

Let's Settle this Outside

If you are doing this in a classroom, click [here](#) for classroom instructions.

Introduction: *We separate our wastewater into three main categories:*

- *Water (about 99.9% of wastewater)*
- *Sludge (food or feces which can be thought of as “used to be food”)*
- *Trash (stuff that should never have been sent down the drain)*

Water *is cleaned, sterilized with UV light, and released into the Rio Grande.*

Sludge *is sent to digesters where bacteria in the feces eat the organic material and produce methane gas, like they do in our guts. We capture the methane gas produced and then use it as fuel for electricity generation. We use the electricity to help run the plant. When there is nothing left to eat, the microorganisms die and we send what is left to our Soil Amendment Facility where it is turned into compost, spread on the land, or buried.*

Trash *is sent to the city garbage dump. If we didn't flush our trash we wouldn't have to pull it out of the wastewater and haul it to the dump.*

Part I: How to make wastewater:

Add these things to a clear cup (label it Toilet) so you can see it all:

- A tablespoon or two of sand or dirt (we do get dirt from the pipes)
- Yellow water (add vinegar if you want that smell)
- Play DOH for poop (you need a ball of play DOH about one inch high – now make it into little tiny poops about the size of Tic Tacs)
- 3 Cups (label one Water, another Sludge, the last Trash)
- A plastic straw cut up into ½ inch pieces (plastic trash like Band-Aids should not be flushed!)
- A balloon or other toy (once again, plastic toys should not be in the toilet, but they are)
- Cotton ball (Diapers and rags should not be flushed, but they too are flushed)
- 1 teaspoon of oil or fat (We should never pour oil or fat down the drain, but it happens)

Part II: Time to flush! You are ready to make wastewater. To flush, pour in about ½ cup of water and stir as fast as you can! We don't want anything settling out in our pipes.

Part III: Time to separate the parts. Slow your stirring. This is really how we clean wastewater. When you slow the water down, it will not be able to carry heavy stuff. Things will fall out, heaviest first, then next heaviest, and so on. What do you think will be the first thing to fall to the bottom? What will be on top? Stop stirring, set your toilet down, and watch. Time to divide the parts:

- Oil floated to the top – so use a big spoon to skim it off. Put it in trash. Remember to NEVER put oils or fats down the drain. They can clog the pipes. Instead, cool it on the counter, then pour it into a can, then chuck it into the trash. Cool it, can it, chuck it.
- Gently tip the glass to pour off the dirty water into the cup labeled water. Microorganisms clean it for us.
- Now the solids need to be sorted. Trash goes into the trash cup. Sludge goes into the sludge cup. Go back to the introduction to see where they will go next.

Reflection: Remember that we do not clean the water from storm drains (those grates near the sidewalk outside). Never pour anything in the storm drains!