Group names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Create a wastewater filter instructions**

**Step 1:** Assemble your filter setup.

* Remove the bottom of the bottle by making a cut around the circumference of the bottle about an inch from the bottom.
* Remove the cap and then cover the neck of the bottle with cheese cloth. Secure it with a rubber band.
* Invert the bottle into a collection container. This could be a beaker or another plastic bottle with the top removed.

**Step 2:** Create your filter.

* Discuss within your group which of the available filter materials you want to use and in what order.
* Draw the layers of materials for your filter design in the filter setup section on the back of this worksheet.
* Mark a line with a permanent marker about an inch and a half down from the open inverted bottom of the bottle (i.e., the top of your filter).
* Add filter materials to your bottle until you reach the black line. Edit your design if you made any changes while assembling your filter.

**Step 3:** Test your filter.

* Ask one student to start a stopwatch as another begins to slowly pour the simulated wastewater into the filter, taking care to avoid spilling.
* Run the stopwatch until there are at least ten seconds between water drips.
* Record how long it took the water to run through the filter.
* Observe the water that came out of your filter. Record a description. What color and texture does it have? How does it look? Is it cloudy? How does it smell?

**Create a wastewater filter design**

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