



# Water Runs Downhill!

This activity center is part of the **Water Science** theme.

## What's the purpose of this activity?

This activity demonstrates watersheds and will introduce students to our local watersheds. It aims to provide a more holistic view on how our local water systems flow and their role within the greater landscape. The aim of this activity is to increase understanding of how vitally connected our water systems are.

## Key messages:

- Watershed boundaries are defined by heights of land which direct the flow of water.
- A watershed is connected by flowing water and all who live along that watershed can have an impact on that water and those that live downstream.
- A watershed includes a catchment basin which is all the land, lakes and wetlands that are drained by a watercourse and its tributaries.
- Three secondary watersheds begin in the Haliburton Highlands and flow through Haliburton County, District of Muskoka and Kawartha Lakes.
  - We are all connected by our water and our actions have an impact on others downstream!

## Materials:

- Water Runs Downhill "pin ball" board
- Yoga ball
- Marbles

- Water Runs Downhill laminated page
- Tertiary Watershed Map sign
- Watersheds of Canada poster or laminated page

## Activity Set Up:

1. Center Water Runs Downhill "pin ball" board on top of yoga ball on floor. Let it lean and rest on floor.
2. Set watershed maps up where students can see it and you can refer to them.
3. Keep marbles in container and place close to pin ball board.

## What will I be doing?

### Briefly explain what a watershed is ...

- A watershed consists of :
  - A catchment area which is the land around watercourses
  - Watercourses (such as rivers) and water bodies (such as lakes & wetlands).
- The boundaries of watersheds are defined by height in the land.
  - point out green "wired" boundary on the Watershed pin ball board
- All watercourses and water bodies within that watershed flow towards one common point.
  - Point out the various blue "wired" rivers on the pin ball board and demonstrate where they flow to:
    - Ottawa River
    - Georgian Bay
    - Lake Ontario
  - These are secondary watersheds and all begin in the Haliburton Highlands (Haliburton County)
- Ask students' to try and point out where

they live

- As they point them out, or have you try and find their towns/cities ... make note of what watershed they are a part of.
- Regardless of where you live, you are a part of one of these watersheds!
- Highlight to the students that if they spilt a cup of water where they live, where would it go? ... Which water body would it end up?
- Even water from the uplands will eventually make its way to the watercourses and flow to the common point within the watershed.

### **Demonstrate the movement of water within a watershed using a marble.**

- Place it by Opeongo Lake (not in) and trace a path to the closest "wired" river, through to Bark Lake, Kamaniskeg Lake, through to Calabogie and on to the Ottawa River:
  - This marble represents a rain drop and if it falls anywhere in the Ottawa River Watershed (land or water) it will make its way to one of the rivers and/or lakes and will eventually end up in the Ottawa River.
- All this area, point out the Ottawa River Watershed, land and water, is just one watershed that is a part of Haliburton County

### **Introduce activity ...**

Okay, now that you understand watersheds a bit more, are you all ready to work together and move drops of water?

- Have the students spread along the edge of the Water Runs Downhill "pin ball" board and hold onto a handle.
  - Each student should have one handle for each hand.
  - A total of 10 students can participate using 2 handles each (2 at each short end; 3 on each long end)
  - If there are less than 10 students make sure they are spread out

along the board evenly.

- Explain that it is important for them to work together and to control the movement of the water drop (the marble).
  - It is not about speed, it is about accuracy!
  - If they move the marbles too fast or hard, the "drops of water" may jump over the rivers!
  - The idea is to work together to move the drop of water (marble) down the watershed using the watercourses as best they can and get the drop of water (marble) to the "end point" (Ottawa River, Georgian Bay or Lake Ontario)
  - If the marbles do "jump" over the rivers or watershed, start again!
  - When you move the Water Runs Downhill "pin ball" board, balance it on the yoga ball that is underneath. This will allow for smoother and more controlled movements!

### **Start with the Ottawa River Watershed (it is a bit easier ... like a warm up!)**

- Make sure all the students are in their places and ready.
- *Ask the students who lives in this area? ... let's see where your water flows!*
- Place the marble (water drop) in Haliburton County but in the Ottawa River Watershed and let it go!
- Instruct the students to move the Water Runs Downhill "pin ball" board at slight angles to move the marble along the watercourses to it to the Ottawa River.

### **Next, the Georgian Bay Watershed ...**

- *Ask the students who lives in this area? ... let's see where your water flows!*
- Show the students where they are trying to get their water drop (marble) to end up ... Georgian Bay
- Place a marble near Kawagama Lake (in Haliburton County but in the Georgian Bay Watershed) and let it go.
- Let the students work the water drop down to Georgian Bay
- Make note that although the water drop started in Haliburton County, where did it travel through? ... District of Muskoka

### **Lastly, conquer the Lake Ontario Watershed (more difficult)**

- *Ask the students who lives in this area? ... let's see where your water flows!*
- Show the students where they are trying to get their water drop (marble) to end up ... Lake Ontario
- Place a marble somewhere near Kennisis Lake, Eagle Lake or Wilberforce (in Haliburton County but in the Lake Ontario Watershed)
- Let the students work the water drop down to Lake Ontario
- Make note that although the water drop started in Haliburton County, where did it travel through? ... Possibly through Kawartha Lakes as well as some other areas of Southern-Eastern Ontario like the Oak Ridges Moraine.

**Make a note that** ... local streams empty into larger streams, rivers or lakes, which may empty into a larger river, which eventually will empty into the Great Lakes which will ultimately empty into an Ocean.

- Our water from Haliburton County, District of Muskoka and Kawartha Lakes will eventually drain into the Atlantic Ocean
- We are all connected by water and what we do in our area can affect many different people, animals and plants all the way downstream!

### **Additional Background Information:**

A watershed includes all the land (hills, farms, forests, towns, cities, etc.) around watercourses. This includes around your homes and schools!

Think of the watershed like a bath tub; the topography, although the map we used for this activity is flat, in "real life" it has different heights (the watershed boundary is higher) which allows all the water to drain to one point.

There are different sizes of watersheds that nestle into one another (use Tertiary Watershed Map and Water Runs Downhill "pin ball" board to help explain)

- For example, on the Tertiary Watershed Map, these are the tertiary watersheds (smaller watersheds)
  - The Upper Madawaska Watershed is nestled within the Ottawa River Watershed (a secondary watershed, larger)
  - The Muskoka, Black River-Lake Simcoe Watersheds are nestled within the Georgian Bay Watersheds(a secondary watershed, larger)
  - The Gull, Kawartha, Scugog & Otonabee Watersheds are nestled within the Lake Ontario Watersheds. (a secondary watershed, larger)

And watersheds keep nestling until all watersheds within Canada are found within 5 main watersheds which flow to one of the oceans: (Use Watersheds of Canada map):

- Arctic Ocean
  - ~ 30% of Canada' water drains to the Hudson Bay Watershed which is ultimately considered a part of the Arctic Ocean Watershed
- Atlantic Ocean
- Gulf of Mexico
- Hudson Bay
- Pacific Ocean

We, in Haliburton County, Muskoka and Kawartha Lakes, are part of the Atlantic Ocean Watershed.

- This means that all the water from Haliburton County, District of Muskoka and Kawartha Lakes will eventually flow into the Atlantic Ocean!

### **Some Definitions:**

#### ***Watershed***

A watershed describes an area of land that contains a common set of streams and rivers that all drain into a single larger body of water, such as a larger river, a lake or an ocean. A Watershed can also be referred to as a catchment basin.

**Watercourse**

A *watercourse* is a moving body of water such as a stream, river, brook, or creek.

**Closed Watershed**

*In some parts of Alberta and Saskatchewan there are closed watersheds which do not drain into any ocean but instead drains into the ground.*

- *These are considered internal drainages*

**Clean Up Procedures:**

At the end of the day, gather marbles and place in small container. Carefully place all materials together and in appropriate folders. Put smaller laminated pages back in program folder and take back to volunteer sign in/out area. Leave the site as you found it for the next day's volunteers.