne Collins.
Puffin, 2007.

Play At Home:

Go on a treasure hunt for things you can find at home that use electricity.

Written by Marwa Soudi and Jennifer Jovanovic
Illustrated by Dennis Smith
September 2014

SCIENCE BEYOND the BOUNDARIES
INSTITUTE of Museum and Library SERVICES
IDEAS GYM
SAINT LOUIS science center

PLAYING WITH SCIENCE

Age Group: 2-4

Experiment of the Month: Mud (and other stuff that absorbs water)

You will need:

cups of water; soil; pipettes; plastic trays; disposable diapers, and some of these materials: yarn, foil, construction paper, sponges, paper towels, wax paper, cotton balls, clay, gravel, sand, grass

You'll want to have a sink nearby for hand washing after this activity.

1. What soaks up water as well as soil does? Put the materials you would would like to test on your tray, about the same amount of each.
2. Add drops of water from your pipette to each material and see what happens.
3. Count the drops as you go to see which material absorbs the most.
4. Choose a combination of the materials to mix together and create something new.

Read a Story:

This House is Made of Mud/Esta casa esta hecha de lodo by Ken Buchanan and Libba Tray. Reading Rainbow, 2004.

Sing a Song:

I Love Mud

Mud, mud, I love mud.
I'm absolutely,
positively, wild about mud!
I can't go around it; I've gotta go through it.
Beautiful, fabulous,
super-duper mud!

For the song's tune and other lyrics, search for "I love mud" on youtube.com.

Ask Questions:

What materials do you think will absorb water the best?
Which materials are found in nature? Which ones are made by people?
How does the soil change when you add water?
What can you make by mixing some of the materials together?
If you leave the wet materials in the sun, what do you think will
What happens when you take apart a disposable diaper? With adult supervision, try adding water to the powder inside.

Play At Home:

Make your own adobe bricks by mixing soil, clay, grass, sand and water. Leave your bricks to bake in the sun until they are hard.

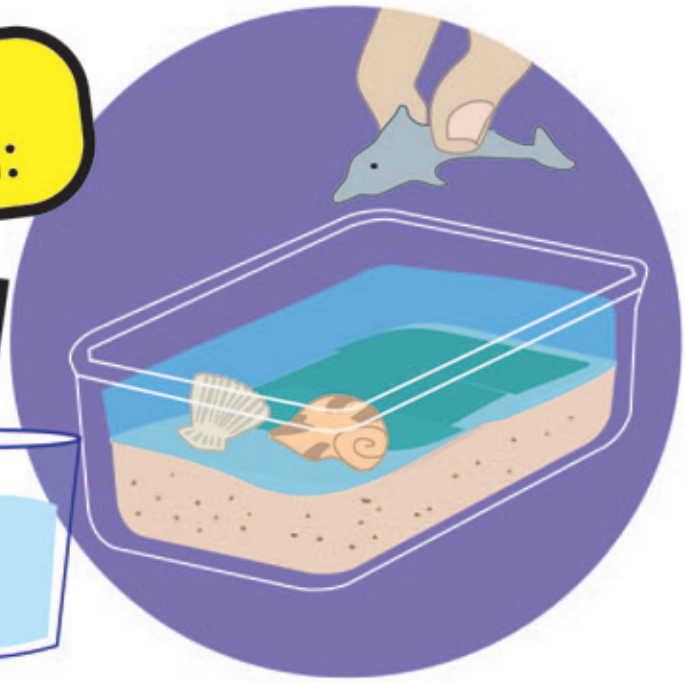
Written by Alex Laube and Jennifer Jovanovic
Illustrated by Dennis Smith
August 2015

SCIENCE BEYOND the BOUNDARIES
INSTITUTE of Museum and Library SERVICES
Marbles kids museum
SAINT LOUIS science center

PLAYING WITH SCIENCE

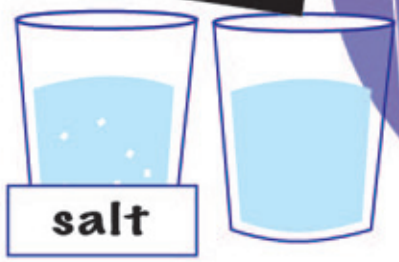
Age Group: 2-4 years

Experiment of the Month: Ocean Habitat



You will need:

Salt
Water
Small (4-oz) cups
Shoebox-sized tubs (1 for every 2 children)
Sand
Nori (seaweed from Asian or large grocery store)
Seashells
Plastic toy ocean animals



1. Assemble shoebox tubs with sand, salt water, seaweed and shells.
2. Explain that this is a model of an ocean **habitat,** a place where certain kinds of animals and plants live.
3. Give each child 1 small cup of water with salt sprinkled in and 1 small cup of plain water to compare.
4. Give each child a toy ocean animal to play with in the habitat tub.

Sing a Song:

Octopus (Slippery Fish)
by Charlotte Diamond

Slippery fish, slippery fish,
Sliding through the water,
Slippery fish, slippery fish,
Gulp, Gulp, Gulp!
Oh, no! It's been eaten by an …

Octopus, octopus,
Squiggling in the water,
Octopus, octopus,
Gulp, Gulp, Gulp!
Oh, no! It's been eaten by a …

Tuna fish, tuna fish,
Flashing in the water,
Tuna fish, tuna fish,
Gulp, Gulp, Gulp!
Oh, no! It's been eaten by a …

For the song's tune, hand motions and last two verses, search for "Slippery Fish" on youtube.com.

Ask Questions:

Would the ocean be a good habitat for people?
Would it be a good habitat for a shark?
What animals live in an ocean habitat?
What does the seaweed in your habitat feel like?
What does the sand feel like?
By looking, smelling, feeling and tasting, how can you tell the difference between the salt water cup and the fresh water?

Read a Story:

Octopus Alone
by Divya Srinivasan.
Viking Juvenile, 2013.

Play At Home:

Visit a stream, lake or ocean and look closely for plants and animals that live there. Visit a pet store and observe the different kinds of fish.

Written by Alyssa Kester and Jennifer Jovanovic
Illustrated by Dennis Smith
June 2014

You can download all of our Experiments of the Month at the Preschool Page at sciencebeyondtheboundaries.com.

PLAYING WITH SCIENCE

Age Group: 2-5

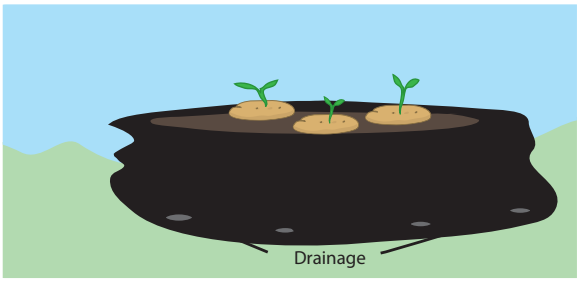
Experiment of the Month: One Potato, Two Potato

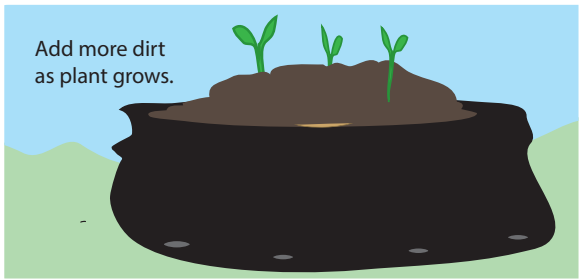
You will need:
small organic potatoes that have started to sprout; black 30-gallon trash bag; scissors; 7 gallons of potting soil; ruler; water; an assortment of colorful vegetables

- Before your museum program, follow the instructions below and give your potatoes some time to grow.
- Set out different types of vegetables for the children to study.
- Discuss their colors, shapes and names.
- Gather around the trash bag to see what's growing inside.
- Send every child home with a sprouted potato and this instruction sheet.

How to Grow Potatoes in a Trash Bag

1. Cut drain holes in the bottom of the bag. Fill with dirt 6" deep. Roll the sides of the bag down and put it in the sun.
2. Place 3 potatoes in a triangle on top of the soil, eyes up. Add 2" dirt and water them, draining any excess.
3. When plants are 6" tall, cover with soil so that only the top few leaves poke through. Continue adding soil as they grow, until the bag is completely full. Keep watering your plants.
4. When the leaves yellow and die, cut the bag open and collect your potatoes!





It will take about 10 weeks for your potatoes to grow. A light frost won't hurt them, but freezing cold will, so choose your location and timing with that in mind.

Ask Questions:

Which vegetables come from the ground?
Which vegetables are leaves?
How many vegetables are green, yellow, etc.?
Which vegetables begin with the letter B, P, etc.?
What does a potato need to be able to grow?

Read a Story:

Potato Joe by Keith Baker.
Harcourt Children's Press, 2008.

Play A Game:

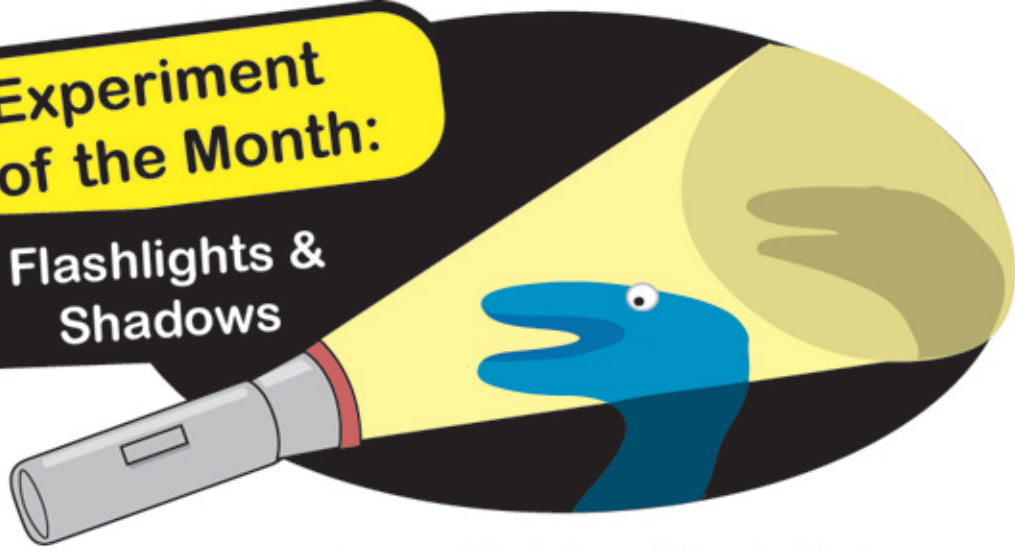
Sitting in a circle, children toss a potato around while music is playing. When the leader stops the music, call out "hot potato" and whoever is holding the potato gets to take it home to plant.

Written by Patsy Reublin and Jennifer Jovanovic
Illustrated by Dennis Smith
September 2015

You can download all of our Experiments of the Month at the Preschool Page at sciencebeyondtheboundaries.com.

PLAYING WITH SCIENCE

Experiment of the Month: Flashlights & Shadows



Age Group: 2-4 years old

You will need:

- A flashlight for each child
- Pieces of vacuum hose
- Sock puppets
- Wall to shine your lights on
- Large light for the adult

Sing a Song: My Furry Little Shadow

by Tony Geiss, Sesame Street

I have a furry shadow, it looks a lot like me
It goes wherever I go, as you can plainly see
And when I do like this...
Or when like this I do...
Or when I run around and round
And round and round and round and round
And round and round and round and round
My shadow does it too.

My furry little shadow, it sleeps with me at night
I know because it's always there when
I turn on the light
And when I give a skip...
Or play a little game...
Or when I hop and hop and hop
And hop and hop and hop and hop
And hop and hop and hop and hop
My shadow does the same.

For other verses and the tune, search for "My Furry Little Shadow" on youtube.com.

1. Turn off the lights and close the blinds.
2. Use your flashlights to "touch" and name different objects around the room.
3. Find a partner and experiment with the flashlights and the hose, when it is straight and when it is bent in a U shape.
4. Try writing your name with your flashlight.
5. Play "I Spy" naming things in the dark room and then finding them with the flashlights.
6. Shine the flashlight on the sock puppet to see its shadow.
7. Collect the children's flashlights and shine a large light on the wall so that they can dance and watch their shadows while they sing "My Furry Little Shadow."

Ask Questions:

- How does your light travel? Can it go around corners?
- What happens when you shine the light through the U-shaped hose?
- What causes shadows? What makes your shadow get bigger or smaller?
- You see a shadow when light is blocked. What things can a light shine through?

Read a Story:

Read in the dark using a flashlight.

Moonbear's Shadow
by Frank Asch. Aladdin, 2014.

Nothing Sticks like a Shadow
by Ann Tompert.
HMH Books, 1988.

Play At Home:

Go outside at different times of day and see how your shadow changes. When the Earth turns, the Sun shines in different spots, sometimes right over the top of your head, sometimes closer to the ground.

Written by Laurie Duncan and Jennifer Jovanovic
Illustrated by Dennis Smith
November 2014

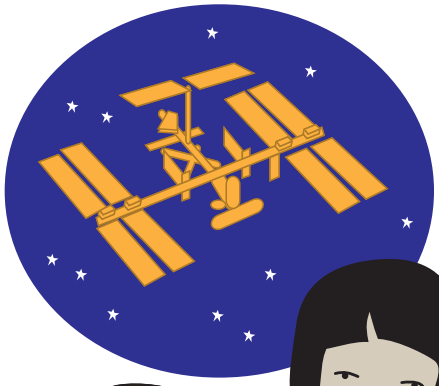
Science Beyond the Boundaries · Institute of Museum and Library Services · Saint Louis Science Center

You can download all of our Experiments of the Month at the Preschool Page at sciencebeyondtheboundaries.com.

PLAYING WITH SCIENCE

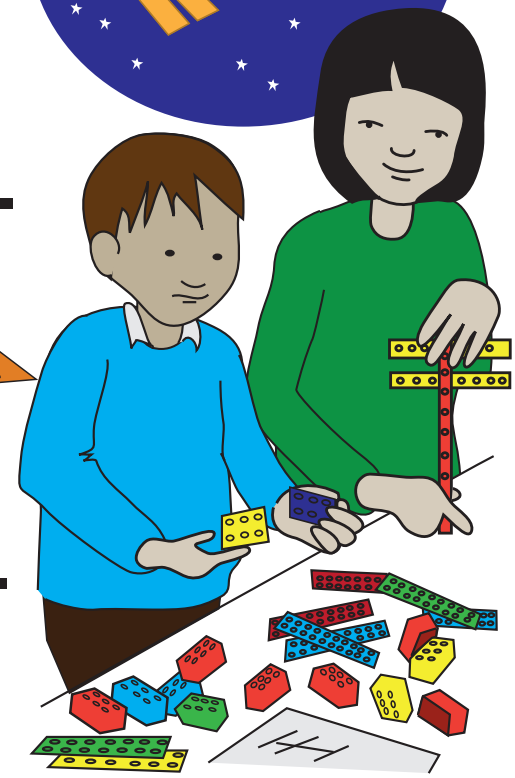
Age Group: 3-5 years old

Experiment of the Month: SPACE

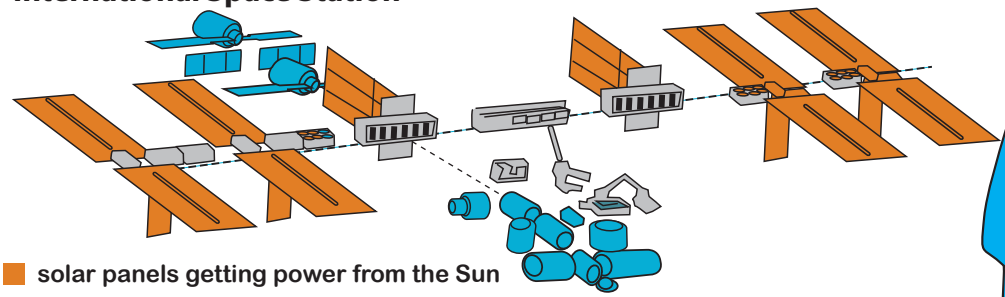


You will need:

- plastic interlocking bricks
- the drawing below
- your imagination



International Space Station



solar panels getting power from the Sun

where astronauts live, work and exercise

Sing a Song:

Zoom, Zoom, Zoom
We're going to the Moon.
Zoom, Zoom, Zoom
We're going to the Moon.
If you want to take a trip,
Climb aboard my rocket ship.
Zoom, Zoom, Zoom
We're going to the Moon.
10, 9, 8, 7, 6, 5, 4, 3, 2, 1
Blast off!

For the song's tune, search for "Zoom, Zoom, Zoom, We're going to the Moon" on youtube.com.

Ask Questions:

- What's the difference between living in Space and living on Earth?
- Would you like to be an astronaut? Why or why not?
- If you were in charge of putting the Space Station together, what would you include?
- What do astronauts need to be safe on the Space Station?
- If you were going to be in Space for a long time, what would you bring with you?

Read a Story:

Max Goes to the Moon, by Jeffrey Bennett. Big Kid Science, 2012. See Astronaut Alvin Drew read this book from the Space Shuttle Discovery on jeffreybennet.com/video.

Play At Home:

Flatten out and tape together enough paper grocery bags so that you can lie down and have a grown up trace around your body. Decorate the drawing to make yourself look like an astronaut in a space suit.

Written by Ron Rohovit and Jennifer Jovanovic
Illustrated by Dennis Smith
February 2015

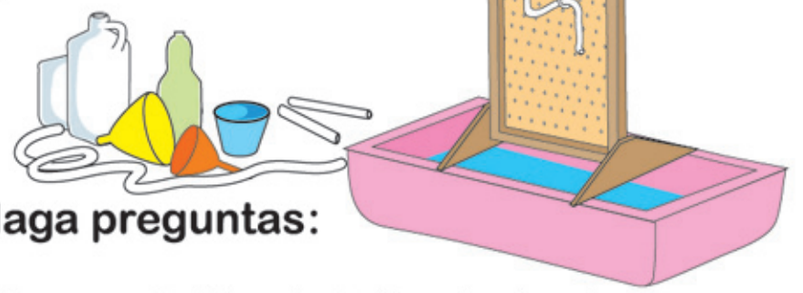
You can download all of our Experiments of the Month at the Preschool Page at sciencebeyondtheboundaries.com.

JUGANDO CON CIENCIA

Edad del grupo: 2-4 años

Experimento del Mes:

Pared de Agua



Que va a necesitar:

Un envase de plástico grande alrededor de 5" de profundidad
Un trozo de perfocel más ancho que el envase plastico, con triángulos de madera adjunta a la parte inferior (ver dibujo)
El agua para llenar el envase plastico hasta la mitad
Materiales para llenar el envase:

- ganchos de metal
- cartones de leche
- embudos
- tubos de plástico
- envases reciclados

Haga preguntas:

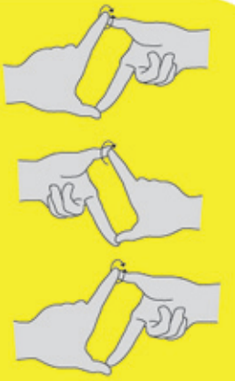
¿Cómo se puede utilizar el material en el contenedor para mover el agua de la pared?
¿Cuál es la mejor manera de unir las piezas para mover la mayor cantidad de agua?
¿Qué sucede si se vierte rápidamente? ¿Poco a poco?
¿Se puede predecir donde el agua se desplazará y dónde caerá?

Canta una canción:

La araña pequeñita subió, subió, subió,

Vino la lluvia y se la llevó.

Salió el sol y todo lo secó.



Y la araña pequeñita subió, subió, subió,

Leer una historia:

Nadarin/Swimmy
por Leo Lionni.
Lectorum Publications, 2005.

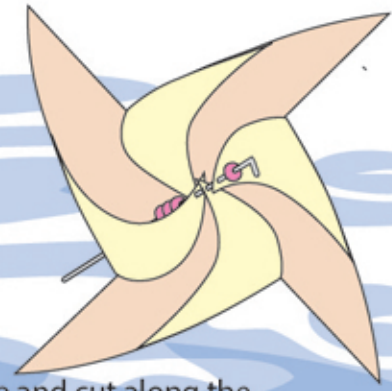
Para jugar en casa: Puede usar una bañera en lugar de un envase de agua.

Escrito por Amy Eisenmann y Jennifer Jovanovic
Traducciones de Romina Branje
Ilustrado por Dennis Smith

08 2014

PLAYING WITH SCIENCE

Experiment of the Month: Windy



Age Group: 2-4 years old with adult

You will need:

- pattern on the next page
- scissors
- 1 paper clip
- 8 beads
- party hat or straw
- tape

1. Cut out the square on the next page and cut along the dotted lines of the pattern.
2. Unfold the paper clip, and then fold one end back to make a tiny loop.
3. Thread a bead on to the paper clip.
4. Lift up one of the paper flaps by the dotted corner and poke it through the back of the paper using the end of the paper clip. Repeat for the 3 other flaps.
5. Thread 3 beads on to the paper clip, poke the paper clip through the final dot in the center of the template, and then add 4 more beads.
6. Fold the remaining length of the paper clip down at a right angle.
7. Tape the paper clip to the top of the party hat or straw.

Sing a Song:

I See The Wind
by Jean Warren

I see the wind when the leaves dance by.
I see the wind when the clothes wave, "Hi!"
I see the wind when the trees bend low.
I see the wind when the flags all blow.
I see the wind when the kites fly high.
I see the wind when the clouds float by.
I see the wind when it blows my hair.
I see the wind 'most everywhere.

This can be a fingerplay or sung to the tune of "Hush Little Baby" or "Mulberry Bush."

Ask Questions:

- What makes the pinwheel spin? Can you make it go faster or slower? Can you make it stop?
- What happens when you wear your hat outside?
- We can't see the wind, so how do we know it's there? Look out the window to find some examples.
- Sometimes the wind is so strong that we use it to make things move. Compare the pictures to your hat. What similarities do you see?



Read a Poem:

Wind Song by Lilian Moore

When the wind blows
The quiet things speak.
Some whisper, some clang,
some creak.

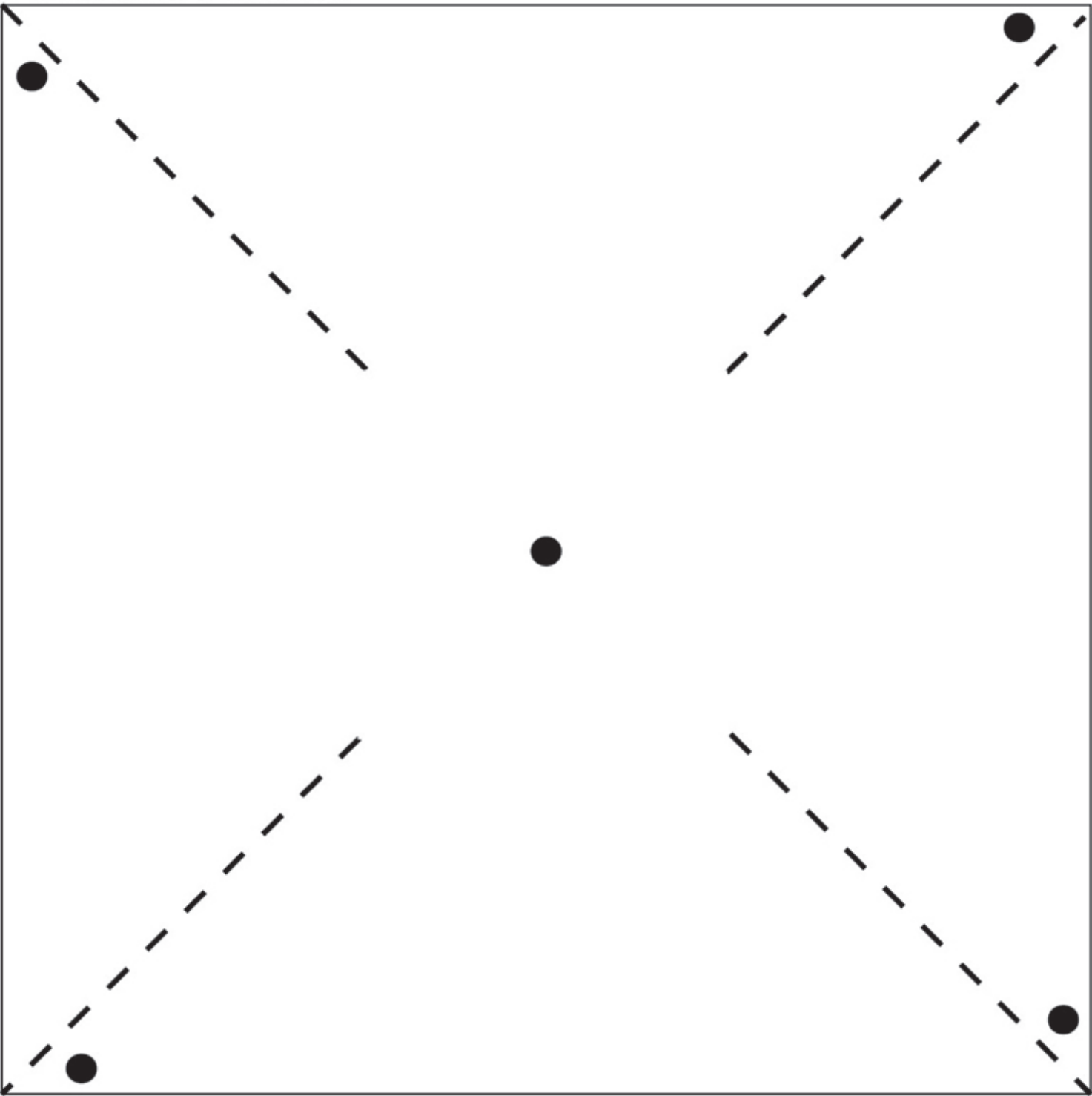
Grasses swish.
Treetops sigh.
Flags slap
and snap at the sky.
Wires on poles
whistle and hum.
Ashcans roll.
Windows drum.

When the wind goes –
suddenly
then,
the quiet things
are quiet again.

From I Feel the Same Way by Lilian Moore.
Atheneum, 1967.
We suggest you give a copy of the poem to each adult so that you can all read together.

Written by Emma Meadley and Jennifer Jovanovic
Illustrated by Dennis Smith
December 2014

Pinwheel Pattern



PLAYING WITH SCIENCE

Age Group: 3-5 years

Experiment of the Month: Take it Apart

Before the Activity: Gather toys with moving parts and simple electronics from thrift stores and yard sales. Examples might be a child's cash register, toys that light up or play music, remote controls, flashlights, or radios. Disassemble each toy and ensure that there are no sharp edges and points inside, or springs that may become projectiles. Remove plugs and cords. Remove most of the screws from the toys, leaving only a few, so that disassembly is easy.

You will need:

Reassembled children's toys
Practice boards to try tools
Large and small screwdrivers, (Phillips and straight)
Pliers
Magnifiers
Safety goggles
Screws

1. Study the toys and discuss children's ideas about how they work and what's inside.
2. Show children how a screwdriver works. Have them put on goggles and try using screwdrivers on their practice boards.
3. Give each child a toy to take apart. Make sure they wear goggles when using the tools.
4. Study the inside of the toys with the magnifiers.

Ask Questions:

Do all toys need batteries to work?
What makes the toy's parts move?
What do you think the different parts of the toy do?
What do you think would happen if we pressed the "on" button now?

Read a Story:

If I Built a Car
by Chris Van Dusen.
Dutton, 2005.

Play At Home:

Wearing safety goggles, and with a grownup's help, preschoolers can learn to use hammers with large-headed nails on scrap pieces of soft wood.

Sing a Song:

The Marvelous Toy

by Tom Paxton

When I was just a wee little lad,
Full of health and joy,
My father homeward came one night
And gave to me a toy.
A wonder to behold it was
With many colors bright
And the moment I laid eyes on it,
It became my heart's delight.

Chorus:
It went "Zip" when it moved, and "Bop" when it stopped,
And "Whirrr" when it stood still.
I never knew just what it was and I guess I never will.

The first time that I picked it up
I had a big surprise
'Cause right on the bottom were two big buttons
That looked like big green eyes
I first pushed one and then the other,
Then I twisted its lid
And when I set it down again, here is what it did:

(Repeat Chorus)

For the tune and other verses, search for "Marvelous Toy" on youtube.com.

Written by Wendy Brenneman and Jennifer Jovanovic
Illustrated by Dennis Smith
July 2014

You can download all of our Experiments of the Month at the Preschool Page at sciencebeyondtheboundaries.com.

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