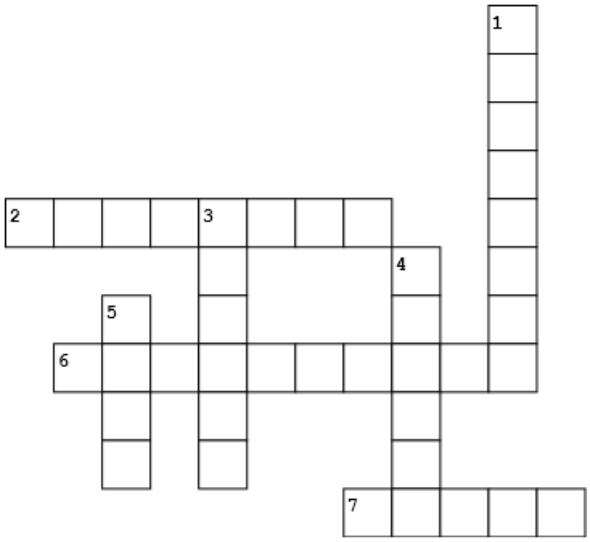
Name: _____

Part 1. Introduction

Earthquakes can make it hard to get clean water by causing damage to pipes that bring water to people, and water treatment facilities.

Floods can make clean water sources like lakes, reservoirs, and wells dirty by washing trash, human waste, and other contaminants into them.

Humans can design solutions to help reduce the effects of natural disasters. Humans can design solutions to help reduce the effects of natural disasters including water contamination but will never be able to eliminate natural disasters.



Across

2. Wood heated to a high temperature used commonly as fuel for a grill. Used to chemically absorb impurities in the water.

6. When the ground shakes. Tremors cause the soil to mix with water which can clog filters. Also causes fluctuations in the water level causing some sources to dry up and others to flood.

7. Too much water! Contaminates water sources because the contaminated water gets into the clean water lines.

Down

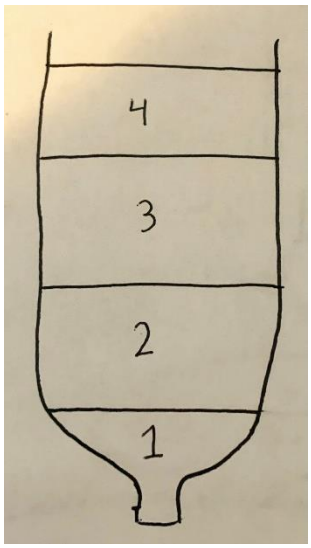
1. When the forest is burning. Trees burn causing the soil to erode into water sources. The excess soil causes filters to clog, allowing some contaminates through.

3. Common clothing material. Filters large particles. Usually at the bottom of the filter to hold the other materials in the container.

4. Small rocks that are used to filter out large particles.

5. Very tiny rocks found at the beach. Used to filter out fine impurities in the water.

Part 2. Plan and Carry out



To create your filter, you are going to create layers of filtering materials inside of a 2-liter bottle with the bottom cut off. There are 4 important things the water filter does, and each layer does one of them.

The first layer holds the rest of the layers in the bottle, so the filter materials do not get into the clean water container.

The second layer is to remove any bacteria or chemical impurities in the water. This helps prevent you from getting parasites or other illnesses.

The third layer is used to remove fine particles from the water that are difficult to see. This could be salt or dirt dissolved in the water.

The fourth layer filters out large particles out of the water such as rocks, leaves, or sticks.

Part 3. Collect Data

After you have built the filter, we need to test it. You will filter a can of soda through your filter and measure several aspects about the soda before and after it has been filtered. The things you need to look at are: How much liquid is there? The physical appearance of the liquid and the taste of it. Record your observations in the table below.

	Before (Soda)	After (Filtered Water)
Volume of liquid		
What does it look like? (Color? Particles in the liquid? Etc.)		
How does it taste?		

Part 4. Analyze Data

What volume of contaminate did your filter remove?

Did the appearance of the liquid change in the filtering process? How?

How did the taste change?

Part 5. Explain

Soda is made of carbonated water and a flavored syrup that is mixed in. Which layer(s) do you think filtered out the syrup?

Why do you think the layer(s) filtered out the syrup?

If there were layers you don't think helped contribute to the filtration of the soda, why not? What could you have mixed into the soda that would have needed these layers to filter?