DIY Filter

Information: The drinking water that is supplied to our homes comes from either surface water or ground water. Most people in the US, who live in larger cities, get their water from a public water supply. If it does, a local government agency, like McAllen Public Utility, delivers water to your home through a network of underground pipes from a large source of water shared with neighbors and the community. Pollution can affect the quality of water we use.

Pollutants can be removed or neutralized through your local water treatment system through a series of steps.

- **Coagulation and Flocculation**: Chemicals with a positive charge are added to the water. The positive charge of these chemicals neutralizes the negative charge of dirt and other dissolved particles in the water. When this occurs, the particles bind with the chemicals and form larger particles, called floc.
- **Sedimentation:** Floc settles to the bottom of the water supply due to its weight.
- **Filtration:** Once the floc has settled to the bottom of the water supply, the clear water on top will pass through filters of varying compositions and pore sizes, to remove dissolved particles.
- **Disinfection:** After the water has been filtered, disinfectant may be added to kill any remaining things in the water to protect it when being piped to homes.

Filter Layers

- **Water-** Once water has gone through several treatment steps, it can travel through troughs to get filtered. Water will flow downward through several layers to remove any remaining particles and chlorine resistant microbes.
- **Anthracite Coal:** Also called "activated carbon" helps with the taste and odor of water.
- **Sand:** Water can pass through sand with ease but larger particles get trapped and don't pass through. Suspended matter and floating solids can get trapped.
- **Gravel:** Like sand, gravel can assist with trapping particles. It keeps sand in place and ensures sand doesn't seep down into drain outlets.
- **Filter drain:** Allows filtered water to pass through as it heads to distribution.

http://www.elaguapotable.com/WT%20%20Rapid%20Sand%20Filtration.html

McALLEN PUBLIC UTILITY

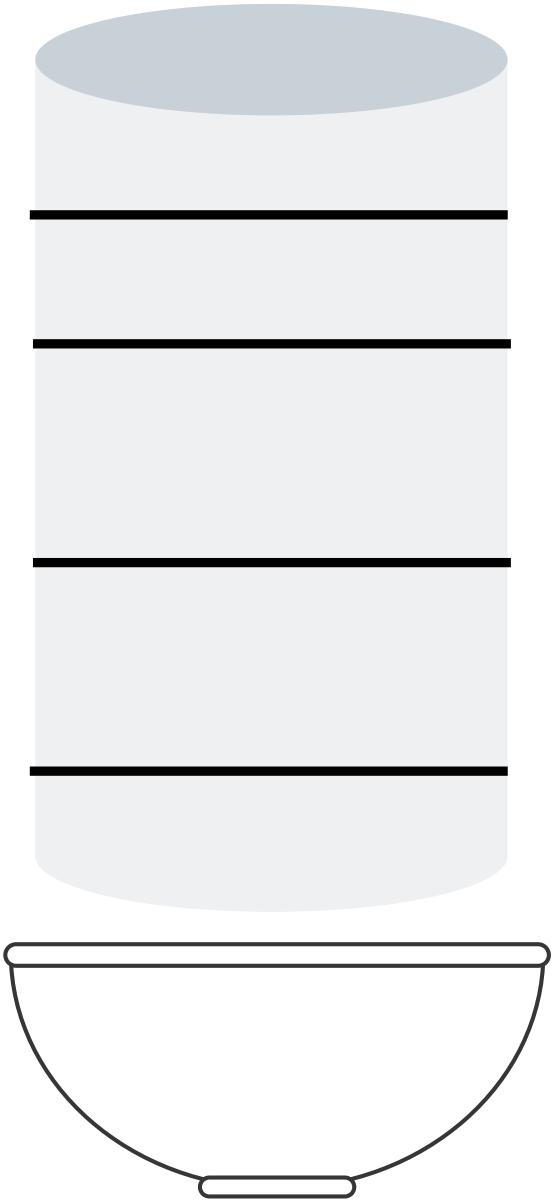
DIY Filter

Invent your own filter to clean dirty water! This is a both a demonstration and experiment. Even though the water will appear clear after filtration, it is not suitable for drinking. Adult supervision may be required.

Materials: Plastic cups or containers, thumb tack, tape, sand, pebbles/rocks, water, dirt. Missing materials? Replace them! It's your filter so be creative. Rocks, beads, legos, shells, paper, grass, fabric...Try something and see if it works!

Directions:

1. Pierce several holes in the bottom of a plastic cup or container with a thumb tack and cover the holes with tape.
2. Design a filtration system using any combination of materials available. Try to make four layers. Write down what you're putting so you don't forget!
3. Fill a separate cup with with water and make it dirty! Add dirt, food coloring, spices, etc. Take a picture of the dirty water.
4. Carefully remove the tape from the bottom of the filter and set it inside another cup or over a bowl to catch water.
5. Pour the dirty water into your filter and let it run through completely. Take a picture and compare your filtered water to your dirty water!



McALLEN PUBLIC UTILITY