## Water Filter Design Challenge

### **Background:**

In this unit, you will learn all about matter. You will be investigating atoms, molecules, compounds, elements, phases of matter, mixtures, solutions, temperature effects on matter, and removing pollutants from water. As student engineers you will be putting your skills and knowledge to use.

### **Design Challenge:**

Your group will create an environmentally friendly water filter system. The system must remove solid pollutants from water. Group members should be able to describe all the processes used in their system.

### Criteria:

### Your filter must:

- be able to produce one cup of clean water.
- use at least two filter materials.
- have little to no environmental impact.
- be accompanied by a paragraph explaining how your filter works.

### **Materials:**

Coffee filters Screens Assorted materials from Paper Rocks recycle bin Straws

### **Tools:**

Scissors

Markers Freezer/Refrigerator
Pencils Hot Plate (Teacher
Assistance

Rulers

Measuring Cups Tape/Glue

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<sup>\*</sup> Additional materials may be used with teacher approval.

# Water Filter Design Challenge

Engineers:	 	- 35
1. What is the challenge? State the challenge in your own words.		

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# 2. Brainstorm designs: Sketch or describe some possible designs. Filter Designs Ways to Filter

# 3. Create the design you think is best. Keep notes below about the problems you have and how you solve them.

# Resources: (represented by the materials used in your model)

available to them? How environmentally friendly are your materials? Would these be the most eff	icient
forms of filtration?	
	N A

4. What have you learned?
Does your filter meet all the requirements?
How long does your filter take to produce 1 cup of clean water?
What filtration materials were used in the final filter?
How did you use phase changes in your model?
What is the environmental impact of your filter?

. Evaluate your design.		
as it the best design? Would one of yo	our other id	eas have been better? Why or why not?
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	<b>E</b>	How do you feel your group worked together?
How do you feel about your role in the project?		How do you feel your group worked together?  Group Reflection:
How do you feel about your role in the project?		
How do you feel about your role in the project?		
Reflection.  How do you feel about your role in the project?  Self Reflection:		

