



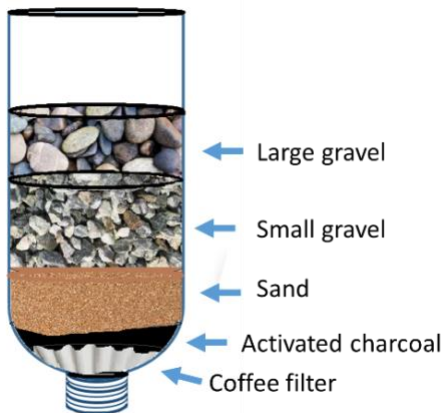
DIY Air Force Activities:

Filter Fix



Materials:

- plastic water bottle (16-20 oz)
- filter materials:
- large gravel, small gravel, sand, cotton balls, coffee filter, activated charcoal, fabric
- scissors or Exacto knife.
- two (2) Plastic cups (any size)
- water
- rubber band



Water is a fundamental need to sustain life. Without water there would be no life on earth. The average person needs between 5 and 15 gallons of water a day to drink, cook, and keep themselves clean. In many parts of the world there is a shortage of fresh, clean water. Many scientists are working on ways to solve this problem by developing new types of filtration processes. Water filters remove dirt and other impurities from water using physical barriers, chemical processes, and biological interactions. Following the directions below you will build your own water filtration system that you can test!

Directions:

1. Cut the bottom off of a plastic bottle. ****Ask for adult assistance**
2. Cover the mouth of the bottle with a piece of fabric, secure with a rubber band
3. Layer your filter materials in the following order: 1 coffee filter, cotton balls, activated charcoal, sand, small gravel, large gravel. Start by making each layer above the coffee filter about 1 inch wide. Do not fill the bottle more than 2/3 full.
4. Create dirty water in one cup using dirt, rocks, grass, and anything else you can think of as contaminants! *****Do not drink it, even after you filter it.**
5. Hold your filter over an empty cup. Pour in dirty water and catch it in the empty cup.

Observe your result! How well did your filter work? How does the filtered water compare to the dirty water? What types of materials did the filter remove? What did it leave behind? How else could you clean the water? Have fun experimenting with different filter materials, amounts, and contaminants. Try putting the filter materials in a different sequence. Compete with friends to see who can make the best filter!

Air Force Associations:

Water is the essence of life and likewise essential to support any military operation. At Andersen Air Force Base, specially trained Airmen are able to turn untested water into drinkable H₂O using a Reverse Osmosis Water Purification Unit (ROWPU) 1500. The purification process starts with detecting a viable water source, which can be fresh or saltwater. The water then goes through three types of filtration. When the water is deemed safe, it is then stored and utilized for drinking, personal hygiene, sanitation, food preparation or medical support in an expeditionary environment.

<https://www.af.mil/News/Article-Display/Article/600314/drink-up-airmen-train-to-purify-warfighter-water/>

