

The InvestiGator Club™ Prekindergarten Learning System

Investigations

TEACHER'S
EDITION

Integrated Activities for Exploring, Experimenting,
and Making Discoveries

Wet and Wonderful Water



THE EARLY CHILDHOOD COMPANY®

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Part 3

What Sinks and Floats?

Tell children: *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

Children experiment to see which objects will sink and which will float.

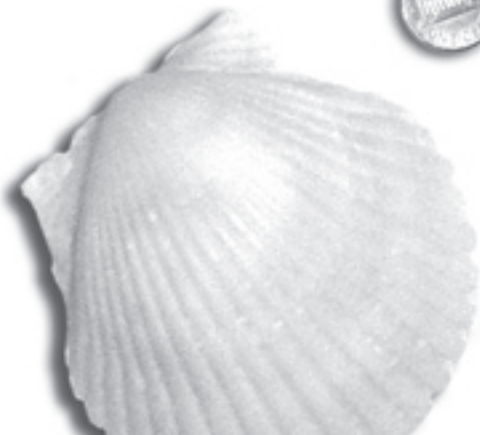
Materials

- 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

Will It Sink or Float?

Introduce the Investigation by asking children to tell you what they know about sinking and floating. *Floating is staying at the top of the water. Sinking is going to the bottom.* Have children gather around the water table as you pick up one of the objects. Ask: *Do you think it will sink or float?* Place the object in the water and ask children to describe what happens.

- Let children 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 guess right?*
- *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 children test their ideas in further investigations.



Literature/Language

Children listen to a classic, rhyming, predictable book.

Materials

- a copy of *Who Sank the Boat?* by Pamela Allen

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 children to guess which animal will sink the boat. Read the rest of the story, inviting children 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.)

Science/Math

Children do more investigating with sinking and floating.

Materials

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

Will the Boat Float?

Invite children to the water table. Put a penny inside a piece of aluminum foil and crumple it into a ball. Leave another piece flat. Ask children: *Do you think they will sink or float? Then try by placing them in a sink with water. Do they sink or float?*

- Invite children to make a boat from a sheet of foil by turning up the edges and shaping it to form a boat. Direct them 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 children how to do this.)*
- *Count the tally marks. How many pennies did it take to sink? Is this like your guess?*
- Have children compare their results. *Why did some boats take more pennies to sink? 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 children how it floats. Then ask: *Can you make it sink?* (You can make the bottle sink if you fill it with water.)



Music/Science

Children hear different sounds made by water in bottles.

Materials

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

Water Music

Ask children if a bottle sinks or floats. Lead them to remember what they learned during their 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 children that in this activity, they'll find out how adding water to a bottle can make music!

Fill one bottle almost to the top, fill one halfway, and add just a little water to the third bottle. Ask children 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 children experiment with more bottles and different amounts of water. Invite children to tap out a song using the water bottles.

Language/Math

Children say and act out the finger play "Five Little Fishies" and then try their hand at catching fish!

Materials

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

Five Little Fishies

Teach children the following finger play.

<i>Five little fishies swimming in a pool,</i>	<i>(Wiggle fingers.)</i>
<i>The first one said,</i> <i>"This pool is cool."</i>	<i>(Hold up one finger, then wrap arms around body.)</i>
<i>The second one said,</i> <i>"This pool is deep."</i>	<i>(Hold up two fingers, then show hand up to chin.)</i>
<i>The third one said,</i> <i>"I want to sleep."</i>	<i>(Hold up three fingers, then rest head on hands.)</i>
<i>The fourth one said,</i> <i>"Let's take a dip."</i>	<i>(Hold up four fingers, then dip hands into water.)</i>
<i>The fifth one said,</i> <i>"I spy a ship."</i>	<i>(Hold up five fingers, then peer out under hand.)</i>
<i>Fishing boat comes,</i>	<i>(Form "V" with fingers, then move hands away from body.)</i>
<i>Line goes ker-splash.</i>	<i>(Pretend to throw fishing line.)</i>
<i>Away the five little fishies dash.</i>	<i>(Wiggle five fingers away.)</i>

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 children 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.

Children can take turns to "fish." As each fish is caught, ask the child to identify the number. When all the fish have been caught, have children arrange the fish in order from 1 to 5.

You may want to make more than one set of fish and poles for a larger group.



Science/Language

Children will match wildlife to their watery homes.

Materials

- pictures of animals from magazines or coloring books
- blue crepe-paper streamers

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.

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. Have children form two search teams: pond and ocean. Continue as follows:

- Give oral clues for the teams 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 team members identify their animal, have it placed inside the pond or ocean.

Language/Gross Motor Skills

Children identify words that are opposites of each other.

Materials

- hula hoops

What's My Opposite?

Explain to children that *sink* and *float* are opposites. Tell them that you are going to say a word and they are going to say its opposite. 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*.

- Provide hula hoops and invite children 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*.
- Teach the following song sung to the tune of "Twinkle, Twinkle, Little Star." Pause to have children insert the word:

Yes, we know our opposites.

Show me what you all have learned.

When I say up, you say _____. (down)

When I say in, you say _____. (out)

Yes, we know...

When I say empty, you say _____. (full)

When I say go, you say _____. (stop)

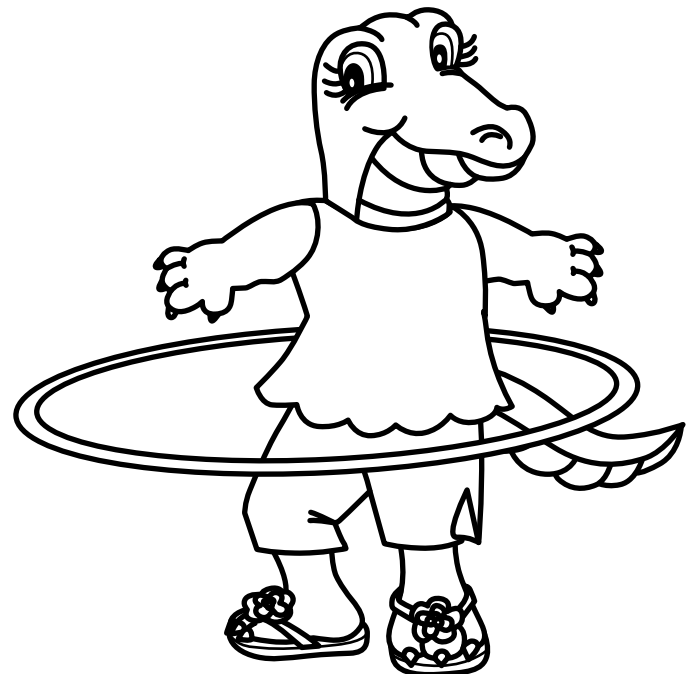
Yes, we know...

When I say wet, you say _____. (dry)

When I say float, you say _____. (sink)

Yes, we know...

Continue with other pairs of opposites.

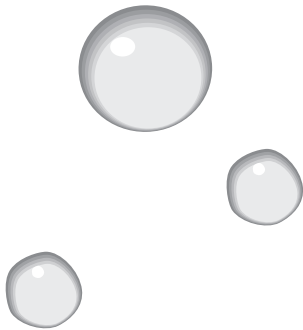


Science/Fine Motor Skills/ Language

Children 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



Just Add Water

Tell children 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 children experiment to discover how some things absorb water and others do not. Supply children with 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 children put a few drops of water onto each material. *Did the material absorb, or soak up, the water?*
- *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

Children use sponges to make patterned art.

Materials

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

Sponge-Print Patterns

Tell children 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 children how to dip a sponge shape in paint and press the sponge on the paper to make a print.
- Let children try dipping and pressing sponge shapes. Encourage them to experiment: *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?*

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 children 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 children in making their own 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 children:

- *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?*