

WATER, WATER, EVERYWHERE

Water is constantly moving but where does it go? Learn about the water cycle and make a solar still to create fresh water from salt water. Teachers will be asked to supply cups, plastic wrap, rubber bands, food coloring, and salt.

Kansas College and Career Ready Standards for Science:

- 5-ESS2-2. Nearly all of Earth’s available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (Disciplinary Core Idea)

Classroom teacher provides:

- 3 oz plastic cups (one per student) – Please have the students fill these with fresh water prior to the program.
- One gallon bucket or jug full of fresh water
- 1 cup measuring cup
- 1/3 cup measuring cup
- 1/8 t. measuring spoon
- eye or medicine dropper
- Clear drinking glass or clear bowl
- 16 oz. plastic cups (one per student)
- One roll of plastic wrap
- Rubber bands (one per student)
- Coins, weights, or rocks (several per student - please make sure they aren’t too dirty). You might want to have extras in case students need more.
- Very warm, colored, salty water (enough to fill the large cups with about an inch per student)

During the “Water, Water Everywhere” IDL program, we will be doing the following activities and students will need the corresponding materials:

Activity

Supplies

“Recycled” poem

3 oz. cups containing fresh water

A drop in the bucket

One gallon bucket or jug full of fresh water

1 cup measuring cup

1/3 cup measuring cup

1/8 t. measuring spoon

eye or medicine dropper

clear drinking glass or clear bowl

Overview of the water cycle

Make a solar still

3 oz. plastic cups from first activity

16 oz. plastic cups (one per student)

One roll of plastic wrap

Rubber bands (one per student)

Several coins, weights or rocks per student -
please make sure they aren't too dirty).

Very warm, colored, salty water (enough to fill
the large cups with about an inch per student)

Program Connection Information

Please use an external microphone (conference style) rather than the integrated one in the computer for the audio for your class and locate it centrally in the room. It can be difficult for the Greenbush teacher to hear the students using the computer microphone and therefore it reduces the interactive nature of the lesson. It is fine to use the computer webcam for your video source though.

All classes will take place using Zoom desktop video. If your building is already set up to use a desktop video application with a computer, simply open a browser and enter <https://zoom.us/j/3662120241> in the URL space. You may need to download Zoom launcher software (free download) if you don't already have it. This needs to be done in advance of the lesson.

If using a Polycom video conferencing unit (or any legacy type video conferencing unit) to connect to a ZOOM conference, make sure the unit is in "encrypted mode" then dial the following IP on the internet: 162.255.37.11 or 162.255.36.11 and once connected, they will ask for a MEETING ID: enter 3662120241 (for Sharon at Science Center).

It's always a good idea to touch base with your district technology facilitator prior to your program to make sure all systems/equipment are in place and operational and no firewalls that might prevent you from connecting to Zoom.

Classes take place at the following times:

9:00-9:45
10:00-10:45
12:15- 1:00
1:15-2:00
2:15-3:00

If you log in during one of those times, you may connect during another class' lesson. If you do, please check your connection to make sure things are working properly and then leave the meeting until your scheduled time by selecting "End Meeting" in the lower right corner of your Zoom screen and click on "End Meeting". You will need to rejoin the meeting at your scheduled time. This prevents your site from interfering with the lesson currently in progress. After your lesson is finished, please leave the meeting.

If you have questions, please call Sharon Bertolio at Greenbush (620-724-6281).

Additional Lesson Resources

You can “make” water!

Water is a chemical. It’s made of two gases, hydrogen and oxygen. Water acts like a gas sometimes (when it evaporates) but we usually think of water as a liquid – something wet.

You can make hydrogen and oxygen join to form water. Here’s how.

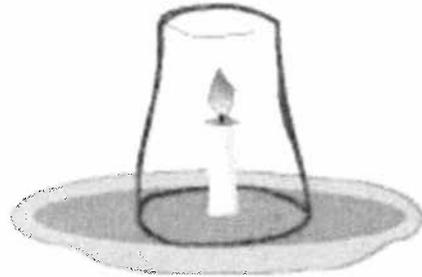
You will need:

- a birthday candle
- a plate
- a clear drinking glass
- a match or lighter
- an adult to help you with the match or lighter

1. Set the birthday candle on the plate and light it (ask an adult to help).

2. Cover the burning candle with the clear glass (it should be large enough to cover the whole candle).

3. When the candle goes out, look closely at the inside of the glass. What do you see?



The tiny drops of liquid inside the glass are water! The hydrogen in the candle joined with the oxygen in the air to form water. The candle flame went out when all of the oxygen in the air inside the glass was used up.

Wood, paper, natural gas, heating oil, and gasoline all contain hydrogen, which joins with the oxygen in the air as they burn. Do you think burning any of these fuels will form water?



- *Every person in America uses about 160 gallons of water a day.*
- *2/3 of the water your family uses is used in the bathroom.*
- *You use 2 gallons of water to brush your teeth (unless you turn off the faucet while you brush).*

You can be a “water detective”!

Investigate to find out how much water a leaky faucet wastes in one day. Find out if there are any leaky faucets in your house.

You will need:

- a faucet
- a watch or clock
- a piece of paper
- a pencil or pen
- a one-cup measuring cup
- a bucket
- a pitcher or watering can

1. Turn on a sink or bathtub faucet just enough to make it drip. (If there is a faucet in your house that really leaks, use that one.)

2. Write down the time.

3. Place the bucket under the dripping faucet.

4. Leave it there for one hour, then turn off the faucet. (Or move the bucket away from the leaky faucet.)

5. Fill the measuring cup by pouring from the bucket or dipping the cup into the bucket.

6. Empty the cup into the pitcher or watering can. Write down the amount of water you measured.

7. Keep pouring and measuring until the bucket is empty.

8. Count the number of cups of water. (If you lost count, repeat the pouring and measuring from the pitcher or watering can.)

9. Multiply the number of cups collected in one hour by 24 hours in a day. Look at the chart to see how many cups of water make one gallon, then divide this number into the number of cups you collected to find out how many gallons of water the dripping faucet would waste in a day. Use the water in the pitcher or watering can to water flowerbeds or houseplants.

10. Check all of the faucets in your house or apartment (don't forget outside faucets!) to see if any of them leak



IMPORTANT! Talk to the adults at your house about getting leaky faucets fixed. Usually a faucet that leaks just needs a new rubber washer.

How many cups in . . . ?

2 cups = 1 pint

4 cups = 1 quart

16 cups = 1 gallon

4 quarts = 1 gallon



- You could survive about a month without food, but you could only survive 5 or 6 days without water.
- One gallon of gasoline spilled on the ground can pollute 750,000 gallons of water.