



Water

States, cycle, forms, and uses

Water comes in 3 states.

Water is made of molecules-- think of them as little bits of water. When water molecules are in a rigid crystal, they form ice which is hard and cold.

You can sit very still like an ice cube.



Sometimes we call these the phases of water as they move from one to another.

When water molecules start moving around faster the water is liquid.

You can make your arms wave and flow like liquid water.



Water moves through phases in the water cycle—the continuous movement of water within the Earth and atmosphere.

When water molecules are moving very fast the water becomes water vapor. Steam is hot water vapor and clouds are made from water vapor.

You can run around fast like water vapor molecules.



You can sing *Water Forms* to the tune of *Clementine*.

Solid water, (fist)



Liquid water, (hand waving)



Water gas, (hand moving fast)

Do you know? (tapping head)



Water changes and (hands moving in circles)

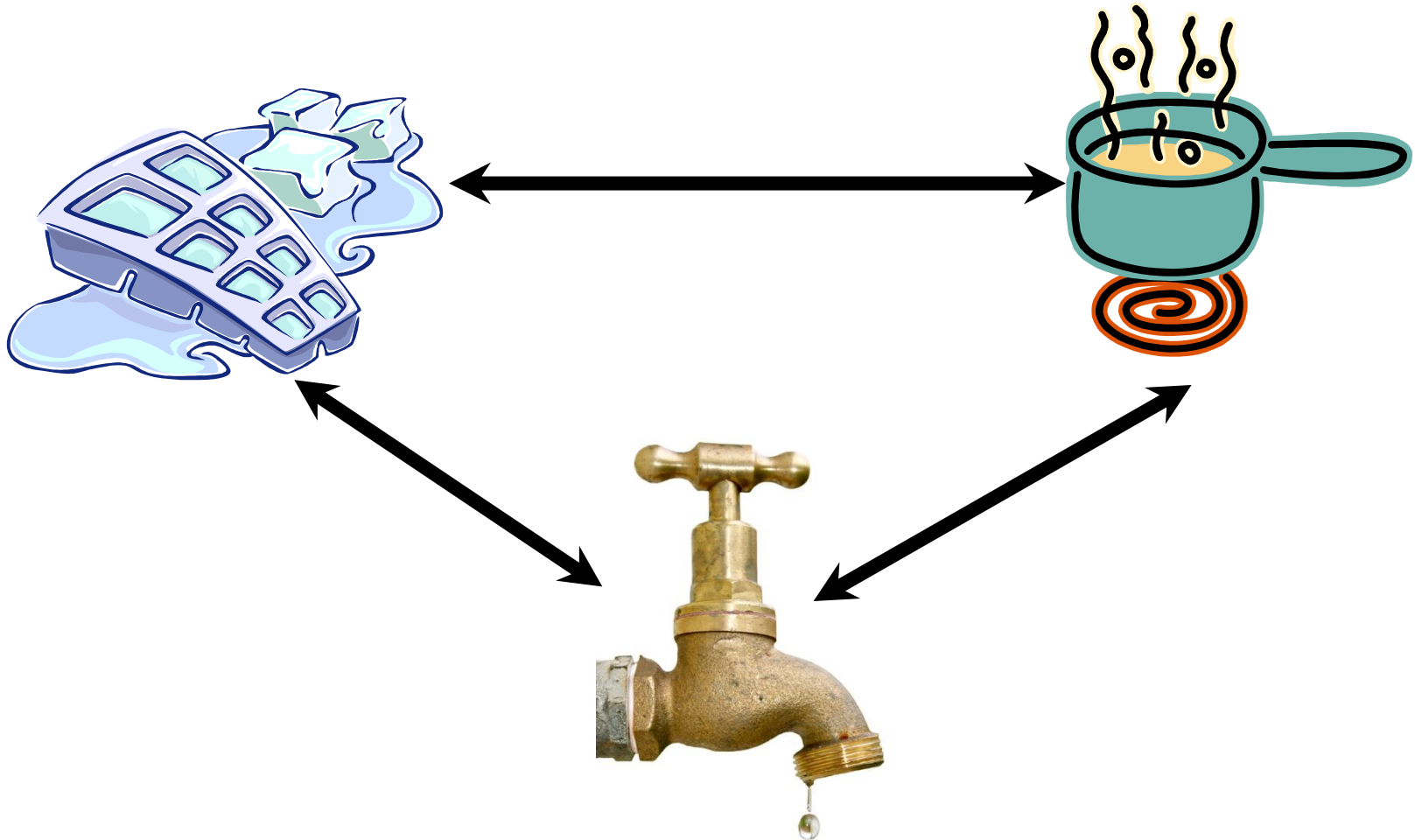
Water moves and (hands moving horizontally)



You will see it (touching eyes)

High and low. (pointing up and down)

Water moves between states as it gets hotter or colder and molecules move faster or slower.



You can sing the *Water Cycle Song* to the tune of *She'll Be Coming Round The Mountain*.

Water traveling in a cycle, oh indeed. (use finger to draw a big circle)

Water traveling in a cycle, oh indeed. (repeat action)

Up as evaporation, (move hands up into the sky)

Forming clouds as condensation, (make a cloud with your arms over your head)

Coming down as precipitation, oh indeed! (Mimic rain fall with your fingers)



We find water in many places.

We find water in puddles, ponds, lakes and oceans.

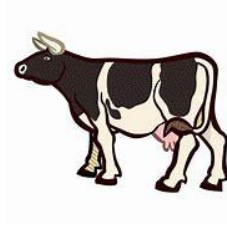
We find water in creeks, streams and rivers.

We find water in glaciers and waterfalls.

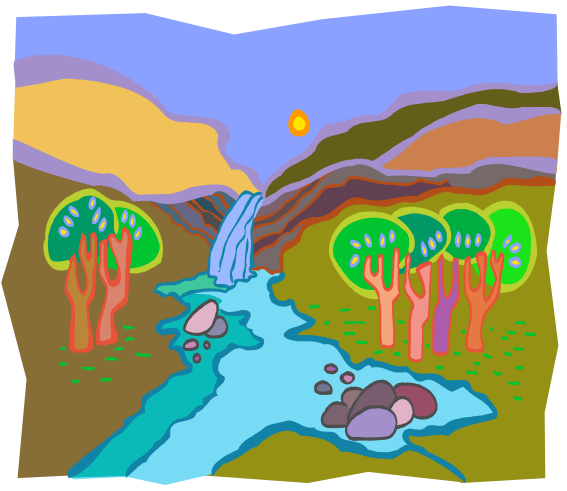
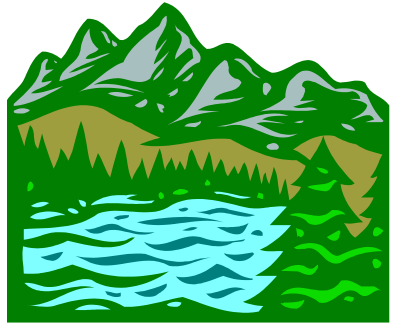
We find water in soil and plants and caves.

Animals make water and their bodies are made of water.

We are made of water and our tears and saliva are both water.



How many places to find water can you name?





We can be finger water!

Water in the river, (hands making waves)

Water in the pool, (swimming)

Water from the faucet, (turning handle)

Rainwater makes us cool! (raindrops falling).



You can sing the *Water Places* song to the tune of *Farmer in the Dell*.

Water in a pond. Water in a pond. (hands in circle)

Splish, splash, drippity drop

Water in a pond.

Water in a lake. Water in a lake. (arms circle)

Splish, splash, drippity drop

Water in a lake.

Water in the ocean. Water in the ocean. (arms spread wide)

Splish, splash, drippity drop

Water in the ocean.

Water in a creek. Water in a creek. (1 finger)

Splish, splash, drippity drop

Water in a creek.

Water in a stream. Water in a stream. (hand)

Splish, splash, drippity drop

Water in a stream.

Water in the river. Water in the river. (arm)

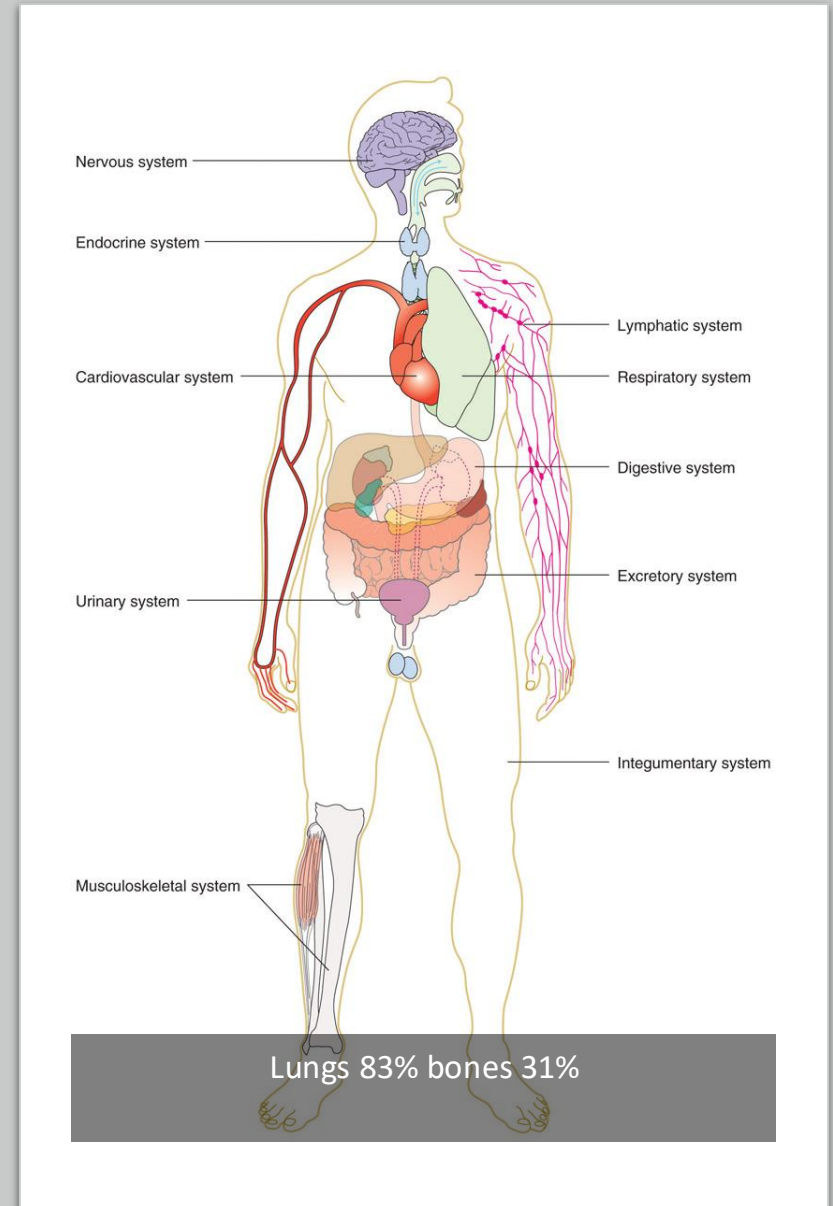
Splish, splash, drippity drop

Water in the river.

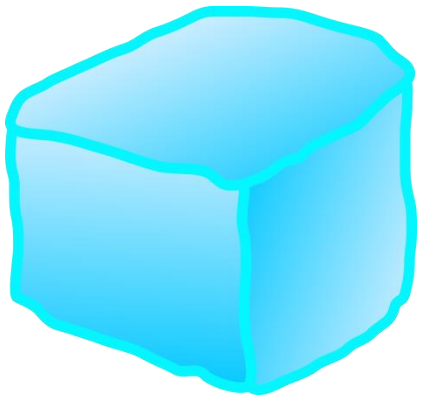


Did you know you are mainly water?

Babies 90%, grown-ups 60%



Only one quarter of a percent of the water on Earth is drinkable.



71%



96%



.25%



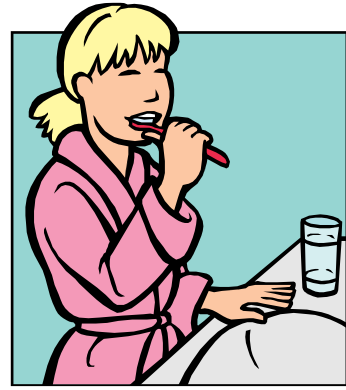
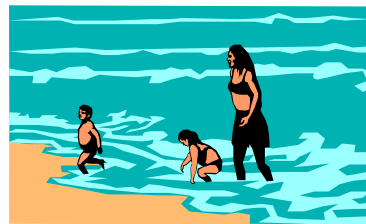
We use water in many ways. We can be water users, but don't forget to turn off that faucet and be water savers!



We can act out lots of ways water is used! How can you show--

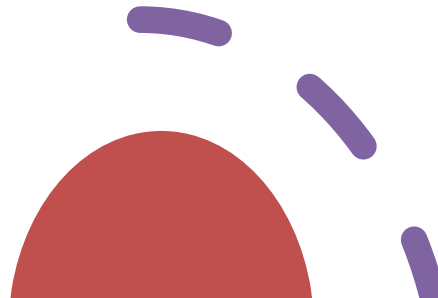
- drinking
- swimming
- bathing
- mopping
- irrigating
- cleaning
- washing dishes
- watering plants
- laundrying
- running factories
- brushing teeth

How many ways that we use water can you name?



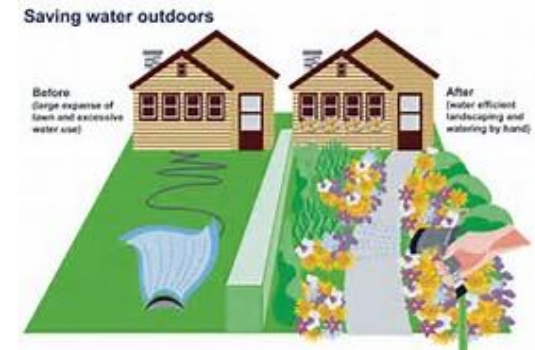
You can sing *We All Use Water*
to the tune of *Frere Jacques*
From Growing Up WILD.

Drinking water, drinking water,
You and me, you and me.
Everyone is thirsty
So we're drinking water
Sip, gulp, slurp, sip, gulp, slurp.
Going swimming, going swimming
In the pool, in the pool.
Soon I'll be nice and cool
Playing in the swimming pool
Jumping in, jumping in.
Now I'm bathing, now I'm bathing
Squeaky clean, squeaky clean.
Playing with the bubbles,
Washing my arms and legs
Splish splash splish, splish splash splish.



We save water!

How can we save water—
gardening,
washing hands,
watering lawn,
showering,
doing laundry,
washing dishes?



21st century climate and water

What we will see:

- More evaporation over oceans and more intense rain
- More evaporation over land and more intense drought
- More evaporation from the high sea surface and more intense tropical storms

The 100th Meridian wet/dry boundary is shifting.

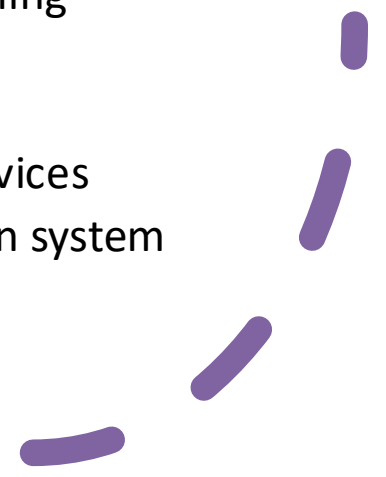
How do we measure climate over time?

- We keep track of the present climate with ongoing data collection.
- We reconstruct past climate from tree rings and speleothems.
- We project future climate by modeling simulations.

We assess costs:

8.7 billion dollars in lost ecosystem services

500 billion work force and other human system effects



Water STREAM examples

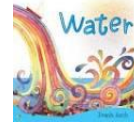
- Science—acting out water cohesion, adhesion and capillary action



- Technology—using a prism to show how water droplets make rainbows



- Reading—Water by Frank Asch



- Engineering—designing a water collection device



- Art—painting a sidewalk with water/painting with cotton balls and water



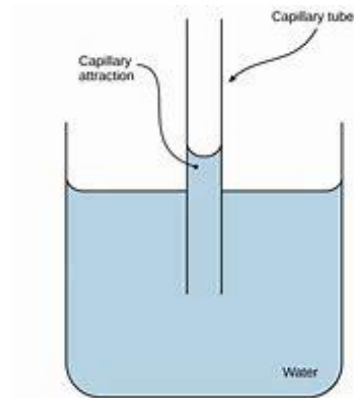
- Math—measuring water with different sized cups



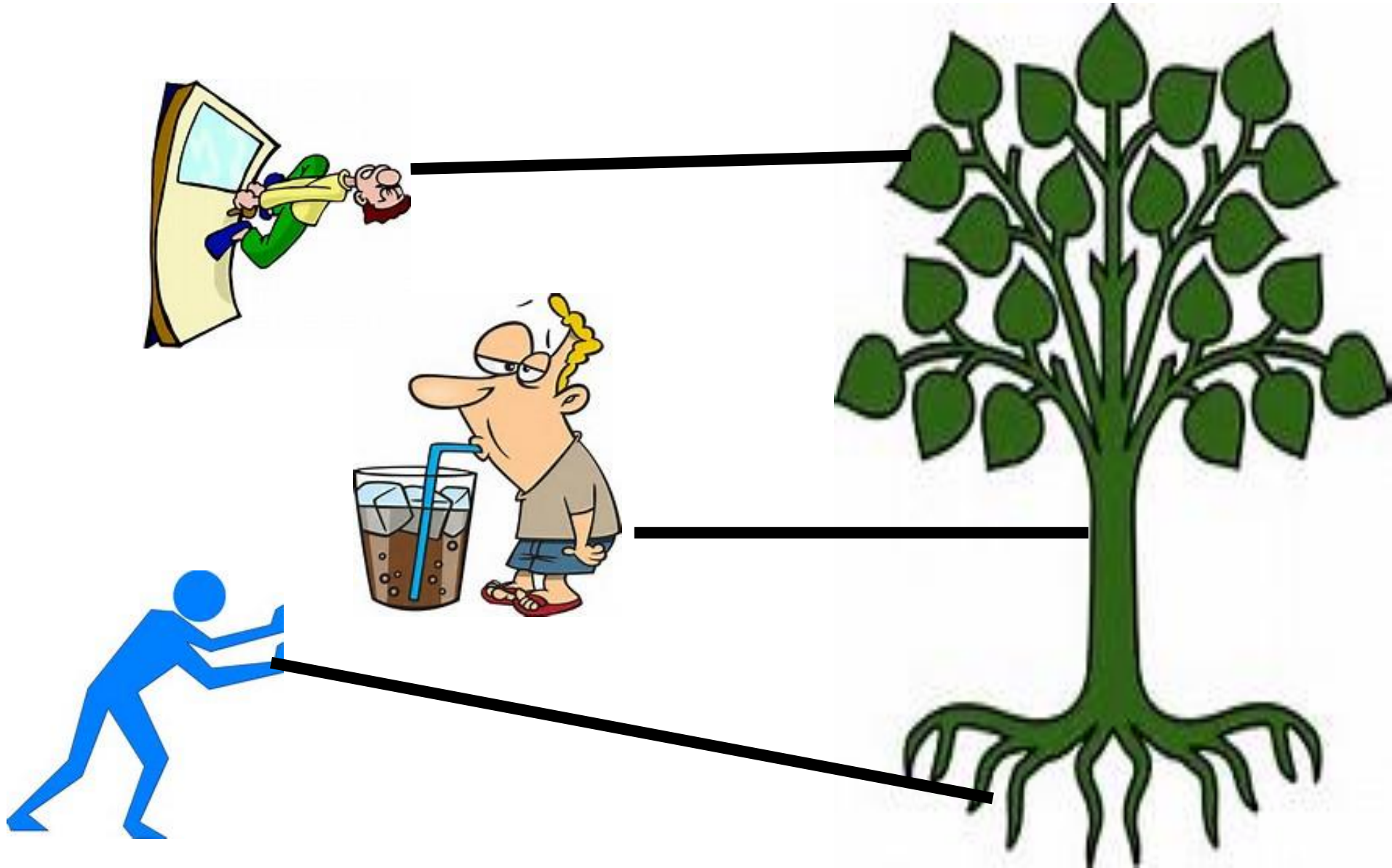
We can be water properties!

Adhesion—water molecules stick to other molecules—go to a wall and stick to it!
Capillary action—water sticks to the surfaces and goes up through thin tubes—raise your hands upward.

Cohesion—water molecules stick together—find a friend and stick together.
Meniscus—in a container water molecules stick together and form a rounded surface—make your two hands into an arc.

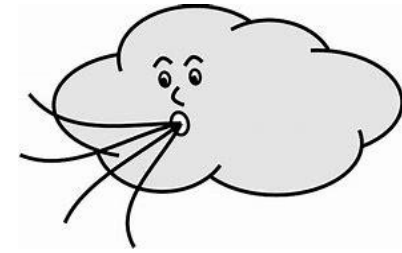


Water transport in trees: roots push the water up, capillary action moves it higher, and leaves pull it all the way to the top!



We can act out being a storm!

We are the winds—blow.



We are the gentle rain—lightly tap fingers.



Now we are the thunder—clap loudly.

And the lightning—open and close hands.



Now the heavy rain—stamp feet.

Light rain—tap.

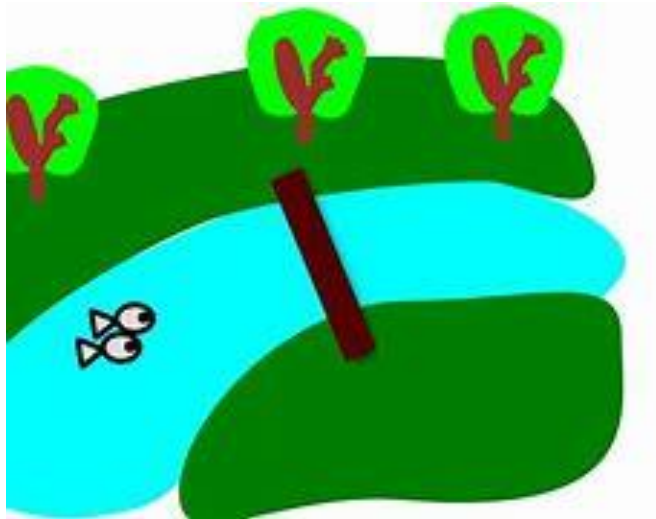
Wind—blow—quiet.....



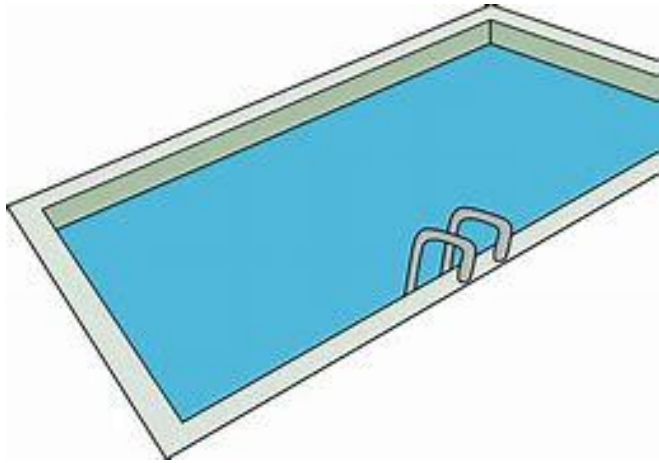
We find water in different places!

**WATER,
WATER
EVERYWHERE**





Water in the river.



Water in the pool.



Water from the faucet.



Rainwater makes us cool.

We can search for water!

Where can you find water in your house? How about outside your house?

How many ways can you play with water? Pouring, splashing, spraying, mixing food color in, filling water balloons, blowing bubbles, and can you think of more?





You can do a Water Adventure Walk!



Will we sweat?
Will we find dew?(plants
sprayed with water bottle)
Will we find a river? (blue
plastic river)
Will we see clouds?
Will we find a pond?
(small swimming pool
with a little water in it to
wade through)



What might you see on a water walk?

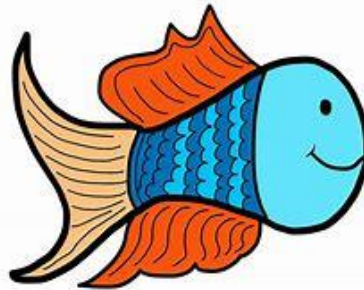




You can be a water artist: colored post-its or scraps to make the colors on a rainbow, curling ribbon rain from a cotton ball cloud, crepe paper or tissue paper waves on a blue ribbon stream, and folded paper waves on a paper or blue cellophane pond.

Water collage





You can attach water creatures, boats, cups, plants, etc., to show water use, to your poster.

Water and aquatic creatures



What other ways can you do water art?

You can paint the outside walls with water!



You can do cloud painting with a cotton ball!



Cotton ball cloud painting





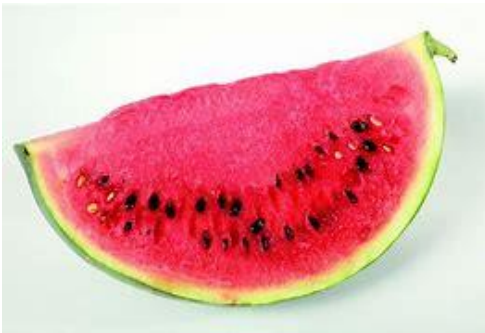
You can make yummy water learning snacks!

Tea, popsicles and lemonade for the three phases of water

Or a food we make with hot water and ice—jello

Spread blueberry preserves water on a rice cake beach and goldfish crackers on the preserves?

Or how about a watery fruit like watermelon?



Goldfish in
BLUEberry jam
with coconut
seaweed ,
pumpkin seed
and peanut
butter chip
rocks, mini-chip
shells and
oatmeal mud!

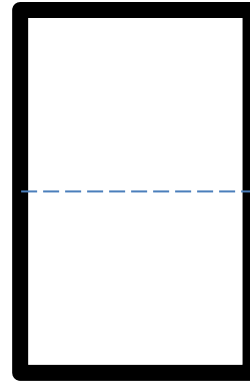
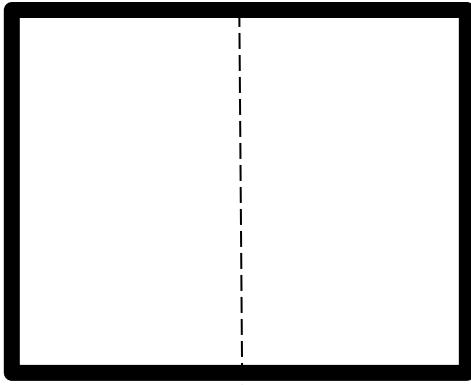


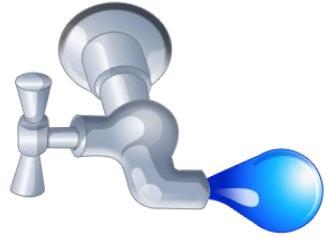
What do
you think I
used to
make this
water
snack?



You can make a mini-book!

1. Fold the paper in half
2. Then in half again.

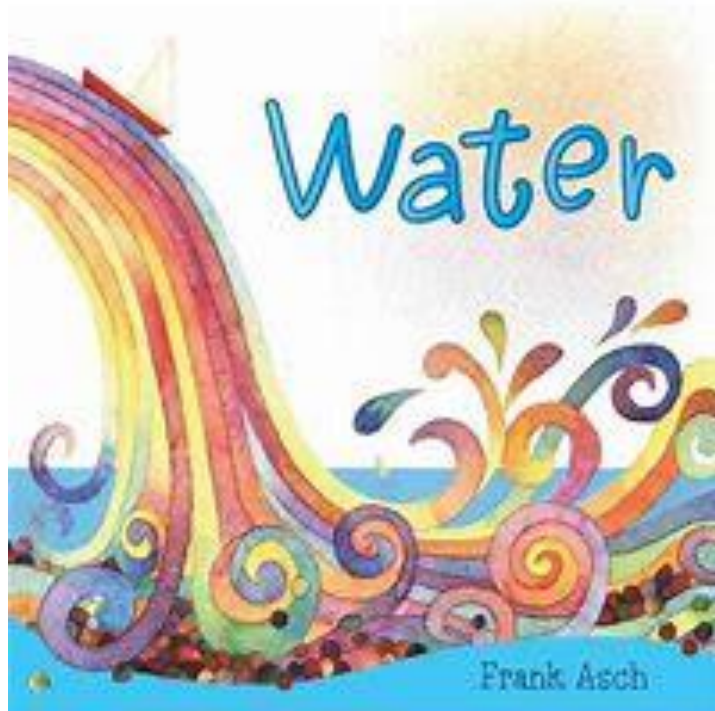




These two water books tickle our imaginations in different ways!

Water relates some of the places we find water.

<https://www.youtube.com/watch?v=zn-hSOCJ3IA>



Water Can Be demonstrates using our imagination to conceive of all the ways we find water.

https://www.youtube.com/watch?v=K_ikqLNwOfI

