



Creating a Simple Pump Design Challenge

DESIGN CHALLENGE Notes:

This design challenge explores how to create a simple pump from found materials. Access to water and being able to move water is critical.

Problem: We need to move water from one place to another.

Challenge: Pressure and suction are critical for moving gases and liquids around. Overcoming gravity and friction are important to overcome.

Materials:

We need a pumping mechanism

We need a source of power

We need a wrench

We need a hose

Brainstorm:

1. What is pressure and why is pressure related to suction?
2. Why does a higher value of pressure mean a better suction?
3. Is a straw a pump?
4. How does a straw work?

Design/Build:

1. Determine a method for pulling water from one place to another
2. How can you test this?
3. How much water will you be able to draw or pull?

Test:

What happens when you try your design?

Can you be sure you have an accurate measure?

Can we tell it is working? How?

How do you know the pump is working?

Evaluate:

- How will you record your results?
- How will you know how much of each component you have is doing what?
- What would you modify to test your results?
- Can you create different types of dirty materials and test them?
- What would you do differently?

Share:

- Record your tests on a chart.
- Which combination or type of thermometer worked best?
- How did you know?