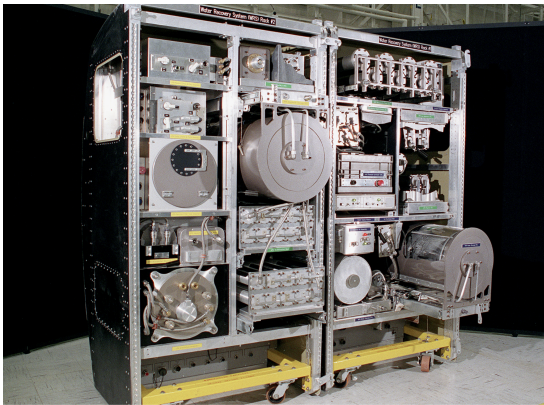


Create Your Own Water Filtering System

Background: The astronauts on board the International Space Station (ISS) join those of us on Earth in the recycling effort. This recycling is different from that which may take place in your home or school. The astronauts recycle their water. This includes the moisture they exhale and sweat, as well as the water they use to shower and shave. These wastewaters are purified and then used as drinking water.

The ISS uses **filtration** and temperature sterilization to ensure the water is safe to drink. Water is checked often to ensure it meets the water quality requirements and monitored closely for bacteria, pollutants, and proper pH. The pH scale ranges from 0 to 14 and is a tool used by scientists to measure the strength of an acid or base. Proper pH balance of 7 is important to a human body (www.nasa.gov).



Take a look at how complex NASA's water recycling/ filter system is.

Video: Watch this video to learn more!

<https://www.youtube.com/watch?v=BCjH3k5gODI>

Task: Using materials that you have at home create your own filter. Test your filter by adding some dirt to water to create a brown solution. Pour this solution through your filter. Does the color of the solution coming out of the filter appear to be clearer? Can you see where any of the dirt was collected in your filter?

Creating your filter: Feel free to be creative and design your filter with materials you have. Some materials that work well are rags, paper towels, coffee filters, cotton balls, and pebbles. Below is an idea on how to create a filter. However, remember that you can simplify this such as covering the opening of a cup with a rag and paper towel.

Pro tip: Adding more layers to your filter will make it more successful.

Safety: Even if your filter appears to create perfectly pure water DO NOT DRINK IT.



1. With adult supervision cut a plastic water bottle in half.



2. Place the top end of the water bottle into the bottom half with the drinking opening pointing downward.



3. Place a coffee filter in the top half.



4. Break apart a cotton ball and place it inside the coffee filter.



5. Add pebbles/ rocks on top of the cotton ball.



6. Experiment and observe! Pour your dirt and water solution on top of the pebbles and watch your filter work.

