**Water Treatment**

**Drinking Water Filter – Student Activity**

**Minds On:**

1. What are three human activities that require safe, clean water?

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2. Lake water is a mixture. What substances have to be removed from lake or river water to make it safe to drink? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. What substances can be used to make water safe to drink?

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**Safety:** Do **not** drink the water. Wear goggles.

**Action:** **Build** and **test** a water filter to clean dirty water.

**Materials:** Read the instructions and write a two column list of materials. There are more than 10 items.

**Water Filter Construction and Use:**

1. Put on goggles. Use scissors to cut the bottom off of a 1 L plastic bottle. Take off the lid.

2. Line the inside of the bottle with a doubled piece of paper towel about the size of your palm. Gently push the paper towel down to the neck of the bottle. This will keep the sand from running out of the bottle.

3. Gently put sand on top of the paper towel until the bottle is about ¼ full.

4. Gently place gravel on top of the sand until the bottle is about ½ full.

5. Use an elastic to secure a piece of cheesecloth over the opening you cut in the bottle bottom.

6. Fill a cup about 2/3 full of dirty water and be sure to get a leaf or twig.

7. **Record** your observations of the dirty water. Each person must make at least one observation for the team. Be sure to **smell** the water.

8. Add ¼ spoon of alum, stir well and wait about 2 minutes. **Record** your observations of any changes in the water.

9. Hold the water filter bottle over a clean empty cup. Gently pour the dirty water into the bottle but try to leave the sediment (large dirt particles) in the original dirty water cup.

10. When all the water has filtered into the clean cup add 5 drops of the chlorine solution to the water.

11. **Record** your observations of the water including the smell. Do NOT drink this water as there is **no safety testing.**

12. Draw a well labelled diagram of your completed water filter.

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**Observations:**

|  |  |
| --- | --- |
| **Type of Water** | **Observations** |
| Dirty Water | 1.  2.  3.  4. |
| Dirty Water with alum | 1. |
| Clean Water | 1.  2. |

**Cleanup:**

1. One person dumps and separates the sand and gravel.

2. One person returns the cheesecloth and elastic.

3. One person cleans both cups in the clean rinse water bucket. Do **not** put your “clean” water on plants, dump it in the treated water bucket.

4. One person throws out the paper towel, rinses the bottle and puts it back.

5. Wash your hands.