

Name: _____

Unit 3: THE HYDROSPHERE

NOTES: 3.11

FOCUS: Wastewater Treatment & Water Stewardship

ESSENTIAL QUESTION: How is wastewater treated to ensure safety for the environment? What is your role in being a good steward of North Carolina’s water supply?

What do you already know?

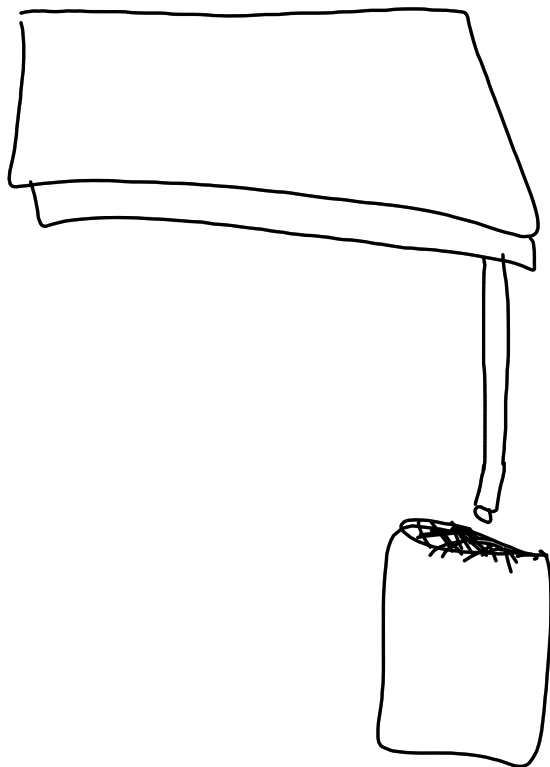
- YOU are part of the water cycle, the cycle of processes by which water circulates between the Earth's surface and the atmosphere.
- You use water daily that has been purified in a water treatment plant but you also return water to the environment daily in the form of wastewater

What is “wastewater”?

- Wastewater is any water that contains waste that has made it non-potable (undrinkable).
- Many different levels of “wastewater”:
 - Sewage : water that contains urine and fecal waste from flushed toilets
 - graywater : all other water that goes down household drains (kitchen, bathroom sinks, tub/shower, dishwasher, washing machine)
 - Stormwater : runoff from paved streets, parking lots, and building rooftops during rainfall and snow events

Where does wastewater go?

- Depends on where you live
- Outside of city limits (outside the municipality), your property is required to have a septic system (rural)
- Within the municipality, wastewater travels through sewers to a wastewater treatment plant.



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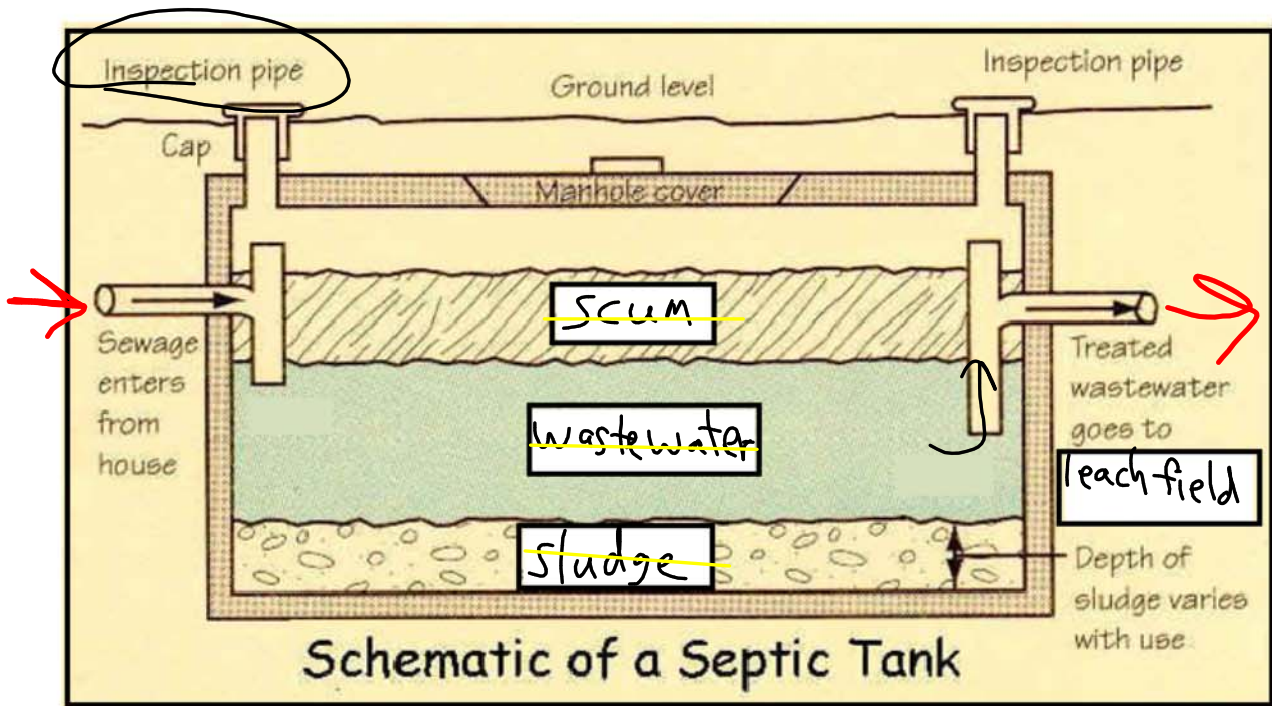
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- Most stormwater drains into storm sewers that empty directly back into a surface water source (lake, river, stream, or reservoir).
 - Problem: Carries pollutants on the ground directly into water supplies.

How does a septic system work?

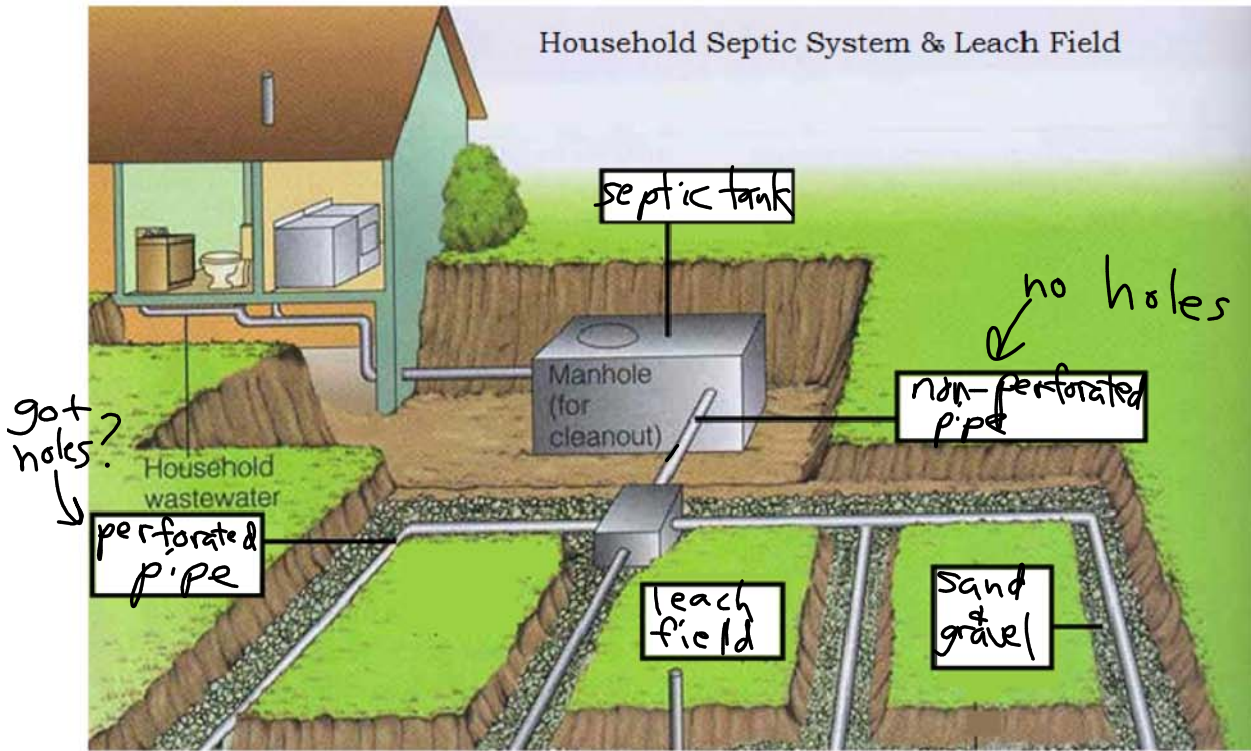
- Sewage and graywater drain from the house.
- Denser wastes (sludge) sink to the bottom and less dense wastes (scum) rise to the top.
 - Both should be pumped out regularly or bacteria should regularly be added to break down the wastes. (ie: Rid-x)
- Water flows out to filter through the leach field.



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How does a wastewater treatment plant work?

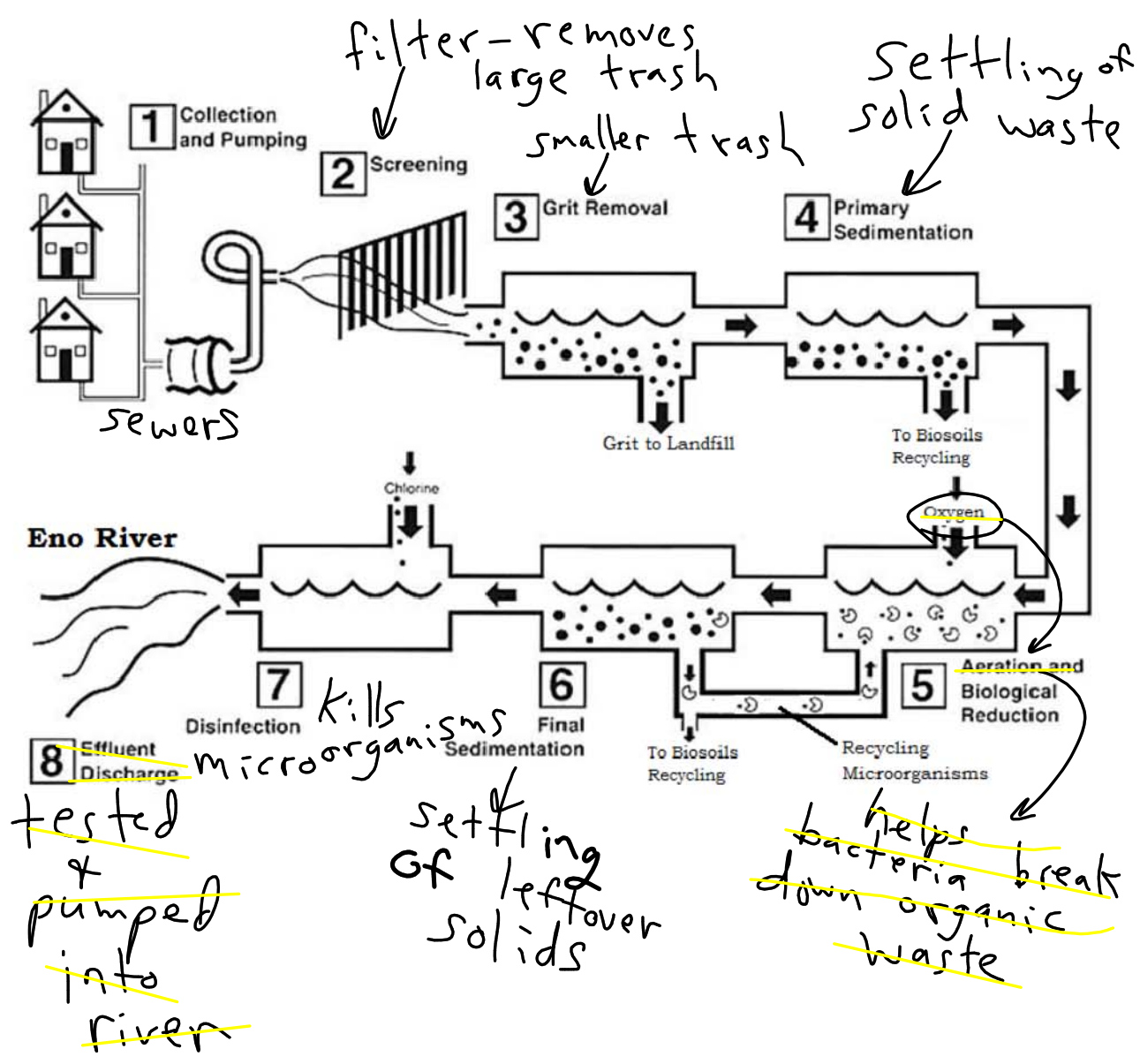
- Sewage and graywater from the entire municipality flows through sewer pipes to the wastewater treatment plant
- In Hillsborough, the facility is located on Elizabeth Brady Rd. (by the old Ocooneechee Speedway).
- Similar process to drinking water treatment.
- The end result is cleaner than the river water, but not potable.

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Wastewater Treatment Facility



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What is your role in being a good steward of North Carolina's water supply?

- Steward: a person put in charge over someone else's property
- Stewardship: the careful management of something entrusted to one's care
- Things you can do now to be a good steward of North Carolina's freshwater:
 - Use water efficiently
 - Shorter showers, collecting running water while you're waiting for it to get hot, keeping a pitcher of cold water in the refrigerator
 - Capture rainwater or graywater for agricultural uses
 - Do not put anything on your lawn or garden that you wouldn't want to later seep into your drinking water.
 - Properly dispose of trash, oil & gas, and pharmaceuticals.
 - Keep your car in good working order.