Water Conservation and Reuse

Today, Tomorrow, and Every Day

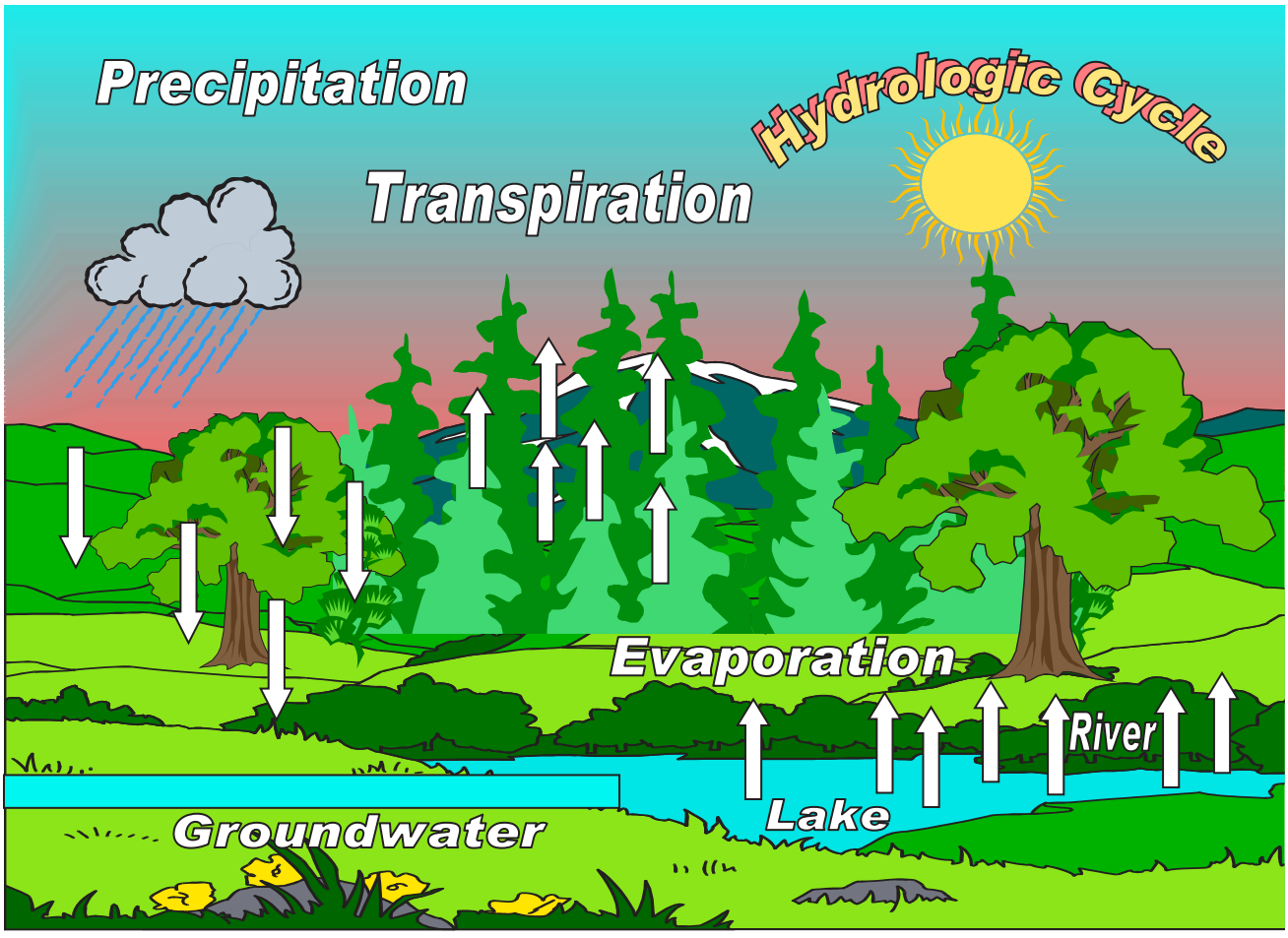
Metropolitan Water Reclamation District of Greater Chicago

Water conservation is vital to everyone on our planet. The water we drink today is the same water in which the dinosaurs swam! The water we flush today is the exact same water our great, great grandchildren will drink. It also is the water that people who live downstream of us will be using in just a few weeks.

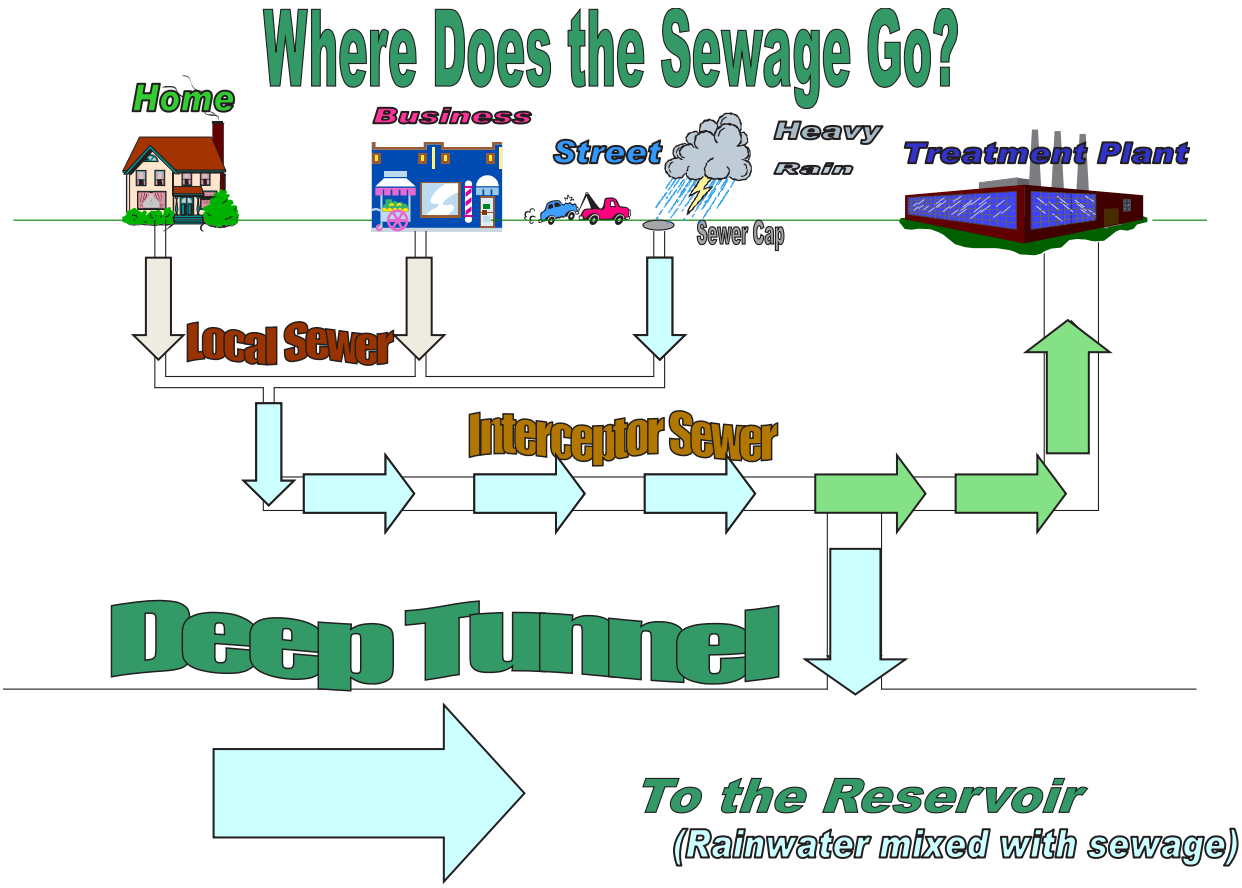
These facts show us the importance of protecting our water because water is reused continuously. That is nature's way.

Our job is to do our best to conserve and protect the water we have now—knowing that others will be using it in the future. This workbook will help all of us learn more about the cycle of water and how we can be environmental helpers.

Let’s start with the hydrologic cycle below. A hydrologic cycle also is called a water cycle. Though this drawing shows rain, water also comes down in the form of snow, sleet, or hail. All of these are known as precipitation. After one of these forms of water fall on the ground, it moves back up into the atmosphere. Eventually, when conditions are right, that water will come back down again. The cycle never ends.



Above is another example of the water cycle. The difference in this drawing from the previous one is there is a water reclamation plant shown. A water reclamation plant cleans the dirty water *before* it is returned to the cycle. That is very important. It means that dirty water does not enter the cycle. Clean water must be used in daily living. We use it to brush our teeth or flush a toilet.



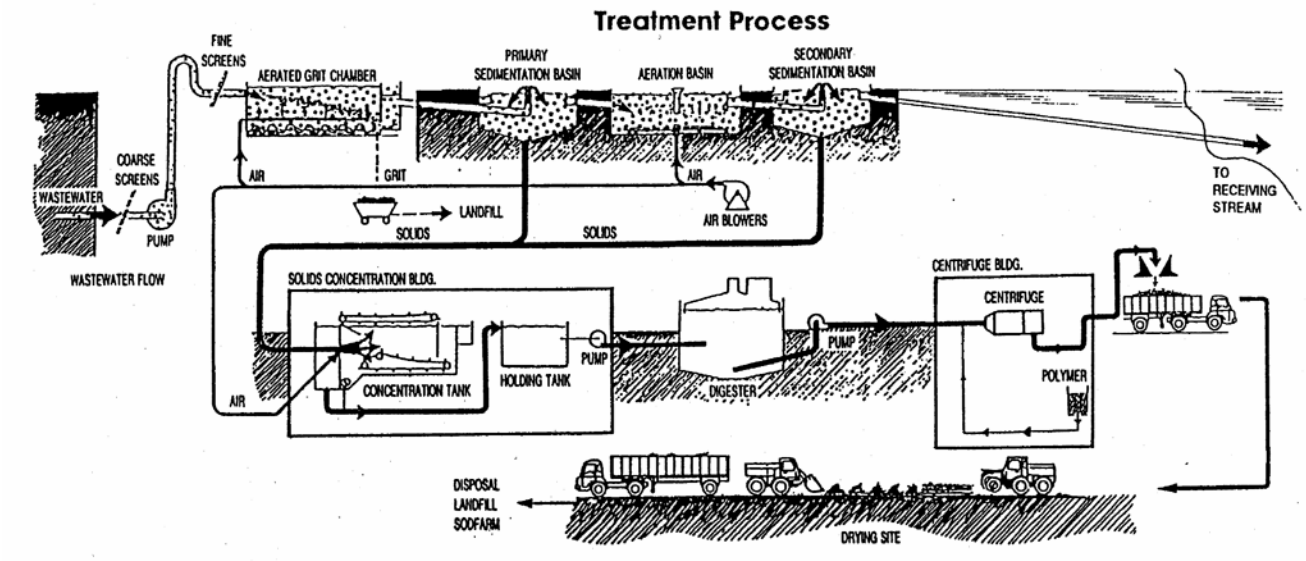
If you study the diagram above, you will see how water from homes, businesses, and the street all flow into local sewers, which are owned by cities and towns. Water moves from local sewers into interceptor sewers, which are owned by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The interceptor sewers send dirty water to the water reclamation plant for treatment. If it is raining, the excess water enters the Deep Tunnel and a reservoir. When the rain ends, the water from the reservoir is pumped to a water reclamation plant for treatment.

Below is a drawing of how water reclamation plants work. These plants are needed to clean dirty water before it is sent back into the cycle. The MWRD has primary, secondary, and tertiary treatment at most of its plants. One plant does not have tertiary treatment, but it is able to release water that is 97 percent clean.

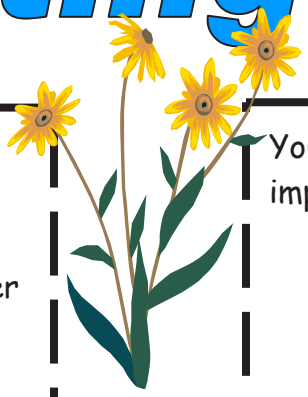
Primary Treatment is a physical process in which heavy particles settle to the bottom and grease and oil float to the top. They are removed and sent to a landfill for proper disposal.

Secondary Treatment is a biological process in which good bacteria consume bad bacteria. The good bacteria settle to the bottom, are heated to kill germs, and spun dry. The final product is called biosolids, and can be used as a fertilizer or in many landfill applications.

Tertiary Treatment is a process that brings the water to 100 percent clean, using chlorine or ultra violet rays.



Protecting Water



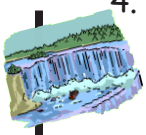
The MWRD has done many BIG things to improve the environment:

1. It reversed the Chicago River to keep dirty water from entering Lake Michigan.

2. It built seven water reclamation plants to treat (clean) dirty water before it was placed in the waterway next to the reclamation plant.

3. It created the Tunnel and Reservoir Plan (better known as the Deep Tunnel) to collect rainwater mixed with sewage and hold it until it could be treated at a water reclamation plant.

4. It built five natural waterfalls to put more oxygen into the Cal-Sag Channel and make it cleaner.



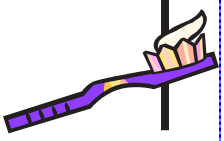
5. It plants prairie landscaping around its reclamation plants.

6. It uses hybrid cars at its water reclamation plants.

7. It puts plants along the river that keep the dirt from sliding into the water.

You can do many SMALL things to improve the environment:

1. (Example) I can turn off the faucet when I brush my teeth.



2.

3.

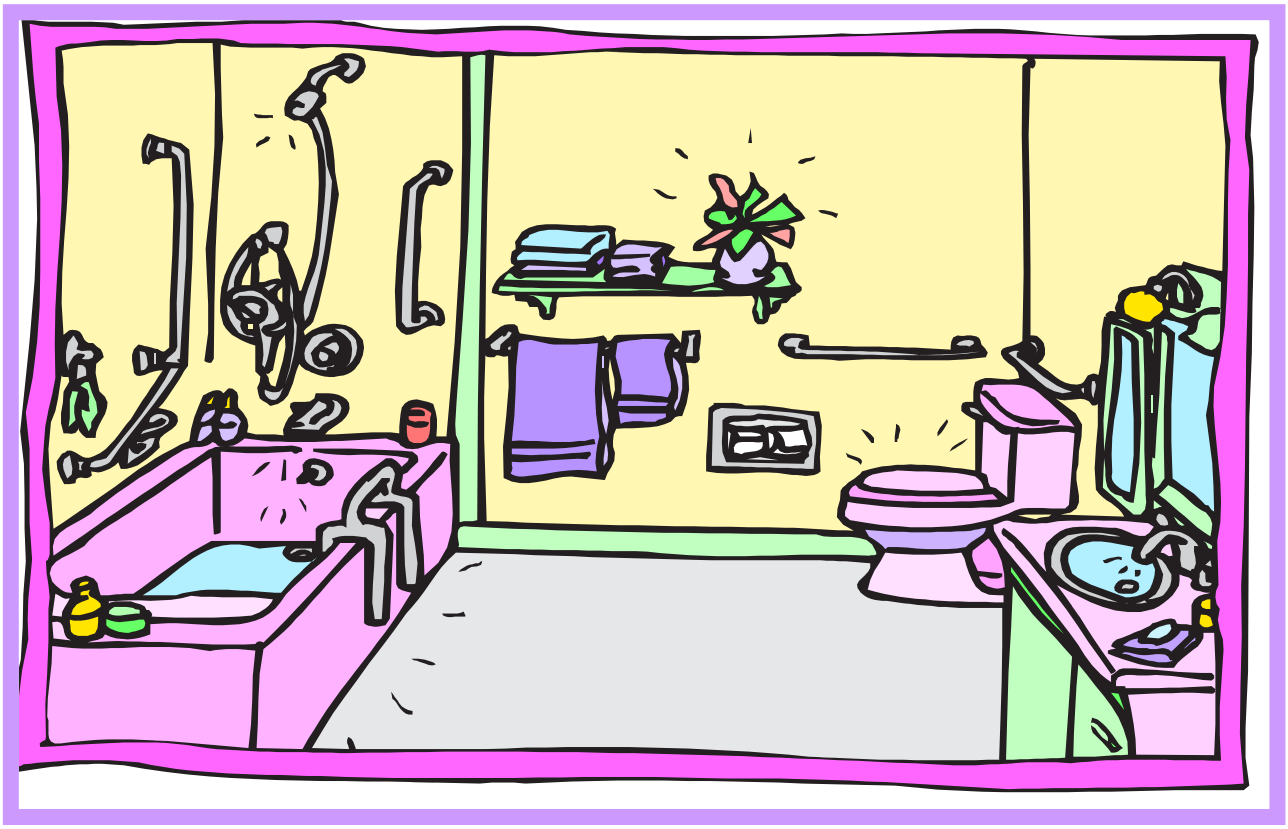
4.

5.

6.

7.

Ways to Conserve Water



Above is a bathroom. Look at the picture carefully, and in the space below write as many ways as you can to conserve water in the bathroom. (Example: You might write take shorter showers.)

1.	9.
2.	10.
3.	11.
4.	12.
5.	13.
6.	14.
7.	15.
8.	16.

Speaking of bathrooms, all of us have medicine cabinets with pills inside. Sometimes the cabinets hold old prescriptions and things like aspirin. If these items are too old to use, they could be taken to many police stations. *Warning: Children should never handle prescription drugs or any type of medication. These items should be handled by an adult such as a parent or guardian.*

If your police station does not have that service, an adult could bring the drugs to one of four MWRD locations that accept expired medications (Calumet, Stickney, O'Brien WRPs, and our headquarters at Erie & Rush). If that is not possible, the medicine should be wrapped in several layers of paper, taped and placed in a garbage can. Do not pour drugs down the toilet or into the sink! These products are not removed easily from sewage, so they could end up in someone else's drinking water eventually.

You also might have some old beauty products or lotions in your medicine cabinet that no one uses anymore. Those items also should be wrapped, taped, and put in a garbage can. These products, like medications, are very difficult to remove from the water.

Now, we are moving from the bathroom to the kitchen. In the space below, draw a kitchen, and below your drawing write several ways to conserve water in this room. (Example: You might fill a basin to wash dishes instead of washing them under continuously running water.)

1.	9.
2.	10.
3.	11.
4.	12.
5.	13.
6.	14.
7.	15.
8.	16.

Let's move outside. Below is a nice yard. Did you know that a rain garden can keep rain there long enough to help prevent flooding? Were you aware that rain barrels can collect stormwater to be saved for another day, when there is no rain? Below write other suggestions to conserve water in the yard.

1.	9.
2.	10.
3.	11.
4.	12.
5.	13.
6.	14.
7.	15.
8.	16.

You have reached the end of this booklet, but not the end of making plans to protect and conserve water in your community. If you are a member of a club or an organization, like scouts or a garden club, be sure to share your ideas with the other members. You have learned a great deal that will be helpful to them!

When people talk about reuse and recycling, they tend to think about reprocessing garbage. Recycling paper, glass, and plastic are great ideas, and we all should do that. Sometimes, however, we forget that our water also needs to be recycled! If our water is not cared for properly, we will be forced to drink and use unclean water.

Make this the day you become committed to clean water. Little choices can make a HUGE difference in the long run. If each of us conserves water and keeps harmful things out of it, our water environment will become a little better each day. Remember, all the water we have is all the water we will ever have. TAKE CARE OF IT!

Notes:

Notes:

Notes:

Your Name

is committed to conserving, protecting, and reusing water, and will do his or her best to follow the practices studied in this booklet, as well as share the knowledge with others.

Metropolitan Water Reclamation District of Greater Chicago

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