



Beaver Scouts Meeting Schedule

Theme: World Scout Environment Programme – Clean Water

Objective: Introduce Beaver Scouts to the significance of water in our world. Using games and activities, Beaver Scouts will learn about various sources of water pollution and potential environmental implications. They will also learn ways to help reduce water pollution.

Time	Activity	Program Details	Leader Responsible
10 mins	Gathering Activity	Water Cycle Game	
5 mins	Opening Ceremony		
10 mins	Theme Activity	Dilution: A Pollution Solution?	
30 mins	Theme Activities	Taste Test Waterfowl and Oil Edible Aquifer	
10 mins	Lodge Meeting		
5 mins	Spiritual Fellowship		
5 mins	Closing Ceremony		
15 mins	Leader Discussion Time		

Optional Activities:

Crossword Puzzle

Meeting Notes: _____

Beaver Scout Meeting – Detail Planning

Introduction

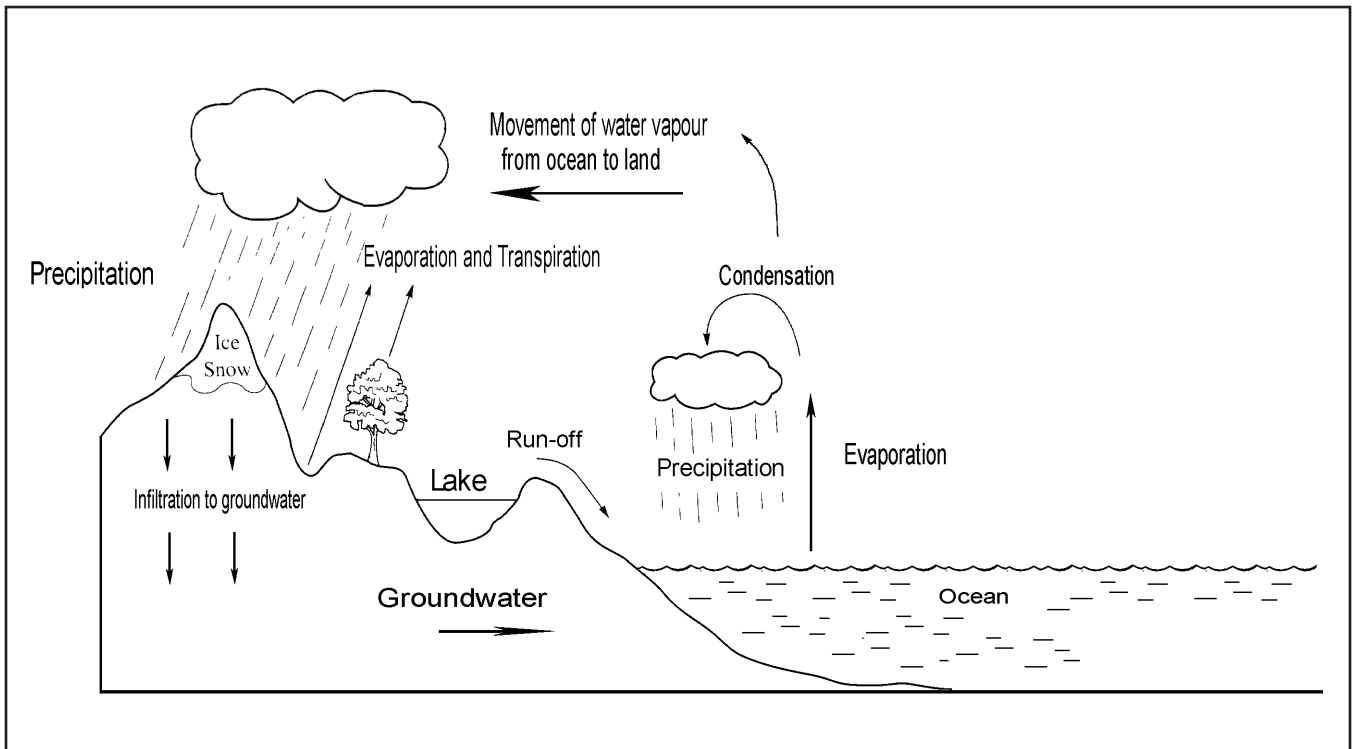
Water is very important to our world. Life on Earth would not exist without water, people use water for many things in our everyday lives. We need water to drink and to cook our food, but also to have baths or showers, flush the toilets, wash our clothes, clean our houses, and grow fruits, vegetables, trees, and flowers. We use water for many things that we do not even think about. For example, it takes between 2000 to 6000 litres of water to produce a pair of jeans!

Although we have a lot of water on Earth, only 3 percent of the water that we have on Earth is fresh water. Humans cannot drink salt water, which means that we cannot easily use the water in the oceans, unless we desalinate it (that means to take the salt out).

The water cycle is a closed cycle. That means we cannot make or add new water to the cycle if we need more. The water that we have on Earth is all of the water that we will ever have, and we need to protect that water. Did you know that the water you drink today might be the same water that a dinosaur drank? Or the same water that you used to take a bath in last year? It's true! Water is continuously traveling through the water cycle, in one of the five stages:

- **Precipitation:** Water falls to the ground as snow, rain, sleet, or hail.
- **Evaporation and Transpiration:** As water in lakes and rivers become heated by the sun, it transforms into water vapour in the air. Trees and plants also give off water vapour from their leaves through transpiration
- **Condensation:** Water vapour rises and collects in the sky as clouds. Condensation happens when the water vapour cools and turns back into liquid water and falls as precipitation.

And the water cycle begins again!



Gathering Activity

Rain Drop: a Water Cycle Game with Rock, Paper, Scissors

Objective:

Create understanding of the stages of the water cycle.

Background Information:

Water is an important part of our world. The water cycle is a closed cycle, with all of the water in the world involved in one stage of the cycle at all times.

Equipment:

- Large, defined playing space.
- A whiteboard, chalkboard, or flip chart to draw a rudimentary water cycle on as an example.

Instructions:

- Explain the water cycle, as laid out in the introduction. Review the rules of “Rock, Paper, Scissors.”

- All Beaver Scouts begin as a “Precipitation” or “Rain Drop.” When they meet another “Rain Drop,” they play rock, paper, scissors. Whichever Beaver Scout wins gets to advance to the next stage, which is “Evaporation.” Then they must run around and try to find another “Evaporation” and play rock, paper, scissors again. If they win that round, they get to advance to the final stage, which is “Condensation.” Once again, they try to find another “Condensation” and play “Rock, Paper, Scissors.” If they win that round, they get to back and become a “Rain Drop” again. Beaver Scouts should try to get through the water cycle as many times as possible in the time allotted.

Rain Drop/Precipitation: Beaver Scouts wiggle their fingers while moving their hands in a downward motion, mimicking the falling of rain.

Evaporation: Beaver Scouts wave their hands from side to side in an upwards motion, mimicking the rising of water vapour into the sky.

Condensation: Children put their hands wide and rounded above their heads, moving slowly from side to side, to mimic a heavy rain cloud gathering water vapour.

Theme Activity

Dilution: A Pollution Solution?

Objective:

Introduce Beaver Scouts to the concept of water pollution. Discuss sources of water pollution and ways that pollution can be avoided and/or fixed. Is dilution a good solution to water pollution? Does it solve the problem?

Background Information:

Water pollution can be difficult to deal with. Lakes have many sources of water, such as runoff, groundwater, and rainfall or precipitation. The “new” water that enters a lake will gradually replace all of the existing water in the lake, which will leave to continue on through the water cycle (evaporation, streamflow to the ocean, etc.). It can take a long time for this “renewal” or “flush” to occur and the lake water to be completely “renewed.” The “renewal time” or “flush rate” differs greatly from lake to lake – from nine years for Lake Erie to nearly 200 years for Lake Superior.

Think about where the polluted water is going to go – just because it left the lake, does it mean that the pollution is gone? Will the pollution continue through the water cycle? Is the water left in the lake actually clean?

Equipment:

- 2 large, preferably clear, measuring cups or jugs of the same size.
- Food colouring (red works well here)
- A large, clear bowl (a punch bowl is ideal)
- A supply of clean tap water (a water jug if a tap is not within easy access)

Instructions:

- Fill one of the measuring cups or jugs with tap water. This represents the lake. Stir in a few drops of food colouring so that it is bright red. Explain that this food colouring represents pollution, and discuss possible sources (sewage, fertilizer, acid rain, etc).
- Fill the second jug or measuring cup with tap water. This will represent the amount of precipitation and other “new” water that will gradually replace the existing lake water. Holding the measuring cup with red-dyed water over the large clear bowl, gradually and carefully pour the “new” water into the “polluted” container. The waters will mix and overflow into the bowl. Ask the Beaver Scouts what happened? Where did the pollution go? Is there still pollution left? How many “renewals” do they think it will take before the lake is “clean”?
- Try a second “renewal” by repeating the process above. It will usually take three or four renewals before the red dye “pollutant” appears to be gone. Discuss whether or not the lake is actually clean - do the Beaver Scouts think that there might still be pollutants left that are in such minute amounts that we can’t see them?
- Now examine the water in the bowl. Is it polluted? Did the pollutant go away? What could the bowl represent – the water cycle? The ocean? Other lakes and streams? It is a problem with water pollution that the pollutants are merely moved around rather than eliminated.

Theme Activity

Taste Test

Objective:

To understand that, just because water looks clean, does not always mean it is safe to drink.

Background Information:

This activity allows Beaver Scouts to sample various samples of water to select the best for drinking. This is a good activity to follow “*Dilution: A Pollution Solution?*” because it will reinforce the understanding that pollution is not always visible.

NOTE: Please reinforce to the Beaver Scouts that tasting water is not a safe way to find out whether water is safe to drink. Remind them that they should never drink water that is not tap or bottled water unless an adult says that it is okay.

Equipment:

- 6 clear plastic pop or water bottles (labels removed), and labeled 1-6.
- Carbonated water
- Salt
- Lemon juice
- Sugar
- Vanilla extract (or other flavouring such as coconut)
- Dixie® cups
- A jug or bowl for unwanted water

Instructions:

- First, fill the bottles with different water mixtures, keeping one for plain tap water. You should have one bottle with carbonated water, one with salt water, one with lemon juice + water, one with sugared water, one with vanilla + water, and one with tap water (the control).
- Ensure that the added flavours do not drastically change the look of the water. The goal is to have all six bottles look very similar in appearance. Introduce the activity as an investigation into the importance of clean water and the difficulties that water pollution presents. Let the Beaver Scouts know that all of the water is safe to drink, but some may taste better than others.
- Put all six bottles on a table in front of the room. Take a poll, asking the Beaver Scouts to guess which one they think is tap water. Give each Beaver a cup to drink from. Starting with number 1, give each Beaver a sample to taste. Watch their reactions! If they do not want to drink the whole sample, let them dispose of it in the jug or bowl. Continue with all six samples, and discuss their reactions and ideas about each sample.

Theme Activity

Waterfowl and Oil Don't Mix

Objective:

Create understanding about the environmental impact of oil spills.

Background Information:

What happens when oil is spilled in the ocean? Many sea birds die as a result, even when cleanup begins. Detergents are used to help “clean” the spill – the detergents allow the oil and water to mix, so that large pools of oil no longer exist. Rather, small circles of oil will float on the top of the water. Some detergents used can strip birds of their natural oils, causing the water to infiltrate the feathers. This loss of waterproofing and the weight of the extra water can cause birds to sink and drown.

Equipment:

- Feathers
- Tin pans or clear bowls, one for each group
- Measuring spoons
- Cooking oil
- Liquid dishwashing detergent
- Powdered detergent
- Water
- Popsicle sticks
- Spoons

Instructions:

- Pour some water in each tin or bowl (about 1/3 full). Add a tablespoon of cooking oil to the water. Look at the surface of the water – what do you see? Ask the Beaver Scouts to predict what will happen to the birds after the oil spill. Add a feather to each bowl or tin pan. Ask the Beaver Scouts to think about ways that they could help clean up the spill. Hand out spoons and popsicle sticks, and let them explore.
- Now, add dishwashing liquid to half of the pans. Gently stir and observe. What do you see? What happens to the feather?
- Add powdered detergent to the other half of the pans. Gently stir and observe. What do you see? What happens to the feather?

Theme Activity

Edible Aquifer

Objective:

Through this hands-on activity, Beaver Scouts will understand the water cycle and how pollution can affect groundwater, and through that, our drinking water sources. Beaver Scouts will also understand the geologic formations of an aquifer.

Background Information:

Groundwater is water that is stored underground in the spaces in soil, sand and rock called an aquifer. Groundwater moves slowly through these layers of soil, sand and rocks called aquifers. Aquifers are geologic formations of underground, water-bearing permeable rock or unconsolidated materials such as gravel, sand, or clay. Groundwater can be brought up through natural springs or wells and can be pumped out. Aquifers are recharged through rain and snow melt, but in some areas, people face water shortages because groundwater is pumped out faster than it can be recharged. Groundwater is also in danger of contamination and pollution from human activities.

Up to 25% of Canadians get their drinking water from groundwater sources. Groundwater is also an important source of water for the irrigation of crops.

Equipment:

- Vanilla ice cream (a 1L carton supplies enough for approximately 25 children)
- Clear soda pop (Lemon-lime works well)
- Gummy candy, chocolate chips, or crushed ice to represent sand and gravel
- Candy sprinkles (the kind used for cake decorating)
- Powdered juice crystals (grape works well because it is very visible)
- Ice cream scoop
- Clear plastic cups, one for each child
- Straws, one for each child
- Spoons (optional)
- Chalkboard, white board, or flip chart on which to draw a rudimentary aquifer

Instructions:

- Review the basics of groundwater and aquifers.
- Pass out one cup to each child. Fill each cup 1/3 full with gummy candy, chocolate chips, or crushed ice. Explain that this represents gravels and soils.
- Pour enough soda pop in the cup, just to cover the candy or ice. Explain that this represents the groundwater.
- Add a scoop of vanilla ice cream to the cup, to serve as the “confining layer.”
- Add more “sand and gravel” (gummy candy or chocolate chips, etc) on top.
- Sprinkles represent the soil and should now be sprinkled on the top. Ask the children to look at the aquifer – what do they see?
- Have the children “drill a well” with the straw.
- Now, have the children “pump the well” by drinking the soda pop. This represents the pumping of drinking water.
- Sprinkle some drink crystals into each cup, on top of the “confining layer.” This represents pollution. Ask the children what they think will happen next – what will happen to the pollution? Where will it go?
- Next, make it “rain” by pouring soda pop over the candy or ice, just enough to cover it. Ask the children to look again at the aquifer – what is happening? What can they observe?
- “Pump the well” again. Notice how the contaminants enter the well. Ask the children what they see. How many more times would it have to rain before the pollution is gone? Is there a way to take the pollution out? Is the water safe to drink?
- Talk about different ways that the groundwater can be polluted: landfills, leaky septic or gas tanks, fertilizers, pesticides, etc.

Optional Activity

Clean Water – Word Search

Find and circle these words:

DRILL

GRAVEL

IRRIGATION

PIPES

POLLUTION

RAIN

RECHARGE

STREAM

WATER

WELL

R	S	D	D	G	R	Z	N	N
E	E	B	Z	A	B	S	O	S
C	P	U	I	I	T	I	I	N
H	I	N	W	R	T	U	T	W
A	P	D	E	U	X	P	A	E
R	F	A	L	R	H	O	G	L
G	M	L	E	R	H	H	I	L
E	O	T	L	E	V	A	R	G
P	A	D	R	I	L	L	R	Z
W	G	E	D	H	X	S	I	M