

Africa Ecosolutions: PlayPump
NewsDepth October 16, 2008
Classroom Activities



Photo courtesy of PlayPumps International
Simply by playing, these children are able to bring clean water to their communities.

Overview:

Clean water is one of the fundamentals of survival, and yet, millions of people have no access to clean water across the globe: people are left sick from the very thing that should sustain life. Water gives life, but in Africa it can take it away. Scourges like diarrhea, cholera, typhoid and even malaria originate in water. Now, one solution is set to spin across the continent, and it's "child's play". With a "PlayPump," the kids have fun and produce clean drinking water. Today's activities will focus on the clean water crisis and how the PlayPump functions. Students will then design their own playground device to provide energy.

Grade Level

6-7

Subject Matter

Science and Math



Classroom Activities

1. Activity #1 Discussion about the clean water crisis: (15-20 minutes)

- Present the following facts which are taken from the PlayPumps website:
Did you know?
 - More than one billion people worldwide do not have access to clean water.
 - Right now, half of the people in developing countries are suffering from water-related diseases,
 - Water-related diseases are responsible for 80% of all sickness in the world and are the leading cause of death in the world, taking the lives of 6,000 people a day.
 - About 4 billion cases of diarrhea per year cause 2.2 million deaths.
 - 1.7 million children under the age of 5 die from diarrhea each year.
 - 40 billion hours are lost annually to hauling water, a chore primarily undertaken by women and girls.
- "Probing into PlayPumps"
 - Can anyone tell us, by watching the NewsDepth Feature just what the PlayPumps do and how they do it? Take a look at the handout for an explanation.

- Can anyone think of what would be the benefits of the PlayPump Water System?
<http://www.albanyfriendsforplaypumps.com/node/49> Many benefits
- Reference the PlayPumps International website for additional info:
http://www.playpumps.org/site/c.hqLNIXOEKrF/b.2589561/k.C08/The_PlayPump_System_The_Water_Problem.htm

2. Activity #2 “Probing the Math with PlayPumps” (20 minutes)

- If water related diseases take the lives of 6,000 people a day, how many people die in one year? _____
- If 40 billion hours are lost annually to hauling water, and water is hauled by the same women and children 24-7, how many women and children are actually hauling the water? _____
- If children push the roundabout round 16 times a minute, the play pump lifts 1,400 liters of water per hour from 40 meters. In rural Africa, families use 50 liters of water per day. There is one play pump to supply 40 families. How long would the children need to play on the roundabout to pump enough water for one day in Africa to supply those 40 families? _____
Answer: Africa: 40 families x 50 liters = 2000 liters per day
2000 liters / 1,400 liters per hour = 1.43 hours or 1 hour 26 min

3. Activity #3 “Design your own Device” (1 class period for designing and 1 class period for presenting.)

- Assign or have students choose partners. As them to design a device that uses play or gym equipment to provide energy for watching TV or cooking or some other activity at home. They are to draw and label an illustration and write a paragraph explaining how it works. Have them present their devices to the class.



Additional Reference:

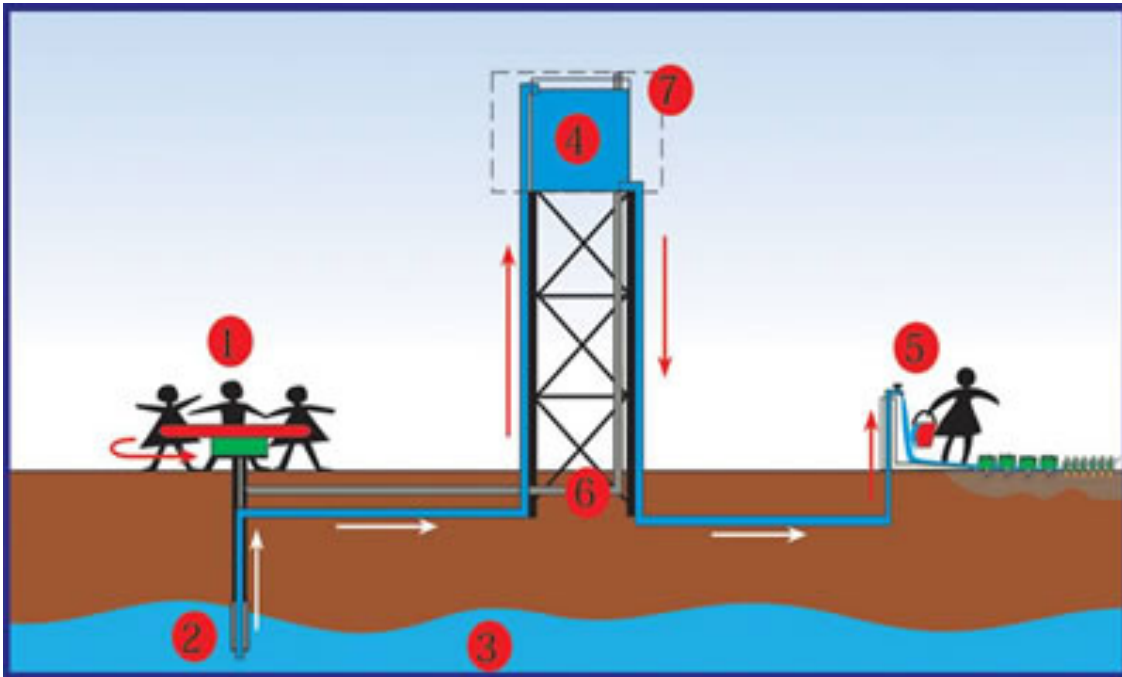
<http://search.atomz.com/search/?sp-q=Play+Pump&Go2=Go&sp-a=sp1003536c&sp-p=all&sp-f=ISO-8859-1> Hands On Earth Reports for more articles.

<http://www.upd8.org.uk/activity/130/Play-Pump.html> Science upd8 presents an energy transfer lesson using the PlayPump concept.

<http://news.bbc.co.uk/2/hi/africa/4461265.stm> Why Pumping Water is Child’s Play in Africa.

<http://www.state.gov/documents/organization/74862.pdf> First Lady Laura Bush announces Play Pump Alliance.

How the PlayPump Water System Works



While children have fun spinning on the PlayPump merry-go-round (1), clean water is pumped (2) from underground (3) into a 2,500-liter tank (4), standing seven meters above the ground.

A simple tap (5) makes it easy for adults and children to draw water. Excess water is diverted from the storage tank back down into the borehole (6).

The water storage tank (7) provides a rare opportunity to advertise in outlying communities. All four sides of the tank are leased as billboards, with two sides for consumer advertising and the other two sides for health and educational messages. The revenue generated by this unique model pays for pump maintenance.

The design of the PlayPump water system makes it highly effective, easy to operate and very economical, keeping costs and maintenance to an absolute minimum.

Capable of producing up to 1,400 liters of water per hour at 16 rpm from a depth of 40 meters, it is effective up to a depth of 100 meters.

Source:

http://www.playpumps.org/site/c.hqLNIXOEKrF/b.2589393/k.30EE/The_PlayPump_System_How_the_PlayPump_Works.htm

