

Septic Sights

This activity center is part of the **Water Protection** theme.

Purpose of this activity:

Students will use a model to trace the path of household wastes from their source to their place of disposal.

Key Messages:

- Water is a limited resource that is essential to life
- Waste water must be treated or cleaned so that it can be re-used
- A septic system is one way to clean waste water

Materials

- Toilet
- Septic system including wooden frame, model septic tank and clear plastic perforated piping
- Bucket (can be used to catch water at the end of the pipe instead of wasting it)
- Enough gravel to fill frame and underlie piping
- Food colouring (enough bottles to last 3 days)

What will I be doing?

You will be supervising the operation of the model and posing and answering questions about the septic system shown.

Q: Does anybody here know what a septic system is?

A: It is a system of treating wastewater by filtering it through certain types of gravel and earth materials that are built up in layers underneath the ground.

Q: Does anybody here know if their home or cottage has a septic system?

A: We are going to see how a septic system works. Have a volunteer flush the toilet. The toilet, which is upstream of the septic tank, will empty out into the model septic system to show how a sewage system operates in a community without municipal sewers.

Students trace the sewage path by observing the brightly colored water travel through the plastic pipe.

Ask the students to relay their observations as the colored water moves through the different stages of the model.

They will learn how a septic system works by discussing each area's function. The 2 main points to emphasize are:

1. The septic tank is where the waste materials settle.
2. The soil absorption field is essentially a filtering area for the wastes.

Explain that wells set near the system can be contaminated from malfunctioning or overloaded septic system. This is the same groundwater that the people who live in the house would be drinking and washing with.

Q: Why do we want to avoid mixing the water and wastes from the septic system with the groundwater that the people who live here would use for drinking and washing with?

A: People can get very sick from the bacteria that contaminates/pollutes the water they use for drinking and washing.

Q: If the water is polluted is it only a problem for humans?

A: No, plants and animals cannot use it either. It damages their habitat too.

Ask the students what kinds of things would be inappropriate to flush down the toilet and why.

Background Information:

- Human sewage is disposed of through septic systems in most rural areas.

- When maintained properly, septic systems can be very efficient disposal systems.

- The septic system actually biodegrades (breaks down into benign, or harmless, substances by bacteria and microorganisms living in the soil) the waste, the sewage is NOT just being dumped into a hole in the ground.

- Septic tanks can seep nitrogen into the ground and water if poorly maintained. Too much nitrogen stimulates heavy growths of algae that may kill aquatic plants and fish.

Clean Up Procedures:

- Be sure that the water supply is turned off
- Put food colouring bottles into the bucket to avoid losing them
- Put everything neatly together to avoid losing items, and so the next group can find everything easily and get underway with the activity.

