Water Filter Challenge

<u>Problem:</u> What filtration system design will work best to clean the contaminated water?

As a team, you have been hired to build the most efficient water filtration system using the given items. *Your team may only use a total of 8 different items to construct your filtration device (this does not include the 2-liter soda bottle).*

Materials Available:

Gravel (2 cups)	Cotton ball		
Sand (2 cups)	2-liter soda bottle (cut in ½)		
ACHVOISE CONTRACTOR	Rubber band		
Sponge	Duct tape		
Coffee Filter	Filtering cloth		
Paper clip	4		
Drinking straw	Yarn (12" long)		

^{*} Groups may bring in additional materials if they desire.

Procedure:

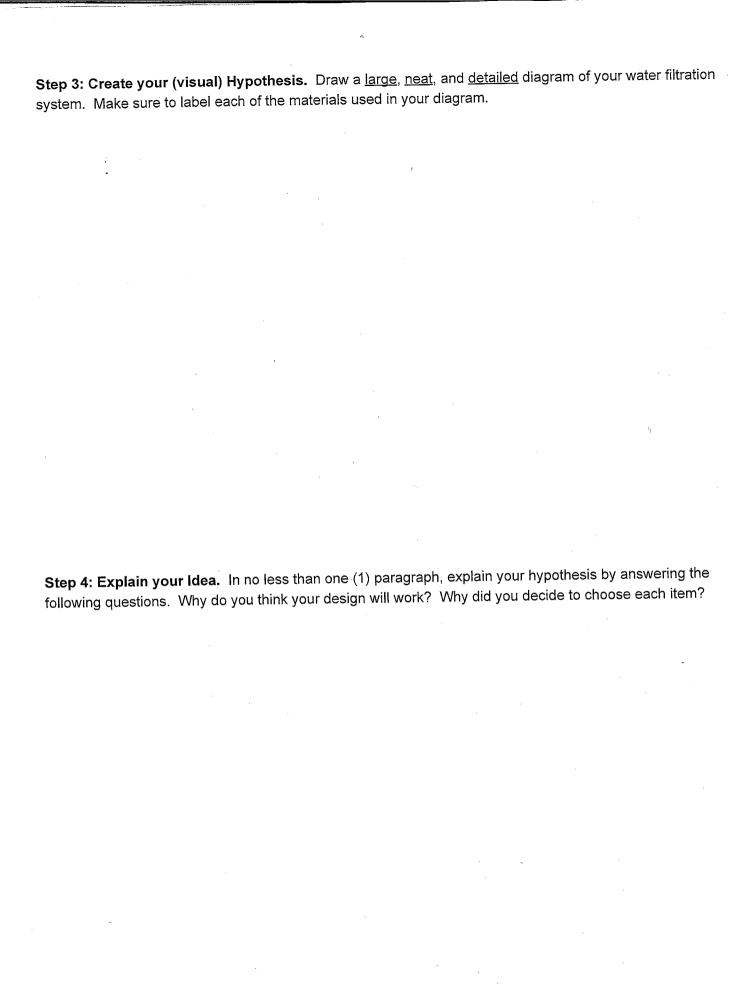
- 1. <u>Research</u>: As a group research water filtration system. What might be some useful questions you can research to help you learn more about water and water filters?
- 2. <u>Synthesis & Planning</u>: Using the information you found in the research step, as a group brainstorm filtration system ideas.
- 3. <u>Create your (visual) Hypothesis:</u>
 - Draw a <u>large</u>, <u>neat & detailed</u> diagram of your water filtration system.
 - · Label the materials used in the diagram.
- 4. Explain your Idea: In no less than one (1) paragraph, explain your hypothesis by answering the following questions.
 - Why do you think your design will work?
 - Why did your decide to choose each item?
- 5. <u>Construction</u>: Construct your water filtration system.
- 6. <u>Sharing Ideas</u>: Your group will share and explain your water filtration system (both diagram and constructed system) with the class.
- 7. <u>Testing</u>: With the help of your teacher, test your water filtration system.

Water Filter Challenge Planning Sheets

Step One: Research. Write 3 useful questions you can research to help you learn more about water

and water filters?	*		•	
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Q3:				
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Step 2: Synthesis and Planning. Using the information you found in the research step, as a group brainstorm filtration system ideas. What materials are you going to use to construct your filter?



Observations: Contaminated Water (before filtration)

Quantitative Data:			
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Results: (after filtration) Quantitative Data: **Qualitative Data:** Write at least ten (10) detailed observations of the "filtered" water that has gone through your filtration system. <u>Summary & Analysis:</u> In no fewer than 5 complete sentences, describe the success of your water filtration design. Were you successful? Why do you think so?

* Be sure to use both quantitative and qualitative data to support your success statement.

<u>Summary & Analysis:</u> Describe two things you would change if you were to re-build and improve your water filtration system.