

The InvestiGator Club™ Prekindergarten Learning System

# **Investigations**

PARENT'S EDITION

Integrated Activities for Exploring, Experimenting, and Making Discoveries





This Investigation is all about an everyday element that provides endless opportunities for making discoveries—water! It also happens to be one of Dilly Gator's favorite things. After all, water is a big part of Dilly's World. She lives on a houseboat at Triangle Beach, surrounded by water!

# Part 1 Where Is Water?

To introduce *Wet and Wonderful Water*, tell your child that there's a brandnew club around for preschoolers, and it's called The InvestiGator Club. Explain that InvestiGators like to listen, explore, make discoveries, and learn new things. Introduce the InvestiGators and listen to The InvestiGator Club theme song by visiting <u>Meet Dilly and Friends</u>, <u>Explore Dilly's World</u>, and <u>About The InvestiGator Club</u> on the Web site: www.investigatorclub.com. Then ask your child: *Would you like to become an InvestiGator?* 

Say to your child: During this Investigation you will learn all about water. You'll do lots of exploring, lots of thinking, and lots of experimenting. You might get a little wet, but don't worry—it's only water! So, are you ready? Let's investigate!

### Science/Language/Literacy

Your child will discover that water is in many different places—and will have fun finding it!

### **Materials**

- a globe
- paper
- Where Is Water? Activity Sheet

### Where Can We Find Water?

Start the Investigation by explaining how water is a big part of our world. Look at a globe together so your child can see how much of Earth is water. Then say:

I know someone whose house is surrounded by water—Dilly Gator. Dilly lives on a houseboat at Triangle Beach. She's the one who started The InvestiGator Club. Let's be detectives and look for all the places where we can find water in our home. Let's also discover all the ways we use water.

 Take your child on a walk around the house and then outside to the yard in search of water. As each discovery is made, sing this song naming the water source. Sing these words to the tune of "Where Is Thumbkin?" or chant the words.

### For example:

Where is water? Water in the bird bath.

Where is water? Water in the bird bath.

Here it is. Cool and wet.

Here it is. Cool and wet.

- After your search, ask your child to name the places where you discovered water together. List each place on paper. Point to the words as you read them to your child. Help your child think about the ways he or she uses water and why we all need water: for drinking, cleaning, washing hands, brushing teeth, watering plants, flushing the toilet, taking a bath, cooking, swimming, boating, and so on.
- On another day take your child on a walk around the neighborhood or on a drive in search of water. Add your child's new discoveries to your list.
   Post the list on the refrigerator door in the kitchen. As your child thinks about other places where water is found, add them to the list.
- Print a copy of the <u>Where Is Water? Activity Sheet</u>. Help your child fill it out whenever water is discovered.

What I Saw	What It Was Like	What I Did
water in my cup	It was cold. It tasted good.	I drank it.
water in the lake	It was cold and dark.	I swam in it
water in the hose	It came out fast!	I helped Mom water the bushes.

### Language/Literacy/Fine Motor Skills

Your child learns to recognize the letter Ww and gets early writing practice.

### **Materials**

- paper
- crayons
- shaving cream
- sand
- pan
- stick
- Make Waves! Activity Sheet

### The Letter Ww



Tell your child that the word water starts with the letter w. Write W and w on paper. Point and say: This is capital W. This is small w. Show how to use a finger to trace the letters as you say: Capital W looks like big pointy waves. Small w looks like little pointy waves. The word waves starts with w, too. Let's make a wave and say W. Show your child how to make big and little waves in the air in the shape of Ww. Tell your child that one of the InvestiGators is Chuck Wood. Write his name on the paper and have your child find the letter W.

- Invite your child to be a *Ww* investigator. Look through storybooks or magazines together to find *Ww* in print.
- Start a list with the title, "W Words." Point out W at the beginning of Words. Does "words" begin with w? Write words that begin with w on the list: water, wet, wall, worm, weather, window, world, and so on. Have your child use a crayon to trace w in each word and say, for example, w is for water, w is for wet.
- Squirt shaving cream on a plate for your child to finger write W.
- Have your child mix sand or dirt with water and flatten it into a pan. Provide a stick to make lines in the sand to form W. Ask: Are the lines straight or curved?
- Print out the <u>Make Waves! Activity Sheet</u> to provide your child with more early writing practice.

### **Music/Literacy**

Children learn the sound of W as they sing a familiar song.

### The Sound of W

Your child will learn the sound of W while singing a familiar song.

Tell your child that the InvestiGators *love* to sing. Dilly's little brother, JT, plays all kinds of songs on his harmonica. Say: *Here's a song that will help you learn the sound of W.* Sing or recite the first verse of *Willoughby Wallaby Woo*.

Willoughby Wallaby Wee An elephant sat on me. Willoughby Wallaby Woo An elephant sat on you.

- Say the words Willoughby, Wallaby, Woo for your child to repeat. Ask: Do you hear the same sound at the beginning of each word? The words all begin with the sound /w/.
- Show how you can change the first letter sound in a name to /w/, such as Dilly becomes Willy. Sing or recite together new verses of the song using your child's name and family members' names. For example: Willoughby Wallaby Wustin/An elephant sat on Justin./Willoughby Wallaby Waddy/ An elephant sat on Daddy!



### Social Studies/Language/ Literacy

Your child can be a budding author by writing and illustrating a book about water.

#### **Materials**

- paper
- crayons
- pictures from magazines showing people using water
- copies of <u>We Use Water</u> <u>Activity Sheet</u>

### We Use Water

Tell your child: Dilly's Great Auntie Lu is a great storyteller. You can be a storyteller, too. Let's write a story about water.

- Help your child think of ways the family uses water: for washing, cooking, drinking, cleaning, playing, feeding pets, washing clothes, brushing teeth, and so on.
- Write a list of your child's ideas on paper by having him or her finish the sentence: We use water to \_\_\_\_\_. Examples are:



We use water to drink.

We use water to wash our hands.

We use water to play at the beach.

We use water to make soup.

We use water to water the plants.





- Print out copies of the <u>We Use Water Activity Sheet</u> to use as pages for a book. Help your child finish the sentence by copying words from the list you wrote together. Your child can draw or use magazine pictures to illustrate it. Do one page a day or involve other family members to make different pages.
- Your child can help make a cover page with the title *We Use Water.* Staple the pages together to make a book.
- Read the book together or let your child be the "storyteller."

### Social & Emotional Development/Motor Skills

Family chores can turn into fun when water is involved!

#### **Materials**

- family message board or poster board
- variety of materials for chores involving water

## Watery Chores

Tell your child that the InvestiGators are very good helpers. They love to do their chores at the clubhouse and to help people all around Dilly's World. Point out that there are a lot of chores that use water that your child can help do. Make a list on your family message board or on poster board, such as the one below:

Wipe the table.

Change the water dish for our pet.

Water the plants.

Clean the sink.

Wash fruit

Pour a glass of water to drink.

Help wash the can

Help sort the laundry before washing.

Be sure to praise your child for being such a good helper!

### Oral Language/Literacy/ Music

Rhythm and rhyme go together in this lively activity.

#### **Materials**

 drums and other homemade or "found" percussion instruments

### **Water Chant**

Tell your child that one of the InvestiGators, Manny Salamander, is a city boy who loves to rap and rhyme. He often says, "Manny can. Yes, I'm your man." Share the following rap about water with your child.

Water, water, in the sink
Water, water, take a drink.

Water, water, in the tub

Water, water, rub a dub dub.

Water, water, in the pool

Water, water, make me cool.

Water, water, on the floor

Water, water, give me more!

Encourage your child to chant along with you. Pause at the end of every other line for your child to supply the rhyming words. Then say the rap again while keeping a rhythm by clapping, tapping, or shaking an instrument such as an empty can filled with rice or dried beans. Maybe your child would like to add a new pair of rhyming lines.

### Social Studies/Math/Gross Motor Skills

Your little puddle-jumper won't have to wait for a rainy day to do this activity!

#### **Materials**

- globe
- construction paper
- sidewalk chalk

## Puddle Jumpers

Tell your child that Dilly's little brother, JT, loves geography. He knows about places all over the world.

- Look at a globe together and have your child find water. Ask: What are the biggest bodies of water called? (oceans) What are some other bodies of water? (lakes, rivers, ponds)
- Cut out four pieces of construction paper of different sizes. Have your child order them from biggest to smallest. Label them with the names of bodies of water, for example, ocean, sea, lake, pond. Encourage your child to use size words to make comparisons, for example: A pond is smaller than a lake.
- Tell your child this riddle: I am thinking of a body of water that is very little. Sometimes you can find one outside after it rains. Can you guess what it is? (a puddle) Go outdoors. Use chalk to draw ten "puddles" on the sidewalk that are small enough for your child to jump over. Label the "puddles" with the numerals 1–10. Ask your child to jump over the puddles while counting from 1 to 10.

### Health/Social & Emotional Development/Oral Language

Use this musical reminder with your child to promote proper hand washing.

### **Materials**

- soap
- water



## Healthy Hands

Tell your child that Bruno Buzzbee, the oldest member of the club, often gives the InvestiGators good advice and makes sure that they stay safe. One thing Bruno tells them is how important it is to wash your hands. Talk about what germs are, how they spread, and why it is important to wash your hands. (Germs can make you sick.) Stress how hands should be washed before eating or touching food; after using the bathroom; after blowing your nose; after touching animals; and after playing outside. Demonstrate proper hand-washing with soap and warm water. While lathering, invite children to sing the following song (to the tune of "Here We Go Round the Mulberry Bush").

This is the way we wash our hands Wash our hands, wash our hands This is the way we wash our hands To keep them clean.

#### **Social Studies/Dramatic Play**

Engage your child in a bit of role-playing while learning about important jobs involving water.

#### **Materials**

props for dramatic play

### Water Workers

Ask your child to think of workers that use water in their jobs. For example: firefighter, lifeguard, dishwasher, gardener, dolphin trainer, car washer, cook, pet groomer, and so on. Find props around the house for your child to role-play jobs involving water. For example, your child can:

- Use a gift wrap tube as a hose and pretend to be a firefighter putting out a fire.
- Tie a string to a long stick to make a fishing pole and pretend to be a fisher.
- Use plastic dishes and a sponge and pretend to be a dishwasher.
- Turn a giant box into a car and pretend to work at a car wash.
- Use a watering can and pretend to be a gardener watering plants.

You might want to visit a place in the community where water is an important part of the work, such as a car wash, nursery, aquarium, laundromat, restaurant, or hair salon. Ask your child to describe what he or she sees there.

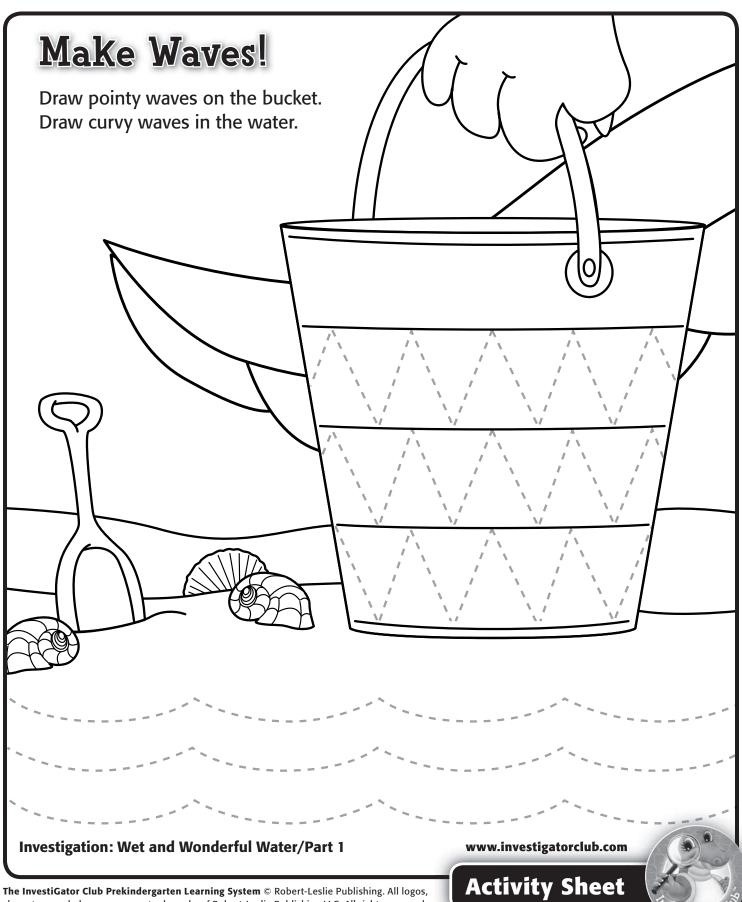
## Where Is Water?

What I Saw	What It Was Like	What I Did

Investigation: Wet and Wonderful Water/Part 1

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## We Use Water

Draw a picture to show how we use water.

We use water to \_\_\_\_\_

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## Part 2 What Is Water Like?

Tell your child: Now that you have been investigating all the places where water is found, it's time to discover what water is like. During this Investigation we'll learn more about how water feels, looks, acts, sounds, and moves. We'll do lots of exploring, lots of thinking, and lots of experimenting with water. So if you are ready, let's investigate!

### Language/Literacy/Science

Get your child talking as he or she investigates water. Record ideas you share together.

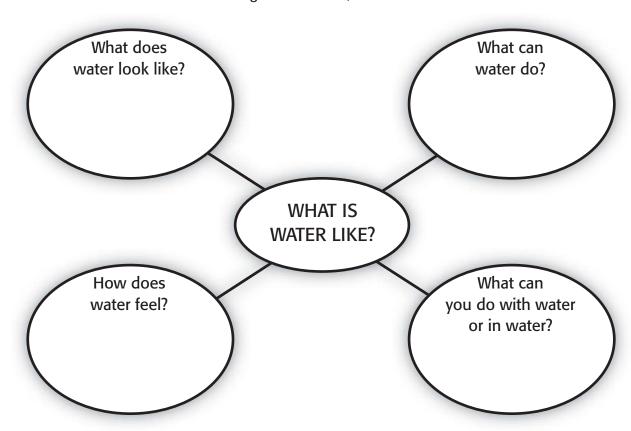
#### **Materials**

- water in a tub or sink
- plastic containers
- funnels
- colanders
- paper

### Water Web

Give your child a variety of materials to play with in a tub or sink full of water. Allow time for free exploration. Talk about what your child is experiencing as he or she plays. In the meantime, make a chart with questions on paper. The following diagram is an example. Leave plenty of space to record your child's responses.

- Invite your child to talk about what he or she experienced using the senses of sight and touch. Ask each question and record your child's responses.
- Post the chart on your refrigerator or in your child's room. As your child discovers new things about water, add the ideas to the chart.



### Science/Language/Problem Solving

Your young scientist will experiment to discover the way water flows.

#### **Materials**

- containers of water
- plastic tub (rectangular in shape)
- large wooden blocks
- How Does Water Flow?
   Activity Sheet
- blue crayon

### How Does Water Flow?

Help your child use wooden blocks to raise one end of a plastic tub.

Tell your child to pour water into the tub at the high end and watch how the water flows. Ask your child to describe the flow: *Does the water flow up or down?* 

- Challenge your child to try to get the water to move uphill. Ask: Which way does the water move? Were you able to make the water move uphill? Did the water stay up? Why do you think water always flows down?
- Print out the <u>How Does Water Flow? Activity Sheet</u>. Name the picture on the sheet: a lawn sprinkler. Have your child use a blue crayon to trace the flow of water. Then have your child draw a picture of another example showing the flow of water, such as a running faucet, a stream on a hill, water running off a roof, or water running down a driveway or street.
- Add your child's discovery about water flow to the "What Is Water Like?" chart.

### Science/Language

What will floating objects do in flowing water? Your child can experiment to find out!

#### **Materials**

- water hose
- objects that float

the transmitted to

## Going with the Flow

2

Ask your child: Think of a time when you floated a toy in the bath tub. How did you make your toy move? Do you think floating objects in water move the same way the water moves or flows, or in a different way?

- Take your child outdoors. Run a hose over a hard surface. Have the water pressure on low at first. Have your child place objects that float in the stream of water. As your child observes the movement of the water and the floating objects, ask: Which way do the objects move? Then change the water direction and have children describe what happens to the objects.
- Increase the water pressure. Ask your child to describe what happens to the objects now. (The force of the water moves objects faster.)

### Math/Language

In this activity your child will develop math skills by estimating, checking, and recording amounts of water using different sizes of containers.

#### **Materials**

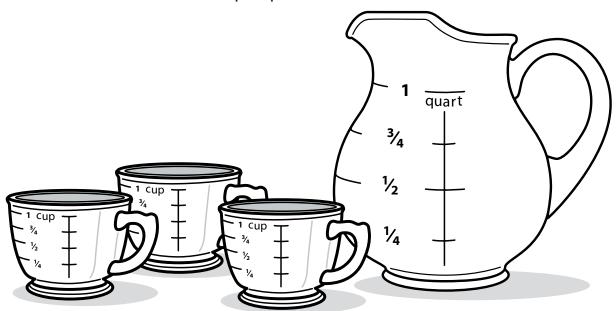
- variety of plastic containers including a one-cup and quart-size container
- water in a sink or tub of water
- Fill It Up! Activity Sheet
- pencils

## Fill It Up!

Gather plastic cups and containers of varying sizes and shapes. Have your child use them in the sink or tub of water for filling and pouring water. After freely exploring, invite your child to talk about what he or she has been doing and what was noticed about the various containers.

Focus on estimating and checking capacity.

- First, show a one-cup and a quart-size measure. Ask your child: Which container is smaller? Which container is larger? Have your child discover what happens when water is poured from the large container into the small one. Then have your child fill the small container and pour it into the large one.
- Next, ask: Which container will hold more water? How many cups do you think it will take to fill the large container? Print out the Fill It Up! Activity Sheet. Have your child estimate and record the number or draw tally marks in the space provided.



- Tell your child to check by filling the cup and pouring the water into the
  pitcher. As your child works, have him or her color the cups used on the
  bottom of the sheet. When the pitcher is full, your child can count the
  number of cups and record the number in the space provided.
- Your child might enjoy continuing to explore capacity and volume using containers of varying sizes and shapes. Encourage your child to first guess which of two containers will hold more water and then check by seeing what happens when one container is filled with water and then poured into the other container. Does the water spill over the sides or do you need to add more water to fill it up? Invite your child to share his or her discoveries: Were you surprised to find out which held more water? Did any containers hold the same amount of water?

### **Art/Fine Motor Skills**

What is wonderful about the following art activities? They all use water!

#### **Materials**

- colored chalk
- art paper
- cups of water
- eyedroppers
- food coloring
- coffee filters
- markers
- tempera paint
- brushesdirt

### Wet and Wonderful Water Art

Tell your child: Dilly does art projects with Great Auntie Lu. Here are some projects just for you!

- Wet Chalk Have your child fold art paper in half. Then on one side draw a picture using dry colored chalk. On the second half dip chalk in water and then draw on the paper. Talk about differences your child sees. Ask: Which do you like better?
- Eyedropper Painting Mix food coloring with small amounts of water for your child to use. Provide an eyedropper for your child to drop colored water on coffee filters to create designs. Find out: What happens when the colors run together?
- **Wet Paper Paintings** Have your child use a clean brush and water to wet the paper first. Then experiment by drawing with chalk or markers or by dropping paint on the paper. Find out: *What happens when you add color to the wet paper?*



### Science/Fine Motor Skills/ Math

Your child can get close-up to investigate drops of water.

#### **Materials**

- eyedroppers
- wax paper
- cups of water
- magnifying glasses
- construction paper

## Look Closely!

Tell your child that the InvestiGators like to examine things close-up. Here's a chance to look at water drops close-up! Have your child use the eyedropper to place a drop of water on wax paper. Ask: What shape is the water drop? What happens when you keep adding more drops? What changes? What stays the same? Have your child use a magnifying glass to take a closer look.



Cut water-drop shapes of varying sizes from construction paper. Have your child order the shapes from smallest to largest and use size words to compare.

### Movement/Gross Motor Skills

What happens when you and your child pretend to move like water or as if in water? A whole lot of motion goes on!

### Move Like a ...

Move with your child to show how it would look to move in the following ways:

### Move like water.

Move like an ocean wave crashing on the beach.

Move like a gentle stream flowing down a hill.

Move like little drops of rain falling on the grass.

Move like water popping out of a lawn sprinkler.

### • Move like you are in water.

Pretend you are a surfer riding a wave.

Pretend you are walking through a puddle after a rainstorm.

Walk sideways like a crab on the ocean floor.

Slither like a slippery eel in the ocean deep.

Pretend to swim across a pond.

Dip and dive like a porpoise in the sea.

Invite your child to suggest additional ways to move like or in water. Get the whole family moving!

### Music/Movement/Language

Do you like the sound of falling rain? Get your child listening too and compare the different pitter-patter sounds of falling rain.

#### **Materials**

- empty metal cans
- trays or pie tins
- plastic containers
- umbrella
- garden hose or squirt bottle (optional)



### Language/Literacy/ Early Writing

Your child can be a little poet! Work together to write a poem describing the many sounds of water.

#### **Materials**

- paper
- marker
- crayons
- environmental recording of water sounds (optional)

### Pitter-Patter Band

Tell children that Bruno Buzzbee gets the latest weather reports from the Buzz Network and shares them with the other members of the InvestiGator Club. Teach your child the following finger rhyme, Bruno's report for the day:

Drop-drop, raindrops (Move fingers to imitate falling rain.)
falling all around.

Pitter-patter on my rooftop. (Tap softly on the floor or table.)

Pitter-patter on the ground.

Up goes my umbrella. (Pretend to open an umbrella)

As rain falls from the sky. (Look up.)

Everything is wet with rain, (Point all around.)

But I am nice and dry. (Point to self.)

Make your own pitter-patter band to listen to the sounds of falling rain. On the next rainy day place hollow metal containers and plastic containers upside down outdoors. Listen for the different sounds made by the falling rain. Listen for sounds on the rooftops, gutters, and windows too.

No rain in the forecast? Simulate a rainy day by using a garden hose or a squirt bottle filled with water to squirt water on different objects, including an umbrella. Ask your child to describe the different sounds he or she hears played by the pitter-patter band.

### Water Poem

Invite your child to close his or her eyes and listen to the sounds of water as you drip water on a pan, pour water into a glass, turn on a faucet, use your hand to swish and splash water in a sink, and let water go down a drain. You may want to record sounds beforehand or use a recording of environmental sounds, if available.

List sound words you and your child describe. Your list might include:

drip, drip, drop
plink, plonk
swish
shhhh
splish, splash
pitter-patter
drizzle, drizzle
Glub! Glub!

### Water Poem (continued)

Use the words to write a "list poem" with your child. The following is an example. But remember, your poem does not have to rhyme!

### **Water Sounds**

Pitter-patter! Pitter-patter!

Drip! Drop! Plink!

Water on the roof top.

Water in the sink.

Splish! Splash! Splish!

Shhhh! Glub, glub!

Water in a puddle.

Water in my tub.

Read the poem and ask your child to repeat the sound words. Then have your child draw a picture to illustrate the poem. Post it on the refrigerator. Send a copy to Grandma and Grandpa!

### **Health/Math/Cooperation**

Your child will enjoy squeezing, measuring, stirring, and pouring to make a refreshing drink using water.

### **Materials**

- paper
- pencil
- lemons
- white grape juice
- water
- ice cubes
- measuring spoons and cups
- pitcher
- spoon
- small paper cups

## Make a Watery Drink

Talk with your child about the importance of drinking lots of water and other liquids every day. Ask your child to name favorite drinks. Make a list together. Read the list and ask your child to circle drinks that are kinds of water or are made with water.

• Make lemonade with the following recipe or a variation:

### Lemonade

- l tablespoon lemon juice
- 2 tablespoons white grape juice
- 1 1/2 cups of water

ice

• Cut a lemon in half for your child to use. Then have your child do the squeezing, measuring, stirring, and pouring. Add ice cubes and enjoy!

### **Fine and Gross Motor Skills**

Your child can learn to develop and control the muscles of the hand while discovering unique ways of moving water from one place to another.

### **Materials**

- small and large containers
- water
- variety of sponges
- turkey baster
- eyedropper
- spoon
- Moving Water Activity Sheet
- crayon

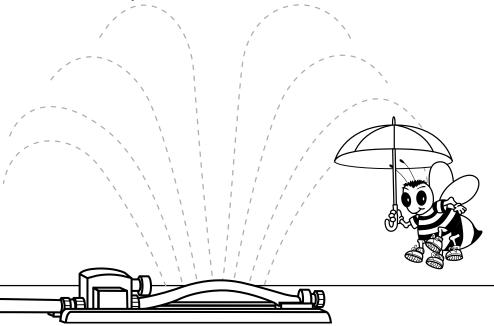
## Moving Water

Set up an area for your child to investigate ways to move water. Place sets of identical containers side by side. Fill one with water. Include a sponge or a baster with larger containers and an eyedropper or spoon for smaller containers.

- Have your child remove all of the water from one container using the tool provided and move it to the second container.
- Your child will discover that the tool used (eyedropper, baster, spoon, or sponge) holds a certain amount of water and no more.
- As your child investigates moving water using different tools, talk about what made the process easy or difficult to do.
- Give your child a copy of the <u>Moving Water Activity Sheet</u>. Have your child first use a finger to trace the path the water must follow to reach the bucket. Then have your child use a crayon to color the path.

## How Does Water Flow?

Draw the water flow for the sprinkler.

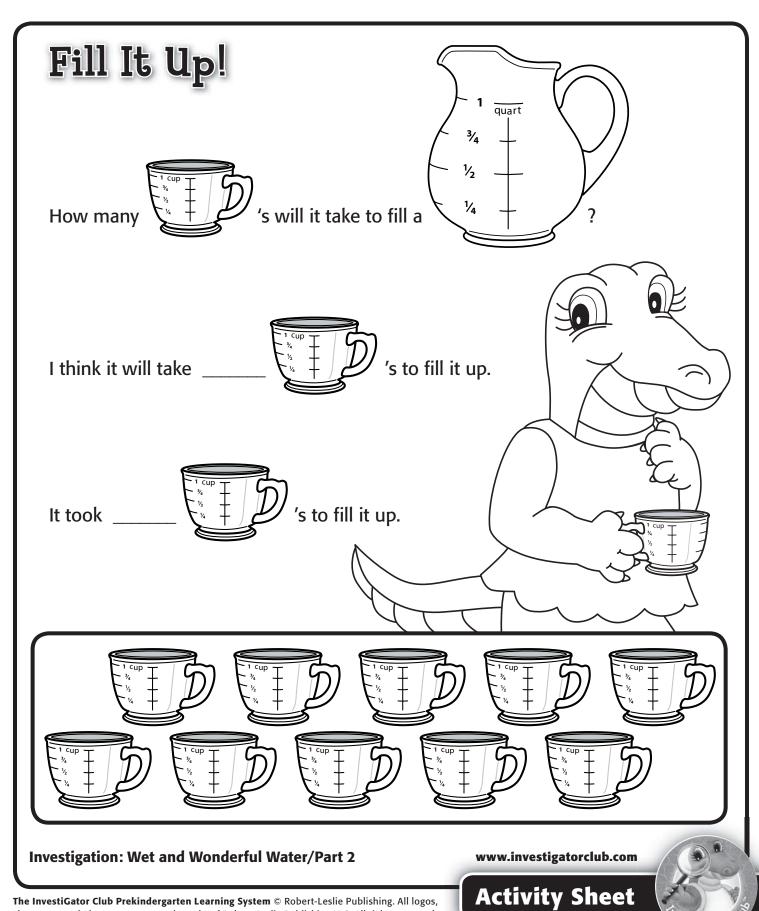


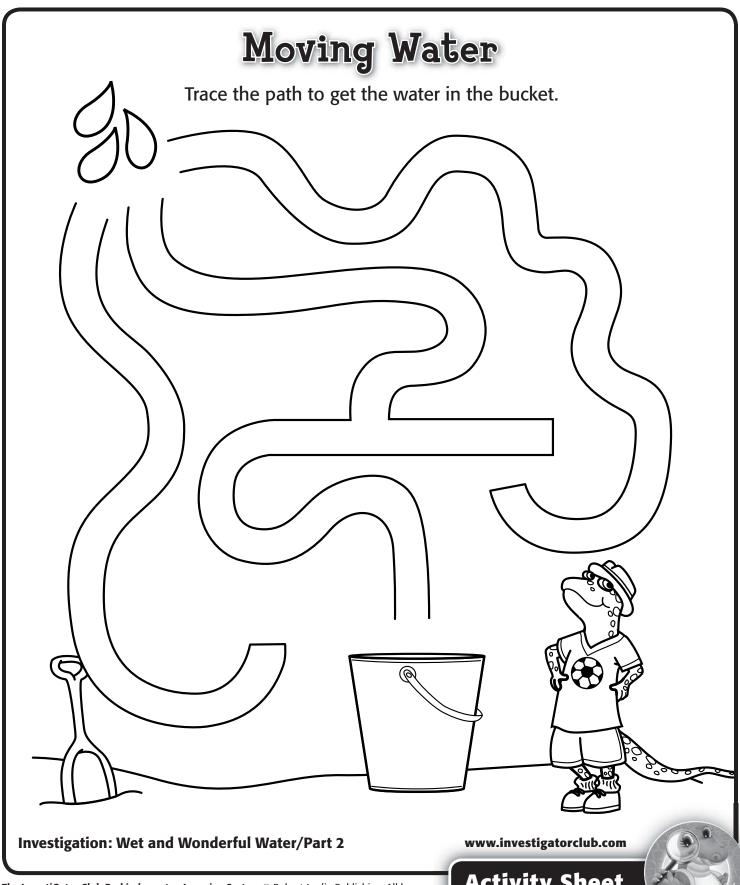
Draw a picture to show another place where water flows.

Investigation: Wet and Wonderful Water/Part 2

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## **Part 3** What Sinks and Floats?

Tell your child: Now that you have discovered what water is like by looking at water, listening to water, painting and cooking with water, and pouring and moving water, it's time to do some more investigating! During this Investigation we'll do lots of experimenting to learn about things that sink and float in water. We'll also do some other fun activities with water. Are you ready? Let's investigate!

#### Science

Your child experiments to see which objects will sink and which will float.

### **Materials**

- assorted objects such as a rubber band, penny, marble, bottle cap, plastic spoon, sponge, toy car, block, soap, paper clip, plastic toy, eraser, shell, rock, feather, a plastic bottle, a plastic bucket
- basin of water or water table partially filled with water
- Sink or Float? Activity Sheet





### Will It Sink or Float?

Introduce the Investigation by asking your child to tell what is known about sinking and floating. Floating is staying at the top of the water. Sinking is going to the bottom. Work with your child at the sink. Pick up one of the objects. Ask: Do you think it will sink or float? Place the object in the water and ask your child to describe what happens.

- Let your child test different items, each time first guessing what will happen and then placing the object in the water. What happened? Does it sink or float? Did you quess right?
- Print out the <u>Sink or Float? Activity Sheet</u>. Have your child draw a picture of each object that was tested in the correct column.
- Look at the things that sink. Look at the things that float. Why do you think some things float and others don't?
- Does it matter how big the object is? Does it matter how small it is? How can you find out?
- Does it matter how heavy the object is? Does it matter how light it is? How can you find out?
- Does it matter what the thing is made of? What its shape is? How can you find out?
- Let your child test ideas in further investigations.







### Literature/Language

Your child will enjoy listening to a classic, rhyming, predictable book.

#### **Materials**

• a copy of Who Sank the Boat? by Pamela Allen

### Science/Math

Time for more investigating with sinking and floating.

#### **Materials**

- aluminum foil
- pennies
- basin of water or water table
- paper
- crayons





### Who Sank the Boat?

Display the cover of *Who Sank the Boat?* and read the title. After reading the first sentence of the story, ask your child to guess which animal will sink the boat. Read the rest of the story, inviting your child to join in on the refrain, "Do you know who sank the boat?" Ask questions such as:

- Which animal went in the boat first? (the cow)
- Which animal went in the boat last? (the mouse)
- Did the animals go in the boat from heaviest to lightest, or lightest to heaviest? (heaviest to lightest)
- Do you know who sank the boat? (Responses may vary—the mouse did, everyone did.)
- Would the mouse have sunk the boat if he had gotten on in any other position than last? (Responses will vary.)

### Will the Boat Float?

Have your child put a penny inside a piece of aluminum foil and crumple it into a ball. Leave another piece flat. Ask your child: *Do you think they will sink or float? Then try by placing them in a sink with water. Do they sink or float?* 

- Have your child make a boat from a sheet of foil by turning up the edges and shaping it to form a boat. Remind your child to seal the edges so the boat does not leak.
- Put your boat into the water. Does it float?
- Carefully put a penny in your boat. How many pennies do you think your boat can hold before it sinks?
- Slowly add pennies one at a time. Make a tally mark on your paper for each penny. (Show your child how to do this.)
- Count the tally marks. How many pennies did it take to sink? Is this like your guess?
- Have your child think about the results. Does the shape of the boat matter? Does it matter where you put the pennies?
- Can you build a boat that will hold more pennies? Should the boat be wider, taller, longer?
- Get an empty plastic bottle and show your child how it floats. Then ask: Can you make it sink? (You can make the bottle sink if you fill it with water.)



2

#### Music/Science

Create different sounds made by water in bottles.

### **Materials**

- three tall glass bottles, all the same type
- metal spoon

### Language/Math

Have your child say and act out the finger play "Five Little Fishies" and then try catching fish!

#### **Materials**

- construction-paper fish
- wooden dowel
- large paper clips
- self-stick dots
- string
- small magnet

### Water Music

Ask your child if a bottle sinks or floats. Lead him or her to remember what was learned during the investigation, that it depends. For example, if it is a plastic bottle and it is empty, it may float; if you add water to it, it may sink. Tell your child that in this activity, we will find out how adding water to a bottle can make music!

Have your child help you fill one bottle almost to the top, fill one halfway, and add just a little water to the third bottle. Ask your child to gently tap the side of each bottle with the side of the metal spoon. What do you hear? Which bottle makes the highest sound? Which bottle makes the lowest sound? How could we change the sound?

Have your child experiment with more bottles and different amounts of water. Invite your child to tap out a song using the water bottles.

### Five Little Fishies

Teach your child the following finger play.

Five little fishies swimming in a pool, (Wiggle fingers.)

The first one said, (Hold up one finger, then "This pool is cool." wrap arms around body.)

The second one said, (Hold up two fingers, "This pool is deep." then show hand up

to chin.)

The third one said, (Hold up three fingers, "I want to sleep." then rest head on hands.)

The fourth one said, (Hold up four fingers, then "Let's take a dip." dip hands into water.)

The fifth one said, (Hold up five fingers, then "I spy a ship." peer out under hand.)

Fishing boat comes, (Form "V" with fingers, then

move hands away from body.)

Line goes ker-splash. (Pretend to throw

fishing line.)

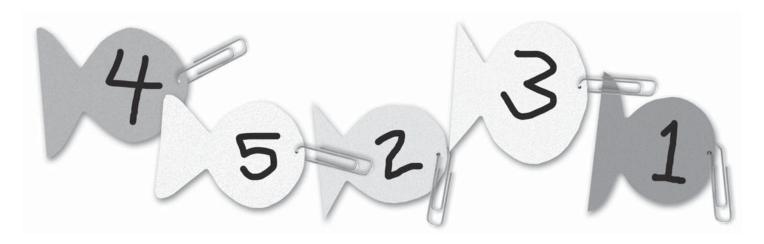
Away the five little fishies dash. (Wiggle five fingers away.)

## Five Little Fishies (continued)

Now it's time to go fishing! Cut a set of five fish from construction paper. Number the fish from 1 to 5. Have your child help place the corresponding number of self-stick dots on each fish. Attach a large paper clip on the nose of each fish.

To make a pole, tie one end of the string to a wooden dowel and attach the other end to a magnet.

Let your child go fish! As each fish is caught, ask your child to identify the number. When all the fish have been caught, your child can arrange the fish in order from 1 to 5.



### Science/Language

Your child will match wildlife with their watery homes.

### **Materials**

- pictures of animals from magazines or coloring books
- blue crepe-paper streamers
- Watery Homes Activity Sheet
- blue and green crayons or markers

## Watery Homes

Beforehand, cut out pictures of animals that live in or near a freshwater pond and a saltwater ocean. Animals for a pond can be: duck, frog, painted turtle, beaver, newt, dragonfly, tadpole. Animals for an ocean can be: whale, shark, octopus, jelly fish, seal, dolphin, lobster.

Your child can help you place crepe-paper streamers on the floor to form a small circle for a pond and a large circle for an ocean. Display all of the pictures. Tell your child that together you will search for animals that belong in a pond or in the ocean.

- Give oral clues for your child to listen to and decide if the animal lives in the pond or ocean. Here are two examples: Watch out for this saltwater animal with its eight long tentacles. (octopus) This busy freshwater animal has strong teeth and a flat tail and uses branches to build a home in the water. (beaver)
- As your child identifies the animal, have it placed inside the pond or ocean.
- Print out the <u>Watery Homes Activity Sheet</u>. Have your child color the pond animals green and the ocean animals blue.

### Language/Gross Motor Skills

Your child uses movement and a hula hoop to identify words that are opposite in meaning.

### **Materials**

hula hoops

## What's My Opposite?

Explain that *sink* and *float* are opposites and that you are going to say some more words and he or she can say the opposites. Start with simple words, such as *open/shut*, *big/little*, *first/last*, *tall/short*. Include words that are related to water and the water experiments: *wet/dry*, *heavy/light*, *empty/full*.

- Give your child a hula hoop or create a hoop using some kind of pliable material. Use the hoop to act out opposite words: step in/step out, hold the hoop high/hold the hoop low, step over the hoop/stand under the hoop, hold the hoop up/put the hoop down, sit inside the hoop/sit outside the hoop, hold the hoop to your right/hold the hoop to your left. Switch roles and have your child give you directions.
- Sing the following song with your child. Sing to the tune of "Twinkle, Twinkle, Little Star." Take turns singing. Have your child sing the missing word:

Child: Yes, I know my opposites.

I can show what I have learned.

Parent: When I say up, you say \_\_\_\_. (Child: down)

When I say in, you say \_\_\_\_. (Child: out)

Child: Yes, I know...

Parent: When I say empty, you say \_\_\_. (Child: full)

When I say go, you say \_\_\_\_. (Child: stop)

Child: Yes, I know...

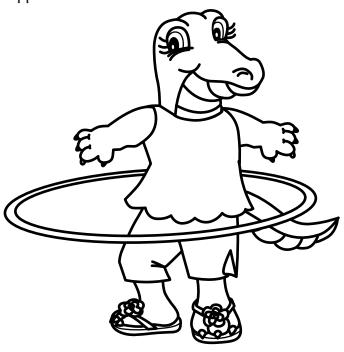
Parent: When I say wet, you say \_\_\_\_. (Child: dry)

When I say float, you say \_\_\_\_. (Child: sink)

Child: Yes, I know...

Continue with other pairs of opposites.



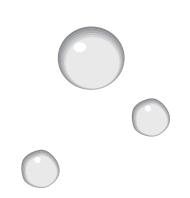


### Science/Fine Motor Skills/ Language

Your budding scientist will discover that some things absorb, or soak up, water while others do not.

#### **Materials**

- assorted materials that absorb and do not absorb water
- eye droppers
- Soak It Up! Activity Sheet



### Just Add Water

Tell your child that many animals that live in water have waterproof feathers or skin so they do not absorb, or soak up, water. Demonstrate by putting a drop of water onto the plastic outside portion of a bandage strip. What happened? (The water drop stayed on top. The plastic did not absorb the water because it is waterproof.) Next, turn the bandage strip over and put a drop of water onto the cotton portion inside. Now what happened? (The water disappeared. The cotton absorbed it. It soaked it up.)

- Have your child experiment to discover how some things absorb water and others do not. Supply pieces of material such as a cotton ball, wool, plastic, aluminum foil, yarn, a paper towel, a cloth towel, a penny, wax paper, and a sponge. Have your child put a few drops of water onto each material. Did the material absorb, or soak up, the water?
- Print out the <u>Soak It Up! Activity Sheet</u>. Have your child draw a picture of each object they tested in the correct column.
- Look at the things that absorb water. Look at the things that do not. Why do you think some things absorb water and others do not?



#### Art/Math

Give your child some sponges and let the patterns begin!

#### **Materials**

- scissors
- sponges
- large sheets of paper or shelf paper
- tempera paints
- small paper plates

## Sponge-Print Patterns

Tell your child that a sponge is an example of a material that absorbs water. A sponge will absorb paint too.

- Cut sponges into different shapes.
- Spread out the paper and pour liquid paints onto the plates.
- Show your child how to dip a sponge shape in paint and press the sponge on the paper to make a print.
- Let your child try dipping and pressing sponge shapes. Encourage experimenting: What happens when you press hard? What happens when you press gently? Try sponge-printing one color over another color. What happens?
- Can you use different shapes and different colors of paint? Can you make a pattern? For example: blue circle, red square, blue circle, red circle, blue circle, red circle. What other patterns can you make?

### Science/Math/Language

Extend the concept of things that float to a favorite childhood pastime—blowing bubbles!

#### **Materials**

- plastic dish pan
- bubble solution (water, dish detergent, corn syrup or glycerin)
- things for bubble wands

## **Blowing Bubbles**

Tell your child that things in water are not the only things that float. Say: Name something that floats but it is not in water. Bubbles, of course! Explain: Bubbles are bits of air trapped inside a liquid ball. They are so light, they float in air.

Note: More about water as a liquid and a solid in Part 4!

Involve your child in making a bubble solution. Here is one recipe:

### **Bubble Solution**

6 parts water

2 parts Joy dish detergent

 $\frac{3}{4}$  parts light corn syrup

Have your child measure and gently stir the solution in a dish pan.  $\,$ 

Hint: Bubble solution can be made ahead and can be saved for another day.

Then find things to use for bubble wands. Anything with a hole will do. Some ideas are pipe cleaners or hangers bent into different shapes, cookie cutters, a funnel, a can open on both ends, a plastic tube, and yogurt lids with the centers cut out.

Tips for bubble-blowing:

- Do not swish the bubble-blower in the solution.
- Blow gently for bigger bubbles.
- Go outdoors on humid days in shady areas. Avoid windy days.
- Make sure the bubble-makers stay wet.

Explore with your child:

- What shape is the bubble? Does the shape of the bubble match the shape of the bubble-blower?
- What colors are the bubbles? Do the colors change?
- Touch a bubble with a wet finger. Touch with a dry finger. What happens? What happens when one bubble meets another?
- Try blowing a bubble onto a wet plate. Gently place into the freezer. See what happens. Does the bubble freeze?

## Sink or Float?

Sink





**Float** 

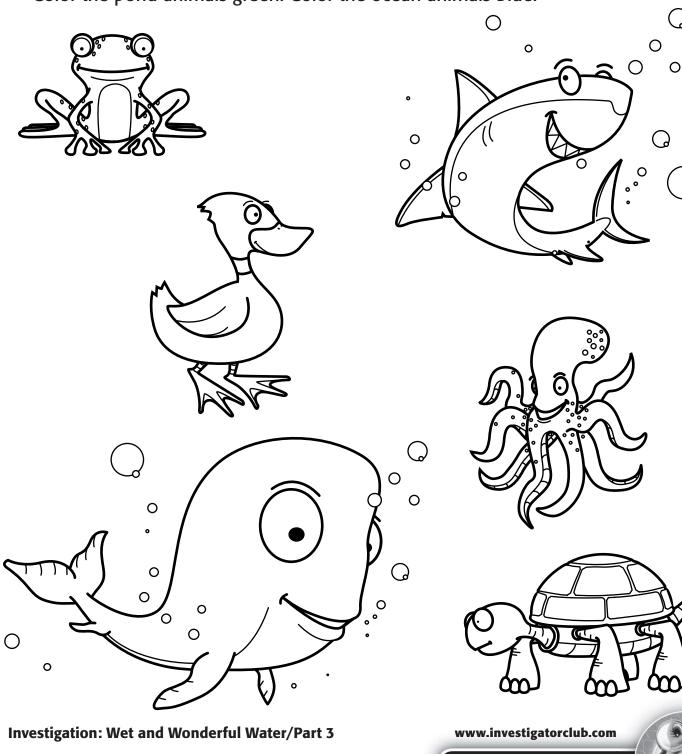
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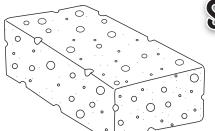


# Watery Homes

Color the pond animals green. Color the ocean animals blue.



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# Soak It Up!



# These things absorb water

# These things do not absorb water

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The InvestiGator Club™ Prekindergarten Learning System

# **Investigations**

PARENT'S EDITION

Integrated Activities for Exploring, Experimenting, and Making Discoveries





# Part 4 How Does Water Change?

Water is amazing. It can be a solid or a liquid. Water can disappear altogether as a gas. Your child will be amazed to see these changes take place. Melting ice is the most familiar experience your child probably has had with changing the state of a substance. Tell your child: During this Investigation we'll mix a whole lot of science with some math, art, music, movement, language, motor skills, and dramatic play to learn more about the ever-changing nature of water. So let's start investigating!

### Science/Math/Language

Is it water or is it ice? Your child will discover the everchanging nature of water.

#### **Materials**

- water
- Ziploc® plastic bags
- paper toweling or newspaper

## Presto Change-O

Have your child put water in two Ziploc® bags and seal. Place one bag of water in a freezer. Leave the second bag at room temperature. Ask: Will the water in both bags stay the same or will the water in one bag change?

- Once frozen, remove the bags from the freezer. In case of spills, have your child place both bags on paper toweling or newspaper to examine. Talk about how the liquid water moves in the bag, whereas the solid water does not move. Ask: How are the bags the same? How are they different?
- As time passes tell your child to watch the bag of ice and describe how it continues to change. Ask: What happened to the solid ice once it melted? (It changed into a liquid—water.) Talk about how the water changed from a liquid to a solid and back to a liquid again.



### Movement/Music/Math

Get your child moving like icicles, snowflakes, and raindrops to demonstrate different forms of wet weather.

### **Materials**

- musical recording
- tape or CD player

### Freeze Like an Icicle

Talk about the different forms of water in the weather: ice, snow, rain. What happens when snow falls and piles up? What happens when snow or ice melts? What makes icicles or snowflakes change shapes? What forms when a lot of rain falls? Join your child in creative movement:

- Twirl around like snowflakes as you play music. Count from 1 to 10 together, then stop the music and freeze in place like an icicle.
- Start the music again and have your icicles start to melt into a puddle while you count down together from 10 to 1.
- Play different music and dance like raindrops.
- Play again and skate on ice.
- Ask which kind of wet weather your child liked being the best.

### **Health/Science**

What happens when you mix a little science with a healthful food? Your family has a tasty treat to enjoy!

### **Materials**

- fruit juice
- paper cups
- craft sticks

## Fruity Ice Pops

Explain to your child that favorite fruit drinks are part water. Ask: What do you think will happen if we put fruit juice in a freezer? Follow these steps to make ice pops:

### **Make Ice Pops**

Count out enough paper cups for each family member.

Fill cups with a favorite fruit juice

Place the cups in a freezer.

When partially frozen, place a craft stick in each pop.

Once the juice is totally frozen, peel away the paper cups.

Enjoy the icy pops!

#### Science/Math

Get your child involved in estimating how long it will take for an ice cube to melt in a variety of locations.

#### **Materials**

- self-stick color-coded dots
- ice cubes
- paper
- marker

## Disappearing Cubes

This is a great experiment for a warm day. Number self-stick dots and have your child place one on each ice cube. Take the cubes outdoors and let the investigating begin!

- Tell your child to place the ice cubes on different surfaces such as the grass, a wooden surface, a brick or concrete surface, a rock, dirt, or sand.
   Place some in the sunlight and others on the same surfaces but in a shadier area.
- Have your child estimate how long it will take for each ice cube to melt.
   Record on paper the number of the cube, where the cube was placed,
   and the estimated time.
- Have your child watch closely to look for signs of melting. As the cubes melt, the self-stick dots can be placed on the chart with the exact time for melting.
- Ask many questions: Which cubes melted the fastest? Which took the longest to melt? Why do you think some melted faster than others? Did the cube take more time or less time than your guess? Did the cubes melt in different ways?



### **Indoor Option:**

If you prefer doing the experiment indoors, place the cubes in cups and place them in various places throughout the room—near a window; near a heat source; away from a light or heat source; in the refrigerator; in cold, warm, or hot water.

### Art /Science/Fine Motor Skills

Your child can observe how salt melts ice and create colorful designs using blocks of ice.

### **Materials**

- water
- clean half-gallon paper milk carton
- powdered tempera paint or food coloring
- paper cups or plastic containers
- coarse salt in a shaker
- eyedropper
- magnifying glass
- tray layered with newspaper

## Ice Block Designs

Beforehand, freeze water in a half-gallon paper milk container and make colored water using powdered tempera paint or food coloring and place in paper cups or plastic containers. When the water has frozen, tear off the cardboard and place the block of ice on a tray layered with newspaper.

Invite your child to spend a little time examining the block of ice with a magnifying glass and reporting what is seen. Continue with the following experiments:



- Have your child sprinkle coarse salt on the block. Ask: What happens to the ice?
- Have your child use an eyedropper to drip various colors of water on the ice. Ask what is seen. Examine closely using magnifying glasses. (Tunnels of color are created as the salt melts through the ice.)
- If the weather is agreeable, place the block outdoors and observe and describe what happens over time.

### Literacy/Language/Science

Generate rhyming words with your child while learning about seasonal weather.

### **Materials**

• Rhyming Pictures
Activity Sheet

### Fine Motor Skills/Art/ Science

Your little artist creates works of art using frozen colored water as a medium.

### **Materials**

- water
- ice-cube trays
- powdered tempera paints or food coloring
- craft sticks
- finger-paint paper
- plastic gloves (an option you may want to use if food coloring has been used to color the water)

### Ice Is Nice

Teach your child the following rhyme about the seasons:

Wintertime is very nice

I go skating on the ice.

In wintertime I like to go

And build a snowman in the snow.

In spring dark clouds come floating by

Then rain drip-drops down from the sky.

Summertime means lots of fun.

Swimming and playing out in the sun.

- Repeat the rhyme, telling your child to listen for rhyming words. Then ask:
   Do the words nice and ice rhyme? Repeat with these word pairs: go, snow;
   by, sky; and fun, sun. Ask your child to repeat the rhyming words after you.
- Recite the rhyme again, pausing before the words *ice, snow, sky,* and *sun* for your child to say the missing rhyming word.
- Print out the <u>Rhyming Pictures Activity Sheet</u>. Help your child say and match the pictures whose names rhyme.

### Ice Artists

Mix red, yellow, and blue powdered tempera with water and pour the colored water into ice-cube trays to freeze. Another option is to use 8 to 10 drops of food coloring in the water. (See note in Materials list.) Once the cubes are partially frozen, place a craft stick in each one to use as a handle.

• Tell your child to hold the colored ice cubes by the "handle" to color on paper. Ask: What happens when you mix more than one color? What new colors did you make? As another option, place some of the colored cubes into glasses of water. Have your child observe and describe what happens.

### What Happened

The water melted on the paper.

The ice cube made pretty colors.

I mixed red and yellow and made orange.

I put a blue ice cube in the water and

the water turned blue

### Science/Music/Language

Investigate mixing solids and liquids and discover what will dissolve in water and what will not.

#### **Materials**

- clear plastic cups
- plastic spoons
- water
- sugar
- salt
- sand
- cereal
- rice
- Kool-Aid®
- Jell-O<sup>®</sup>
- paper
- marker

## All About Mixing

Display all the solids you want to mix with water. Remind your child that a solid has a definite shape. Examples to use are sugar, salt, sand, cereal, rice, and Kool-Aid®. Ask: What do you think will happen when we mix each of these things with water? Will the water change? Will the solid change?

Have your child investigate different mixtures. Provide a plastic spoon and clear plastic cups to investigate. Begin by having your child put water in the glass and add a teaspoon of sugar. Have it sit for a moment to see what happens. Then stir the sugar while you sing the following song to the tune of "Frere Jacques."

Stirring, stirring, stirring.

Water and (sugar), water and (sugar).

What happens to the water?

What happens to the (sugar)?

Will it change? Will it change?

- Ask your child to respond to the question in the song. (The sugar dissolves, or changes into a liquid. The sugar is still there, though, because the water tastes sweet.) Explain that when a solid, such as the sugar, turns into a liquid, it dissolves.
- Repeat the process using different mixtures. Insert the name of what
  is being mixed with the water as you repeat the song. Find out what
  dissolves and what doesn't. Make a list.
- As a finale, have your child mix Jell-O® with water and chill. Discuss what changes take place here—solid + liquid = solid. Then enjoy!



### **Dramatic Play/Science/Fine and Gross Motor Skills**

Your little painter can discover how heat causes water to evaporate while engaging in a dramatic play experience.

### **Materials**

- painter's cap
- water
- bucket
- paint tray
- paint brush
- paint roller

### Science/Math/Language

Make a mixture called goop and discover that sometimes it's hard to tell if something is a liquid or a solid.

#### **Materials**

- water
- cornstarch
- one-cup measuring cups
- bowl
- spoon
- <u>Liquid or Solid?</u>
   <u>Activity Sheet</u>

## Calling All Painters!

Invite your child to pretend to be a painter and help fill a bucket or a paint tray with water. This will be the "paint."

Tell your child to put on a cap and grab a brush or paint roller and head outdoors. "Paint" the sidewalk, the steps, the house, the playground equipment, and so on.

Have your child observe and discover what happens when the sun shines on the water after a while. Ask: What do you think will happen as the sun shines on the water? Where does the water go? Help your child understand how the warmth from the sun heats the water and changes it from being a liquid to being a gas and disappearing in the air. Make a connection the next time you have a pot of boiling water or a tea kettle on the stove with all the steam rising as the water heats up.

## The Magic of Goop

Use the following recipe to make a batch of goop:

### Goop

- 2 cups of cornstarch
- I cup of water
- 1. Measure the cornstarch and place in a bowl.
- 2. Measure the water. Slowly add the water while stirring.
- 3. Continue stirring until the mixture thickens.
- Invite your child to put two hands in the goop and try to pick up and roll
  it between the hands to make a ball. Then stop rolling and let the goop
  ooze away. Use spoons to tap on the goop or stir it around.
- Allow your child to continue playing to make new discoveries. Ask questions such as: How does the goop feel in your hands? What happens when you pick it up and squeeze it? When does the goop act like a liquid? When does it act like a solid?
- Have your child try changing the goop by adding more cornstarch or more water. What happens now?
- To explore the ever-changing nature of water, distribute copies of the <u>Liquid or Solid? Activity Sheet</u>. Have your child circle L for the pictures that show water as a liquid, and S for the pictures that show water as a solid.

### Music/Language/ Movement/Science

You can think about how the heat from the sun evaporates water while singing a familiar song using puppets.

### **Materials**

- Itsy Bitsy Spider
   Activity Sheet
- scissors
- drinking straws
- tape
- large paper cup

## Itsy Bitsy Spider

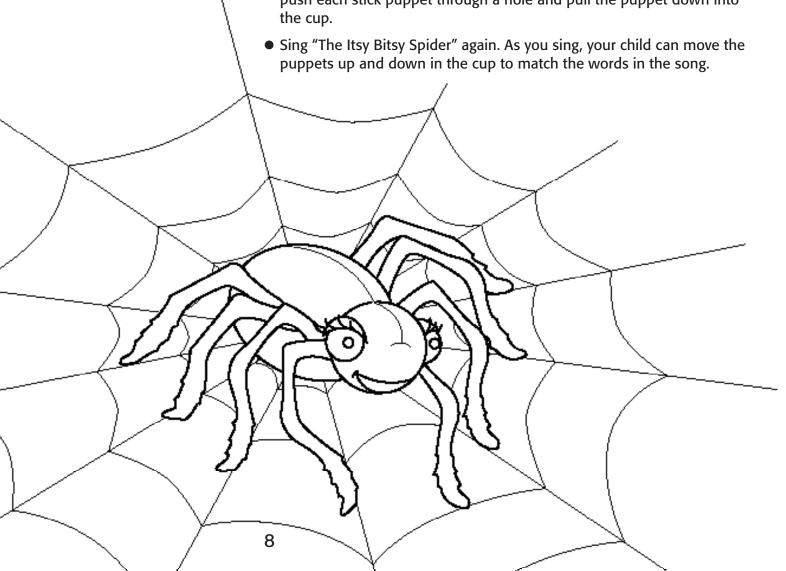
Sing or recite together the traditional rhyme about the Itsy Bitsy Spider:

The itsy bitsy spider went up the water spout. Down came the rain and washed the spider out. Out comes the sun and dries up all the rain. So the itsy bitsy spider went up the spout again.

Repeat the song and include hand motions. Then ask: When the spider crawled up the water spout was the spout dry or wet? What happened when the rain fell? Why was the spider able to walk up the water spout again?

Remind your child that Great Auntie Lu loves to tell stories. Your child can tell the story of the itsy bitsy spider while singing the song using puppets!

- Print out the Itsy Bitsy Spider Activity Sheet. Help your child cut out the patterns to make puppets in a cup. Color each picture and tape it to a drinking straw.
- Make three small holes in the bottom of a drinking cup. Have your child push each stick puppet through a hole and pull the puppet down into the cup.



### Science/Math/Language

What can a child learn from a puddle? Some science mixed in with a little math!

#### **Materials**

chalk

### **Gross and Fine Motor Sskills/Cooperation**

You will need family members or some friends to do this relay race!

#### **Materials**

- plastic foam blocks
- tongs
- containers such as buckets

### Puddle Watchers

What child can resist a puddle? Go outside after a rain shower to find some puddles. No rain? Make your own puddles. Talk about why water settles in certain places to form puddles.

Ask: What do you think will happen when the sun comes out? Then to keep an eye on the puddles, use chalk to have your child draw a circle around each puddle to show the shape and size. Use size words to describe each puddle. This puddle is big. This one is little. This puddle is the largest. This puddle is the longest.

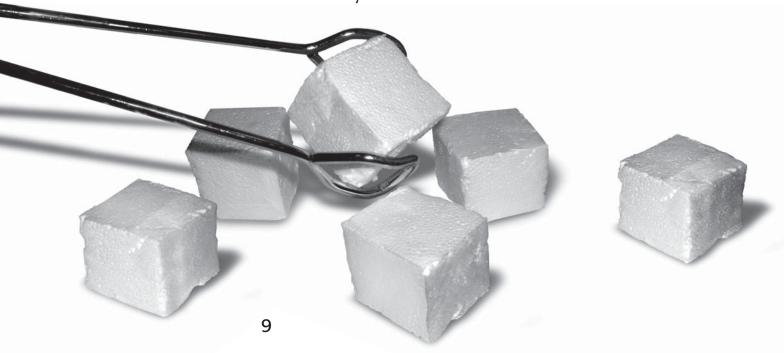
Visit the puddles later to see how they have changed. Use size words again to describe. Did all the puddles become smaller? Did any grow larger? Have your child mark the new size by drawing another circle. Continue a few times more until the puddles disappear.

## Ice-Cube Relay

Gather a group of family members or friends and involve your child in a fun relay race. First, form teams. Next, mark off the race track. Place a container of "ice cubes" (plastic foam blocks) at the starting line of each team's track. Place an empty container at the finish line.

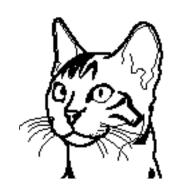
Demonstrate how team members will take turns using tongs to remove one "ice cube" (plastic foam block) from the container, race down and drop it into the second container, and race back to give the tongs to the next team member.

Sound the signal and let the race begin. As each team finishes, have the team members sit down until the others finish. Everyone is a winner because they finish the task. Change group members and play again or save for another day.



# Rhyming Pictures

Draw a line to match pictures whose names rhyme.



























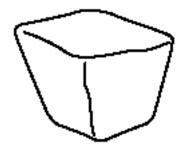
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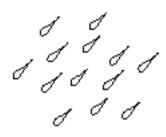


# Liquid or Solid?

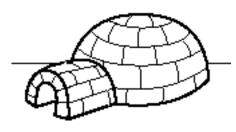
Water can be a liquid or a solid. Circle L for liquid. Circle S for solid.



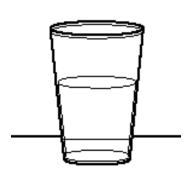
L S



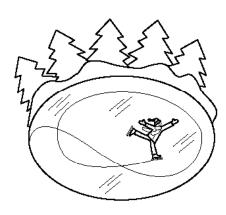
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