

LESSON | Rethinking Wastewater



There is a revolution coming to water! Explore how reusing “greywater” is helping our water systems and our environment.

Objective

Students will determine the meaning of domain-specific words in their scientific context, as well as explore ways that communities use science ideas to protect Earth’s resources and environment.

Time

20 minutes

Materials

- Which Water? activity sheet
- Related Source: How Is Water Cleaned? Source to Tap digital interactive: scholastic.com/njaw/waterworks

INSTRUCTIONS

1 Ask students how much water they think they use in a day (in gallons). Tell them that the average American uses 80–100 gallons of water per day, and the average family uses over 300 gallons per day. Have students list all of the ways they use water at home. Write the responses on the board.

2 Ask students what they think happens once water goes down the drain. “Wastewater” enters the sewer system and flows into water-treatment plants. If wastewater is extremely polluted, the pollution could end up in local waterways. If the volume of wastewater is too high, it could overwhelm the sewer and treatment systems.

3 Tell students that much of our wastewater comes from residential and commercial buildings. Fortunately, today’s architects and engineers are designing new water systems that reuse wastewater. These new systems:

- Collect “greywater”—water from sinks, tubs, showers, and washing machines
- Funnel greywater to other uses, such as watering plants or flushing toilets
- Reduce amount of wastewater flowing into sewers

- Reduce how much fresh water is needed from the water system

4 Point out that fresh water and greywater must be kept separate and used differently. In homes and buildings that collect greywater, the plumbing is kept separate. In these new structures, the fresh water runs through indoor faucets and is used for activities like drinking water and brushing teeth.

5 Greywater, on the other hand, runs through pipes that connect to toilets and outdoor spigots; this water is recycled to be used for flushing toilets and watering plants. Make sure students understand greywater is not used for human consumption. Learning the difference between fresh water and greywater will open new doors to how we use and save water.

6 Distribute the Which Water? activity sheet. Divide students into small groups for the card game.

7 Wrap up by having students draw their own water systems for a new building. Remind them to completely separate the fresh water and greywater pipes. Have them write a paragraph on their reasoning for their water setup.

Supporting All Learners

Increase the challenge Have students write a paragraph tracking their water use during an average day, identifying which uses require fresh water.

Decrease the challenge Tell students to identify uses of water in each room of their house.

Support English-language learners Clearly write all numbers and lists on the board. Draw icons if possible.

Enhance differentiation Have advanced students write an explanation of the water uses in their homes and have beginning students draw pictures of water uses.