**Extension Activity**

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| **Activity Title:** The Erosion Game | **Duration:** 45 minutes |
| **Objective:** |
| In the Erosion Game, students experience first hand the devastating results of removing too many tress from a large area of land. Students will also learn the importance of water quality during this activity. This interactive game incorporates storytelling and drama to encourage experiential learning. * Suitable for Grade 3 to 5
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| **Introduction:** |
| Discuss and cover with the class what erosion means and what it does to natural areas. Have students do a quick search on erosion and how it changes forests and natural areas. Ask students what they think water quality means, and go over the term with them. Definitions:**Erosion:** is a process where natural forces such as water, wind, transport rocks and soil**Water Quality:** measures how clean and healthy the water is Take the students outside and split the class into small groups of 3-4 students each:* Oak trees
* Willow trees
* Dogwood plants
* Rain
* Project Managers (2 students)

Go over each of the following actions with the students:* Oaks: stand straight and tall and hold their arms to the sides. Because oaks are rigid they are not allowed to move any part of their body
* Willows: kneel down and wave their arms all around. Willows are very flexible but can only move their arms and torsos
* Dogwood Plants: lay flat on their stomachs with their arms extended. Dogwoods are excellent creepers and can cover a big area in a very short time. Dogwoods can move around on their stomachs
* Rain: run from place to place
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| **Materials:** |
| * Pylons
* Bean Bags (15-20)
* Whistle
* Watch/Timer
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| **Procedure:** |
| 1. Set up boundaries using pylons and explain that the area inside the pylons used to be an old growth forest. Show the students that you have several “soil” bean bags that you throw onto the field to show the soil is of good quality
2. Begin the game by telling the story…

 1. “This field is where old growth forests grew, and the ecosystem was healthy. Eventually, word caught on that the mighty trees were here and so the loggers came to satisfy the demands of society – after all, we need wood for our furniture and houses, and we need wood to burn. And so, the mighty trees were chopped down, now all that is left is this field and its soil. And then the rain came.”
2. Continue with the story…
3. “Now rain is greedy and will connect as many of the soil (bean bags) distributed about the ground as they can in 10 seconds by running from one side of the field to the other in one direction. Rain that does not reach the other side of the field in time becomes groundwater and has to sit on the edge of the field. After the time ask the rain to count how many soil bean bags they managed to collect in that short period of time
4. Return the soil bean bags back to the field and continue the story…
5. The town nearby saw the land go to waste and knew this was wrong, so they decided to tree plant to help replace the old forest. They hired two project managers to oversee the operation. The project managers were smart, and charming, and they had a way with dirt. They knew that they had to beat erosion to save the field and eventually grow a forest (choose 2 students to play the role of the project manager)
6. Continue with the story and have the students perform the actions you refer to in the story…
7. The project managers began first by planting the mighty oaks with their long, straight branches (have the project managers place the “oak” students in the field and have the oaks stand with their arms straight out) Project managers should choose a spot in the field that contains a lot of soil (bean bags) and have the oaks stand on the bean bags to secure them. And the oaks liked living in the field where they could grow and get lots of sunlight. They knew, however, that without the soil, they would perish in the field. If you listened carefully you could hear them say ‘forget it dirt, you’re not going anywhere!’ (Have all the oaks repeat the phrase nice and loud: ‘forget it dirt, you’re not going anywhere!’)
8. Continue with the story…
9. And then the rains came, and erosion occurred once again, but to a lesser extent this time. Have the rain run from one side of the field to the other in 10 seconds and pick up as many soil bean bags as they can. Remember, if the “rain” does not make it to the other side in time to join the rivers, they will be lost to groundwater. Take the soil bean bags from the “rain” and record the number
10. Now the project managers saw this and knew that it was good, but not good enough. They were still losing precious soil where the oaks did not stand. In the back of the field was a small wetland that contained more water than the rest of the field. They decided to use the majestic black willows in these areas where they could flourish. (The project managers place the willows on their knees towards the back of the field where they can cover the soil)
11. Now willows are a little nicer than oaks and try to be accommodating whenever possible. They knew they had to get the soil to stay but they wanted to do it in a peaceful way. If you listened carefully, you could hear them say ‘come here soil, so I can give you a big hug!’
12. And the rains came, and erosion occurred once again but this time to an even lesser extent. (Have the “rain” run from side to side in 10 seconds and pick up as many soil bean bags as possible.
13. And the project managers knew that this was better, but not perfect. So, they looked around and saw the lonely dogwoods trying to get their attention. Now dogwoods aren’t as mighty as oaks and they aren’t as nice as willows, but they are go-getters, real achievers trying to branch out to be their best. So, the project managers planted dogwoods in the field and if you listen carefully you can hear them cheering themselves on ‘go dogwoods, go dogwoods, go!’”

(Have the project managers place the “dogwoods” on their stomachs in the remaining space in the field. Remember, dogwoods are free to move about on their stomachs. Have the “dogwoods” move around and repeat the phrase: ‘go dogwoods, go dogwoods, go’1. And the rains came and erosion happened no more, or happened so little that the trees just laughed

(Have the “rain” run again and perform a count. Have all the trees laugh together).1. And so, the town had changed a dying field into a young forest that would be around for generations to visit and enjoy. And the project managers did such a good job they were promoted to mayors of the town. The end!
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| **Conclusion:**  |
| **Ask students:** * What might have been some of the consequences facing the town if the forest had not been restored?
* Students playing the role of rain, was it harder to get soil when more vegetation was present? Would grass have been as useful in keeping the soil from being washed away?

**Answers:** * **Consequences**: increased flooding and poor soil quality
* **Solutions**: natural vegetation, by allowing trees, shrubs and other plants to grow naturally

**Go out and explore:**Take the class outside their local neighbourhood or a local park and have them look around * What are some things they notice?
* What kind of plants, trees do they see?
* Have they been planted in a random spot, what is around those trees and plants?
* Did they notice any cracks on the pavement? Are there plants growing from the cracks?
* What do they see or notice around the creek? (trees, rocks, vegetation)
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Source: Developed by Toronto and Region Conservation Authority’s Education Services.

Peel Water Story, Environment, Transportation and Planning Services Department, Region of Peel