

Grade 3 Lesson Outline

Lesson Title: Water in the Community	Duration: 40 minutes
Introduction:	
In this lesson, students will learn about water and wastewater treatment, the human water cycle, water efficiency and the importance of drinking tap water.	
How to use this resource:	
Refer to the list below for all resources required for this lesson: <ul style="list-style-type: none">• Grade 3 – Presentation PPT includes all slides, speaking notes and video links required for the lesson• Water is... worksheet for students to complete• All About Treatment worksheet for students to match the stages of water and wastewater treatment with images Print the following files before you begin the lesson: <ol style="list-style-type: none">1. Water is... worksheet (1 per student)2. All About Treatment worksheet(1 per student)	
Key Messages:	
<ul style="list-style-type: none">• All living things needs water• Water moves around the earth through the water cycle• We need to save water, so it stays clean and there is enough for everyone• The water treatment plant keeps our water safe and healthy for everyone• Personal actions can help protect water, such as being careful with what we pour down the sinks at home and at school	
Key Topics:	
<ul style="list-style-type: none">• Water Conservation• Water Treatment• Wastewater Treatment• Water Quality	
Curriculum Connections:	
For a complete list of curriculum connections, refer to the Curriculum Connections for Grade 3	
Science & Technology:	
Understanding Matter & Energy: Forces Causing Movement	
<ul style="list-style-type: none">• 1.1	
Understanding Earth and Space Systems	
<ul style="list-style-type: none">• 1.2 & 3.1	
Social Science:	
<ul style="list-style-type: none">• Heritage & Citizenship• Canada and World Connections	

Lesson Outline:

Slide 2: The Region of Peel

- Ask students – what city or town do they live in? ○ Let students know the city or town they mentioned is part of a larger area that is called the Region of Peel

- Region of Peel includes the Town of Caledon and 2 cities – City of Brampton and City of Mississauga
- Some of the programs and services that the Region of Peel provides to our communities includes:
 - Garbage, recycling and organics collection
 - Maintaining Regional roads, including snowploughing in the winter and paving in the summer
 - Paramedics (ambulance)
 - Police
 - Providing safe clean water to drink and cleaning the dirty water when you're done
- Today, we are going to learn about how water is important to all living things, and how we use water everyday at school and at home.
- Peel has a population of 1.51 million people, who live, work and play and a part of this community

Slide 3: We use water for...

- Brainstorm with the class different ways they use water at home and at school. This can be done on chart paper or a board
- 10-15 minutes to complete this activity

At school	At home
Washing our hands	Drinking
Drinking water	Taking a bath
Using the washroom – flushing the toilets	Using the washroom – flushing the toilet
Painting	Brushing our teeth
Watering our plants	Washing our clothes – washing machine
Water fountain in our school	Washing our dishes

- Look at all the ways we use water every day

Slide 4: Water Cycle

- **Ask:** why they think water is important to everyone?
- **Answer:** All living things needs water to live (humans, animals, our pets, plants, flowers, trees, all the food that grows on farms)
- **Ask:** Where do we in the Region of Peel get our water from? (Lake Ontario)
 - Brampton, Mississauga and Bolton get water from the Lake. Other people who live in Caledon get water from wells, either on their own property, or municipal wells that are owned by the Region
 - Water from Lake Ontario is fresh, which means that the water is not salty like the water in oceans and seas
- Review the water cycle with the students
- The water cycle is a continuous circulation of water from rivers, lakes and oceans into the atmosphere onto the land and back
 - **Sun:** the source of energy that drives the whole cycle
 - **Lake Ontario:** this is our water source
 - **Evaporation:** the sun heats up the water in lakes, rivers and oceans and turns it onto

vapour

- **Condensation:** water vapour in the air gets cold and changes back into liquid form
- **Precipitation:** the clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow
 - **Runoff:** moves water across land and makes its way to the nearest body of water such as a lake
- **This process is called the natural water cycle. But humans also change the path of water**

Slide 5: Human Water Cycle

- What happens when we use water to brush our teeth, shower, go the bathroom – where does it go?
- **Ask:** Do we send it directly to the Lake?
 - **Answer:** NO
- **Ask:** If I was thirsty, can I go down to Lake Ontario and take a cup of water directly from the lake and drink it?
 - **Answer:** NO
- Why not?
 - Have students share their responses (i.e. water is dirty, not treated, has pet waste, trash in the water, bacteria and germs)
 - The water in Lake Ontario might have bacteria, viruses, and germs in it. All those things could make us very sick if not treated.

The next few slides will cover how we treat all that dirty water at our wastewater plant

Slide 6: Video

- GoNoodle Video – Water Cycle <https://www.youtube.com/watch?v=KM-59ljA4Bs>
- Length of video: 3.16 minutes
 - Feel free to get the class up and dance/move along to the actions of the song
 - Review the stages and terms of the water cycle
 - Evaporation, Condensation, Precipitation

Slides 7: Animated Water Treatment

- Dew's Water Adventure <https://peelregion.vids.io/videos/ac9cd9b41d19e1c225/dews-water-adventure>
- Length of video: 4.03 minutes

Discussion Questions:

- Before playing the slides, ask the students
 - Why does water have to be treated before we use it?
- All About Treatment worksheet: Have the students match the stages of water treatment while listening to the animated slides

Answer Key: All About Treatment – Water Treatment

1. Region of Peel 2. Intake Pipe, 3. Ozone, 4. Carbon 5. UV, 6. Membrane Filters 7. Chlorine & Fluoride 8. Lab Testing and 9. Toast to Tap Water

Slide 8: Animated Wastewater Treatment

- Dew's Wastewater Adventure <https://peelregion.vids.io/videos/069cd6b81717e3c58f/dews-wastewater-adventure>

- Length of video: 2:50 minutes

Discussion Questions:

- What is the purpose of a water resource recovery facility?
 - Have students share their thoughts on what they know, or heard about wastewater treatment, before showing the animated slides
- Why is it important that we treat the water we use?
 - Think of all the animal life and plants that live or are near the Lake.
 - If wastewater that is used never got treated, would you go for a swim, enjoy a boat ride, go fishing in water that is full of stuff we poured or flushed down from our home?

Did you know?

- Did you know that we have over 200 staff in the Region of Peel who treat and maintain our water to make sure every time you turn on the tap, the water is fresh and healthy to drink?
- And every time you flush your toilets, or take a bath, staff also work to make sure that dirty water gets cleaned before putting it back to the lake

All About Treatment worksheet: Have students complete the worksheet while listening to the animated slides about wastewater treatment

- Take a few minutes to go over and cover the worksheet as a class

Answer Key: All About Treatment – Wastewater Treatment

1. Region of Peel, 2. Water leaving homes, 3. Screening 4. Primary Settling Tanks, 5. Aeration Tanks 6. Secondary Clarifying Tanks 7. Lab Testing and 8. Final Outfall Pipe

Slide 9: 60% Water

Discussion Questions:

- Did you know that our bodies are made up of 60% water? (some parts of our bodies like our brain is made of even more!)
- **Ask:** Can you remember the last time you were thirsty?
- **Ask:** What did it feel like?
 - **Answer:** Water is essential to everyone; we need it in order to stay healthy and hydrated

Did you know?

- That water is a healthy beverage choice than pop or juice and our bodies need water every day?
 - Choosing a reusable bottle helps reduce waste and save money. Instead of buying single use beverages, a reusable water bottle can be filled with tap water about 770 times for only \$1.00

Slide 10: Water in our World

- 70% of the earth is covered with water, but only 3% is freshwater
- 97% of the world's water is salt water, that we can't drink
- 2% of the world's water is frozen in polar ice caps and glaciers
- 1% of the world's water is fresh water and of that most is unavailable (too far underground, polluted, or trapped in soil)
- Only **0.01% of the total water on earth is accessible for humans to consume**
- That 3% is so important to protect, as we use that water every day for
- drinking, showering, farming, cooking food, brushing our teeth

- Could you imagine if we had water shortages – what would that feel or look like?
- Have students share their thoughts
- In the past, the Region has had a water use advisory, what do you think that means?
- Have students share their thoughts
 - **Answer:** it means that we all need to be mindful of the water we use during this time. It means that we should avoid watering our grass every day, not wash our cars. This could result from hot weather, lack of rain, or operational issues at the plant, machines that treat our water break down. The plant cannot treat as much water as they would normally do
- Everyone including you has a part to play in protecting the 3% freshwater we have

Discussion Questions:

- **Ask:** Why do you think water is so important to communities? Think of communities from the past and communities that we live in today?
 - **Answers:** Early settlers lived near lakes and waterways
 - Used water (lakes, rivers, oceans) as transportation from community to community
 - Attraction to live near water
 - Recreational activities near water
 - Scenic
 - It was important in the past and even today to build communities near water. Region of Peel has 2 water treatment plants as well as 2 Water Resource Recovery Facility. All these plants that treat and clean our water, and are near Lake Ontario, located in the City of Mississauga

Slide 11: Water Conservation

- Get students thinking about water use
- Show students what 1 litre looks like, can use any container that will hold 1 litre of water and a measuring cup
 - Example of 1 litre – small carton of milk

Discussion Questions:

- **Question:** Let's take a closer look at how much water we use every time we flush down our toilets
 - On average, a person flushes the toilet 5 times a day
 - Toilets use 6 litres of water
 - How many litres of water do you flush per day?
 - What would the total number of flushes per day be for the entire class?
 - Have students share their thoughts on this exercise, do they think that was a lot of water being used just for toilets, what about other uses for water
- **Answer:**
 - 1 student x 5 flushes x 6 litres/flush = 30 litres of water flushed per day
 - 30 students: 30 litres of water x 30 students = 900 litres
 - 900 litres of water get flushed from just 1 classroom per day. That's enough to fill 3,804 cups of water
<https://www.calculateme.com/volume/liters/to-cups/>
 - Total flushes = 5 flushes per day x 30 students = 150 flushes

- Think of some ways that everyone can conserve water
- Why is it important that we conserve water? Have students share their thoughts

Slide 12: Conclusion

End of the lesson, ask students

- What have you learned today about water?
 - Have students share their findings?

Share with students that everyone, has a part in protecting and conserving water

- To wrap up the lesson, have students come up with different words that describes water using, **Water is** worksheet

Extension Activities:

- __ Looking for ways to extend your learning, check out our extension activities at peelregion.ca/enviroed and [Teach Green in Peel](#)