Cool Groundwater Myths and Facts!

True or False?

- **T or F?** Groundwater flows mainly in underground rivers.

  False. Only a small amount of the world's groundwater flows in underground streams through caves. Most groundwater moves very slowly through tiny spaces between particles in rock and soil. Some examples of these spaces are pores in sandstone and small cracks in limestone or granite. This process is similar to a sponge soaking up water; the region below the water table in the ground is completely saturated with water, and the water flows laterally because it has no other place to go. That is why some pollutants can appear in wells, lakes, and streams many miles away from where they entered the ground.

- **T or F?** Groundwater is not connected to rivers and lakes.

  False. Groundwater is connected to rivers and lakes, and vice versa! This connection is usually through wetlands and springs. (A good way to think of this is the cold water that you may suddenly feel when you swim in a lake. That's groundwater entering the lake as a spring!) Groundwater and surface water are connected, so pollution can pass from one to the other very easily.

- **T or F?** Contaminated groundwater can eventually enter surface water and contaminate it.

  True. Groundwater and surface water are connected; therefore, if one is contaminated, it is possible that the other is contaminated nearby as well. Specifically, contaminants can spread from groundwater to surface water when the water level of a stream, lake, or wetland is at or below the water table of the aquifer next to it, so that it "gains" water from the ground.

- **T or F?** Groundwater and surface water may be connected through wetlands.

  True. Groundwater can flow into--or out of--wetlands (springs or flow-through wetlands), which may in turn flow into lakes and streams.

- **T or F?** The surface of a lake is at the same level as the groundwater surface (water table) next to it.

  True. One way to remember this is to think of a beach next to a lake or ocean; if you dig a hole into the sand that goes deeper than the lake's level, it will begin to fill with water (groundwater).

- **T or F?** Contaminated surface water can eventually enter groundwater and contaminate it.

  True. Groundwater and surface water are connected. This type of contamination can occur if a stream, lake, or wetland is higher than an adjacent aquifer to which it "loses" water. Rainfall or snowmelt can also seep through contaminated soil, carrying pollutants to aquifers below.

REALLY COOL FACTS!

5 groundwater facts

1) One gallon of gasoline can contaminate 2,000,000-10,000,000 gallons of groundwater.
2) One quart of oil can contaminate up to 275,000 gallons of drinking water or cause an oil slick almost 2 acres in size.
3) Backyard mechanics dump more used oil into Michigan's [*though this statistic is from Michigan, Wisconsin is comparable*] environment each year than the Exxon Valdez spilled into Alaska's Prince William Sound.
4) The amount of water on earth has never changed.
5) Restoring a contaminated underground water source may cost several thousand to several billion dollars.

- **Ground water occurs almost everywhere beneath the land surface.** The widespread occurrence of potable ground water is the reason that it is used as a source of water supply by **about one-half** the population of the United States, including almost all of the population that is served by domestic water-supply systems.
- About 75 percent of the water used in our homes is used in the bathroom.
- 99.5 percent of all the fresh water on earth is in icecaps and glaciers.
- The small drop from a leaky faucet can waste over 50 gallons of water a day
- The U.S. uses 450 billion gallons of water every day.
- Producing a typical lunch--hamburger, French fries, and a soft drink--uses 1500 gallons of water. This includes the water needed to raise the potatoes, the grain for the bun and the grain needed to feed the cattle, and the production of the soda.
- Fresh, uncompacted snow is usually 90-95 percent trapped air.
- Once evaporated, a water molecule spends ten days in the air.

WATER CONSERVATION FACTS:

- The human body is about 75% water.
- Every day in the United States, we drink about 110 million gallons of water.

- Showering and bathing is one of the largest users (27%) of water domestically.
- Less than 2% of the Earth's water supply is fresh water.
- The average American uses 140-170 gallons of water per day.
- A leaky faucet can waste 100 gallons a day.
- One flush of the toilet uses 6 ½ gallons of water.
- An average bath requires 37 gallons of water.
- An average family of four uses 881 gallons of water per week just by flushing the toilet.
- The average shower takes about 20 gallons of water; around 40 gallons are used in 10 minutes.
- You use about 5 gallons of water if you leave the water running while brushing your teeth.
- If you water your grass and trees more heavily, but less often, this saves water and builds stronger roots.
- Each person needs to drink about 2 ½ quarts (80 ounces) of water everyday.
- Water your lawn only when it needs it. If you step on the grass and it springs back up when you move, it doesn't need water. If it stays flat, it does need water.

A Fun Quiz…

1. Groundwater is renewed once in how many years? (1,400 years.)

2. What is another name for the hydrologic cycle? (The water cycle.)

3. Is there more, less or the same amount of water on the earth as 2,000 years ago. (The same.)

4. Are the oceans connected? (Yes)

5. The Clean Water Act was passed in what year? (1972)

6. What country has the longest coastline of any country in the world? (Canada)

7. What ocean mammal is known for its singing? (The humpback whale)

8. What is the biggest user of water in the world? (Irrigation)

9. The release of water from plants into the air is called what? (Transpiration)

10. Which is bigger: the Pacific Ocean or all the land in the world? (The Pacific Ocean)

11. Who wrote "The Little Mermaid?" (No, it was not Walt Disney. It was Hans Christian Andersen.)

12. Of all the world¹s water, what percentage is found in oceans or seas? (97 percent.)

WATER CONSERVATION TIPS:

- Run your dishwasher and washing machines only when they are full.
- When washing a car, use soap and water from a bucket. Use a hose with a shut-off nozzle for rinsing.
- Never put water down the drain when there may be another use for it such as watering a plant or garden, or cleaning.
- Avoid flushing the toilet unnecessarily. Dispose of tissues, insects and other such waste in the trash rather than the toilet.
- When washing dishes by hand, fill one sink or basin with soapy water. Quickly rinse under a slow-moving stream from the faucet.

- Store drinking water in the refrigerator rather than letting the tap run every time you want a cool glass of water.
- Water lawns during the early morning hours, or evening when temperatures and wind speed are the lowest. This reduces losses from evaporation.
- Do not hose down your driveway or sidewalk. Use a broom to clean leaves and other debris from these areas. Using a hose to clean a driveway can waste hundreds of gallons of water.
- Encourage your school system and local government to help develop and promote a water conservation ethic among children and adults.
- Take short showers instead of baths. A full bathtub requires about 36 gallons of water.
- Don't leave the water running when brushing your teeth or shaving. Get in the habit of turning off the water when it's not being used.
- Use of bowl of water to clean fruits & vegetables rather than running water over them. You can reuse this for your houseplants.
- Conserve water because it is the right thing to do. Don't waste water just because someone else is footing the bill such as when you are staying at a hotel.
- Try to do one thing each day that will result in a savings of water. Don't worry if the saving is minimal. Every drop counts. And every person can make a difference. So tell your friends, neighbors and co-workers to "Turn it Off" and Keep it Off".
- Wash your car in the car wash rather than in your driveway. Car washes are connected to water treatment systems that can handle the oil and other contaminants that rinse off of your car. If you wash your car in the driveway, these chemicals run into storm sewers, which may discharge directly into a stream. Storm sewers are not equipped with the treatment facilities to handle these pollutants.

5 things you can do to help keep our groundwater clean

1) Recycle. 50% of our waste can be recycled. This includes composting organic materials and taking other products to recycling centers. Recycling means less water used, so contaminants are less likely to be drawn to wells.
2) Use native plants to landscape your garden/yard. Native plants are adapted to Michigan's climate and its pests, so there is a minimal need for water, fertilizer and pesticide applications.
3) Plug up wells that are no longer in use. Open, unused wells offer contaminants a direct link to the groundwater supply.
4) Use good fertilizer practices. Do not fertilize in the winter, the frozen ground offers the fertilizer no paths for movement. If a fertilizer cannot filter into the soil for eventual consumption by plants or microorganisms, then it is a potential contaminant to people and water supplies. Fertilizer on a lawn is very susceptible to people or animals walking on it and carrying it into their houses. Also, as spring thaw occurs a fertilizer may be washed directly into surface water by melting snow or rain.
5) Divert your stormwater into your landscape by directing downspouts to a garden, lawn, or into a barrel for later use. By containing your stormwater, contaminants on the pavement will not become part of the sewer water

Cool Quote:

"When the well's dry, we know the worth of water." Benjamin Franklin (1706 - 1790)