

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
Paper
Sand

Screens
Rocks
Straws

Assorted materials from
recycle bin

*** Additional materials may be used with teacher approval.**

Tools:

Scissors
Markers
Pencils

Freezer/Refrigerator
Hot Plate (Teacher
Assistance)

Rulers
Measuring Cups
Tape/Glue

Water Filter Design Challenge

Engineers: _____



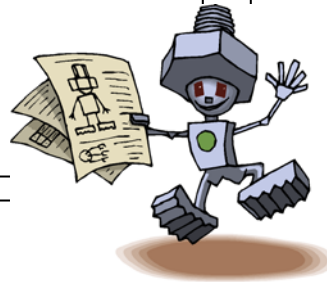
1. What is the challenge?

State the challenge in your own words.

2. Brainstorm designs: Sketch or describe some possible designs.

Filter Designs

Ways to Filter

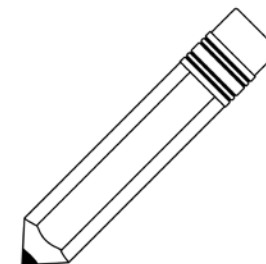


4. What have you learned?

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?

5. Evaluate your design.

Was it the best design? Would one of your other ideas have been better? Why or why not?

6. Reflection.

How do you feel about your role in the project?

Self Reflection:



How do you feel your group worked together?

Group Reflection:
