



### **What would you do?**

One morning the weather prediction was precipitation in the afternoon. The Johnsons were busy doing chores at home and did not watch the weather forecast. Mr. Johnson washed his car in the driveway. The soapy water flowed down to the street and into the storm drain. The oldest daughter, Jasmine, also had a car. Her car had been leaking oil for the past week. Everywhere Jasmine went, a little oil dripped out onto the road. Jasmine was not sure what to do about the leaking car.

Mrs. Johnson was digging in the front yard to make a new garden. Some of the soil fell onto the road. Later she took a bottle of lawn chemicals and sprinkled them on the lawn without reading the directions. The label on the bottle read, "Caution. Hazardous to fish."

Jared, their son, mowed the lawn. As he was mowing the lawn, the grass and leaves blew onto the side of the road. When Jared finished he left the mess on the street.

The younger daughter, Sophia, took their dog, Chico, for his daily walk. Sophia took a piece of gum out of her pocket and accidentally dropped the wrapper on the ground. On the walk around the block, Chico left a mess in the street. Sophia did not have a plastic bag to "scoop the poop."

Later that day it rained. The rain runoff flowed off the lawn and the new garden, off the driveway, and down the street. The runoff flowed into the storm drain, through the pipes, and into the creek. The grass and leaves clogged up the drain and part of the road flooded.

The next day, the family went to the creek for a picnic. They thought it would be beautiful, but instead all they saw were dead fish and a sign, "Creek closed today. Bacteria and water pollution." Jasmine remembered from science class that sediment, soil floating in the creek, could clog up fish gills. Jared remembered that bacteria from dog poop could cause infections if it got into a cut on a person's leg.

**How did pollution get into the creek?**

**What would you do differently if you were in this story?**





## The Johnson's Neighborhood (Answer Sheet)

5. The Johnsons have two neighbors with dogs. Three neighbors do not have dogs, but they do have gardens. Every family on the street has one car. How many cars are in this neighborhood?

1 (Johnsons) + 2 with dogs + 3 without dogs, with gardens = 6 neighbors

6 neighbors  $\times$  1 car each = 6 cars

6. One fourth teaspoon of car oil can pollute the small creek in the neighborhood. If all the cars in the neighborhood leak  $\frac{1}{2}$  teaspoon of oil each day, how many small creeks would that amount of car oil pollute?

$\frac{1}{2}$  teaspoon of car oil  $\times$  6 cars = 3 teaspoons of car oil

$\frac{1}{4}$  teaspoon pollutes 1 small creek

1 teaspoon =  $\frac{4}{4}$

3 teaspoons represented as 4ths =  $3 \times \frac{4}{4} = \frac{12}{4}$

The oil could pollute 12 small creeks

7. Three families in the neighborhood washed their car on the street near a storm drain. The rest of the families washed their cars on the lawn and no soapy water ran off into the street. What fraction of families polluted the creek? What fraction of families did not pollute the river?

6 cars in the neighborhood

$\frac{3}{6}$  or  $\frac{1}{2}$  of the families polluted the creek when they washed their cars.

$\frac{3}{6}$  or  $\frac{1}{2}$  of the families did not pollute the creek when they washed their cars.

8. A new family, with a dog, moved into the neighborhood. The neighbors decided to build a dog park and put in a poop bag station and a trash can. All the families with dogs go to the dog park twice a day for their dogs to do their business. The dog poop bags are sold in boxes of six bags. How many boxes of bags do they need to buy to last one week, Sunday through Saturday?

Dogs = 1(Johnsons) + 2 more (see question 1) + 1 (new neighbor) = 4 dogs

Each dog goes to the park twice a day = 4 dogs  $\times$  2 times a day = 8 poops a day

7 days in a week; 7 days  $\times$  8 poops each day = 56 bags are needed for the week

Bags come in a box of 6. 6 bags  $\times$  9 boxes = 54 bags

They will need to buy 10 boxes to last the entire week. They will have 2 extra bags at the end of the week.