

Group 1: Rural Community

You are residents of Seusse, a small town (population 500) located three hours from the city of Katinthehat (population 50, 000). The drinking water is taken from the Greanegznhamm River. The river passes through the city before it gets to your town.

The water sample you have was taken from the river before it was treated by the town's water treatment facility. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Add 2 tablespoons of bleach to the water sample and stir. Measure the TDS and pH of the sample and record the numbers in the chart below.

Step 4: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 5: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

1. Was your water filter effective in removing pollution?
2. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
3. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?

Group 2: Urban Community

You are residents of the city of Katinthehat (population 50, 000). The drinking water is taken from the Greanegznhamm River. The river comes from the mountains located outside the city limits.

The water sample you have was taken from the river before it was treated by the city's water treatment facility. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one cup of fine sand
- One cup of coarse sand
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Carefully pour in one cup of fine sand

Step 4: Carefully one cup of coarse sand

Step 5: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Add 2 tablespoons of bleach to the water sample and stir. Measure the TDS and pH of the sample and record the numbers in the chart below.

Step 4: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the

filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 5: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

4. Was your water filter effective in removing pollution?
5. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
6. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?

Group 3: Urban Community

You are residents of the city of Shreksburg (population 500, 000). The drinking water is taken from the Lake Itchyscrachy. The lake is used by the city, cottage owners and is very popular with campers.

The water sample you have was taken from the lake before it was treated by the city's water treatment facility. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one cup of fine sand
- one cup of coarse sand
- one cup of fine gravel
- one cup of coarse gravel
- one cup of activated carbon
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Carefully pour in one cup of activated carbon

Step 4: Carefully pour in one cup of fine sand

Step 5: Carefully one cup of coarse sand

Step 6: Carefully pour in one cup of fine gravel

Step 7: Carefully pour in one cup of coarse gravel

Step 8: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Add 2 tablespoons of bleach to the water sample and stir. Measure the TDS and pH of the sample and record the numbers in the chart below.

Step 4: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 5: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

7. Was your water filter effective in removing pollution?
8. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
9. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?

Group 4: Homeowners

You are residents of the city of Shreksburg (population 500, 000). The drinking water is taken from the Lake Itchyscrachy. The lake is used by the city, cottage owners and is very popular with campers. You are concerned that the city is not doing enough to treat the drinking water so you use a home water filter for all drinking and cooking water.

The water sample you have was taken from the lake after it was treated by the city's water treatment facility. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one cup of activated carbon
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Carefully pour in one cup of activated carbon

Step 4: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 4: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

10. Was your water filter effective in removing pollution?
11. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
12. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?

Group 5: Aboriginal Community

You are residents of the Aboriginal community Watermocassin (population 300) located outside city of Shreksburg (population 500, 000). The drinking water for the city is taken from the Lake Itchyscrachy. The drinking water for your community is taken from the Charming river. The river receives water from the lake and the city dumps their treated wastewater into the river. However, not all cottage owners use septic tanks, some dump their wastewater right into the lake.

The water sample you have was taken from the river before it was treated by the city's wastewater treatment facility. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one cup of fine sand
- one cup of coarse sand
- one cup of fine gravel
- one cup of coarse gravel
- one cup of activated carbon
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Carefully pour in one cup of activated carbon

Step 4: Carefully pour in one cup of fine sand

Step 5: Carefully one cup of coarse sand

Step 6: Carefully pour in one cup of fine gravel

Step 7: Carefully pour in one cup of coarse gravel

Step 8: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Add 2 tablespoons of bleach to the water sample and stir. Measure the TDS and pH of the sample and record the numbers in the chart below.

Step 4: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 5: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

13. Was your water filter effective in removing pollution?
14. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
15. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?

Group 6: Classroom Community

You represent your class. Your water source is the tap water of the school.

The water sample you have was taken from the school after it was polluted by your group. Your group must gather the materials for the filter, build the filter, filter the water and then present the filtered water to the rest of the class. Before you begin gathering the materials COPY THE CHART from the board on to a separate sheet of paper. Make sure to write down the members of your group!

Gather the materials listed below.

- one 2L pop bottle
- one piece of cotton batting or one cotton ball
- one piece of cheese cloth or one coffee filter
- one cup of fine sand
- one cup of coarse sand
- one cup of fine gravel
- one cup of coarse gravel
- one cup of activated carbon
- one rubber band
- one plastic cup

Building the Water Filter

Step 1: Stick the cotton batting into the neck of the water bottle.

Step 2: Place the cheese cloth on the outside of the bottle neck and secure it with a rubber band.

Step 3: Carefully pour in one cup of activated carbon

Step 4: Carefully pour in one cup of fine sand

Step 5: Carefully one cup of coarse sand

Step 6: Carefully pour in one cup of fine gravel

Step 7: Carefully pour in one cup of coarse gravel

Step 8: Place the clear plastic cup underneath the water filter.

Filtering the Water

Step 1: Observe and record the types of pollutants you see in the sample in the chart below.

Step 2: Before pouring the water through the filter, measure the TDS and pH of the sample and record the numbers in the chart below.

Step 3: Add 2 tablespoons of bleach to the water sample and stir. Measure the TDS and pH of the sample and record the numbers in the chart below.

Step 4: Place the clear plastic cup underneath the water filter and begin slowly and carefully pouring the water into the water filter. You might want to have one of the group members hold the water filter and another group member hold the plastic cup underneath the water filter. DO NOT pour all the water into the filter. Save half of the water sample so that you can see how the filter works by comparing the filtered water to the unfiltered water.

Step 5: Measure the TDS and pH of the filtered water and record the numbers in the chart below. Save the water in the cup and prepare to present your water sample to the class.

Presenting the Sample:

Show the class the water sample before filtering. Describe the pollutants you see in the sample as well as the TDS and pH numbers (are they higher than normal? Remember normal TDS is 500 ppm and normal pH is around 7). Then show the filtered sample. Describe any pollutants remaining in the water as well as the TDS and pH.

Answer the following questions by copying them onto the sheet of paper with the chart:

16. Was your water filter effective in removing pollution?
17. What would you have added to the filter to improve the quality of water coming out? Explain the reasons for adding or not adding anything to the filter.
18. Communities across Canada drink water treated this way everyday. Do you think it is safe to drink? What should those communities do to improve their drinking water?