



<http://www.newmediaexplorer.org>

Overview:

For most of us in America, it is very easy to get a drink. You can go to the sink and turn on the tap, put a glass in an opening on your refrigerator door, walk up to a drinking fountain and turn the knob, or go into any store and buy a bottle of water. But for millions of people in developing countries, clean water is at a premium. Available water can be as dangerous as it is life saving. So what can they do when there is no clean water available? This week's **NewsDepth** features some folks in the giant slum of Kibera in Kenya who have found an answer.

Students in these lessons and activities will discover how they also can purify water with solar energy using the same procedures as Amina Hassan and her family.

Grade Levels: 4-5

Subject matter: Science

Standards Addressed:

Students will generate scientific questions about the world based on observation.

Students will design and conduct scientific investigations

Students will write and follow procedures in the form of step by step instructions.

Classroom activities:

1. **Activity #1** Have a discussion about clean water availability in our own country and state as a result of Hurricane Ike. (15-25 minutes)

- How simple is it for you to get a drink of water? Can you remember where you got your last drink of water? How many of you drink bottled water that you purchased at a store? Why do you buy water in a bottle when you can get it for free?
- Even though we don't have the problems here that they have in the developing countries mentioned in the NewsDepth Feature, what happened here in own country over the past couple of weeks that has caused a temporary shortage of clean water? Talk about the people in Texas and what they are going through.

http://www.mysanantonio.com/news/local_news/Biggest_obstacle_to_Galveston_recovery_is_water.html “Biggest Problem for Galveston recovery is Water.” This is an article describing what they are going through down there.

- Were any of you without power or water as a result of the storms this past week? What did you do for water?

2. Activity #2 Creating a Solar Still

- Begin by having students recall how Amina Hassan, her family, and others like her are purifying water.
- Ask students if they know who the first people were that treated water. This information comes from the American Water Works Association: “The Egyptians were the first people to record methods for treating water. These records date back more than 1,500 years to 400 A.D. They indicate that the most common ways of cleaning water were by boiling it over a fire, heating it in the sun, or by dipping a heated piece of iron into it.”
- Have you ever been playing in the woods or camping or taking a long hike and realized you didn’t have any clean, fresh water? Do you know how to make fresh drinking water when there is none available? Stress to your students that they may sometime be in a situation where they may be in need of lifesaving drinking water. That could be the difference between extreme dehydration and thirst-quenching water to sustain life.



“The heat of the sun can provide thirst-quenching water to sustain life.”
<http://www.associatedcontent.com/article/48419>

- Solar stills have been proven to be very effective in cleaning up water supplies to provide safe drinking water. In hurricane areas such as Texas, solar stills can provide an alternative source of clean water. Using the handout provided for instructions, students will make their own solar still. (The additional resources have a variety of options for creating solar stills.)

Additional Resources

<http://www.teachersdomain.org/resource/ess05.sci.ess.watcyc.solarstill1/>

Solar Still: This is a site which explains solar water distillation and has an excellent short video narrated by two young students about how to make your own solar still to provide safe drinking water.

<http://www.cedarcreekinstitute.org/pdf/curriculum/solar-energy/4c-cleaning-water.pdf>

Solar Energy for the Classroom

Removing Water Impurities with Solar Energy

http://www.associatedcontent.com/article/48419/how_to_make_a_solar_still.html?cat=1

1 How to Make a Solar Still: Water for Survival

<http://www.csiro.au/helix/sciencemail/activities/WaterPurifier.htm>

Try This: Solar Water Purifier

http://energywhiz.com/experiments/solar_still.htm

Source for handout

Creating your own Solar Still



Materials

- bowl
- plastic cup, 1" shorter than sides of bowl or cut to size
- clear plastic food wrap
- tape or rubber band large enough to go around bowl
- small rock or weight
- salty or colored water

Procedure

- Put salty or colored water in the bowl
- Place the cup in the center of the bowl
- Stretch clear plastic wrap over the top of the bowl and secure with tape or a rubber band. Make sure the seal is tight and no air can escape.
- Place a weight on the center of the plastic wrap above the cup.
- Press down slightly on the plastic wrap so it stretches and sags down over the cup.
- Place the solar still in full sun
- Observe what happens.
- After water collects, taste it.