Now You're In Trouble

Grade 2

Topic: Water
Grade: 2
Duration: 45 – 60 minutes

Students will learn how actions in the schoolyard and home can affect water quality.

Curriculum Expectations

- 2s25: Demonstrate an understanding of the properties of familiar liquids
- 2s27: Identify and describe ways in which we use our knowledge of liquids and solids in making useful objects and in living in our environment
- 2s63: List activities that are affected by moving water and wind
- 2s101: Ask questions about and identify needs or problems arising from events in the outdoor environment, and explore possible answers and solutions
- 2s102: Plan investigations to answer some of these questions or solve some of these problems, and describe the steps involved
- 2s103: Use appropriate vocabulary in describing their explorations, investigations, and observations
- 2s104: Record relevant observations, findings, and measurements, using written language, drawings, concrete materials, and charts
- 2s105: Communicate the procedures and results of explorations and investigations for specific purposes, using drawings, demonstrations, and oral and written descriptions
- 2s107: Describe the different uses of water and identify some that are essential for maintaining our health
- 2s109: Recognize that clean water is an increasingly scarce resource in many parts of the world and that the water we use is part of our environment and should be used wisely
- 2s110: Demonstrate awareness of the ways in which the disposal of waste water can affect our health and the health of other living things
- 2e1: Communicate ideas (thoughts, feelings, experiences) for specific purposes
- 2e4: Produce short pieces of writing using simple forms
- 2e60: Participate in group discussions, demonstrating a sense of when to speak, when to listen, and how much to say
- 2a28: Produce two- and three-dimensional works of art that communicate ideas (thoughts, feelings, experiences) for specific purposes and to familiar audiences

Background Information

Getting rid of all the water that comes from snow melting and rainstorms is the job of the municipal government. Cities use pipes and sewers to help get excess water out of an area. Before storm sewers, flooding in towns was a common thing. Some parts of cities use storm sewers that drain out into streams or public waterways. A more expensive option is for storm waters to be drained into sewage treatment plants for cleaning before it is released back into the environment.

Accountability

School administrators, teachers and students need to be aware of the type of surface residue being used around them that can get into the water. Students will become more aware of what happens to things left on the ground near their home and at school.

Teacher Notes

1. Materials needed: maze design (look in library books or on the web), salt, pepper, modelling clay, plastic wrap or wax paper, powder paint, food colouring, water droppers, sponges for spills.
2. Discuss how rainwater can clean plants and sidewalks on its way to storm sewers. Where does the water go from washing cars? The soapy water is washed down the street into the storm drains. Where does that water go?
3. Draw an example of a simple maze that represents the maze of sewer pipes under the ground that take water away from the city. It should have two exits: one exit is a water treatment plant; the other exit is a river.
4. Talk about the sources of water that can run into the sewer (street water, lawns, parking lots, etc.) What might this water carry away into the sewers with it? (Oil, fertilizers, road salt, etc.).
5. Ask students to make the maze, or make one design that all students can use. Glue the paper to a hard piece of cardboard or clip board; students cover the paper with plastic wrap or wax paper. Using thin coils of moulding clay trace and stick to the surface the outline of the maze.
6. Add two drops of water at the start of the maze. There may need to be more water needed depending on the amount of pollutants used later by students. (Suggest trace amounts of pollutants, not piles or you will need more water drops). Hold clipboards and move them around to get the water drop into one of the two ends of the maze.
7. Ask students which end of the maze would be better to get the sewer water into: the river or the sewage treatment plant.
8. Add food colouring, salt, pepper or dried paints to the maze. They represent pollution being added to the waste system.
9. Start a drop at the beginning of their maze again and try to get the “pollutants” into the treatment plant.
10. Ask students how easy it was to get the pollution into the treatment centre instead of the stream. Have a look at the drop at the end of the maze to see how clean it is now.
11. Look around for ways student can get less pollution into the river in real life, such as using a salt free alternative for to de-ice on school property.
12. Journal all observations.

Home Extension

Share mazes with parents and look around the yard for ways they can help ensure nothing bad gets into the sewers near home. For example, use less soap in washing the cars, pick up pet poop, salt alternatives on ice, less fertilizer or pesticides on lawns, etc.

Lesson Comments

What did students find?
What creative solutions did they come up with?