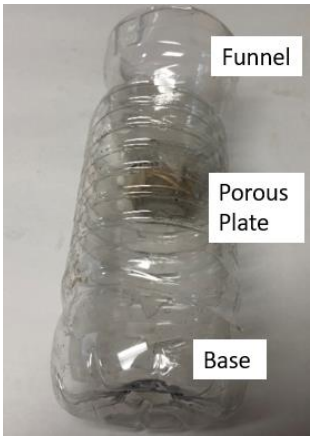
Name(s)_____

Polluted Water STEM Challenge

Can you build a model filtering system that can be used to clean the water of a small town with a polluted water supply?

Testing different filtering materials:

1. After learning about filtration, **plan** and **design** a simple filtration system that can clean a sample of polluted water.
2. Using the materials provided, **construct** your filtration system. Your system should include a **base**, a **funnel**, and a **porous plate** (cheesecloth).
3. Choose at least 3 different materials that you think would make good filters and try filtering a 50 ml sample of polluted water using each of the materials separately.
4. After filtering each one, evaluate the overall quality of the filtering and write down your observations.

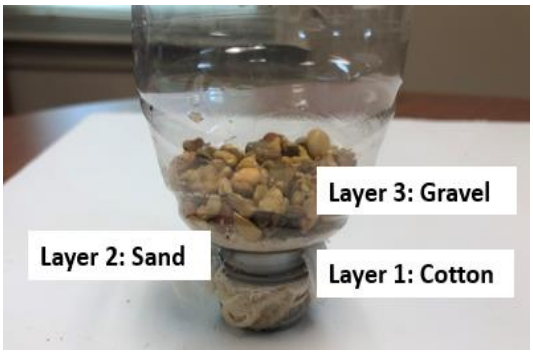


Type of Filter	Quality of Filtering Poor Excellent	Observations:
Coffee Filter	**1 2 3 4 5**	
Paper Towel	**1 2 3 4 5**	
Napkin	**1 2 3 4 5**	
Cotton Balls	**1 2 3 4 5**	
Sand	**1 2 3 4 5**	
Gravel	**1 2 3 4 5**	

Part 2:

Planning and designing a filtration system.

1. **Plan** and **design** a simple filtration system that can clean a sample of polluted water.
2. Using your results from Part 1, construct a multiple layer filter within the funnel of your system. The filter should include least 3 layers arranged in the way that you think will be most effective.
3. Once the filtration system is constructed, carefully **test** it by filtering a 50 ml sample of polluted water through the system. Evaluate the overall quality of the filtering and write down your observations.



Drawing of our water filter (label each layer).	**Quality of Filtering** **Poor** **Excellent**
	1 2 3 4 5
	Observations:

Evaluating and Improving:

1. As a group, **evaluate** the effectiveness of your design and discuss how you would change your design moving forward to **improve** the performance of your filtering system. If time permits, make these improvements and re-test.

Drawing of our improved water filter (label each layer).	**Quality of Filtering** **Poor** **Excellent**
	1 2 3 4 5