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WACKY WATER

*Activities and Facts for
kids and adults*

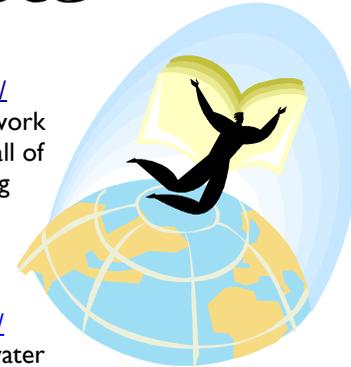


SINK SCIENCE

1. Got Water?
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Helpful Resources

- ⇒ **Alabama Rivers Alliance:** <https://alabamarivers.org/>
Alabama Rivers Alliance is a statewide network of groups working to protect and restore all of Alabama's water resources through building partnerships, empowering citizens, and advocating for sound water policy and its enforcement
- ⇒ **Project WET** <https://portal.projectwet.org/>
develops science education methods and water education curriculum for teachers to explain water resources to children and youth.
- ⇒ **Pollinator Partnership** <https://www.pollinator.org/about>
Pollinator Partnership's mission is to promote the health of pollinators, critical to food and ecosystems, through conservation, education, and research. There are a lot of useful educational resources on their website.
- ⇒ **USGS** <https://www.usgs.gov/mission-areas/water-resources/science>
The USGS provides science about natural hazards that threaten lives and livelihoods; the water, energy, minerals, and other natural resources we rely on; the health of our ecosystems and environment; and the impacts of climate and land-use change. Our scientists develop new methods and tools to supply timely, relevant, and useful information about the Earth and its processes.
- ⇒ **World Water Council** <http://www.worldwatercouncil.org/en/publications>
World Water Council publications aim to facilitate knowledge generation and exchange to support to our mission to promote awareness, build political commitment and trigger action on critical water issues. Here you can access multiple publications including the Water Policy Journal.



“When the well’s dry, we know the worth of water” ~ Benjamin Franklin

Wacky word search

A I E T K F R Y T Q N G B K V G N P H O
 L C T N V V M F U C L O I V E Z N X A B
 E A O U L V X K V W E S I W X R I D R E
 N R V Y A N E A W B E P A T L A S F D D
 I F C Y E H W S D Y L L W L U R A I N R
 R C C O A R F R P N N S L M R L N G E I
 O F Q N N T D E U I P K L X M E L Z S N
 L D K F H S V W A L Z C Q H H G V O S K
 H Q T B S L E R Z K V O F F C A H I P M
 C B G E O K D R U F G R R U X N C P R M
 Z M N S C W O S V A R E P P O C I B M S
 Y P S C Q U N E L E W A T E R H G C G Y
 A I B V P Y A L R E T A W D N U O R G F
 D V H S C I O F I M E V P A P H W J U S
 R O P A V N P Z H A H V C F F V L N Y D
 S A P H S G P E O E S I M W H G K L U K
 M I N E R A L S S R D O C T H Y S A H G
 U Q S S I T W W X T A J Q W F N G K E L
 V S T U V C A D O S Q J I L S E K E H O
 V C K R F X I E H Z J O A M U M N F C G

Chlorine copper conserve dissolve acid drain drink funky
 groundwater water faucet gallons hardness minerals pipes
 lake pollution iron river rain stream well vapor rocks tap

Got Water?

You can't live without water. Water regulates the Earth's temperature. It also regulates your body temperature, carries oxygen and food to your cells, cushions your joints, protects your organs and tissues, and removes waste. Your body can't work without water.

Water is also used to grow crops, manufacture household products, and is used for transportation and recreation. We all take water for granted. You use more than you think!



WACKY WATER FACTS

It takes 1,400 gallons of water to make a meal of a hamburger, an order of fries and a soft drink... from growing the cow feed to running the paper cup factory.

We can't live more than a week without water.

Water is the only substance found on earth in three forms: solid, liquid, and gas.

70% of an elephant is water.
75% of the human body is water.

The average American uses about 150 gallons of water a day.

A birch tree gives off 70 gallons of water a day in transpiration.
An acre of corn gives off 4,000 gallons a day.

4. Play in the sprinklers only when the yard needs to be watered~ save 600 gallons a month.
5. If you have a pool, use a pool cover and cut down on evaporation.
6. Fix a leaky faucet and save 100 gallons a day.
7. Make a compost pile instead of using the garbage disposal~ save a gallon a minute.
8. Don't put motor oil or dog droppings into the storm drain. They will end up in a body of water, and can leach into the water supply.
9. Don't play with the hose~ save 600 gallons an hour.
10. Set the lawn mower a notch higher. Longer grass means less evaporation.
11. Take a shorter shower~ one minute shorter will save 700 gallons a month.

SO, What can

YOU Do?



An elephant can drink up to 53 gallons of water in one trunk full up.

To stay healthy, you need about 3 quarts of water a day.

It takes about 39,000 gallons of water to make a car.

An average American family turns on a faucet 70 times a day.

At least a billion people worldwide must walk three hours a day or more to fetch water.

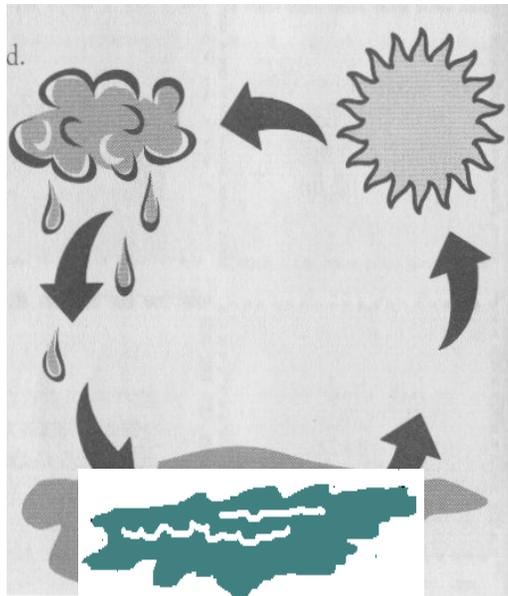


the Water Cycle

Water comes from rain, snow, streams, rivers, or deep underground. It moves to different places but is never used up.

The water that you drink today may have once touched a dinosaur's tongue!

Heat from the sun changes some water into water vapor. The water vapor rises and comes together to form clouds. As the clouds drift higher into cool air, the vapor changes to rain and falls to earth.



The rain flows into rivers and streams, some goes into the ground, and some into plants. When a plant sweats, it is not called perspiration, it is called transpiration!

1. Dissolve 2/3 cup of Epsom salts in 1 cup water.
2. Divide the solution between two glasses
3. Put a big paper clip onto each end of a 12 inch piece of string.
4. Soak the string in one of the glasses for 5 minutes.
5. Put a piece of aluminum foil on the table.
6. Hang the wet string between the two glasses, making sure the string sags a bit in the middle.
7. After about 30 minutes, a stalactite will start to grow. Let them grow overnight. Wow, how much did they grow?



Remember, stalactites hold TIGHT to the ceiling and stalagmites MIGHT reach the ceiling!

Where does

YOUR tap WATER

Come from?



Most city drinking water comes from lakes, rivers, and deep wells. City water is treated and filtered at a water treatment plant and comes to your house ready to drink.

Some homes have well water. Pumps and pipes at these homes draw groundwater from shallow wells near the surface or from wells deep underground. The quality of water from a shallow well varies with the season and the amount of rainfall during the year. The groundwater from the deep well is filtered through soil and rocks as it trickles down through the earth and is protected deep underground until it is sucked up. Surface water, like rivers, lakes, and reservoirs, is more exposed to pollution.

Polluted water will clean itself over time, but as more and more water becomes polluted the environment is not able to clean it fast enough. We don't want to run out of clean water!

Hardness

Nobody thinks of water being "hard." It is never hard, that is, unless you really belly flop off a diving board! When water is described as hard, it means it has a lot of calcium and magnesium dissolved in it. The minerals come from rocks that the water flows through. Hard water makes the ring in your bathtub and the white crusty scale that can clog your showerhead. Hard water reduces the amount of suds that soap will make and leaves a film on clean dishes and clothes.



A water softener is a device used to remove calcium and magnesium from water, making it softer. Soft water is very good at dissolving stuff and for cleaning. Soft water will make loads of suds with soap or detergent. Rain water and melted snow are very soft. Distilled water has no minerals in it so it is really soft.



Iron

Iron is found naturally in most water. Too much iron can stain sinks, tubs, and clothes. You may have noticed an orange stain where the water drips into your bathtub. Sometimes iron metal reacts with oxygen in the air to form rust. Rust makes iron change from strong metal to a flaky orange solid.

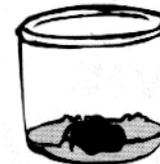
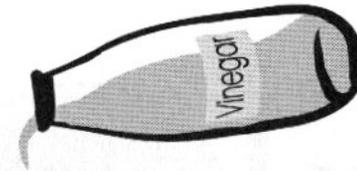


ROCK ON!

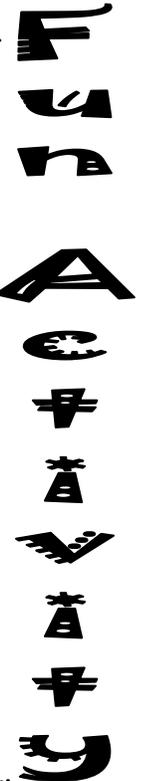
Acid rain can slowly dissolve buildings and statues made from natural rock like limestone and marble. The acid in the rain reacts with the calcium carbonate in the rocks. You can test rocks to see if they would be dissolved by acid rain.

You'll need:

- Small rocks
- Vinegar
- Small cups



1. Put each rock in a cup
2. Pour vinegar into each cup until the rocks are covered.
3. If the rock fizzes, it contains calcium carbonate and would be dissolved by acid rain over time.



Pollution Parfait

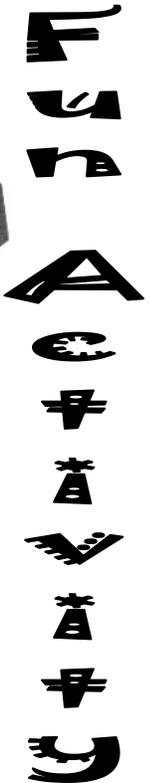
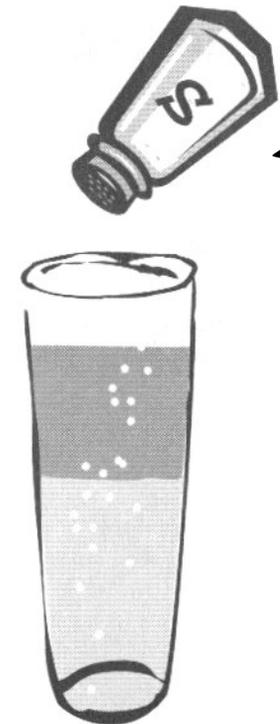
This activity shows how what we pour on the ground can get into our drinking water. Make a tasty model of the Earth and then drink up all of the water.

You'll need:

- Red food coloring
- Ice cream or frozen yogurt
- Colorless soft drink
- Crushed ice
- Cake sprinkles
- Straw
- Clear glass



1. Pour about 3" of tap water into the container.
2. Pour about 1/2" of vegetable oil into the container. (You'll have to wait for it to settle to see how much is in there).
3. Add two drops of food coloring.
4. Shake salt on top of the oil as you slowly count to 5.
5. Watch the oil blobs get pulled to the bottom by the weight of the salt and then ooze back to the top as the salt melts!





MAKE

Your own

Lava

lamp



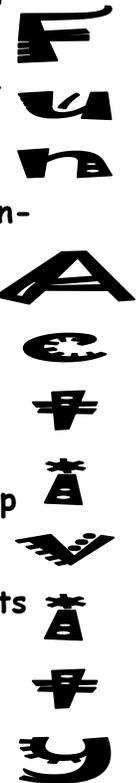
Oil and water don't mix. That's why four quarts of old motor oil that is poured down a storm drain can make an eight acre oil slick.

You'll need:

- Tall glass container
- Tap water
- Vegetable oil
- Salt in a salt shaker



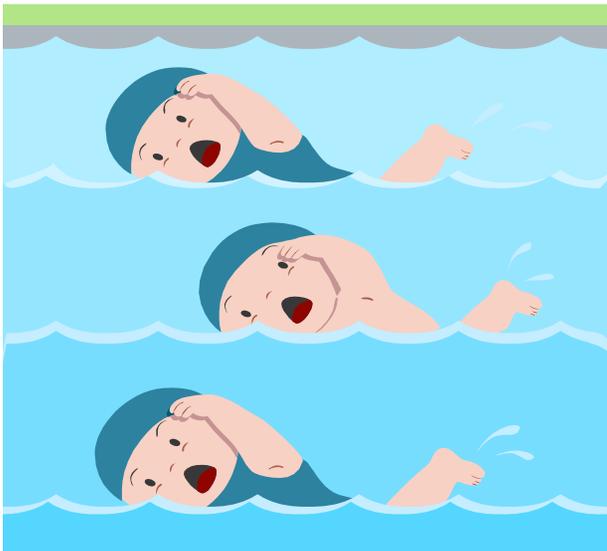
1. Fill a glass 1/3 full of crushed ice. This represents a layer of gravel and rocks.
2. Add enough of the soft drink to barely cover the ice. This is the water deep in the ground.
3. Add a layer of ice cream, as a layer of soil.
4. Then add some more crushed ice rocks.
5. Put on some cake sprinkles to act as a layer of soil.
6. Use your straw to drill a well in the center of your glass.
7. Put a drop or two of food coloring in the rest of the soda. This is polluted water.
8. Slowly pour the polluted water on the surface of the earth.
9. Suck on the straw to draw the water up from the well. Notice how the water deep below the surface of the earth gets used up and the polluted water gets pulled down.
10. Now pour more soda on top as acid rain.
11. Drink more water from the "well". See how the pollution spreads.
12. Now your whole drinking supply is polluted.



Chlorine

Chlorine is not found naturally in water. If your water comes from a well, there will not be chlorine in it. Drinking water for cities and communities comes from reservoirs, rivers and deep wells. Chlorine is added to this drinking water to kill germs and make it safe to drink. If too much chlorine is added, the water will smell and taste bad. Laundry bleach has 15,000 times more bleach than drinking water.

Chlorine is also added to swimming pools to make the water clean. Swimmer's eyes can become irritated when high levels of chlorine combine with dirty water in a swimming pool. The average swimming pool has twice as much chlorine as your drinking water.



Copper

Small amounts of copper are found naturally in water. Sometimes people put copper into water to control algae. Copper can also dissolve into your water from copper pipes and fittings. Only acidic water dissolves copper from the inside surface of pipes.



Is your tap water acidic?

People who have copper in their water often have blue-green stains in their bathtub and sink.