



# 1st Grade Unit: “Water Forms”



*Objective: To introduce 1st grade children to the concept of water in different forms (solids and liquids) and that rainwater can carry pollutants into streams, rivers and ponds. This unit was developed to be used as an extension of the Solids and Liquids Science Kit.*

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## Materials and supplies to support this lesson: \*

- ◆ “What is a Storm Drain?” pdf or handout \*
  - ◆ SPLASH! coloring books\*
  - ◆ Colored chalk\*
  - ◆ Paper cups\*
  - ◆ Hard boiled eggs, oil and bowl
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## Lesson 1: What is water?

Water is a liquid we drink. When water is pure (clean) it does not smell, taste or have color. There is water in rivers, lakes, oceans, and in our bodies.

Water comes in three forms:

- Liquid: rivers, lakes, oceans, from the faucet
- Solid: ice, snow
- Vapor: invisible gas that condenses into fog or clouds

Temperature (hot and cold) changes the form of water. What happens when water gets cold? Does it become ice or snow? What happens when water gets very hot? Does it form steam clouds?

**Activity 1: *Water forms.*** Have students do this simple experiment which demonstrates water in solid and liquid forms, along with evaporation.

Give each student a paper cup containing an ice cube. Ask the students what the ice cube is made of and then have students put the cup in a warm place or in a sunny window. Ask them what they think will happen to the ice cube. Have students check their cups after one

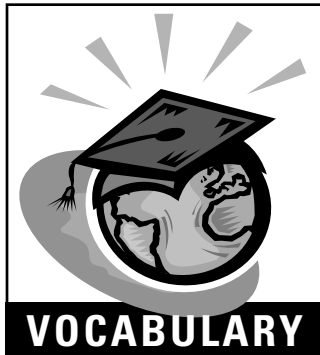
hour. Ask them what happened to their ice cube. Next, put the cups aside and leave them until the water has evaporated. Before setting the cups aside, ask the students what they think might happen to the water. Once the water has evaporated, have students examine the cups. Ask them what happened to the water and compare their answers to what they thought would happen.

To demonstrate condensation, boil water and hold a small mirror above the pot. Discuss how heat (like the sun) turns water into a vapor and how the vapor condenses (as it does to form clouds) on the mirror.

After the experiment, make popsicles to show how water turns to ice when it gets very cold. Have students eat their popsicles!

\* available for teachers from the City of Eugene. See end of unit to order.





water  
ice  
snow  
liquid  
solid  
river  
oil  
pollution

## Lesson 2: What plants and animals live in or near water?

Many animals live in water or must be near water to survive. For example, fish must live in water to survive, because they can get oxygen from the water. Beavers live in the water for part of the time, but must breathe air outside of the water to survive.

Water lilies must have their roots in the mud at the bottom of the pond, but also need sunlight to survive. Some plants, like algae, live in the water all of the time.

**Brainstorm:** Make separate lists of plants and animals that live in or near water. Discuss how each one uses water and needs to survive.

**Activity 2: Color.** Have students color in the *Lily and her Friends* coloring book.

**Activity 3: Create a wall mural.** Make copies of some of the pictures from the coloring book. Draw a pond or stream on a chalk board with colored chalk. Have students create a wall mural, taping the pictures in the appropriate place on the board.

## Lesson 3: What happens when water gets polluted?

In the last lesson, students learned that plants and animals need water to survive. What happens when the water becomes polluted? How does water become polluted? Can plants and animals live in polluted rivers and streams?

One of the most common forms of pollution is stormwater pollution. It can be easily seen in streets and parking lots. The storm drains carry the water and pollutants directly to local creeks and

rivers. Many pollutants are carried with rainwater into storm drains. For example, rainwater can pick up oil and other fluids that leak from cars, fertilizers and pesticides used in yards and gardens, along with trash and litter. This pollution can harm plants and animals and make water unsafe for drinking or swimming.

**Activity 1: Storm drains.** Hand out a picture page showing storm drains and pollutants. Explain that the trash in the storm drain pictured goes directly to the river. Have students identify the pollutants in the pictures.

**Activity 2: Parking lot field trip.** Take students to the school parking lot and show them a storm drain. Have students identify any pollutant nearby that could be carried with rainwater down the storm drain. Examples include oil or other fluid from cars, dirt, cigarette butts, or litter. Explain that all of these pollutants can harm plants and animals. To introduce the next activity, be sure to point out oil that has leaked from a vehicle.

**Activity 3: How do pollutants harm animals?** Many animals live in or near water. Some kinds of birds build nests next to streams or ponds. Show the students a picture of a bird nest near water and a picture of a baby bird in an egg. To illustrate how pollutants can harm birds, do the "There's Oil in My Egg!" experiment.

### Materials:

- 3 hard-boiled eggs
- small bowl
- cooking oil (preferably a darker oil)

### Procedure:

Place the hard boiled eggs in the bowl and pour enough oil in the bowl to cover the eggs. Place the bowl in a well-lit area and have the students observe the eggs. After five minutes, remove one egg from the bowl and place it on a paper towel. Let students examine the egg. Wipe off

the excess oil from the shell. Ask the students what they think will happen when you peel the shell off the egg. Peel off the shell. Let the students examine the egg and see how the oil has soaked through the shell. Ask them how the oil might harm the baby bird (would the baby bird be smothered by the oil?) After 15 minutes, peel the shell off the second egg. Have students examine the egg. Did more oil soak through the shell? After 30 minutes, peel the third egg and repeat the examination and discussion.

After the experiment, have students look at the storm drain pictures on their handout and identify oil as a pollutant. Explain again that the storm drains carry pollutants to local creeks and rivers.

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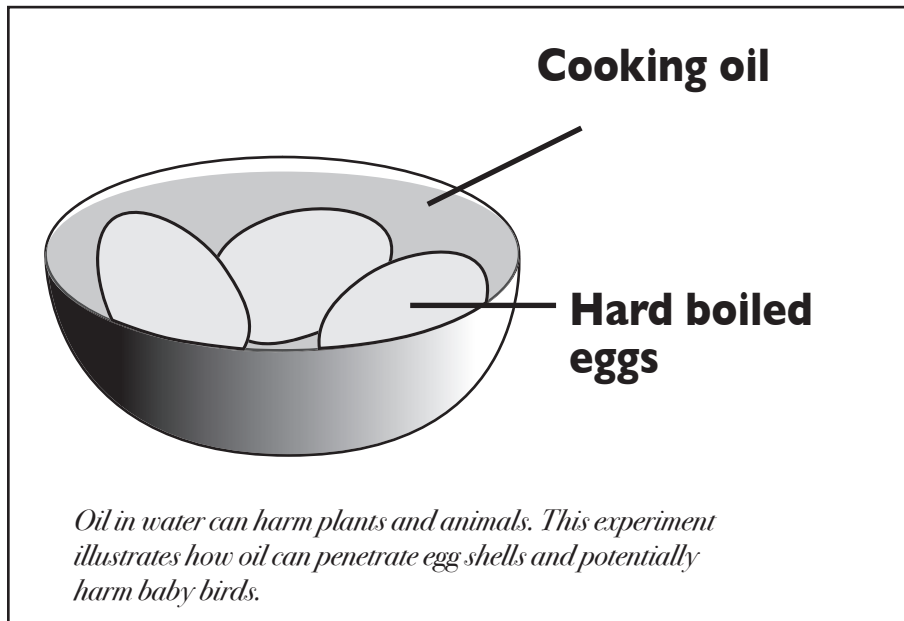
### Also available for your classroom:\*

SPLASH! Songs CD with songs for children written and performed by Rich Glauber. Lyric sheet is online.

Schedule a visit from Lily the Frog, our stormwater mascot. Lily can visit your classroom to meet your students and help them learn about the wetlands where she lives.

Call or e-mail for details. \*

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SPLASH! was developed by the City of Eugene Stormwater Management program to support education about water quality in our community. This program is funded by City of Eugene stormwater user fees.

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\* For more information, supplies for use with these lessons, the SPLASH! Songs CD, or a visit from Lily, contact [jeffrey.j.flowers@ci.eugene.or.us](mailto:jeffrey.j.flowers@ci.eugene.or.us) or call 541-682-8482 (Eugene schools only)

**SPLASH! classroom materials are online at [happyivers.org](http://happyivers.org)**





# What goes down the Storm Drain?

What goes in here...

**DUMP NO WASTE  
DRAINS TO STREAM**



Yuck! Would you want to swim in this?



...comes out here!