

LET'S TALK ABOUT WATER



ILLINOIS
AMERICAN WATER

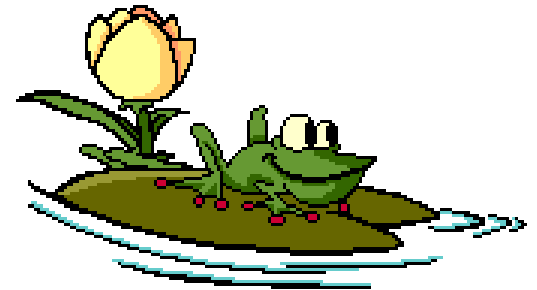
Why is Water Important?



Without water, the Earth would look like the moon. It would be unable to support life.

There wouldn't be any trees....or animals....or humans.

All living things need water to live. Next to the air we breathe, water is our most important need



How Much Water Is There?



The earth is covered by 70% water

More plants and animals live in water (saltwater or in freshwater) than on land.

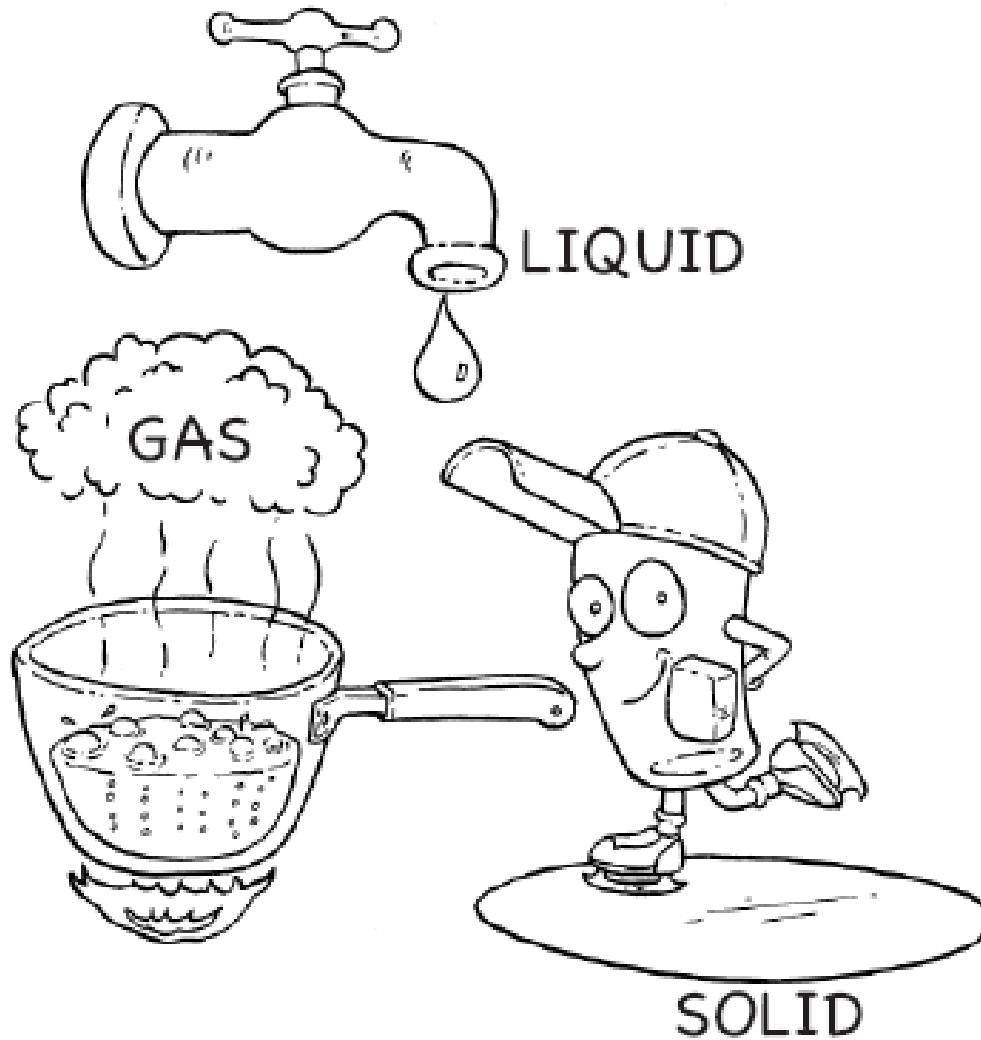
97% of the water on Earth is salt water. Although the salt can be removed, it is a difficult and expensive process.

2% of the water on Earth is locked in the Glacier Ice in the North and South Poles.



Less than 1% of all the water on Earth is fresh water that we can actually use. This fresh water needs to be purified before it can be safely used for drinking.

Water Comes in Three Different Forms



Water is Unique

- Easily moves between states
 - Most substances take more effort to move to all three states.
 - Water can be transferred to a different state in your home
- Water is lighter as a solid than a liquid
 - Ice floats to help insulate the pond beneath
 - Most unique property of water

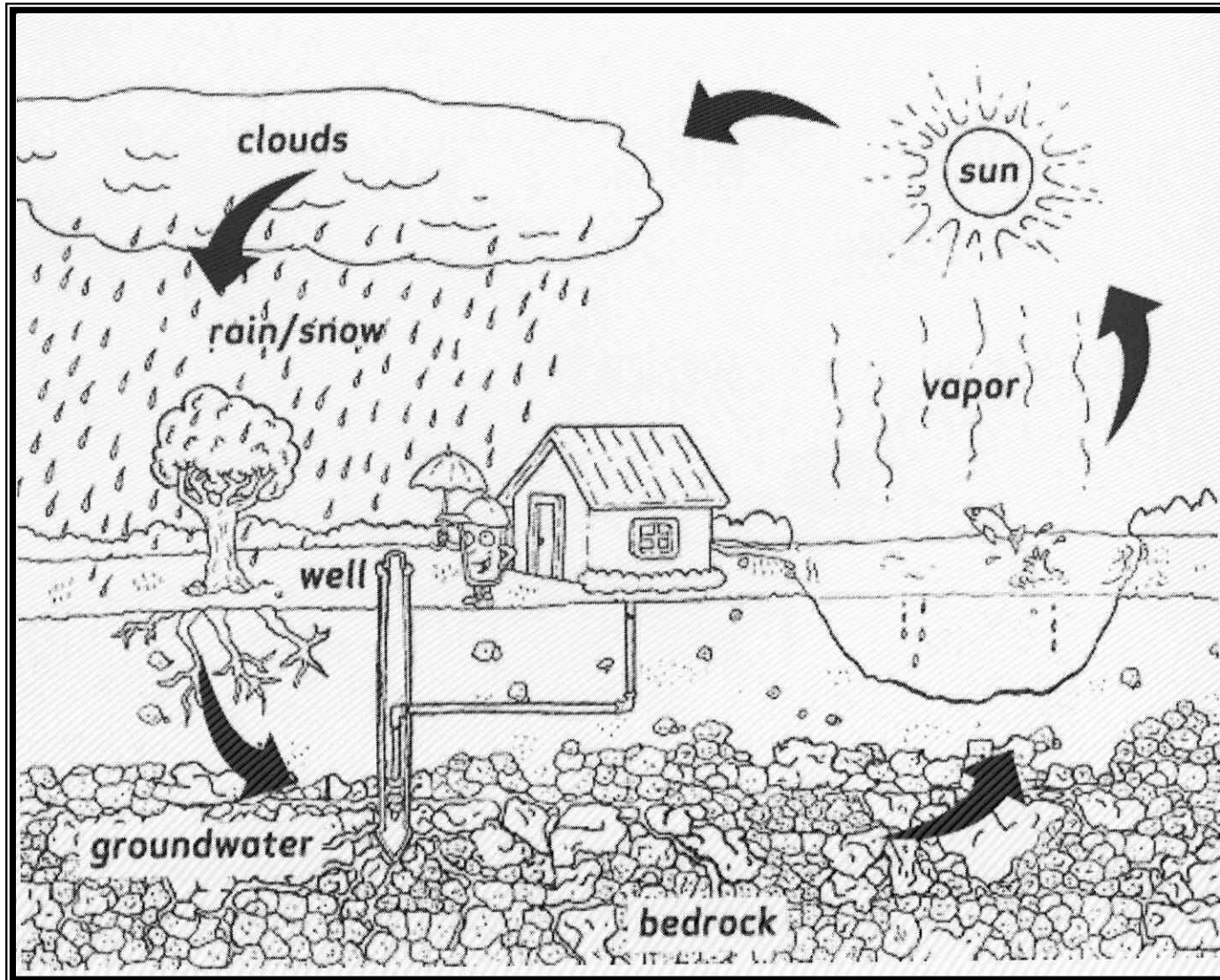


Cohesive and Adhesive

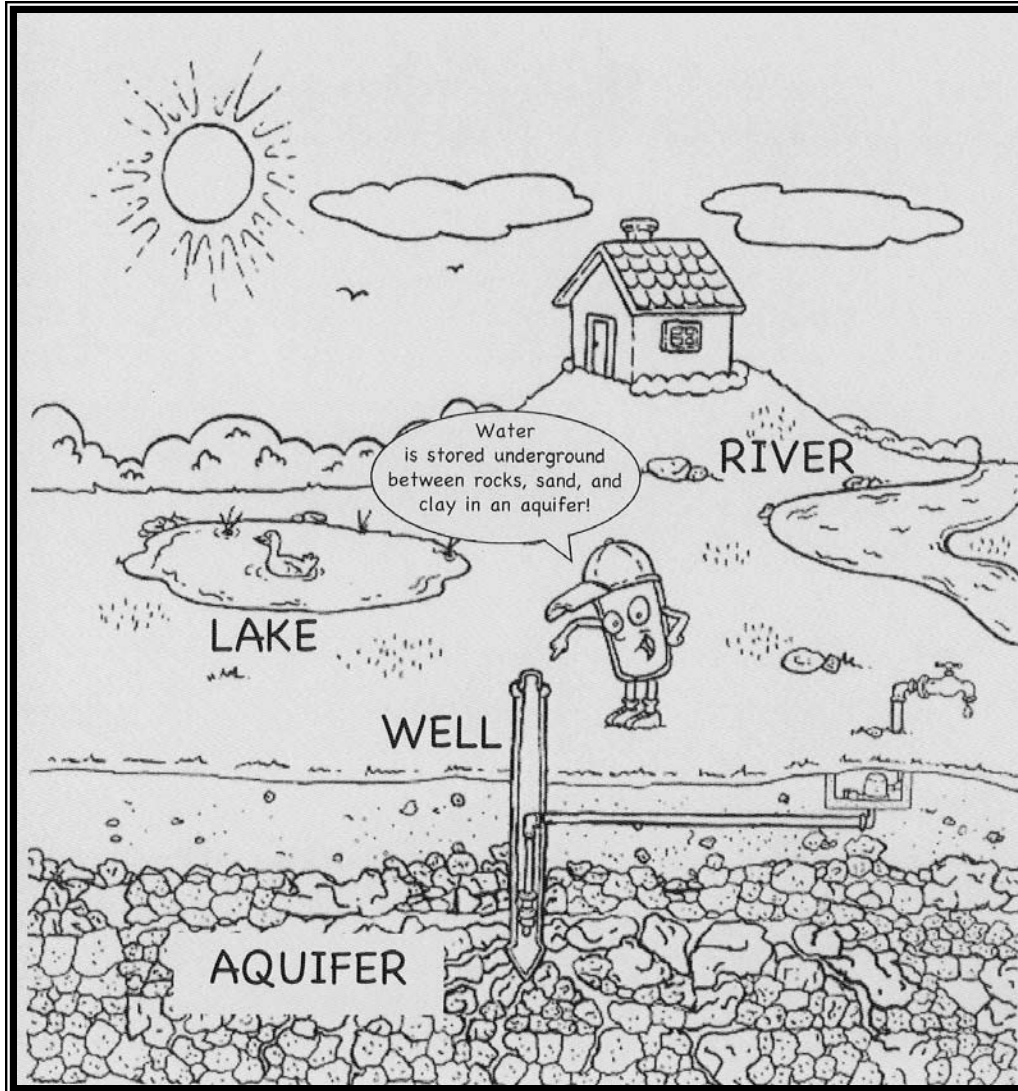


- Water has cohesive (sticks to itself) and adhesive (sticks to other things) forces
 - Lets plants draw it up to its leaves from the ground (like a straw)
 - Lets it form pools

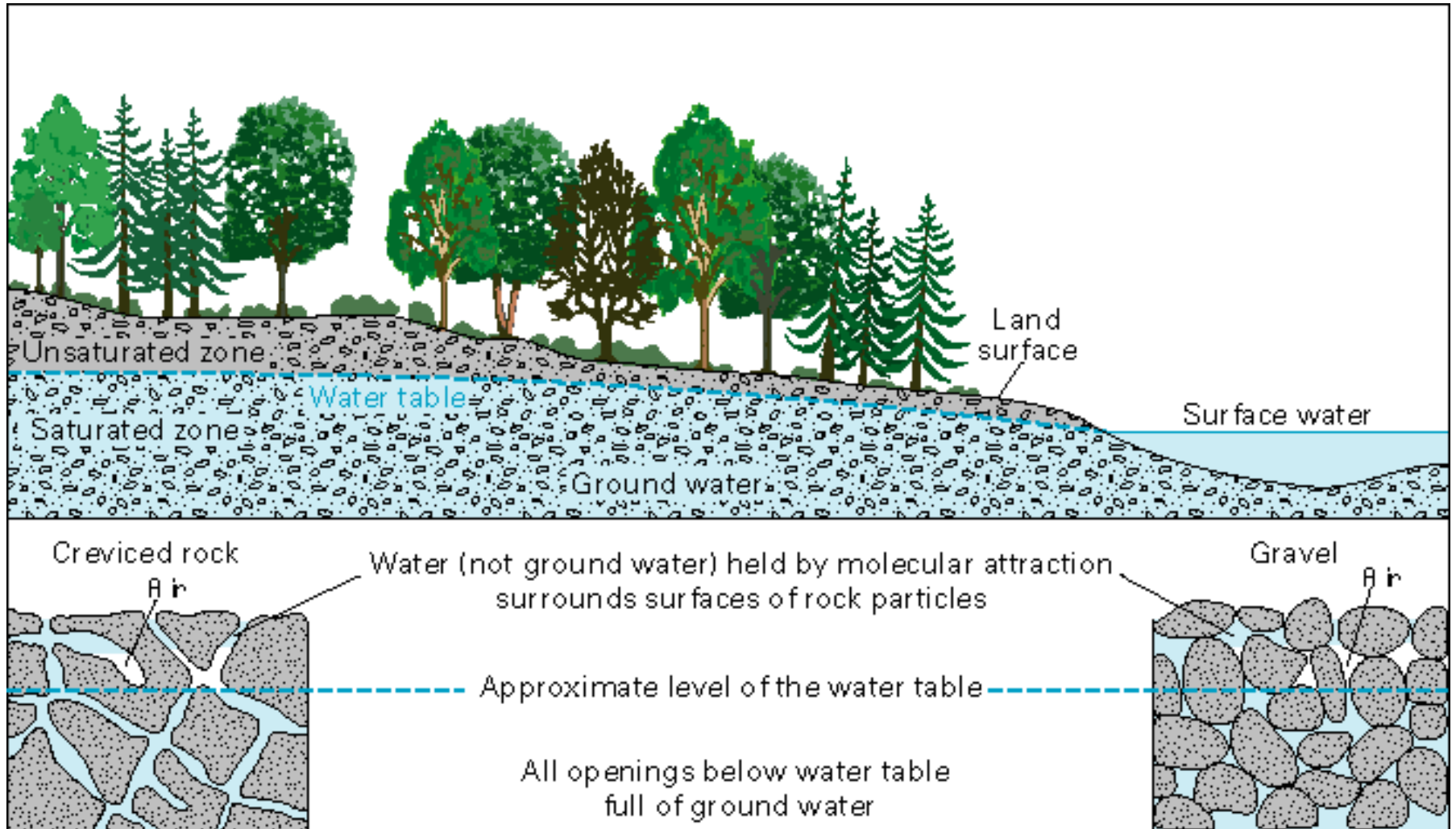
Where Does Water Come From?



Where Do We Get Water to Use



What is an Aquifer



The Story of Drinking Water

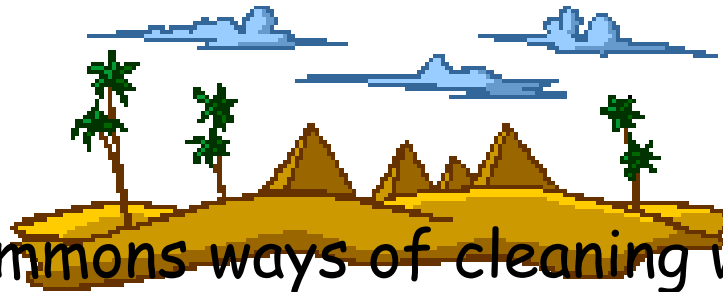
The story of drinking water began thousands of years ago in prehistoric times.

People who lived during this time built their homes on lakeshores or along rivers so they would have water to drink and wash in, and so they could easily move from place to place.

There are no records of how water was cleaned in prehistoric times.

The Story of Drinking Water

The Egyptians were the first people to record methods of treating water. These records date back more than 1,500 years to 400 A.D.



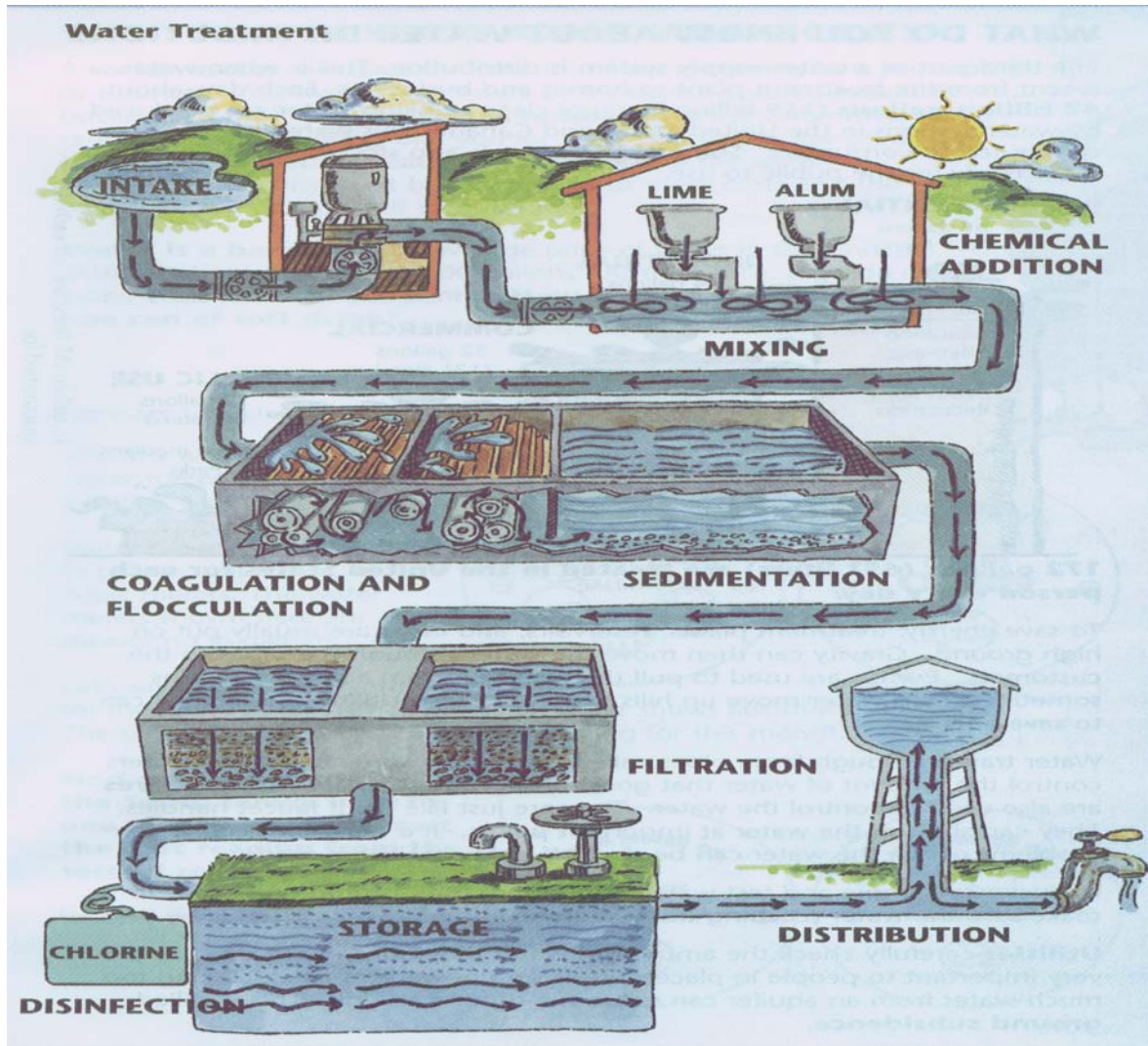
The most common ways of cleaning water were:

- Boiling it over a fire
- Heating it in the sun (something we have started doing again today with small overseas water systems)
 - Dipping a heated piece of iron into it
- Filtering it through sand and gravel (another method that we still use today)

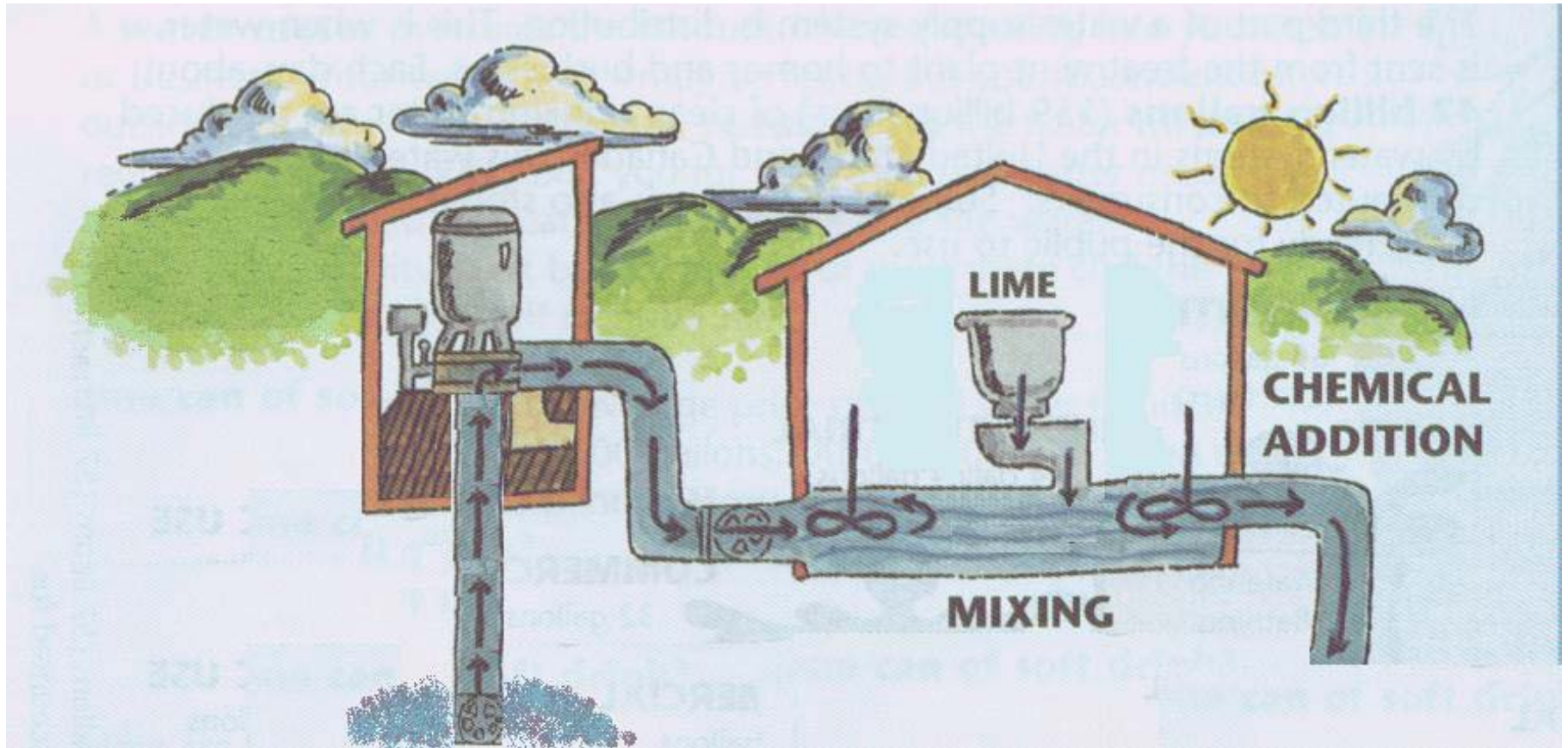
Water treatment is more complex today.

Even water that appears clear may need to be treated before it is safe to use.

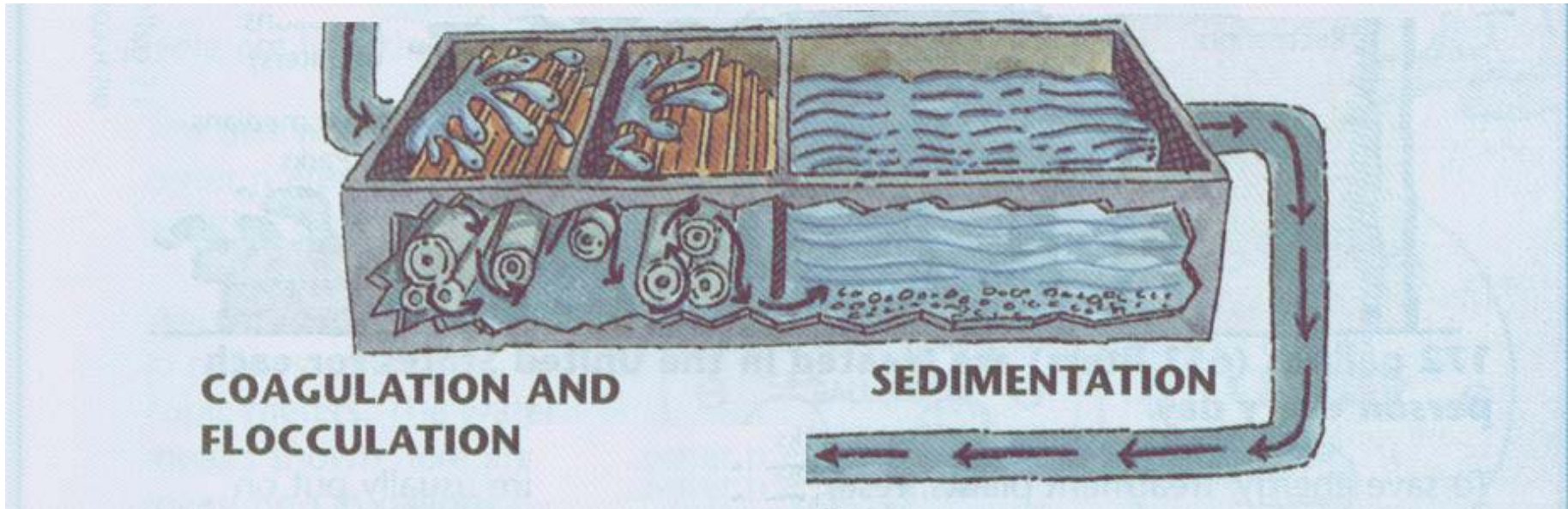
What Happens To the Water Before You Use It?



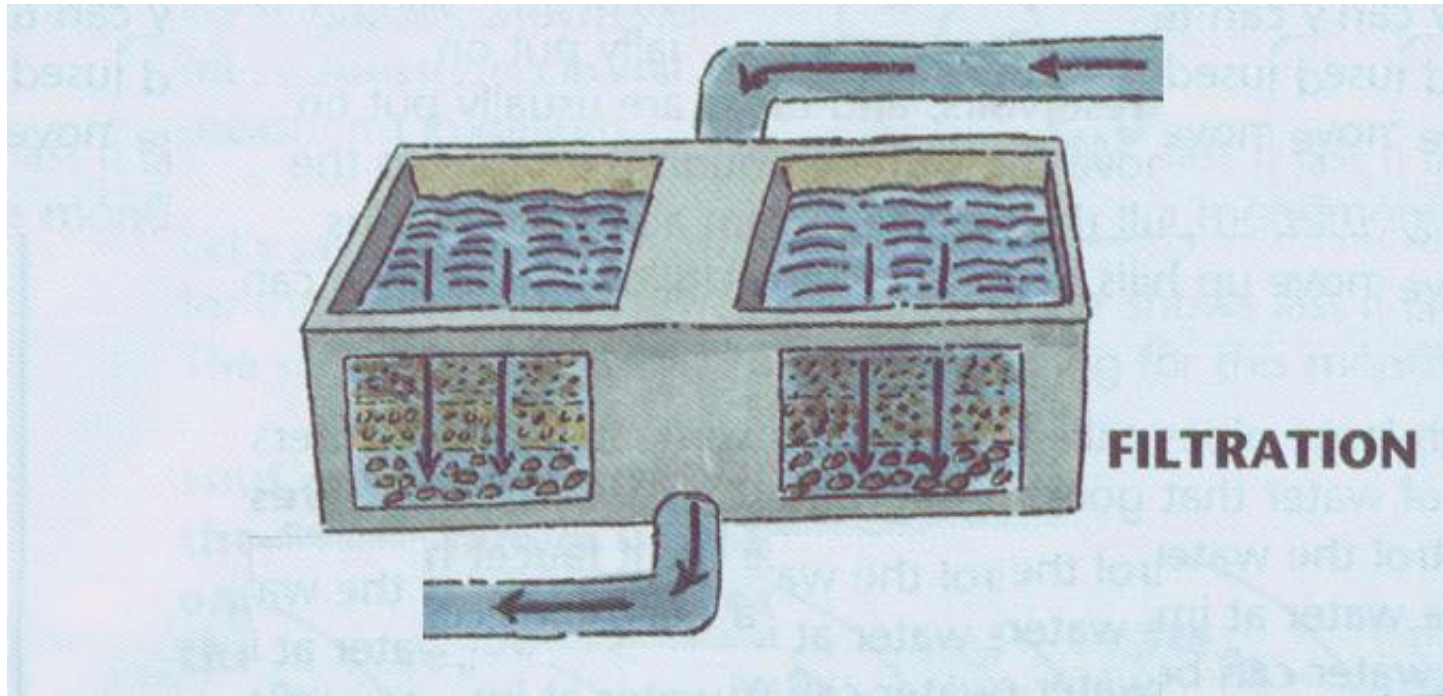
Collecting Water and Chemical Addition



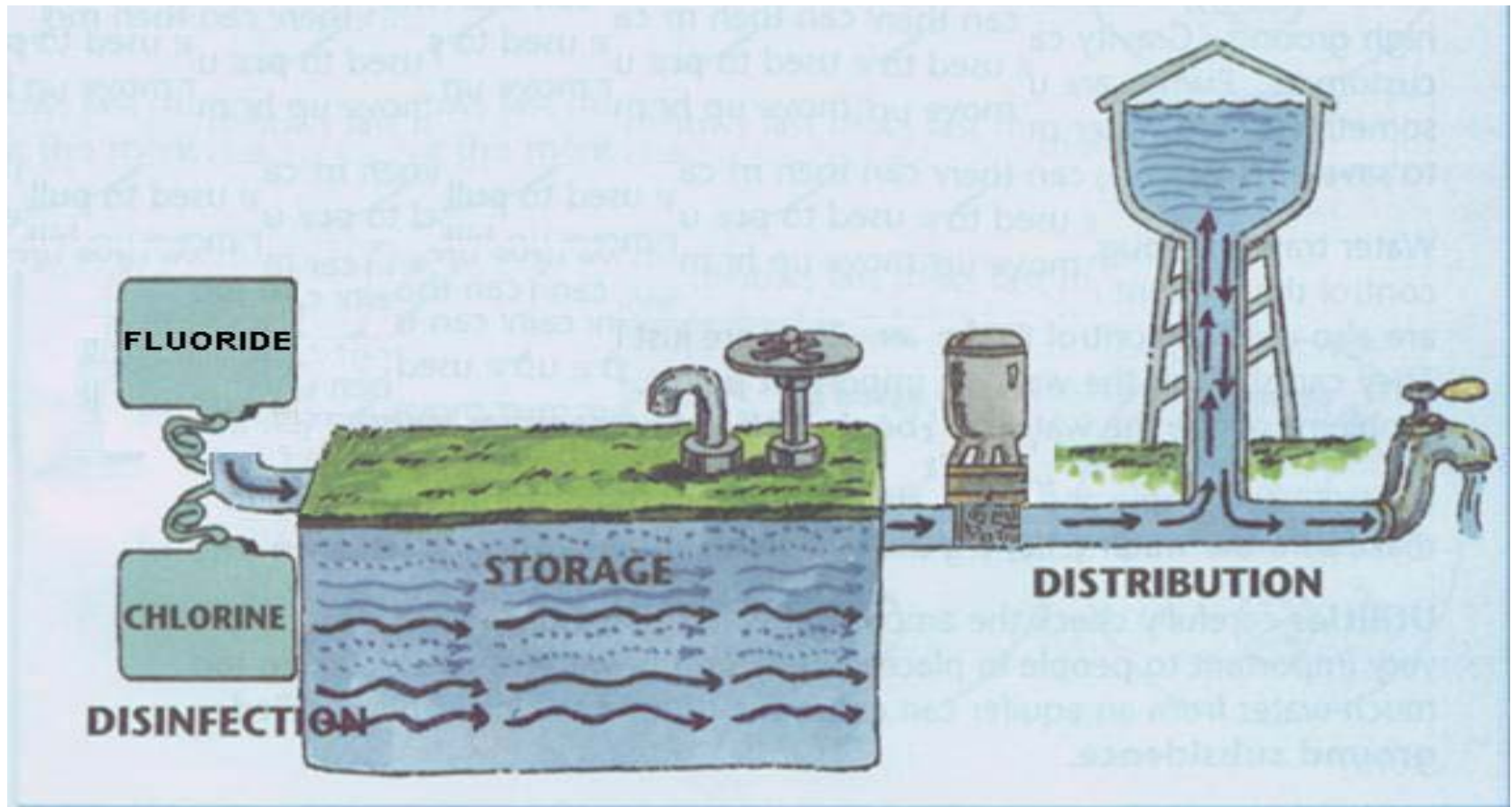
Coagulation - Flocculation and Sedimentation



Filtering the Water



Finishing the Water

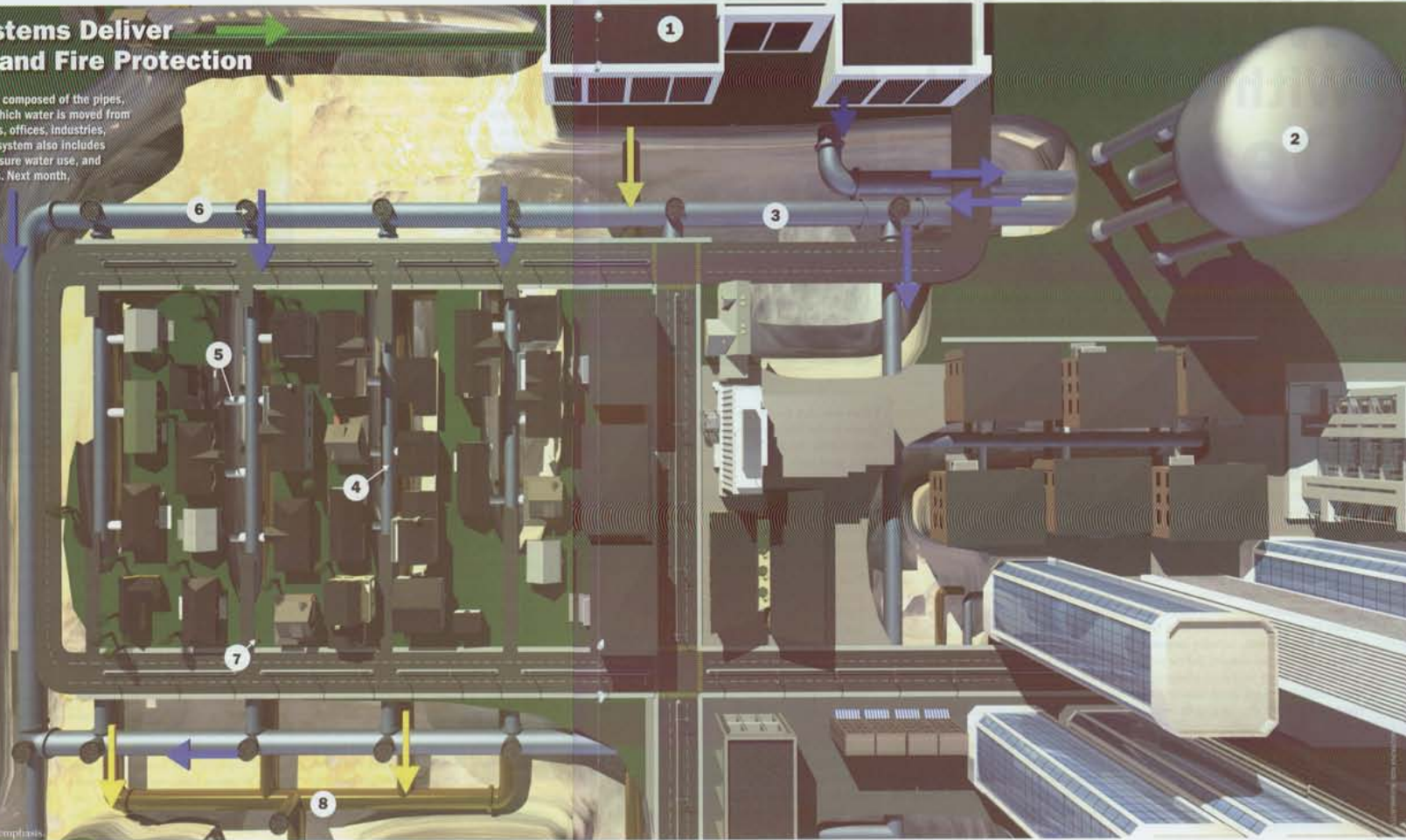


How Does the Water Get to You?

Distribution Systems Deliver Drinking Water and Fire Protection

Water distribution systems are composed of the pipes, valves, and pumps through which water is moved from the treatment plant to homes, offices, industries, and other consumers. The distribution system also includes facilities to store water, meters to measure water use, and hydrants for firefighting and other uses. Next month, How Water Works will detail how water flows into a typical home.

1. At the treatment plant, impurities in the water are removed or inactivated.
2. Water storage facilities are sized and operated to provide reserves for firefighting and to meet consumer demands.
3. Transmission lines are large pipes that carry large quantities of water from the treatment plant and storage tanks into the distribution system. Transmission pipes generally run in straight lines, have few side connections, and aren't tapped for customer services.
4. Distribution mains carry water from transmission lines and distribute it throughout a community. These pipes have many side connections and are frequently tapped for customer connections.
5. Service lines are small-diameter pipes that run from the distribution mains to customers' premises.
6. Shutoff valves are located at regular intervals so areas within the system can be isolated for repair or maintenance.
7. Hydrants should be located near street intersections so hoses can be used to fight a fire in any of several directions.
8. Sewage pipes carry used water away from consumers to the wastewater treatment plant.



Some illustration elements exaggerated for emphasis.

How Do We Use Water?



3% is used to drink



To wash things: dishes, cars, clothes, ourselves.

To cook with: things we cook in (eggs, vegetables); to use in things we cook (cakes, soup).



To put out fires.



To play in: pools, ponds, lakes, oceans; or to play with when using hoses, sprayers, or sprinklers.



To Grow Things: plants, lawns, trees, bushes.



How Much Water Does It Take?

Brush your teeth? - 2 to 5 gallons

Flush the toilet? - 1.5 to 4 gallons (each flush)

Take a shower or bath? - 17 to 24 gallons

Wash the car? - 50 gallons

Run the washing machine? - 35 to 50 gallons (each load)

Use the dishwasher? - 8 to 15 gallons

Did you know?
The average
person uses over
100 gallons of
water a day!

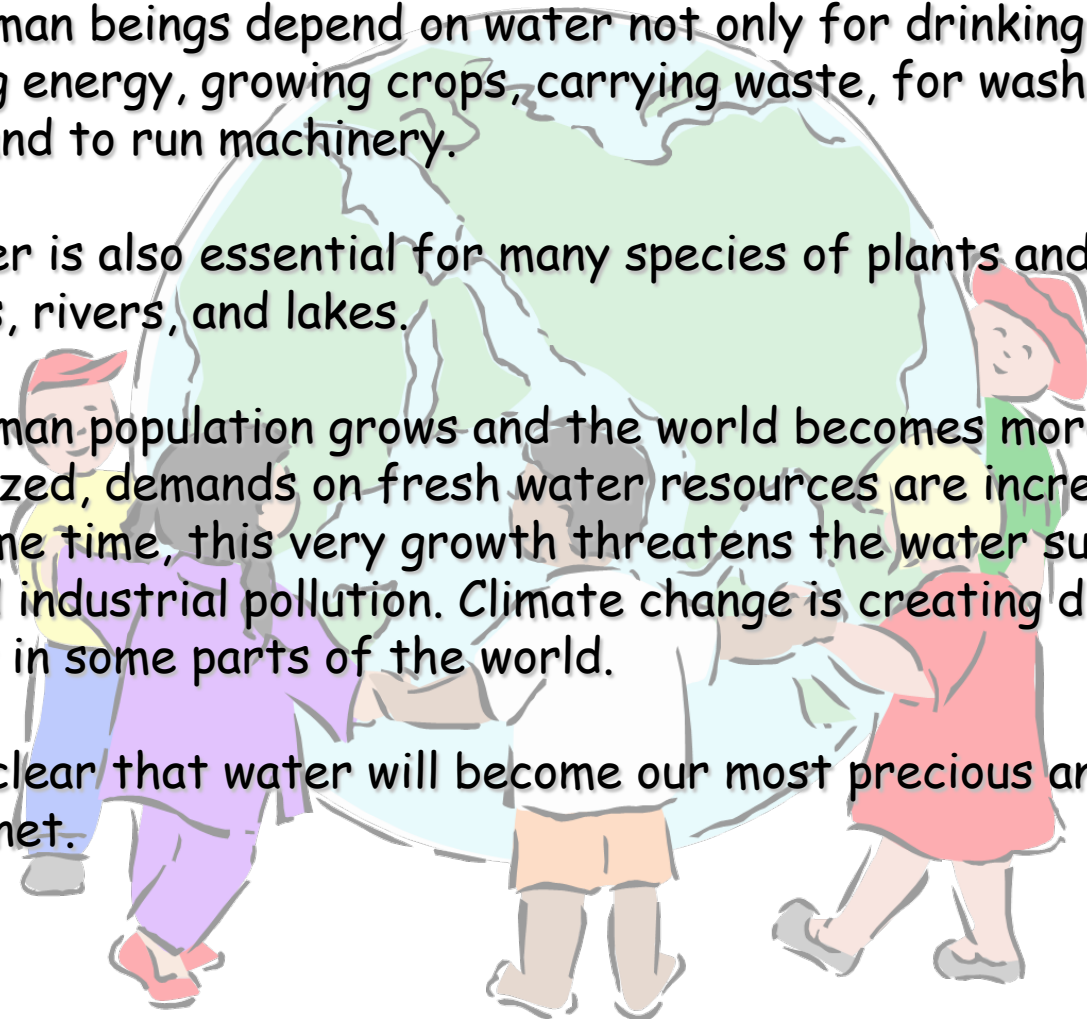
Water is Important

Besides air, water is the resource most critical to sustaining life on Earth. Human beings depend on water not only for drinking, but for generating energy, growing crops, carrying waste, for washing and cleaning, and to run machinery.

Clean water is also essential for many species of plants and animals living in streams, rivers, and lakes.

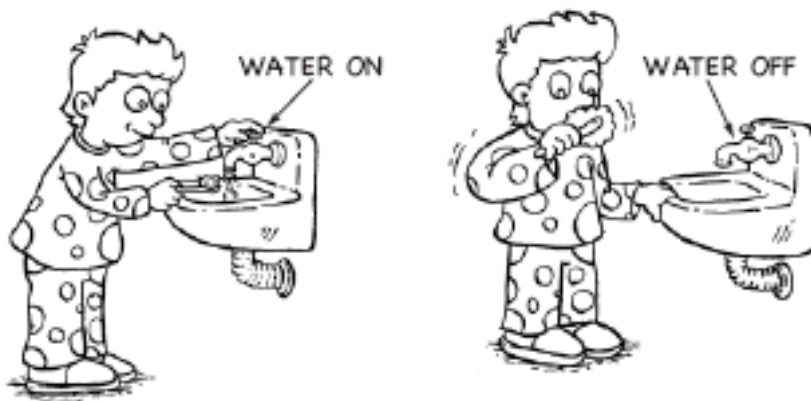
As the human population grows and the world becomes more and more industrialized, demands on fresh water resources are increasing sharply. At the same time, this very growth threatens the water supply through human and industrial pollution. Climate change is creating drought conditions in some parts of the world.

It seems clear that water will become our most precious and resource on the planet.



What Can You Do To Save Water?

- More than 50% of the water used in an average home is used in the bathroom
- Turn off the water while you brush your teeth
- Take shorter showers or use less water when you take a bath



What you can do

- If you see a leak tell an adult
- Don't litter. Most of the trash along the side of the road ends up in a waterway.



Questions