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Bright Idea: Light Bulbs From Plastic Bottles, Water and Bleach

Simone Orendain
Sheila Royeras admires the soda bottle solar bulbs that were installed in her home in Manila, Philippines. The bulbs are made out of a soda bottle, purified water and some bleach.

This is the VOA Special English Technology Report.

Nearly a billion and a half people, mainly in Asia and Africa, were living without electricity in two thousand nine. That latest count from the International Energy Agency was an improvement. In Asia, three out of four people in developing countries had electricity in rural areas. So did almost everyone in cities. But in Africa the rate was less than seventy percent in cities, and just one-fourth of the people in rural areas.

There are many efforts to find low-cost ways to light homes. One idea is a "water bulb." This system has recently been used to brighten more than one hundred homes in the Korogocho settlement in Nairobi, Kenya. These included the home of Madina Muhsin's family.

MADINA MUHSIN: "I'm very happy. I can see the light. Before it was all dark, dark, dark. Now I am happy -- I am very happy."

Members of the youth group Koch Hope installed the water bulb. First, they filled a two-liter plastic bottle with water and a little bleach. Next, they cut a hole in the metal roof. They pressed the bottle halfway into the hole. Then they used silicone caulk to seal around it to prevent rain from coming in.

In no time, the home was lit with about fifty to sixty watts' worth of light. The combination of water and bleach refracts light from the sun and a full moon. The bleach keeps the water clear.

Madina Muhsin, like many of her neighbors, was spending a lot on kerosene to light her home. Now, she says she will save almost half of her weekly income. Her son Abbas can now read a book at home in the middle of the day.

Veronica Wanjiru and her two children also have a water bulb in their home. She says her older son had to repeat a grade in school because he could not get his homework done when their home was dark.

VERONICA WANJIRU: "I've seen a big difference, especially with my children's education. If they're given homework, they can finish it on time. And they don't have to wait for me to come and light the candle or go outside and do their studies outside so that they can finish their homework."

In the Philippines, a nonprofit group called My Shelter Foundation has used a similar low-cost lighting solution in thousands of homes. The project is called "A Liter of Light." The head of the group, Illac Diaz, says the idea is better than candles and kerosene, and offers a great new use for old plastic soda bottles.

ILLAC DIAZ: "It's safer. It's healthier. It's brighter, and the funny thing is the light bulb actually comes from the place you'd least expect it, which is the trash bin. So it's the cheapest light bulb in the world."

Now do the worksheet ...

Level: beginner - intermediate

Time: 20 -30 minutes

This worksheet will help you learn new vocabulary about electricity. You will answer questions about "water bulbs", and write a short paragraph about how water bulbs can help people around the world.

1. What is *electricity*?

[ ] food that gives people energy
[ ] energy carried through wires, and used for light
[ ] a kind of computer that helps you see in the dark

2. What does *rural* mean?

[ ] in the country
[ ] in the city

3. The word *bright* can have two meanings. What are they?

[ ] *dark* and *smart*
[ ] *strong light* and *smart*
[ ] *strong light* and *stupid*

4. Look at the title of this article: *Bright Idea: Light Bulbs From Plastic Bottles, Water and Bleach.* What do you think it is about?

[ ] a smart way to make light bulbs
[ ] a very difficult way to make light bulbs
[ ] a smart way to use light bulbs

5. How many people were living without electricity in 2009?

_____

6. Read the following sentence. Is it *true* or *false*? If it is false, correct the mistake.

A "water bulb" is a smart way to give people light.

_____

7. Read the following sentences about how to make a water bulb. Put them in the correct order from 1-4.

_____ Then they used silicone caulk to seal around it to prevent rain from coming in.
_____ They pressed the bottle halfway into the hole.
_____ First, they filled a two-liter plastic bottle with water and a little bleach.
_____ Next, they cut a hole in the metal roof.

8. How do the water and the bleach work?

_____

9. Who says she can now save almost half of her weekly income?

[ ] Madina Muhsin
[ ] Veronica Wanjiru

10. Complete the following sentence to make it true.

Illac Diaz helped make a light bulb out of plastic bottles that is put in the _____ bin.

OVER TO YOU

What do you think about "water bulbs"? How do you think they can help people around the world? Write 5-8 sentences explaining your answer.

_____
_____
_____
_____
_____

ANSWER KEY

1. energy carried through wires, and used for light

2. in the country

3. *strong light* and *smart*

4. a smart way to make light bulbs

5. Nearly a billion and a half people

6. true

7. First, they filled a two-liter plastic bottle with water and a little bleach.; Next, they cut a hole in the metal roof.; They pressed the bottle halfway into the hole.;Then they used silicone caulk to seal around it to prevent rain from coming in.

8. The combination of water and bleach refracts light from the sun and a full moon. The bleach keeps the water clear.

9. Madina Muhsin

10. trash