IT ALL GOES DOWNSTREAM

Keep Omaha Beautiful

Description:

Students demonstrate how humans contribute to the pollution of a river as it flows through a watershed.

Objective:

- Students will understand how Omaha's local watershed contributes to regional, national, and worldwide water bodies.
- Students will comprehend ways communities contribute to water pollution and actions individuals can take to reduce their impact.

Standards:

All Grades

- SS X.1.2.a Identify and model rights and responsibilities of citizens at the community level

2nd Grade

- SC.2.13.3.D Obtain information to identify where water is found on Earth and that it can be solid or liquid.
- SS 2.3.2.b Describe local places and regions.
- SS 2.3.3.c Match resources to their sources.

3rd Grade

- SS 3.3.1.c Determine why things are located where they are in the community.
- SS 3.3.3.a Describe how the environment influences human activities and how humans alter the environment to suit their needs.

4th Grade

- SC.4.13.4 Gather and analyze data to communicate an understanding of Earth's systems and processes that shape the Earth.
- SS 4.3.1.d Differentiate between classifications of bodies of water, cities, and masses.
- SS 4.3.5 Use geographic skills to make connections to issues and events.

5th Grade

- SC.5.13.4.C Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- SC.5.13.4.D Define a simple design problem that can be solved by applying scientific ideas about the conservation of fresh water on Earth.
- SS 5.3.1.c Determine why things are located where they are in the United States.

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Materials:

- Student handout pages
- Markers
- "Trash" items
- Optional: tape

Background Info:

A watershed is an area of land where all the water that drains off of it collects into the same place. Pollution is carried by rainwater and snowmelt down the watershed. Point source pollution is pollution that comes from a specific location – you can point a finger directly at the source, such as a factory or oil spill. Non-point source pollution is pollution that comes from a variety of sources that are hard to identify. Examples of non-point source pollution include runoff from fields, motor oil, litter, and sediments from eroded stream banks.

Everyone bears responsibility for the health of a watershed and the water systems within a drainage basin. As students complete this activity, encourage them to think about how their personal actions affect people downstream of them. For example, people in Kansas City obtain drinking water from a portion of the Missouri River. The section of river that they gather water from would include pollution from the Omaha watershed.

Activity:

1. Inform the students that they just inherited a piece of riverfront property and a million dollars.
2. As a class, make a list of how they could use the property and money (farm, build a resort, build homes, build a factory, build a park, log, plant forests, etc.).
3. Distribute the drawing pages (pieces of property) and markers. Explain that the blue portion is water and the white portion is the land they own. They can develop their property however they wish. They should draw a picture of their developed property.
4. When students have completed their drawings, have them look at the top corner of their paper for a number. They should assemble their river drawings/map by lining the papers up from 1-24. You can have them line them up on the floor or tape them to a wall.

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Activity Cont:

5. Each student should consider how the property they developed might pollute the river. Is there a park where dogs poop? Is there a factory that might be dumping things into the river? Are there homes where litter is flying out of people's waste bins on windy days? Is there a resort where people swim and their sunscreen gets into the water? Students should then select one small item from their desk to represent this pollution (a crumpled piece of paper to represent litter, a small bottle of lotion to represent sunscreen, or even something as random as a paperclip to represent dog poop – anything can work as a symbol/representation)
6. Have students line up in front of their pictures. Starting with #1, each student should describe to the class how they utilized their property and what sort of pollution their property might create. Then they should pass their pollution along to the next person in line. The second person will pass the pollution from student #1 and their own pollution to student #3. And so it goes down the line until the last student is holding all the pieces of "pollution." Intentionally, this will be a challenge for students down the line as they will need to hold 20-30 pieces.
7. The last student should place all the pollution in a pile in the front of the room.
8. Discuss the following questions:
    - How did the students feel about this activity?
    - How did each property plans affect the people/properties downstream? Is this how rivers really work? (Yes – everything we put in the river here in Omaha affects those downstream of us.)
    - What can we do to reduce the pollution that flows downstream?
9. Have students collect their pollution from the pile in the front of the room. Some students might have no problem identifying what they contributed – other students might have a harder time figuring out what pollution was theirs. This can be a great opportunity to discuss point and non-point source pollution. The point source pollution can represent pollution that is easy to identify – we can easily point to it and say it came from a specific location. The non-point source pollution would be represented by items that are harder to figure out. Most of the pollution we find in the river is non-point source pollution.

Assessment:

- Student Drawings
- Class Discussion