

Grade 8 Science - Water Unit

Understanding Earth and Space Systems - Connecting to Indigenous Perspective

Throughout this unit, it would be beneficial to have a knowledge keeper come in to the classroom to share traditional stories and experiences about the sacredness of water.

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Curriculum Connection throughout:

Science and Technology

- 2.4 use scientific inquiry/research skills to investigate local water issues

Big Ideas

- Understand the water cycle
- Understand the connection between the 4 seasons and the water cycle
- Make connections between the water cycle, 4 seasons and Indigenous Perspective

Activity #1 - Understanding the Water Cycle (Water Cycle Slides)

Timeline:

- 1 to 3 - 60min. Classes depending on whether or not you include extension and elder visit - the elder visit can be done after any activity or at the end of the unit)

Curriculum connections:

Science and Technology

- 3.1 identify the various states of water on the earth's surface,

Learning goals:

- To make connections between the water cycle and how human beings disrupt this natural cycle.
- To make connections between the seasons from an Indigenous perspective and the water cycle.

Success criteria:

- Will be able to explain the changes of state in the water cycle
- Make real world connections to specific parts of the water cycle
- Complete water cycle diagram worksheet
- Make connections between the water cycle and the Indigenous Perspective and create a new diagram that represents the 4 seasons
- Explain the human connect and how humans are disrupting the natural cycle of water and seasons

Outline:

1. Go through Water Cycle slides as a class and stop for class discussions.
2. Complete the activity (Watercyclinglabellingworksheet-pdf) - free download from TeachersPayTeachers <https://www.teacherspayteachers.com/>
 - Complete water cycling labelling diagram and add all of the terms:
 - melting, sublimation, evaporation, precipitation, freezing, condensation, ground water, surface runoff and deposition.
3. Read the traditional story in the slides
 - What connections can be made between this perspective and the water cycle?
 - Notice how the water cycle follows a cyclical pattern

PART A:

Make a diagram that is similar to the water cycle diagram (ollows a cyclical pattern) but create one that incorporates the 4 seasons. Use the examples from the story, pictures and words to represent the 4 seasons and connect them to the water cycle.

PART B:

In your diagram, use pictures or words to demonstrate how humans are disrupting the natural cycle of the seasons.

	Level 1	Level 2	Level 3	Level 4
All four seasons	There is limited evidence of the seasons	There is some evidence of the seasons	Pictures and words are used correctly to represent the seasons	Extensive use of pictures and words are used to correctly represent the 4 different seasons
Cycle	Student does not represent the seasons in a cyclical pattern	There is some evidence of the seasons following a cyclical pattern	The seasons flow in a cyclical pattern	The seasons flow, in the proper order, in a cyclical pattern
Indigenous connection and the water cycle	There is no connection made between the traditional story and the water cycle	Some of the seasons are connected with the water cycle	The seasons are all connected loosely to the water cycle	Connections are clear and evident between the seasons told in the traditional story to the water cycle
Human connections	There is no connection made between humans and the natural flow of the water cycle and the seasons	There is some connection made between humans and the natural flow of the water cycle and the seasons	There are many connections made between humans and the natural flow of the water cycle and the seasons	There are clear illustrations and words that explain the connection made between humans and the natural flow of the water cycle and the seasons

Extensions:

1. Take a walk through the neighbourhood. If it has recently rained, stop at the puddles and ask the following questions:

- Will the puddle stay the same size? Will it be here all day, or into the next day? What connections can we make to the water cycle
- How does temperature affect the water?

OR if a walk/ hasn't recently rained it can be recreated in the classroom.

- Take a Ziploc bag, fill it with water and tape it to a window (leave it slightly open). Record observations over a few days. Discuss observations and make connections to the water cycle.

2. Take a walk to the local pond with a clipboard. Make observations of everything that you see.

Discussion questions:

- What is part of the natural ecosystem?
- What is not part of the natural ecosystem? How did it get there? How does this affect the water?
- What season are we in? Based on your observations, how do we know? (link to the traditional story)

Modifications:

Students add to the Water cycle diagram: evaporation, condensation and precipitation.

For the 4 seasons, add only one picture and one word to represent each season.

Extension: create an observation sheet that is already prepared with the outline of the pond area - students can draw arrows to the different sections to explain then add to it

Activity #2 (Water Quality slides - Fresh Water and Salt Water)

Big Ideas:

- Is Water Living?
- Review of the Characteristics of Living Things
- Introduction to water - what's the difference between fresh water and salt water?

Timeline:

- Intro lesson - 1 class

Curriculum connections:

Science and Technology

- 2.6 use appropriate science and technology vocabulary

Learning Goal:

- Will be able to understand the Characteristics of Living Things

Success Criteria:

- Using specific Characteristics of Living Things, explain whether or not water is living
- Understand the terms fresh water, salt water, concentration and salinity

Outline:

1. Go through slides and stop for classroom discussions

Characteristics of Living Things are comprised of the following:

- Living things are made up of cells
- Living things respond to their environment
- Living things reproduce
- Living things use energy
- Living things eliminate waste
- Living things grow and mature

Read the following:

The ethic of responsibility to water reflects the notion that water is understood as a living force which must be protected and nurtured, it is not a commodity to be bought and sold. Water has cleansing and purifying powers. It is the giver of life with which babies are born. To put simply, water is life.

Discussion questions:

1. Does water have any of the characteristics of living things? If so, which ones?
2. What do you think the last part of the quote, “to put simply, water is life” means?

Activity #3 - Desalination Technologies**Big Ideas:**

- Understanding the process of desalination - thermal desalination and reverse osmosis
- Understanding the issues of water scarcity because of climate change, a growing global population and economic growth

Timeline:

- 1 to 2 classes

Curriculum connections:**Science and Technology**

- 3.3 explain how human and natural factors cause changes in the water table
- 1.3 assess the impact on local and global water systems of a scientific discovery or technological innovation
- 1.2 assess how various media sources(e.g.,Canadian Geographic; the science section in newspapers; Internet websites; local, national, and international news on television and radio)address issues related to the impact of human activities on the long-term sustainability of local, national, or international water systems

Indigenous Knowledge and Science

Water Unit – Grade 8 Science

Learning Goals:

- Will be able to understand the term desalination
- Will be able to understand “why do we need desalination plants?”
- Will be able to understand the 2 processes of desalination - thermal and reverse osmosis (linking back to the cells unit)
- Will be able to understand the term water scarcity
- Will be able to come up with factors that have contributed to water scarcity

Success Criteria

- Read and highlight, using Google Read and Write, the article “Making Seawater into drinking water with the help of the sun”
- Read a highlight, using Google Read and Write the article, “A World with Less Water”
- Read through the slides and answer the 3 questions

Outline:

1. Go through the slides Desalination and stop for discussions
2. Read the article “Making Seawater into drinking water with the help of the sun”

All students can use Google Read and Write:

- For independent reading
- To highlight particular ideas and group together in a separate document

“Making Seawater into Drinking Water with the help of the Sun”

Ideas from the article - Read through and highlight these key points from the article

- Solar powered plant is turning seawater into drinking water
- A project to build the world’s largest renewable energy driven seawater desalination plant.
- The electricity to power the plant will come in from the solar power plant
- Less than 1 percent of the world’s population depends on desalinated seater for its daily fresh water supply.
- Most of the desalination plants are in the Middle East
- 97.5% of the water on Earth is salty seawater. The remaining 2.5 percent is freshwater but around 90% of that freshwater is locked into the ice caps of Antarctica, Greenland or other glaciers.
- Once the plant is built, it will produce enough to cover the needs of about 72,500 average global citizens
- Since there are about 7.5 billion people in the world it would take nearly 104, 000 plants the size of the one being built to provide freshwater to everyone on earth.

Technologies for desalination

- Two main processes for turning saltwater into fresh, drinkable water are:
- Thermal desalination and reverse osmosis (****side note, this unit is usually taught after the cells unit so students understand the term osmosis)
- Thermal desalination works by causing water to evaporate, leaving behind salt and other impurities.
- Reverse osmosis works by using a multi stage filtration process that uses high pressure pumps to force salty water through a membrane whose mesh is so fine that water molecules can pass through, but salt and other impurities cannot.

3. Read the article “A World with less Water - Vital lakes disappearing around the world” as a class and highlight main ideas

Big Ideas from the article:

- The Aral Sea, once the world’s fourth largest, has been rapidly shrinking. It is one of the major environmental disasters of the last half century with animal and plant life in the region dying out as a result.
- 70 percent of the freshwater that is taken from natural resources is used on agriculture, for food crops like wheat and rice. Energy production accounts for 15 percent of water usage and another 5 percent is for household usage.
- By 2050 there will be 9.3 billion people - the world’s water resources are likely to come under increasing pressure.
- Regions like Central Asia, the Arab world, parts of China, India and the western United States already suffer from a physical shortage of water.
- Without improved efficiency measures, agriculture is expected to need 20 percent more water in the coming years to feed the growing population.
- Meanwhile, the changing climate is expected to exacerbate the problem, with some countries becoming drier and hotter while others experience extreme weather in the form of storms and flooding.

4. Read the Newspaper Article – “Why Cape Town is Running out of Water”

- Population growth, record drought and possible connections to climate change
- Day Zero - a term given to the day that the taps will have to be shut off to homes and businesses because the reservoirs have gotten dangerously low
- City is prepping 200 water stations that will serve 20, 000 residents
- Using taps to fill pools, water gardens and cars is now illegal
- Residents have been warned for months to decrease their water consumption

- "The fundamental problem is the kind of lifestyle we're living. There's almost a sense of entitlement that we have a right to consume as much as we want. The attitude and reaction of most posts on social media is indignation. It's 'we pay our taxes' and therefore we should be as comfortable as possible."
- Rainfall patterns changed which was unexpected leading to the shortage of water attributed to climate change (drier, hotter weather, with less rainfall)
- In 2014, all 6 dams were full but after 3 years of drought, the reservoirs sit at 26% capacity
- Other world cities at risk include the rural areas from Iran to Somalia
- 21 million residents from Mexico city have running water part of the day, while one in five get just a few hours from their taps a week
- Melbourne Australia is reporting that they could run out of water in a little more than a decade
- In 2015, water reservoirs in Sao Paulo, Brazil dropped so low that taps to many homes were cut to just a few hours twice a week. Last minute rains helped save it from being a disaster

5. Answer the questions on the slide as either a class discussion or individually.

Modifications: Teacher can highlight the article and share the highlighted article with students. Through Google Read and Write, highlight and share the highlighted sections on a separate document to condense the information. Students can then use the tools in Google Read and Write to listen to the new document and understand the terms.

Activity #4 Contaminants in Water Slides

PART A

Timeline:

- 2 to 3 classes

Big Ideas

- Understand what contaminates the water and how
- Understand how the contaminant gets into the water systems
- Understand the difference between biological and chemical contaminants
- Understand what the quote "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights" means and its connection to Indigenous people

Curriculum Connections

Science and Technology

- 1.2 assess how various media sources(e.g.,Canadian Geographic; the science section in newspapers; Internet websites; local, national, and international news on television and radio)address issues related to the impact of human activities on the long-term sustainability of local, national, or international water systems
- 3.3 explain how human and natural factors cause changes in the water table

Learning Goals:

- Will be able to understand the difference between biological and chemical contaminants
- Will be able to explain the source of contaminants
- Will be able to understand the effects of these contaminants in an ecosystem
- Will be able to read and understand the effects of E. Coli by reading two articles
- Will be able to understand that some Indigenous people are not given the basic right to fresh drinking water
- Will understand the connection between Nestle Water Company and Six Nations

Success Criteria:

- Using the slides and the contaminants worksheets (X 2), will cut and paste the correct section under the proper column OR copy and paste in Google Docs
- Using the slides, answer the questions to demonstrate understanding of the contaminants in water and its connection to the water cycle
- Show understanding of the quote “the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights” through oral discussion and participation in groups
- Read the two articles that explain E. Coli and explain how this directly impacts some Indigenous people

Outline:

1. Go through the slides and read through the chemical and biological contaminants
2. Either print off the contaminants in water sheets X2 (one is the student copy, the other is the answers) or share a copy to students in their Google Classroom and have students either in groups or independently cut (or copy) and paste the sections that have been mixed up in the handouts in the proper columns
3. As a class, go through the questions on the slide. Either answer them as a class, or answer independently
4. Read the quote “the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights”

5. Have students get into groups of 4 and write this quote on a piece of chart paper. Around this quote, explain what they think it means. Have them focus on what does the right to safe and clean drinking water means and what does sanitation mean? They can use their Chromebooks to research or look up specific terms that they are not familiar with
6. Students share their ideas and the teacher writes their ideas down to create a class document explaining the quote
7. Read the article: “Walkerton’s Tragedy - Water Contaminant” and highlight the main points. Use Google Read and Write to read and highlight the article
8. When you reach the point of wells, stop and discuss drinking from well water. What does that mean? Where does this water come from - link back to the water cycle diagram and lesson.

Walkerton’s Tragedy - Water Contamination main points

- In May 2000, an outbreak of E.Coli killed 7 residents in Walkerton, Ontario and left 2,300 people sick
- Six months after the tragedy, residents were still under a boil water advisory
- This tragedy was a reminder of the value of clean and safe drinking water
- A heavy rain storm on May 12th, washed cow manure into a town well
- Cow manure contaminated the water with E.Coli intestinal bacteria which can cause severe illness or death when a faulty chlorinating system in the well failed to kill the bacteria
- The main problem - 100, 000 old wells which have not been covered allow manure, chemicals and other contaminants to poison the groundwater
- Still a problem - the cost to plug these wells are very expensive

Kaschechewan: Water Crisis in Northern Ontario

- Kaschechewan is a Cree First Nations community in Northern Ontario about 400 kilometres from Timmins, ON
 - The community lies in the flood plain and is susceptible to floods every spring
 - A water treatment plant was built in 1995 but it is too small and the intake pipe is downstream from James Bay and dirty water is pushed back and forth in front of the pipe
 - In October 2005, high E.Coli levels were found and chlorine levels were increased to “shock” levels
 - This led to skin problems like scabies and impetigo
 - Nearly 100 reserves across Canada have boil-water advisories and one, the Kwicksutaineuk First Nation on an island off the B.C. coast, has had one in effect for nine years.
9. Ask the question, “after reading these two articles, do you think that these people had access to their basic human right of water”. Students, in groups, can find specific examples from the text to support their answer. Come back together as a class, create a table and list the examples that students have provided for a class visual.

10. Have students either answer the discussion questions on the slide individually or in groups/class discussion.

PART B

Timeline:

- 1 class

Learning Goal:

- Will be able to connect traditional knowledge to our ecosystems

Success criteria

- Read the traditional story and find as many connections as possible between the sun, fish, water and humans
- Use arrows to show the connections
- Explain how humans are disrupting the balance between these

Outline:

1. As a class, or in groups, read “Traditional Knowledge” article
2. Brainstorm the role of the sun, water and fish as a class or in groups
3. Individually, or in groups, explain the relationships between the sun, water fish and humans by completing the handout. Students can use arrows to show the relationships and explain, in words, what the connections are. For example, an arrow from the sun to the fish with an explanation that the fish needs the sun to keep the temperature of the water at a certain level.

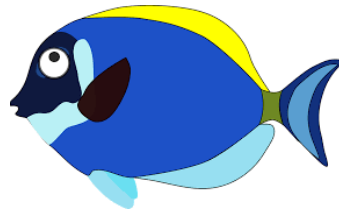
Traditional Knowledge (Excerpt from Traditional Knowledge and Water Governance by Deborah MCGregor)

In Anishinaabek Creation and Re - Creation stories, water is central to life. There were ethical and moral systems in place to ensure water was able to fulfill its duty to support life, not just for people, but all of Creation. Our relationships are not centred exclusively on people, but are shared among all our relations. In other words, different beings (or relatives) in Creation have relationships with each other, such as the earth and the sun, the fish and the waters. To achieve harmony and balance in Creation, it is necessary to respect these relationships as well. Through our interactions with Creation, the natural world and the environment, we learn about these relationships and responsibilities. We learn that the sun, the waters, the fish etc., also have responsibilities to sustain life on earth. We are not to disrupt these relationships and responsibilities, our stories say, as they are essential to ensuring life continues. Respectful and ethical conduct is required of all beings, not just people.

Modifications:

Students can add one arrow from each to another and orally explain the connection between the two.

After reading the excerpt above, add arrows in as many different places as possible and describe the connections between all of the pictures below, including humans.



HUMANS

Answer the following question:

We should not be disrupting any of these connections. Are we? How so? Explain, using examples.

PART C

Big Ideas:

- Understand the terms “water crisis” and using freshwater in an equitable and efficient manner
- Come up with a personal plan to use water more efficiently

Timeline:

- 2 classes

Curriculum Connections

Science and Technology

- evaluate personal water consumption, compare it with personal water consumption in other countries, and propose a plan of action to reduce personal water consumption to help address water sustainability issues
- assess how various media sources(e.g., Canadian Geographic; the science section in newspapers; Internet websites; local, national, and international news on television and radio)address issues related to the impact of human activities on the long-term sustainability of local, national, or international water systems

Learning Goals

- Will be able to understand what is means by “water crisis” and specifically who is affected by this
- Will be able to understand Canadian Water Policy

Success criteria

- Will be able to come up with a definition, with the class, for “water crisis” and “using freshwater in an equitable and efficient manner”
- Will highlight the key points in the two articles

Outline:

1. As a class, read the two quotes. Create definitions for “water crisis” and “using freshwater in an equitable and efficient manner”
2. In groups, discuss and come up with reasons why people believe we are in a state of crisis.
3. Read the article “The Right to Water” as well as “Safe Water for First Nations” and highlight important parts.

Using Google Read and Write highlight key points.

The Right to Water

- As of January 2018, the federal government was reporting that 91 First Nations were under long term drinking water advisories
- The federal government has made the welcome commitment to eliminate all First Nations drinking water advisories by 2021 by investing in long overdue repair and maintenance

Using Google Read and Write highlight key points.

Safe Water for First Nations

- more than 80 First Nations communities are currently under “boiled water advisories” and 21 communities are deemed to be at high-risk for contamination
- First Nations communities are in desperate need of more adequate infrastructure to deal with ongoing, long-term problems
- greater control by and for First Nations is a necessary precondition for improvement of the appalling living conditions in First Nations communities

4. Either as a class, or individually, answer questions 2 and 3 on the slides.

Culminating Activity - Water Pollution Poster

Using Comic Life, or a program of your choice, create a poster that describes ways that water is polluted and then ways that we can conserve water or ways that we can STOP our fresh water supply from deteriorating.

Use this water website for information

<http://edugreen.teri.res.in/explore/water/water.htm>

Make sure to include a bibliography and include all websites/ sources used to create this poster.

You will be assessed on:

- Creativity (use of pictures, different fonts, background colours, etc.)
- Ideas describing ways water is being polluted
- Ways to conserve water/ save our fresh water supply
- Climate change and its impact on our water supply/ technologies introduced to combat this issue

	Level 1	Level 2	Level 3	Level 4
Creativity	Very little use of pictures, fonts, colours, backgrounds	Some use of pictures, fonts, colours, backgrounds	Creative use of pictures, fonts, colours, backgrounds	Very detailed and creative use of pictures, fonts, colours, backgrounds
Water pollution	Very few examples of water pollutants/contaminants	Some examples of water pollutants/contaminants	Many examples of water pollutants/contaminants	An extensive and detailed list of water pollutants and contaminants
Conserve water	Very few examples of ways to conserve water	Some examples of ways to conserve water	Many examples of ways to conserve water	Very detailed explanations of ways to conserve water
Impact of Climate change/ Technologies	Very little mention of how climate change has impacted our water supply and the technologies created to combat this issue	Some mention of how climate change has impacted our water supply and the technologies created to combat this issue	Thorough description of how climate change has impacted our water supply and the technologies created to combat this issue	Elaborate and detailed description of how climate change has impacted our water supply and the technologies created to combat this issue

Extension:

Students can either put their posters around the school or share their posters to the younger grades to raise awareness about our water issues as well as strategies and a plan to reduce water consumption

Activity #5 Hydroelectric Power Slides

Big Ideas:

- Understand the advantages and disadvantages of hydroelectric power
- Make connections to the Indigenous Perspective on hydroelectric power and the negative effects on ecosystems

Timeline:

- 2 classes

Curriculum Connections:

Science and Technology

- 2.2 investigate how municipalities process water and manage water

Learning goals:

- Will be able to understand that there are many advantages and disadvantages to Hydropower
- Will be able to understand how hydropower disrupts the natural cycle of ecosystems
- Will be able to understand the concerns expressed by Indigenous people over the long term effects of these disruptions to ecosystems

Success criteria:

- List the advantages and disadvantages to hydropower using information from the video and list provided
- Create a diagram of a hydroelectric power plant and label the parts reservoir, penstock, generator, turbine and power lines
- Explain the connections between Indigenous people and hydroelectric power, specifically, disruptions to ecosystems by answering discussion questions

Outline:

1. Watch the video https://www.youtube.com/watch?v=keRf2_Dc0No and explain the advantages and disadvantages of hydropower.
2. Create a diagram that represents how hydropower works label the parts reservoir, penstock, generator, turbine and power lines (show students the diagram on the slides - students can either create their own on white paper, or an outline can be made before by the teacher that students can label.
3. Read through the slides together that explain the advantages and disadvantages of hydropower. Create a list of the pros and cons (chart paper, students can create a table in Google Docs)
4. Read the Story of the people from Lake of the Woods then watch the Water is Life video. Go back to the diagram created. As a class, answer the discussion questions by referring back to the diagram created.

Modifications:

Teacher creates hydroelectric power plant diagram with a word list on it. Students label all of the parts of the plant.

Activity #6 (End of Unit Task)**Venn Diagram Activity/ Debate****Timeline:**

- 1 - 2 weeks. Students will need time to research and practice their debate

Curriculum connections:**Science and Technology**

As this is a culminating task, the idea is that all information presented in the unit will be used to accomplish this assignment. So, all curriculum connections made above can be included here as well.

Cross - curricular - Language expectations:**Oral Communication**

- identify a range of purposes for listening in a variety of situations, formal and informal, and set goals appropriate to specific listening tasks
- demonstrate an understanding of appropriate listening behaviour by adapting listening strategies to suit a wide variety of situations, including work in groups
- identify a variety of listening comprehension strategies and use them appropriately before; during and after listening in order to understand and clarify the meaning of increasingly complex and challenging oral texts
- 1.9 identify a wide variety of presentation strategies used in oral texts, evaluate their effectiveness, and suggest other strategies that might have been as effective or more so
- 2.1 identify a range of purposes for speaking in a variety of situations, both straightforward and more complex, and explain how the purpose and intended audience might influence the choice of speaking strategies
- 2.2 demonstrate an understanding of appropriate speaking behaviour in most situations, using a variety of speaking strategies and adapting them to suit the purpose and audience
- 2.3 communicate in a clear, coherent manner, using a structure and style appropriate to the purpose, the subject matter, and the intended audience

- 2.4 use appropriate words, phrases, and terminology from the full range of their vocabulary, including inclusive and non discriminatory language, and a range of stylistic devices, to communicate their meaning effectively and engage the interest of their intended audience
- 2.6 identify a variety of non-verbal cues, including facial expression, gestures, and eye contact, and use them in oral communications, appropriately and with sensitivity towards cultural differences, to help convey their meaning

Learning Goals:

- Will be able to research and use prior knowledge to be able to create a persuasive debate that will convince an audience to choose their point of view

Success Criteria

- Will be able to work in a group and research, use prior knowledge to come up with enough valid points to speak for 1 minute (or 60 seconds)
- Will practice in order to speak clearly and directly to the audience
- Will speak in a persuasive tone that is convincing to an audience

Students can use the following sections to prepare for their debate.

PART A

Go through the slides “A History of Bottled Water”r then watch the video: A history of Bottled Water

A history of Bottled Water youtube video - <https://www.youtube.com/watch?v=Se12y9hSOM0>

What were some points that surprised you the most?

PART B

Research Nestle Water Company.

- Where are they located?
- Where do they get their water?
- What’s the connection between Indigenous People and this company?

Resources:

Nestle: Drink Better. Live Better <https://www.madewithnestle.ca/pure-life>

Six Nations of the Grand River challenges Nestle's plan to keep taking water from its territory

<https://canadians.org/blog/six-nations-grand-river-challenges-nestles-plan-keep-taking-water-its-territory>

Sault Tribe declares boycott of Nestle water

<https://www.sootoday.com/local-news/sault-tribe-declares-boycott-of-nestle-water-920952>

PART C

Research Hydroelectric Dams - What are the benefits? What are the disadvantages?

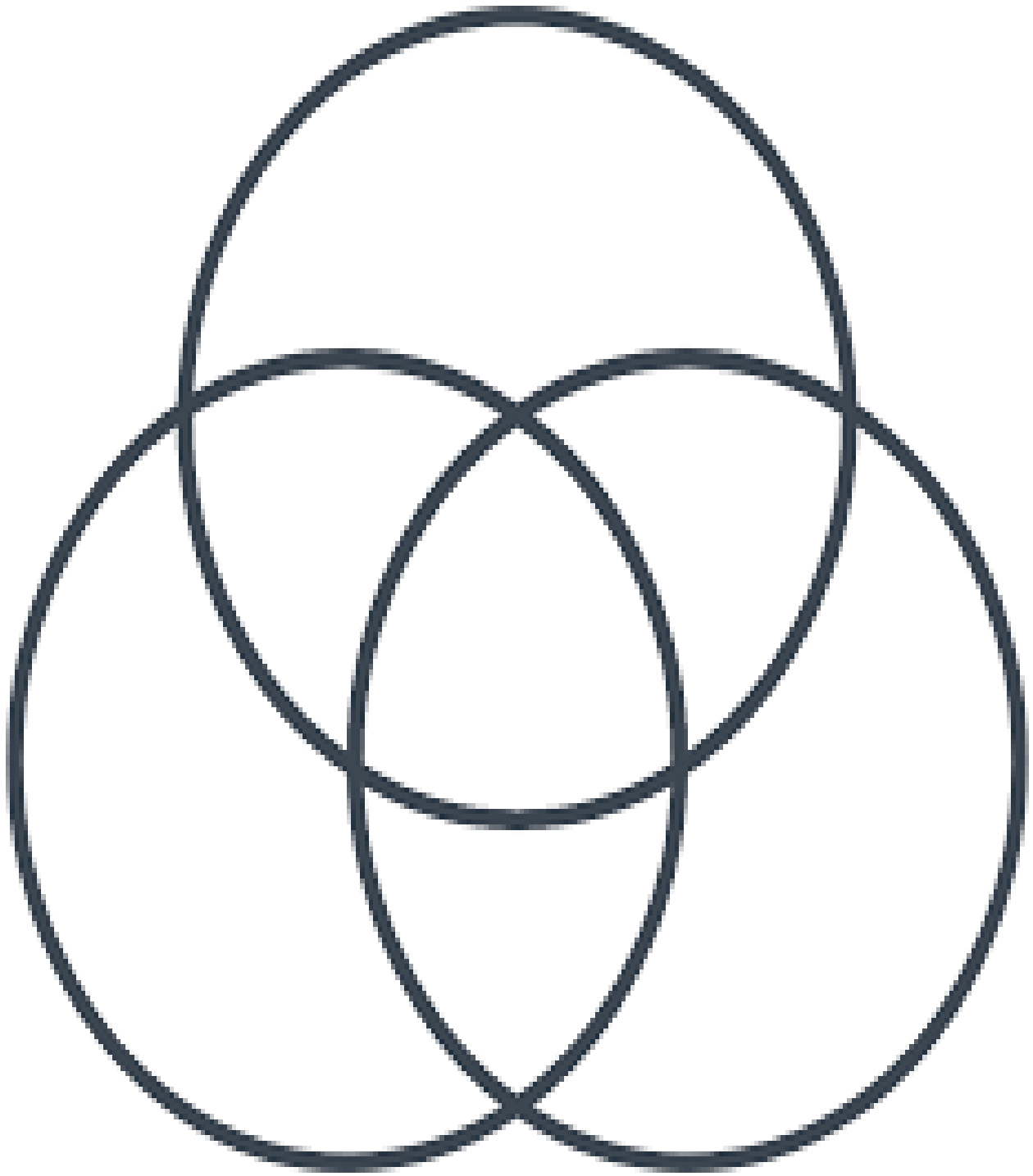
Benefits of Hydropower

<https://www.energy.gov/eere/water/benefits-hydropower>

Hydroelectric Dams youtube video

<https://www.youtube.com/watch?v=q8HmRLCgDAI>

Using a Venn diagram, list the 3 different perspectives of each group based on water (Nestle, Hydroelectric Dams, Indigenous Knowledge/Perspective). In the middle of the diagram, include the overlap (or explain the connection between each perspective).



PART D - THINK PAIR SHARE/ SELF - REFLECTION

With your Venn Diagram, find another student and compare each other's diagrams. Include each other's ideas in your own diagrams.

After discussing ideas with another student, do you want to remove some of your ideas? Why or why not?

PART E - DEBATE

Introduction

Assuming the class is around 24 students, there will be two teams of 12. Or, there can be variations with the groupings. Students should research and plan for what their opponents will argue. While the debate is being presented, the other students will be actively listening in order to decide who the "winning" or the most convincing team is. Please see attached sheet that students could use while listening to the debate in progress.

There are 4 different perspectives: The Environmentalist (primarily concerned with waste management/ pollution/ climate change), A Nestle Water Bottling Company representative, A Hydropower Plant representative, an Indigenous Person living in an area where water is being taken for water bottling purposes.

Your group will be responsible for 1 perspective. Your goal is to convince your audience that your arguments override your opponents (the other perspectives). Research and use the information provided for you to create an effective team debate.

In a group of 3, the first debater will:

- 1 minute initial statement that includes your main points
- (Each perspective will have their say)

The second debater will:

- 1 minute or 90 second rebuttal that refutes your opponents arguments and ends with your main position on the topic
- (Each perspective speaks again)

The third debater will:

- 1 minute or 90 second rebuttal that refutes your opponents arguments and ends with your best argument
- (Each perspective speaks again)

Please complete the following table while listening to the teams debate. Consider the following while students are presenting:

- Eye contact
- Gestures, proper posture
- Tone of voice - do they sound convincing?
- Pace - are their points easily understood? Are they speaking slowly and clearly?
- Do their points follow a logical sequence?
- In the rebuttal, are they making valid arguments against the opposition?

<p>The Environmentalist</p> <p>Most persuasive points:</p> <p>Suggestions for improvement:</p>	<p>Bottled water representative</p> <p>Most persuasive points:</p> <p>Suggestions for improvement:</p>
<p>Hydropower Plant representative</p> <p>Most persuasive points:</p> <p>Suggestions for improvement:</p>	<p>Indigenous Perspective</p> <p>Most persuasive points:</p> <p>Suggestions for improvement:</p>

Based on this information, an unbiased decision can be made on the most convincing team.

Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
Communication - clearly explains the perspectives of that particular group	Explains the perspective of their group with limited effectiveness	Explains the perspective of their group with some effectiveness	Explains the perspective of their group with considerable effectiveness	Explains the perspective of their group with a high degree of effectiveness
Communication- explains their interpretation and supports it with evidence from texts and their own knowledge and experience	Explains their interpretation and supports it with evidence from texts and their own knowledge and experience with limited clarity	Explains their interpretation and supports it with evidence from texts and their own knowledge and experience with some clarity	Explains their interpretation and supports it with evidence from texts and their own knowledge and experience with considerable clarity	Explains their interpretation and supports it with evidence from texts and their own knowledge and experience with a high degree of clarity
Communication Communicates ideas and purposes and to specific audiences, using forms and features appropriate for their purpose	Communicates ideas and purposes and to specific audiences with limited clarity	Communicates ideas and purposes and to specific audiences with some clarity	Communicates ideas and purposes and to specific audiences with considerable clarity	Communicates ideas and purposes and to specific audiences with a high degree of clarity
Application Adjusts their delivery to suit the size of different groups	Adjusts their delivery to suit the size of different groups with limited effectiveness	Adjusts their delivery to suit the size of different groups with moderate effectiveness	Adjusts their delivery to suit the size of different groups with considerable effectiveness	Adjusts their delivery to suit the size of different groups with a high degree of effectiveness
Application Uses tone of voice and body language to clarify meaning during presentations	Uses tone of voice and body language to clarify meaning during presentations with limited effectiveness	Uses tone of voice and body language to clarify meaning during presentations with some effectiveness	Uses tone of voice and body language to clarify meaning during presentations with considerable effectiveness	Uses tone of voice and body language to clarify meaning during presentations with a high degree of effectiveness

Application Uses the specialized vocabulary appropriate to the topic in oral presentations	Uses the specialized vocabulary appropriate to the topic in oral presentations with limited effectiveness	Uses the specialized vocabulary appropriate to the topic in oral presentations with some effectiveness	Uses the specialized vocabulary appropriate to the topic in oral presentations with considerable effectiveness	Uses the specialized vocabulary appropriate to the topic in oral presentations with a high degree of effectiveness
Communication - Rebuttal Expresses and responds to a range of ideas and opinions concisely, clearly and appropriately	Expresses and responds to a range of ideas and opinions concisely, clearly and appropriately with limited effectiveness	Expresses and responds to a range of ideas and opinions concisely, clearly and appropriately with some effectiveness	Expresses and responds to a range of ideas and opinions concisely, clearly and appropriately with considerable effectiveness	Expresses and responds to a range of ideas and opinions concisely, clearly and appropriately with a high degree of effectiveness
Communication - Rebuttal Demonstrates the ability to concentrate by identifying main points and staying on topic	Demonstrates the ability to concentrate by identifying main points and staying on topic with limited effectiveness	Demonstrates the ability to concentrate by identifying main points and staying on topic with some effectiveness	Demonstrates the ability to concentrate by identifying main points and staying on topic with considerable effectiveness	Demonstrates the ability to concentrate by identifying main points and staying on topic with a high degree of effectiveness
Application - Rebuttal Listens attentively to organize and classify information and to clarify thinking	Listens attentively to organize and classify information and to clarify thinking with limited effectiveness	Listens attentively to organize and classify information and to clarify thinking with some effectiveness	Listens attentively to organize and classify information and to clarify thinking with considerable effectiveness	Listens attentively to organize and classify information and to clarify thinking with a high degree of effectiveness