



**Friendly - Accountable - Leaders - Cooperative - Organized - Nurturing - Successful**

## **Learning Opportunities for Grade 6 May 25<sup>th</sup> – 29<sup>th</sup>, 2020**

Do your best to work on these learning opportunities for 2 hours each day. Focus on life skills, physical activity, mental well-being, and social connections as well. Stay healthy, stay safe!

### **EVERY DAY:**

30 minutes of reading

30 minutes of physical activity (See the Physical Activity Calendar for ideas!)

### **ELA/FILA**

#### **FILA**

#### **VIDÉO - Eaux aux minérales**

Regarder la vidéo suivante <https://www.youtube.com/watch?v=hwhrXzhXyLk>, répondre aux questions ci-dessous.

Donnez assez de détails à vos réponses.

1. Qu'est-ce qu'une source d'eau? Pourquoi est-elle importante ?
2. Comment peut-on faire pour filtrer l'eau de pluie ?
3. Comment longtemps doivent-on attendre avant de récolter l'eau filtré? Pourquoi, doit-on attendre si longtemps ?
4. Quelles actions humaines peuvent nuire à la potabilité de l'eau dans la nature ?

#### **Écriture – Création d'une créature**

1. À l'aide de ton imagination créer/dessiner une créature marine. Vous pouvez ajouter de la couleur, des objets ou d'autres détails.
2. Écrivez un paragraphe qui décrit la créature que tu as créée. (Ce qu'elle ressemble, Ce qu'elle se nomme, son humeur, comment elle bouge, ce qu'elle mange, etc.)

**Lire l'article** ci-dessous et répondre aux questions dans le lien suivant.

Article – **De l'eau pour tout le monde** :

<https://www.infos-jeunes.com/sites/default/files/docs/article/De-l%27eau-pour-tout-le-monde-Article.pdf>

Questions :

<https://www.infos-jeunes.com/sites/default/files/docs/article/De-l%27eau-pour-tout-de-monde-Quiz.pdf>

ELA : 😊 Read Salva Dut Biography 😊 Complete Biography Template 😊 Watch Salva Dut's Ted Talk  
😊 Complete Chart and Footprint Poster



### *Drilling Wells, Transforming Lives*

Glenn M. Balch, Jr., President  
Robert Shea, Vice President  
Jennifer Capezuto, Treasurer  
Don Fairman, Director of Operations  
Lynn Malooly, Executive Director, US



Salva Dut, WFSS Founder & Senior Advisor

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## Salva Dut Biography

Salva Dut is Founder and Senior Advisor for East Africa Operations of Water for South Sudan, Inc (WFSS). He is the inspiration and vision behind the humanitarian not-for-profit organization, which provides access to fresh water and hygiene education in remote villages of his native land, South Sudan, one of the world's poorest regions. Since 2005 WFSS has drilled more than 282 wells, serving hundreds of thousands of people.

In 1985, Salva, then just 11 years old, was one of the 17,000 "Lost Boys of Sudan" who fled that country's southern region during Sudan's two-decade civil war. During that flight, a significant number of the Lost Boys perished from hunger, thirst, disease as well as wild animal and military attacks. Among the lucky survivors, Salva escaped to the relative safety of Ethiopia and later to Kenya.


As a teenager in 1990, Salva led about 1,500 of the Lost Boys from Ethiopia across hundreds of desert miles through Sudan to the United Nations-controlled Kakuma refugee camp near the Kenyan city of Lodawar. He lived in the barbed wire enclosed camp with 92,000 other refugees for nearly six years.

In 1996, under the auspices of the U.S. State Department and the United Nations, about 3,800 of the Lost Boys, including Salva, came to the US while others went to Australia and Canada. Arriving in the US in 1996, Salva spoke little English and lacked formal education.

Salva's family members who survived the war and remained in Southern Sudan thought he was dead. But, in the US, Salva was determined to somehow reconnect with them.

In January 2002, Salva learned from a fellow refugee that his father was seriously ill in a UN clinic, which he'd reached after walking 300 miles. The two had not seen each other in over 16 years. Sensing that this could be the last opportunity to reunite with his father, Salva

Water for South Sudan, Inc. P.O. Box 25551 Rochester, NY 14625  
[www.waterforsouthsudan.org](http://www.waterforsouthsudan.org)



from water-borne parasites and disease. There was no clean water in his father's village. Once reunited with Salva and healthy again, the elder Dut abandoned his life-long home and moved about a hundred miles away to where he could find clean water.

Salva's trip reconnected him to the harsh truth of everyday life for the people of South Sudan who lack access to safe, fresh water. Grateful to the American people who helped him change his life, he returned to the US determined to make a difference for the people of his birthplace. He and a small group of friends founded Water for South Sudan, Inc. (WFSS) in 2003 to raise funds and drill water wells. It has become Salva's life mission. The first well was drilled in 2005, in Salva's father's village.

Salva became an American citizen and studied International Business at Monroe Community College (MCC) in Rochester, NY, while working as president and drilling manager of WFSS.

The Sudanese civil war finally ended in 2005 with A Comprehensive Peace Agreement. In January, 2011, the Southern Sudanese people voted to secede from the Republic of Sudan. In July, 2011 the new Republic of South Sudan was born. Salva moved back to South Sudan following his nation's independence and now oversees WFSS operations in Africa.

WFSS has drilled 282 wells in South Sudan. These wells produce clean water for over a quarter million people every day.

Salva has earned numerous awards, including Rotary International's highest award, "Service Above Self," in 2011. He is also a member of the MCC Alumni Hall of Fame.

In 2010 award-winning author Linda Sue Park, also of Rochester, published *A Long Walk to Water*, which tells Salva's story. The book has sold over 1 million copies, and is in the Common Core curriculum. It has inspired more than \$1 million in donations to WFSS from supporters around the world. WFSS currently has supporters in all 50 US states and 29 other countries.

Salva's heroic personal story and authentic humble character inspires audiences to support Water for South Sudan's humanitarian mission of service to the people of South Sudan.

Name \_\_\_\_\_ Date \_\_\_\_\_

## Keep Walking: Reflecting on Salva Dut's TED Talk

<https://www.youtube.com/watch?v=mWINdnFicLE>

**Directions:** We will be watching Salva Dut's TED talk twice. The first time we watch, watch for the gist, and most importantly, watch to be inspired.

The second time we watch, jot down notes. What big ideas stand out to you as impactful? What lessons did Salva learn from his experiences that you could apply in your own life?

You will be using your notes to make a poster on the next page. Posters will hang in our classroom as a reminder of Salva's important lesson.

| First Time Watching: Gist Notes | Second Time Watching: Connections & Big Ideas |
|---------------------------------|---|
|                                 |   |



## Biography Report Form/Organizer

Person's Name: \_\_\_\_\_

Birthdate: \_\_\_\_\_

Hometown: \_\_\_\_\_

Parents/Siblings: \_\_\_\_\_

Date of death: \_\_\_\_\_



*Photo or drawing*

What is this person famous for:

---

---

---

Interesting facts about this person:

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Four adjectives you would use to describe this person:

---

Quote from this person:

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What did you learn from researching this person?

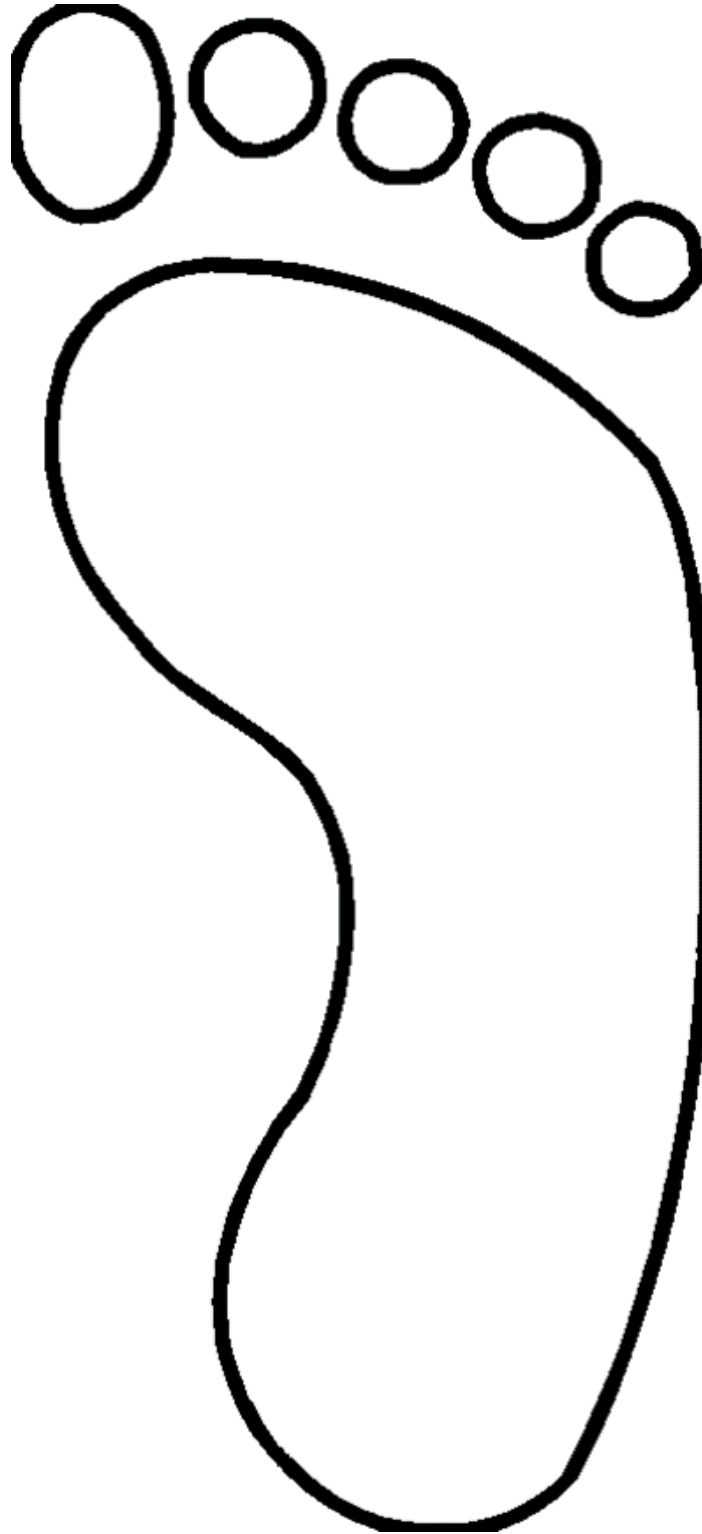
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If you could ask this person one question, what would it be?

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## Keep Walking - Salva Dut's TED Talk

After you are done watching Salva Dut's TED Talk <https://www.youtube.com/watch?v=mWINdnFicLE> and completing the note taking chart, choose a quote from the video that you thought was meaningful to you. Write the quote on the footprint and explain its meaning. Instead, you could write down and explain how Salva Dut's talk was inspirational to you. You can cut out the footprint and hang it up or take a picture of it and send it to your teacher. Be Inspired!





## Math

### Division Facts Game – Race to the Moon

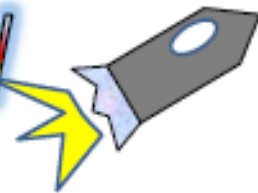
This game is for 2 to 3 players and uses division facts up to  $10 \times 10$ . You will need 20 counters (different colours).

Instructions:

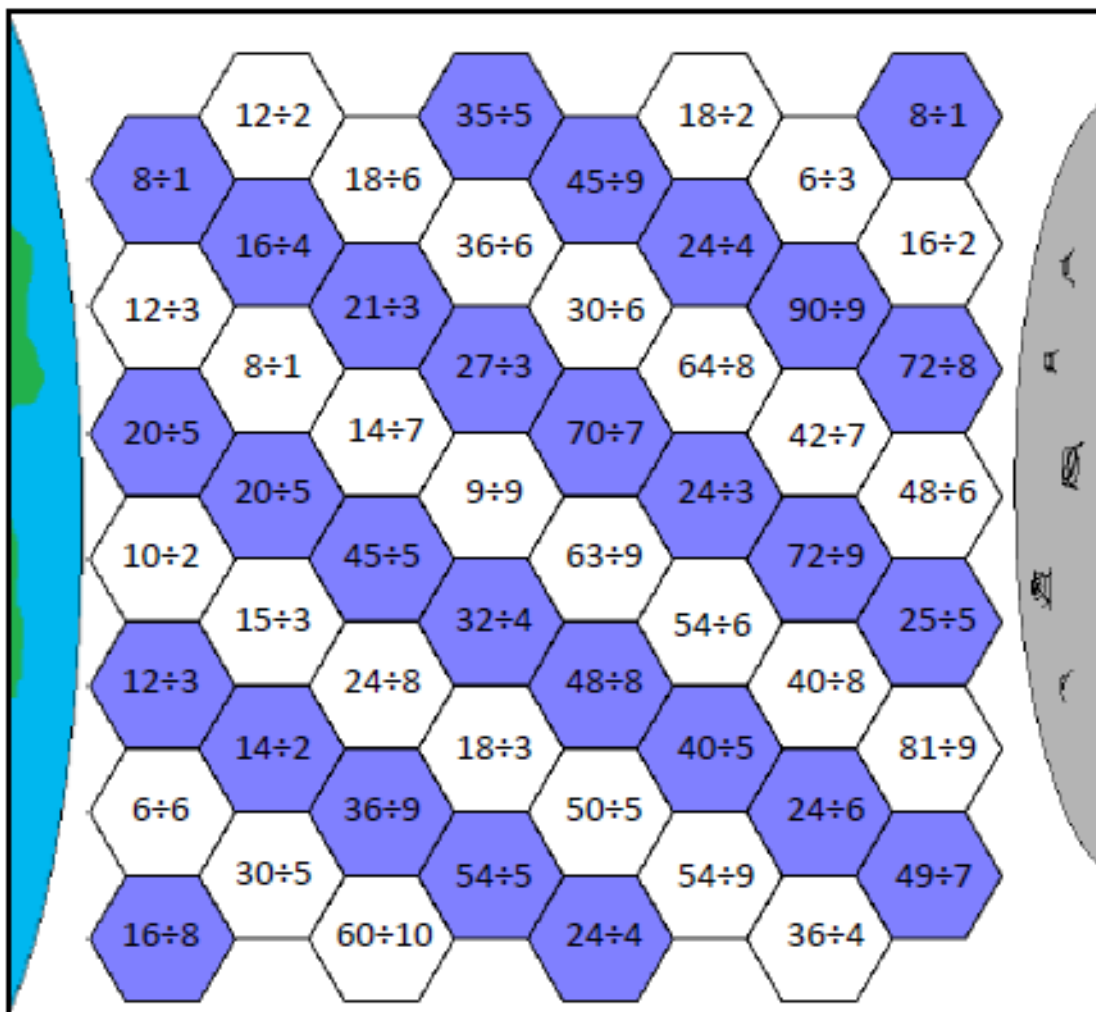
- Choose a division fact you want to place a counter on. You can only place a counter on a calculation which does not already have a counter.
- Work out the answer in your head. You can use the multiples list at the top of the page to help you.
- Say the calculation and the answer. Your partner will check in their head (or on a calculator.)
- If you are right, you place a counter. Then it is your partner's turn. If you are wrong, you do not get to place a counter.
- The winner is the first person to complete an unbroken path of counters from the earth to the Moon (path can go across, down, diagonally).

# RACE TO THE MOON

**DIVISION TO 10x10**



**Who will be first to get from Earth to the Moon?**



## Math & Science

### A River Runs Through It!

Most communities in New Brunswick are built along or close to a river. Each river is a water system and an ecosystem combined, offering benefits and sometimes challenges to the diversity of living organisms within its reaches.

This week we are providing you with cross curricular opportunities to investigate and learn about rivers in New Brunswick. Some of the




activities require a tablet or computer and an internet connection, but others can be completed offline with common household items. Math questions are categorized by grade level. Answer as many as you can and have fun!









Materials/Resources:




- Pencils, pens, paper
- Dictionary
- Computer or mobile device with internet access (optional)
- For one of the French language activities, you can access a video through [idello.org](http://idello.org), which requires you to set up a free account using an email address.



### River Vocabulary Glossary

| Word  | Definition  | Picture   | Additional Languages   |                 |
|-------|---|---|--|-----------------|
|       |   |   | <i>From Left to Right: Mi'kmaq, Wolastoqey, French, Arabic, Russian, Somali, Spanish, Chinese, German &amp; Vietnamese</i> |                 |
| bank  | The land at the side of the river.  |  | kaskipune'k  | pempekek        |
|       |   |   | berge de rivière   | رندلا ففاض      |
|       |   |   | берег реки   | wabiga wabiga   |
|       |   |   | orilla del río   | 河岸              |
|       |   |   | Flussufer  | bờ sông         |
| basin | The land water goes over to get to a river.                                     |  | weskítpa'q   | pasicuwon       |
|       |   |   | bassin de la rivière   | رندلا ضروح      |
|       |   |   | бассейн реки   | dooxada webiga  |
|       |   |   | cuenca del río   | 流域              |
|       |   |   | Flussbecken  | lưu vực sông    |
| bed   | The bed is the bottom of a river. A riverbed can be made of sand, rocks or mud. |  | siskuik  | mocopeq         |
|       |   |   | lit de la rivière  | رندلا عاق       |
|       |   |   | русло реки   | sariirta webiga |
|       |   |   | lecho del río  | 河床              |
|       |   |   | Flussbett  | lòng sông       |



| Word       | Definition  | Picture   | Additional Languages<br><i>From Left to Right: Mi'kmaq, Wolastoqey, French, Arabic, Russian, Somali, Spanish, Chinese, German &amp; Vietnamese</i> |   |
|------------|---|---|--|---|
| Canal      | A man-made waterway that is used so that boats can transport products.  |    | ppseke'kan<br><b>canal</b><br>канал<br>canal<br>Kanal  | etqe-sukin<br>كانق<br>kanaalka<br>运河<br>con kênh                          |
| current    | How strong and fast a river is. Water always flows downhill.            |    | pemitk<br><b>courant de rivière</b><br>речное течение<br>corriente de río<br>Flussströmung   | ksicuwon<br>رهنلا راييت<br>wabiga hadda<br>河水<br>dòng sông                |
| confluence | The joining together of two rivers.                                     |   | niktue'k<br><b>confluence de la rivière</b><br>слияние реки<br>confluencia fluvial<br>Zusammenfluss des Flusses                                    | astuwicuwon<br>رهنلا اءاقتللا<br>isku-haynta webiga<br>河汇合<br>ngã ba sông |
| Delta      | A big muddy area where some rivers meet the sea.                        |  | keskapekiaq<br><b>delta du fleuve</b><br>дельта реки<br>rio delta<br>Flussdelta  | elomocokek<br>اتلادل رهن<br>wabiga delta<br>三角洲<br>sông ngòi              |
| Downstream | The direction that the water flows, downhill towards the sea.           |  | papkik<br><b>en aval</b><br>вниз по течению<br>río abajo<br>Stromabwärts   | papkiye<br>باصملا<br>gunta hoose<br>下游的<br>hạ lưu                         |
| Erosion    | A fast flowing river can break the riverbank and make the river bigger. |  | ejiklapuek<br><b>érosion</b><br>эрозия<br>erosión<br>Erosion   | monamkepawe<br>ءيرعءللا<br>nabaad guur<br>侵蚀<br>xói mòn                   |

| Word       | Definition  | Picture   | Additional Languages<br><i>From Left to Right: Mi'kmaw, Wolastoqey, French, Arabic, Russian, Somali, Spanish, Chinese, German &amp; Vietnamese</i> |  |
|------------|---|---|--|--|
| estuary    | Where a river meets the ocean and they mix together.                            |    | esatapa'q<br><b>estuaire</b><br>устье реки<br>estuario<br>Mündung  | pisipiqe<br>بيصم<br>estuary<br>河口<br>cửa sông                  |
| floodplain | The flat area around a river that can get flooded when the water gets too high. |    | elempa'q<br><b>plaine inondable</b><br>пойма<br>llanura de inundación<br>Auen  | kempek<br>تيضيفلا لوسالا<br>daadad<br>泛滥平原<br>vùng lũ          |
| meander    | A curve in the river.   |   | milewomkitk<br><b>méandre de la rivière</b><br>река меандр<br>meandro del río<br>Fluss Mäander   | amonicuwon<br>رندلا جرعت<br>maro wabiga<br>河曲<br>uồn khúc sông |
| mouth      | The end of a river where it meets the sea, another river or a lake.             |  | wekopa'q<br><b>embouchure de la rivière</b><br>устье реки<br>la boca del río<br>Flussmündung   | nutecuwon<br>رندلا عيتم<br>afka wabiga<br>河口<br>cửa sông       |
| silt       | Dirt that moves in the water.   |  | epetkutqoyek<br><b>limon</b><br>ил<br>limo<br>Versanden  | tupqanpekiye<br>نيط<br>dillaacday<br>淤泥<br>phù sa              |
| source     | Where the river begins.   |  | wejitk<br><b>la source</b><br>источник<br>fuente<br>Ursprung   | maciyapekon<br>ردصم<br>isha<br>资源<br>nguồn                     |

| Word            | Definition                                      | Picture   | Additional Languages  |          |           |                 |        |        |        |           |    |            |         |
|-----------------|---|---|---|----------|-----------|-----------------|--------|--------|--------|-----------|----|------------|---------|
| stream          | A small river.                                  |  | <p>From Left to Right: Mi'kmaw, Wolastoqey, French, Arabic, Russian, Somali, Spanish, Chinese, German &amp; Vietnamese</p> <table border="1"> <tr> <td>sipu</td> <td>sipuhsis</td> </tr> <tr> <td><b>courant</b></td> <td>رايت</td> </tr> <tr> <td>поток</td> <td>durdur</td> </tr> <tr> <td>corriente</td> <td>流</td> </tr> <tr> <td>Strom</td> <td>suōi</td> </tr> </table> | sipu     | sipuhsis  | <b>courant</b>  | رايت   | поток  | durdur | corriente | 流  | Strom      | suōi    |
| sipu            | sipuhsis  |   |   |          |           |                 |        |        |        |           |    |            |         |
| <b>courant</b>  | رايت  |   |   |          |           |                 |        |        |        |           |    |            |         |
| поток           | durdur  |   |   |          |           |                 |        |        |        |           |    |            |         |
| corriente       | 流   |   |   |          |           |                 |        |        |        |           |    |            |         |
| Strom           | suōi  |   |   |          |           |                 |        |        |        |           |    |            |         |
| tributary       | A small river or stream that joins a big river. |  | <table border="1"> <tr> <td>piskuitk</td> <td>nutecuwon</td> </tr> <tr> <td><b>affluent</b></td> <td>دقارلا</td> </tr> <tr> <td>данник</td> <td>taliye</td> </tr> <tr> <td>afluente</td> <td>支流</td> </tr> <tr> <td>Nebenfluss</td> <td>phụ lưu</td> </tr> </table>   | piskuitk | nutecuwon | <b>affluent</b> | دقارلا | данник | taliye | afluente  | 支流 | Nebenfluss | phụ lưu |
| piskuitk        | nutecuwon                                       |   |   |          |           |                 |        |        |        |           |    |            |         |
| <b>affluent</b> | دقارلا  |   |   |          |           |                 |        |        |        |           |    |            |         |
| данник          | taliye  |   |   |          |           |                 |        |        |        |           |    |            |         |
| afluente        | 支流  |   |   |          |           |                 |        |        |        |           |    |            |         |
| Nebenfluss      | phụ lưu   |   |   |          |           |                 |        |        |        |           |    |            |         |

### Activity: River Roundup

Let's start by looking at the parts of a river as it moves from its source to its destination: a lake or ocean. Refresh your knowledge of rivers by watching this [video from MonkeySee on YouTube](#).

Bill Nye the Science Guy has a full episode on Rivers and Streams, and a [summary on his website](#). Check out the big ideas he shares about rivers.

Can you identify the parts of a river? Match the words to the right of the image with the number labels on the image. You may consult the glossary above.



- Tributary
- Mouth
- Confluence
- Floodplain
- Meander
- Source
- Delta
- Downstream

|   |  |
|---|--|
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |



## Why is rain not salty?



To see how your experiment imitates parts of the water cycle, watch this [similar experiment on YouTube](#).

### You will need:



### Steps:



### What do you see?

The sun will warm the water in the bowl. Look at the bowl each day for 3 days. Taste the water in the small bowl.



## Activity: A Water Cycle Experiment

Rivers are freshwater systems, whose main source of water is precipitation (rain and snow) from the atmosphere. Fresh water contains less salt than ocean water.

Refresh your knowledge of the water cycle by watching this video from [NASA](#).

Now, try to create your own water cycle by performing the experiment below.

## Activity: How deep? How wide?

The main stem of the Saint John River upstream of Edmundston averages 50m wide and 2m deep, and at Fredericton, the river's average width is 750m while its depth is 3m.

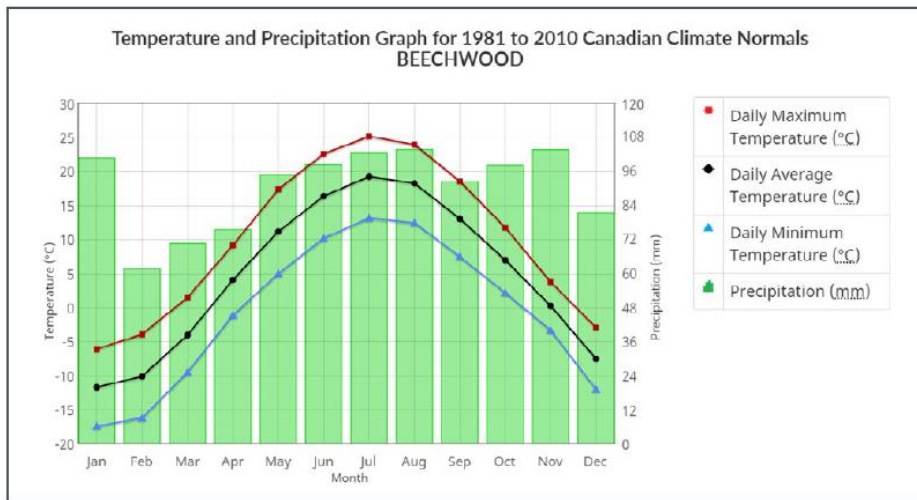
- Gr6-8
1. What is the difference in the average width of the Saint John River above Edmundston and at Fredericton?
  2. What is the difference in the average depth of the Saint John River above Edmundston and at Fredericton?
- Gr7-8
3. Give five possible widths of the Saint John River upstream of Edmundston, if the average is 50m wide.
  4. Give five possible depths of the Saint John River in Fredericton if the average depth of the river is 3m.
- Gr8
5. What is the percent increase in the width of the river from above Edmundston to Fredericton?
  6. What is the percent decrease in the depth of the river from Fredericton to above Edmundston?

### Helpful Hint

$$\text{Percent change} = \frac{(\text{Highest} - \text{Lowest})}{\text{Original}} \times 100$$

## Activity: How's the weather?

Examine the following graph of average monthly temperature (°C) and precipitation (mm) for a community in the Saint John River Basin. Answer the questions that follow.



Source: [Environment Canada](https://www.ec.gc.ca), Precipitation scale modified.

- Gr 6-8**
1. What month has the least amount of precipitation?
  2. What month has the greatest amount of precipitation?
  3. What is the difference in the greatest and least amount of precipitation?
  4. What month has the lowest average temperature?
  5. What month has the highest average temperature?
  6. What is the difference in the highest and lowest average temperature?
- Gr 7-8**
7. What is the range, mean, median and mode of the precipitation in Beechwood over the course of the year?
  8. What is the range, mean, median and mode of the average temperature in Beechwood over the course of the year?

- Gr 8**
- Environment Canada reports that winter 2020 was 1.4 degrees warmer than normal, but the snow depth at the end of February was above normal by about 20%.
9. Using the data above, calculate the actual winter temperature in 2020 (assuming that the overall winter months are Jan-March).
  10. Using the data above, calculate the average daily precipitation in February 2020.

## Helpful Hints

**Range:** Find the difference between the highest and lowest number.

**Mean:** Add the numbers and divide by the total number of numbers.

**Median:** List the numbers in increasing order. If the data set is an odd number, locate the number in the middle. If the data set is an even number, locate the two numbers in the middle and find their mean.

**Mode:** Find the number that occurs most often. (There can be more than one mode.)

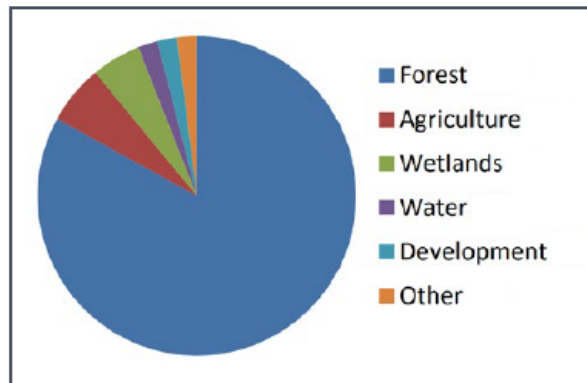


### Activity: Using the Land

Gr 6-8

1. Approximately what percent of the Saint John River Basin is dedicated to each of the land uses found in the chart below? Fill in the table with your estimates:

| Land use in the Saint John River Basin (NB) | % |
|---|---|
| Forest                                      |   |
| Agriculture                                 |   |
| Wetlands                                    |   |
| Water                                       |   |
| Development                                 |   |
| Other                                       |   |



Information from [UNB/Canadian Rivers Institute](#)

2. What types of land use could fit in the **Other** category?
3. Since **Forest** is the largest percentage of land use, what industries could this include?

### Activity: Going Fishing

Fishing licenses go on sale in New Brunswick in April. An adult fishing license costs \$26.45. There are 85 000 adults living in New Brunswick and approximately 30 000 of them will purchase fishing licenses this year. Estimate how much money this will generate for revenue for the province.

### Activity: Waterfalls in New Brunswick

New Brunswick's rivers and streams offer many hidden waterfalls to discover, as well as several well-known sites. A few are listed below. Examine the table and answer the questions that follow.

| Waterfall                              | Height in metres   | Height in feet |
|--|--|----------------|
| Third Vault Falls, Fundy National Park | 15.8m  | 52 feet        |
| Reversing Falls, Saint John            | 11m (from the underwater ledge to the water's surface at low tide) | 36 feet        |
| Grand Falls Gorge, Grand Falls         | 23m  | 75.5 feet      |
| Fuller Falls, Fundy National Park      | 14.6m  | 48 feet        |
| St. George Falls, St. George           | 20.7m  | 68 feet        |

Gr 6-8

1. Place the waterfalls of NB in increasing order. What is the highest waterfall in NB?
2. Is there another way we can represent the "height" of the Reversing Falls? (Hint: It is below sea level.)
3. If the Reversing Falls is 11m at low tide and the tide rises 8.5m, what is the total depth of the underwater ledge?

Gr 7-8

4. What is the range, mean, median and mode of the different heights of the five waterfalls? (See the "How's the weather?" activity for hints on calculating these values.)

Gr 8

5. What is the percent increase in the size of the St. George Falls and Third Vault Falls?

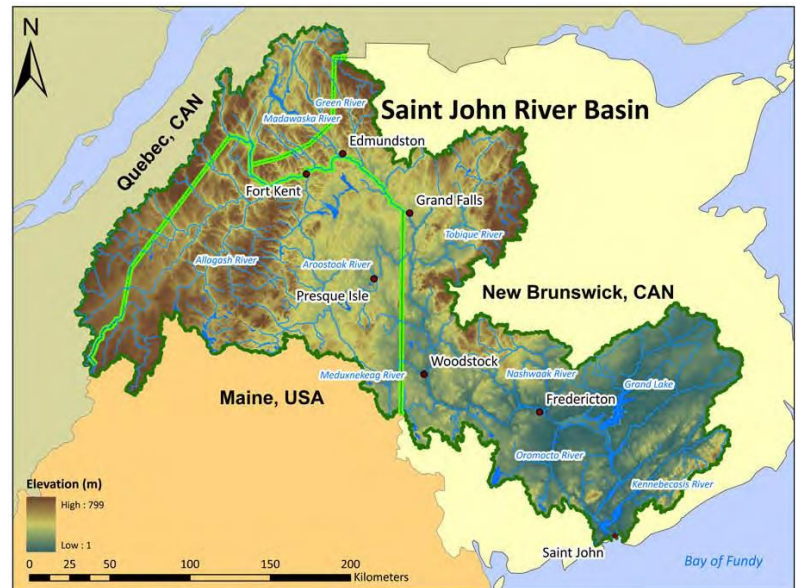
## Activity: Communities on the Saint John River

The Saint John River is the second longest river in northeastern North America, with a basin area of more than 55 000 square kilometres. It flows through a large area in Maine and a large area in New Brunswick, with many communities on its banks and nearby. Read more about the Saint John River from this [Canadian Rivers Institute \(UNB\)](#) resource. Pay particular attention to *Section 1.3: General Description of the Saint John River*, and *Figure 1.1: The Saint John River Basin* (found below the questions.) Then, answer the following questions:

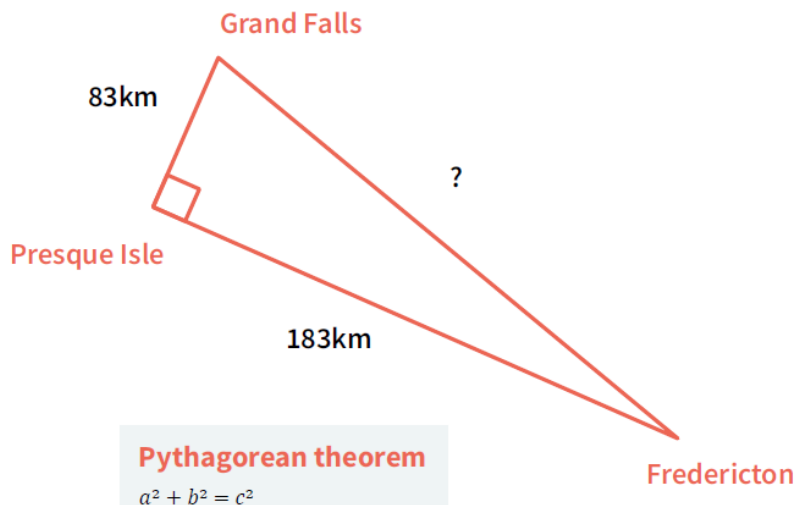
- Gr 6-8
1. What is the definition of lacustrine? (You may have to consult a dictionary or the internet.)
  2. Name the seven largest communities on the Saint John River Basin.
  3. Which of the seven communities is not in Canada?
  4. Name the two communities in the highest elevation for the Saint John River Basin.
  5. Estimate how many kilometers the province of New Brunswick is from north to south using the scale on the map in Figure 1.1.
  6. The green line on the map is the border between New Brunswick and Maine and Quebec. The province of New Brunswick is filled in with an ivory colour. Estimate the percentage of the Saint John River Basin that lies in the province of New Brunswick.

*Section 1.3 General Description of the Saint John River*  
After the Saint Lawrence River, the Saint John River is the longest river in northeastern North America and has a basin area of over 55,000 km<sup>2</sup>. It begins in northern Maine, travels northeast into northern New Brunswick, where it drains water from eastern Quebec, and then flows southeast through New Brunswick to the Bay of Fundy. Fifty-one percent of the Saint John River Basin is in New Brunswick, 36 percent is in Maine, and the remaining 13 percent is in Quebec (SJRBB 1975; Cunjak and Newbury 2005). Along its course it is fed by many significant tributaries, which include, beginning in the north, the Allagash River (Maine), Madawaska River (Quebec, NB), Green River (NB), Aroostook River (Maine, NB), Tobique River (NB), Meduxnekeag River (Maine, NB), and Nashwaak, Oromocto, and Kennebecasis Rivers (NB). The lower reaches also include major lacustrine sections; Grand Lake, Washademoak Lake, Belleisle Bay, Long Reach, and Kennebecasis Bay. The major population centres on the river in New Brunswick are Edmundston, Fredericton, and Saint John; in Maine, Fort Kent and Presque Isle; and in Quebec, Cabano.

Figure 1.1 The Saint John River Basin.



- Gr 8
7. Using the driving distances shown in the diagram below, how far is it from Grand Falls to Fredericton?



## Activity: Flooding and Contaminated Well Water

Following the spring flood of 2019, homeowners who rely on well water in flooded areas were directed to chlorinate their wells. Chlorination is the process of flushing your well and water system with a chlorine solution to kill harmful microorganisms. The table below lists the recommended volumes of chlorine solution for wells of various sizes.

| Well Depth (ft) | Vol. of Chlorine Solution (litres) per Diameter of Well |        |        |
|-----------------|---|--------|--------|
|                 | 4 inch  | 5 inch | 6 inch |
| less than 50    | 1   | 2      | 3.5    |
| 50-100          | 2   | 4      | 7      |
| 101-150         | 3.5   | 7      | 10     |
| 151-200         | 4.5   | 9      | 13.5   |
| 201-250         | 5.5   | 11     | 17     |
| 251-300         | 7   | 13.5   | 20.5   |
| 301-350         | 8   | 16     | 24     |
| 351-400         | 9   | 18     | 27     |

Gr 6-8 1. If your well is 225 feet deep with a diameter of 5 inches, how many litres of chlorine solution will you need?

2. How deep does your (5-inch) well have to be for the recommended volume of chlorine solution to be a multiple of the recommended volume for the 4-inch diameter well?

Source: [Government of New Brunswick](#)

Gr 7-8 3. If the diameter of your well is 6 inches, what is the circumference of the well?  
4. What is the mode of litres of chlorine solution used for all three diameters of the well?

$$c = \pi d$$

Gr 8 5. Which well has a greater surface area? Calculate your answer.

A well with a 6-inch diameter and 145 feet deep.

OR

A well with a 4-inch diameter and 225 feet deep.

6. What is the volume of a 333-foot well with a 5-inch diameter?

(Let's assume the well has a base and a cap.)

$$A = b \times h$$

$$V = \pi r^2 \times h$$

$$V = 3.14 \times r^2 \times h$$

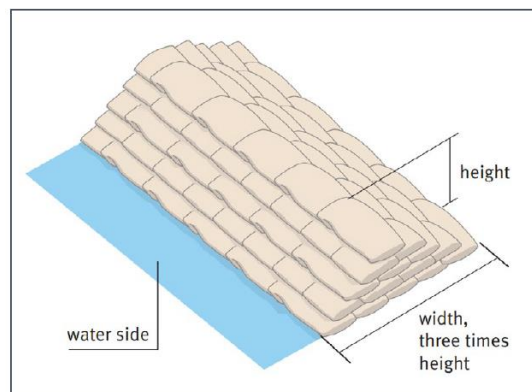
## Activity: Sandbag Math

When floods threaten built structures, people often turn to sandbags and plastic sheeting to help keep the water out. Answer the questions below to find out how much work and material this requires.

Gr 6-8 1. If it takes 2 people to fill 12 bags in 1 hour, how many bags will they fill in 6 hours?  
2. If 1 person can fill 8 bags in 1 hour, how many hours will it take to fill 44 bags?  
3. According to the pros, you will need 6 sandbags to keep out 20cm depth of water for a standard door opening (80cm). Each sandbag will need approximately 15kg of sand.  
a. Use a referent to show/explain how deep 20cm of water is.  
b. How many kg of sand will you need to protect 2 doors?  
c. A cubic metre of sand contains about 1600kg. How many bags will this fill?

Gr 8 4. To create sandbag protection that is more than 3 layers high you will need to build in a pyramid style. For the structure to be stable, you should build the sandbag wall 3 times as wide as you need it to be high. One sandbag measures 25cm wide x 52cm long x 10cm tall when filled.

If the sandbag wall is built to protect a garage door that measures 244cm and the height of the wall must be at least 50cm, what is the minimum number of sandbags you will need? (Remember: You cannot use part of a bag.)



[Sandbags and how to use them properly for flood protection](#), Environmental Agency, United Kingdom, 2009.

### Activity: Mapping Wabanaki Canoe Routes

The Wolastoqiyik (Maliseet) are the First Nations people who lived all along the Wolastoq (Saint John) River in New Brunswick and Maine, and the St. Lawrence River in Quebec. The word Wolastoqiyik means “people of the beautiful river” in their language. Rivers have played an important role in Wolastoqiyik culture and way of life. One of the many important roles is transportation. Take a look at the CBC article, [Mapping the Wabanaki Canoe Routes of Yesteryear](#), to learn how hundreds of rivers, creeks, and streams made up the highways used for centuries by First Nations communities for trade and travel using birch-bark canoes.

1. Find out how UNB researcher Chris Shaw uses 21st century technologies to learn more about how First Nations interacted with these waterways. How did the seasons affect travel for Wabanaki peoples?
2. Discover why artist Shane Perley-Dutcher believes it’s important to discover more about the river’s impact on culture, community, and daily life. What can we learn about Wabanaki peoples by studying New Brunswick’s rivers?
3. Rivers continue to play an important role in our society and influence our culture and way of life. Transportation is only one of the many ways rivers are used by past and present people. Can you think of some more?

| Aspect of culture and practice | Observations on the role of rivers                         |
|--------------------------------|--|
| Travel                         | Canoes, boats, ships<br>Transport cargo to other locations |
| Economy                        |  |
| Recreation                     |  |
| Food                           |  |
| Art                            |  |
| Other                          |  |
| Other                          |  |

### Activity: Diversity of Life - Atlantic Salmon

Atlantic salmon lead a remarkable life! Read about the lifecycle of Atlantic salmon in these resources from the Atlantic Salmon Federation and the Canadian Department of Fisheries and Oceans. Then, answer the following questions. You might need to consult a dictionary or online resource.

1. Define “living things.” What distinguishes living things from nonliving things?
2. Make a list of at least 15 biotic (living) things that exist in our rivers in NB. How many abiotic (nonliving) things can you list? Which list was easier to create?
3. Define “vertebrate” and “invertebrate.” Which category do you belong in? Why? Which category does the Atlantic salmon belong in? Why?
4. Imagine that a human being lived a lifecycle similar to that of an Atlantic salmon. Think about the long-distance travel, the physical changes, the needs, and the dangers that salmon face from the time they hatch to the time they spawn. If the salmon were a thinking, speaking character, wouldn’t it make a thrilling movie or novel? Write a journal, short story, or news article that tells the story of a person facing the kind of challenges and adventures that salmon do in their lifetime. Or, tell the story from a salmon’s point of view.

## Activité : Une nouvelle – Les inondations au Nouveau-Brunswick

Chaque année les rivières et les lacs du Nouveau Brunswick débordent les communautés. Parfois il y a les conséquences extrêmes pour les résidents, les commerces, et les infrastructures. Regardez comment la pluie peut causer des inondations avec [ce diagramme du siteweb 1jour1actu](#).

Vous allez imaginer que vous êtes journaliste et écrire une nouvelle avec le thème des inondations au Nouveau-Brunswick (spécifique a votre région, si possible). Vous pouvez inclure les prédictions pour les niveaux de la mer, les conditions météorologiques, des craintes des résidents, et les restrictions municipales.

Présentation : Vous pouvez communiquer votre nouvelle comme article écrit ou vous pouvez enregistrer la nouvelle comme journaliste a la télévision. Partagez-le avec votre famille ou vos amis.

## Activité : Active-Toi

Visionnez le vidéo : [Active-Toi, Saison 1 Épisode 20, Lacs et Rivières](#) (Idello).

Dans le vidéo, trois jeunes découvrent que les lacs et rivières du Canada sont en péril. Il est, la plupart du temps, impossible de se baigner près des grands centres et encore moins d'en boire l'eau. Les jeunes font une analyse d'eau en ville et découvrent la présence de coliformes néfastes pour la sante.

Leur enquête les amené a constater que la situation n'est pas plus rose dans bien des régions rurales, que l'urbanisation menace les écosystèmes qui aident a garder les cours d'eau propres et que les cyanobactéries tuent nos lacs a petit feu. Pour renverser la vapeur, nos trois jeunes patrouillent un lac et informent les plaisanciers des mesures a prendre pour protéger leur lac. Ils fabriquent des savons écologiques, font signer une pétition pour sauver de magnifiques milieux humides grouillant de vie et plantent des arbustes sur le bord de l'eau pour protéger un lac.

Questions à compléter et discuter avec vos familles :

- Pouvez-vous dire comment les plantes comme les arbustes et les arbres aident a prévenir ou a réduire la croissance des algues bleu-vert dans nos lacs et rivières?
- De quelle autre manière pouvons-nous contribuer a réduire la croissance des algues bleu-vert dans nos systèmes d'eau?
- Pensez-vous que les gens utiliseront le nettoyant pour des vitres et le nettoyant tout usage? Pourquoi ou pourquoi pas? Donne deux raisons.
- Fais un ou les deux produits de nettoyage de la vidéo et essaie-les a la maison. Comment se comparent-ils aux produits que ta famille utilise déjà? Utiliserais-tu ces produits? Pourquoi ou pourquoi pas? Donne deux raisons.

## Activity ANSWER KEYS

### *River Roundup – Parts of a River*

1. Source
2. Tributary
3. Confluence
4. Meander
5. Floodplain
6. Downstream
7. Delta
8. Mouth

### *How Deep? How Wide?*

1. Width: 700m difference
2. Depth: 1m difference
3. Answers may vary but the easiest would be 52, 52, 50, 49, 48
4. Answers may vary but the easiest would be 5, 4, 3, 2, 1
5. 1400% increase in the width
6. 33% increase in the depth

### *Using the Land*

1. Answers may vary slightly:  
Forest 85%, Agriculture 5%  
Wetlands 4%, Water 2%  
Development 2%, Other 2%
2. Answers will vary. e.g., Desert - land that cannot grow food, people cannot occupy, water is scarce.
3. Answers will vary. e.g., Lumber, sawmills, pulp and paper, newsprint,



### How's the Weather?

#### Going Fishing

1. \$793 500.00

1. February
2. November
3. 43mm
4. January
5. July
6. 31 degrees difference
7. Using the data below, in mm (your answers may vary slightly)

| Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|
| 105 | 62  | 70  | 76  | 95  | 98   | 102  | 103 | 93   | 98  | 104 | 81  |

Range: 43mm  
Mean: 90.6mm  
Median: 96.5mm  
Mode: 98mm

8. Using the data below, in degrees Celsius (your answers may vary slightly)

| Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|
| -12 | -10 | -4  | 4   | 11  | 16   | 19   | 18  | 14   | 7   | 0   | -3  |

Range: 31°C  
Mean: 5°C  
Median: 5.5°C  
Mode: none

9. -7.3°C (using the above data for Jan, Feb, March)
10. 74.4mm (using the above data for Feb)

### Waterfalls in New Brunswick

1. Reversing Falls, Fuller Falls, Third Vault Falls, St. George Falls, Grand Falls Gorge
2. -11m or -36 feet
3. 19.5m
4. Range: 12m or 39.5 feet  
Mean: 17.02m or 55.9 feet  
Median: 15.8m or 52 feet  
Mode: none
5. 24%

### Communities on the Saint John River

1. Lacustrine means relating to or associated with lakes
2. Fort Kent, Edmundston, Grand Falls, Presque Isle, Woodstock, Fredericton, Saint John
3. Presque Isle
4. Fort Kent, Edmundston
5. Approximately 300km
6. Approximately 40-50%
7. It is 200.9km

### Flooding and Contaminated Well Water

1. 11 litres of chlorine solution
2. The first is 151-200 – 4.5, 9. 13.5  
Second is 310-350 – 8, 16, 24  
Third is 351-400 – 9, 18, 27
3. 18.84 inches
4. The mode is 7
5. The second well: a well with a 4-inch diameter and 225 feet deep
6.  $V = 6535.125 \text{ in}^3$

### Sandbag Math

1. 72 bags
2. 5.5 hours
3. a. Answers will vary. About the width of a sheet of paper, a stair tread, a step, elbow to wrist  
b. 180kg of sand  
c. 106 sandbags
4. Wall height: 50cm. Wall width: 150cm. Garage needs 5 sandbags for length and 6 rows wide at base. Therefore you will need 105 sandbags.

## Social Studies

### Global Water Crisis

Watch the video “Water Changes Everything” and answer the following questions. To make it more interesting, **make a poster or create a 30 second infomercial** explaining your answers!

Video:

[www.youtube.com/watch?v=VieZ3hqztIE&feature=c4-overview-vl&list=PLtaayxEPf2h4zsZsX6yBdQsaRi9Gr0bGR](http://www.youtube.com/watch?v=VieZ3hqztIE&feature=c4-overview-vl&list=PLtaayxEPf2h4zsZsX6yBdQsaRi9Gr0bGR)

Questions:

- Approximately how many people live without clean drinking water?
- Where is the water crisis occurring?
- What are some examples of things that women and children miss out on by spending time gathering water?
- What are solutions to the water crisis?

### AMANZI: Water Simulation Game

This simulation game will give you a sense of what life is like when one’s access to clean water is limited and under threat. In this game, you (each group) are each a family living in South Africa. The country experiences periodic droughts and flooding. It’s a country with a history of apartheid, human rights abuses and disparity between rich and poor.

#### 1. Setting the stage

- You can see from the map of the area you live in, that there are three distinct regions: *Watopia*, *Flowdia* and *Desertia*. A river runs through this region.
- *Watopia* is on the north side of the river. This is the most fertile land since it is a river valley. *Flowdia* is located several kilometers south of the river. *Desertia* is far from the river in a mountainous and dry area. Many poor people have built their homes here.
- Just recently, the government completed construction on a public well for your community. It is just north of the river, near the families of *Watopia*.

#### 2. Rules

- The object of the game is to have the most tokens by the end of the last round. The game lasts 5 rounds. In each round, your family must do three things: (1) Get Water, (2) Pick an event card, (3) Record the event and # of tokens.
- The cost of water is based on where you live:
  - *Watopia* – 1 token
  - *Flowdia* – 2 tokens
  - *Desertia* – If you take the long, safe route = 4 tokens
  - If you take the short, risky route = 2 tokens (lucky) or 6 tokens (unlucky)
  - If you take the risky route, you must pick a Risk card as well.
- Each family needs a recorder, banker, water carrier and event picker
- Each family begins with 25 tokens

#### 3. Action

Round 1

When all the families have finished their three tasks and banker has collected tokens, ring bell and record scores on visible chart. (repeat after every round)

**BUSH RADIO Announces NEWS BULLETIN #1**

News just in that a multi-national soft drink company will begin operation of its bottling water plant just down the road. They chose our area, because it is cheaper to operate here than in North America. They are draining water from our groundwater. The water in the well is at record low levels. Each family loses 3 tokens.

Round 2 – Play and record.

Round 3 – Play and record

**BUSH RADIO announces NEWS BULLETIN #2**

We've just received word that an international water corporation, received a contract from our government to set up a privately owned water system. They've promised safe drinking water to all our houses. This is a huge relief for our government, and for us – no more walking to the well. Now, the corporation will build pipes to all the houses. You will save the time that you spent collecting water and your kids can go to school again. Each family gets 3 tokens. (And you don't need to go to the well this round)

(Facilitator) In addition, top third of the families, get to draw event cards from deck 2 now.

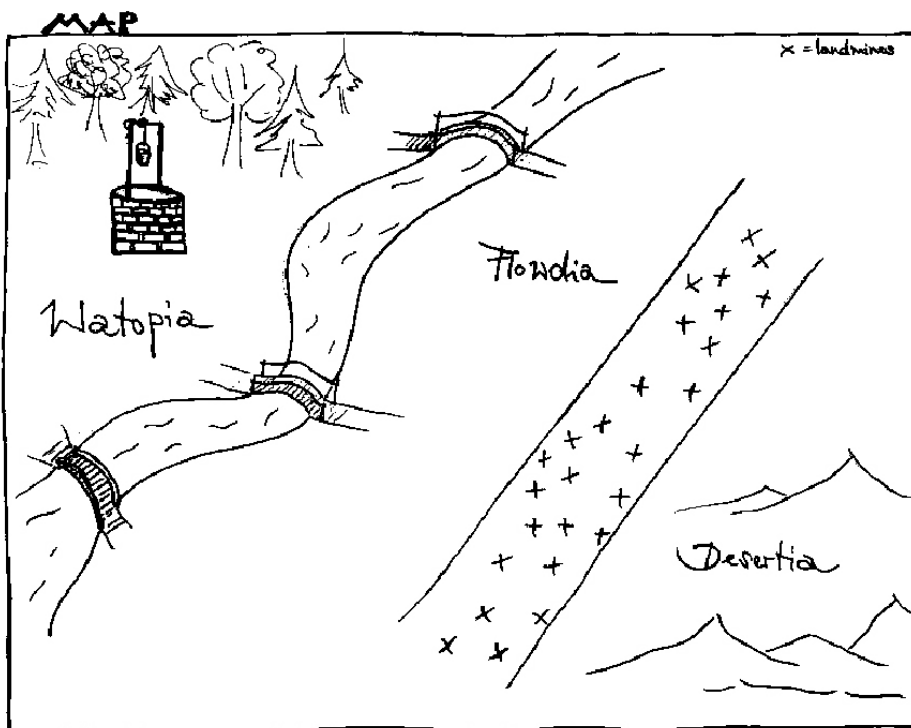
Round 4 – Play and record.

**BUSH RADIO announces NEWS BULLETIN #3**

The company contracted to supply water has just decided to charge exorbitant rates for the water to our homes. The top third of the families can afford it. They get 8 tokens. The bottom two-thirds of the families can't afford to pay their water bill and are locked out. The bottom two-thirds must now depend on well water again. Getting water from the well has become illegal since privatization under penalty of jail time. Lose 3 tokens.

Round 5 – Play and record.

**4. Game Pages**



Photocopy one for each family. Cut up and put in envelopes for families.  
For smaller families, just use top four roles.

**Role descriptions:**

You are the Recorder. Each round you record the events that happen to your family and the amount of tokens you have on your family card.

You are the Banker. You are in charge of the tokens.

You are a water carrier. You take turns going to the well to get water. Use water tokens to get water.

You pick the event cards. You take turns picking the event card for your family and reporting back.

You are a water carrier. You take turns going to the well to get water. Use water tokens to get water.

You pick the event cards. You take turns picking the event card for your family and reporting back.

NAME: Your family's name is \_\_\_\_\_

LOCATION: You live in Desertia. Desertia is far from the river in a mountainous and dry area. An absentee landlord who has decided not to farm here because of the poor soil owns most of the land in Desertia. Many poor people have built their homes here. Each day you worry if the landlord will come and kick you off his land. Separating Flowdia from Desertia is an abandoned field littered with landmines from an earlier conflict.

INCOME: You live on less than \$1 a day.

**ACCESS TO WATER:**

It takes 6 hours to fetch water at the new well. There is a shortcut though. The shortest path to the well leads through a field that contains land mines. This route saves time and is less tiring, but risky. Decide what you want to do.

If you take the short route, you will have to pick a RISK card at the well.

If you are lucky, you pay 2 tokens. If you are unlucky and are injured, you pay 6 tokens.

If you take the longer route, you pay 4 tokens.

**GAME INSTRUCTIONS for each round:**

Get water – water carriers take turns

Pick an event card – event pickers take turns, pick card and report back

Record what happened – recorder records event that happened and number of tokens

|   | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 |
|---|---------|---------|---------|---------|---------|
| # of tokens after each round                |         |         |         |         |         |
| Events happened to your family (point form) |         |         |         |         |         |

NAME: Your family's name is \_\_\_\_\_

LOCATION: You live in Flowdia. Flowdia is located several kilometres south of the river. It is between Desertia and Watopia.

INCOME: You live on less than \$1 a day.

**ACCESS TO WATER:**

You can cross the river at three points to get to the new well. It takes 3 hours to get water. You pay 2 tokens.

**GAME INSTRUCTIONS for each round:**

Get water – water carriers take turns

Pick an event card – event pickers take turns, pick card and report back

Record what happened – recorder records event that happened and number of tokens

|   | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 |
|---|---------|---------|---------|---------|---------|
| # of tokens after each round                |         |         |         |         |         |
| Events happened to your family (point form) |         |         |         |         |         |

NAME: Your family's name is \_\_\_\_\_

LOCATION: You live in Watopia. Watopia is on the north side of the river. This is the most fertile land since it is a river valley.

INCOME: You live on less than \$1 a day.

**ACCESS TO WATER:**

You can get clean water at the new well, which is only 10 minutes away. This is a huge improvement from depending on the river. You pay 1 token for water.

**GAME INSTRUCTIONS for each round:**

Get water – water carriers take turns

Pick an event card – event pickers take turns, pick card and report back

Record what happened – recorder records event that happened and number of tokens

|   | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 |
|---|---------|---------|---------|---------|---------|
| # of tokens after each round                |         |         |         |         |         |
| Events happened to your family (point form) |         |         |         |         |         |



Event cards – deck 1

|   |  |  |   |
|---|--|--|---|
| <p>Further up the river, a dam was built in order to provide rich people in the capital city with electricity. The water level is lower in the river. People are now using more well water. Pay 2 tokens.</p> | <p>A factory in a nearby city is polluting the river. The fish from the river are no longer safe to eat. Pay 3 tokens.</p>   | <p>There is a drought this summer and it just doesn't rain. Lose 4 tokens.</p>   | <p>There was a flood when the first rain started after a long period of dryness. Your small garden is flooded and the food that you are growing has gone bad. Lose 3 tokens.</p>  |
| <p>Your children are sick because they drank unsafe water. Lose 2 tokens</p>  | <p>There is a cholera outbreak in your village, and many people are dying. Your child is sick. If you can pay 10 tokens, a doctor can see your child. If not, your child is going to die.</p>  | <p>Your mother is feeling sick, so you and your siblings have to walk to collect the water for your family. You miss school. Lose 4 tokens.</p>  | <p>It's harvest season and you have to help your father in the coffee fields. You will miss school for 3 weeks. Lose 2 tokens.</p>  |
| <p>Your grandmother died. Now you have to look after your smaller siblings while your mom collects water. You have to stay home from school in the mornings. Lose 1 token.</p>                                | <p>Your back is sore because of carrying the water. Lose 2 tokens</p>  | <p>You join a women's group that is working for water tanks close to your home. A tank would save you time for collecting the water and will provide you with enough water for bathing, drinking and cleaning. Get 3 tokens.</p> | <p>You lost your job on a farm, because there was no water and the production had to be stopped. Lose 3 tokens.</p>   |
| <p>Even though your family has some land to grow food, this year you can't harvest enough to get you through winter, because there wasn't enough water to take care of the land. Lose 2 tokens.</p>           | <p>Your husband leaves you to go to the city where he is hoping to find a job. Now you are alone with your children and need to manage everything by yourself. You have just enough time to look after the kids and get water, but you can't afford to buy much food. Lose 2 tokens.</p> | <p>A thief attacked you on the way to the well. Lose 2 tokens.</p>   | <p>You learn how to collect rainwater from one of your neighbours. If you live in Flowdia or Desertia, you get 1 token because now you don't have to get as much water from the well. If your family lives in Watopia, it doesn't really matter since the well is so close.</p> |

### Event cards – deck 2

|  |  |
|--|--|
| You participate in a training on sustainable consumption and saving of water. Get 2 tokens.  | You participate in a training on sustainable farming which requires less water. Get 3 token.   |
| You participate in a class on health issues related to water which helps you to avoid drinking unsafe water to prevent getting sick. Get 2 tokens. | If you pay 4 tokens, you can buy a piece of land and grow your own food. This will enable you to independently feed your family. However, your crops require water which means there is less for others. Collect 2 tokens from each of the other families because there will be even less water available to them. |
| You participate in a training on sustainable consumption and saving of water. Get 2 tokens.  | You participate in a training on sustainable farming which requires less water. Get 3 tokens.  |

### Risk cards

|  |  |
|--|--|
| You are lucky, you made your way safely through the field. Pay 2 tokens for your water.  | You got badly injured when a land mine exploded close to where you were walking. You are lucky though you could have been killed. Pay 6 tokens for your water. |
| You are lucky, you made your way safely through the field. Pay 2 tokens for your water.  | You got badly injured when a land mine exploded close to where you were walking. You are lucky though you could have been killed. Pay 6 tokens for your water. |
| You got badly injured when a land mine exploded close to where you were walking. You are lucky though you could have been killed. Pay 6 tokens for your water. | You got badly injured when a land mine exploded close to where you were walking. You are lucky though you could have been killed. Pay 6 tokens for your water. |

### Other Activities/Links

**Khan Academy** <https://www.khanacademy.org/>, also in FRENCH <https://fr.khanacademy.org/>

(This is an excellent resource for mathematics, as well as higher level sciences. It includes free expert- created lessons with quizzes that have a 'game' format where you can earn points.)

**Interested in science?** Check out <https://www.nasa.gov/nasa-at-home-for-kids-and-families>

Check out the **Florenceville Middle Home and School Facebook page** for weekly challenges to get our Falcons interacting! Also, find daily science, technology, engineering and math challenges at the **Brilliant Labs Facebook Page**

**FREE book in English and French, both e-book and audiobooks!** Go to <https://Soraapp.com>, type **NB** in the "find my school" field, then select "New Brunswick Department of Education and Childhood Development." Use your school username and password to sign in!

