

# THE MAGNITUDE OF ALL THINGS

CURRICULUM RESOURCE

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IB Biology HL  
Biology 11/12  
Food Science 12

## TEACHER'S GUIDE

This curriculum resource will guide teachers and students to enrich their viewing experience of the 2020 documentary *The Magnitude of All Things*. This resource is designed to help teachers frame discussions with their class, with classroom viewing activities for the film as well as assignments relating to the themes of the film that can be completed after viewing.

## ABOUT THE FILM

When Jennifer Abbott lost her sister to cancer, her sorrow opened her up to the profound gravity of climate breakdown.

Abbott's new documentary *The Magnitude of All Things* draws intimate parallels between the experiences of grief—both personal and planetary. Stories from the frontlines of climate change merge with recollections from the filmmaker's childhood on Ontario's Georgian Bay. What do these stories have in common? The answer, surprisingly, is everything.

For the people featured, climate change is not happening in the distant future: it is kicking down the front door. Battles waged, lamentations of loss, and raw testimony coalesce into an extraordinary tapestry, woven together with raw emotion and staggering beauty that transform darkness into light, grief into action.

Source: <https://www.nfb.ca/film/magnitude-of-all-things/>

## ABOUT THE FILMMAKERS

Jennifer Abbott is a Sundance and Genie award-winning filmmaker who has been making films about urgent social, political and environmental issues for 25 years. She is best known as one of the Directors and Editor of *The Corporation*, frequently described as the most successful documentary in Canadian history. Among other films, she also co-directed, co-wrote and edited *Us & Them*; co-wrote and edited *Sea Blind*; EP'd and edited *I Am*; and made the short film *Brave New Minds*.

In 2020, Abbott will released two feature documentaries: *The New Corporation: The Unfortunately Necessary Sequel* (Co-Director & Supervising Editor) and *The Magnitude of All Things* (Writer, Director, Editor, Sound Designer, Co-Producer).

Source: <https://www.themagnitudeofallthings.com/jenn-abbott>



## TEACHER NOTES

## LANGUAGE WARNING

There is inappropriate school language used at:

- **22 minutes,**
- **25 minutes,**
- **52 minutes,**
- and **53 minutes**

of the running time of the film. You can mute it at the time that the expletive is used, or have a conversation with your class that it is because of the political in-action in their homeland that the people interviewed are frustrated and very angry when they use their language.

## THEME WARNING

It is also important to note that the film follows a storyline of a sister who has **cancer**. It would be important to be mindful that there may be students in the class who have a similar experience to this subject matter in your class. Some of the imagery of **chemotherapy, hair loss,** and **grief** is quite sad and could be difficult for some students to view.

## INTRODUCTION

*The Magnitude of All Things* centers around central themes of grief and action. Grief for the changing world, a loss of homeland, natural resources due to the climate crisis as well as grief of a loved one. Mid-way through the film, the theme of grief fuels climate change action.

Within both Biology 11 and Biology 12 there is a central theme titled “Maintained Dynamic Equilibrium”. Biology 11 leads into Biology 12 with an understanding that there are dynamic moving interactions between populations and the environment and internally within the body systems and the person as a whole. The units centering around Ecology look at patterns and distributions of all organisms on Earth. Students learn about ecological ordering of living things, and witness the cascade of how one population change can affect the entire hierarchy. The world is out of balance, and climate change is a reality. The students in our current classrooms are faced with a crippling reality that due to human greed and a lack of appreciation for Mother Earth, we are on a frightening trajectory of global warming.

Etuaptmumk (two-eyed seeing) offers a welcomed breath of relief into our classrooms as we teach about sustainability. The Western traditional framework of quantitative science is not enough to help us out of the climate mess we have created. We need to listen to Canada’s Mi’kmaw Elders and bring the knowledge of Netukulimk into our classrooms so that holistic practices and policies can help heal our Oceans, land and all of its inhabitants. The lessons below consider the unit outcomes from Science 10, Biology 11 STSE (Science, Technology, Society and Education), and Mi’kmaw 11 in an effort to further develop global citizenship and scientific literacy.

## SCIENCE 10 STUDENTS WILL BE EXPECTED TO...

CHAPTER	OUTCOME STATEMENT
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>Question and analyze how a paradigm shift in sustainability can change society's views (114-1)</li> </ul>
<b>Sustainability of an Ecosystem</b>	<ul style="list-style-type: none"> <li>Distinguish between biotic and abiotic factors, determining the impact on the consumers at all trophic levels due to bioaccumulation, variability, and diversity (318-2, 318-5)</li> <li>Describe how the classification involved in the biodiversity of an ecosystem is responsible for its sustainability (214-1, 318-6)</li> <li>Predict and analyze the impact of external factors on the sustainability of an ecosystem, using a variety of formats (212-4, 214-3, 331-6)</li> <li>Diagnose and report the ecosystem's response to short-term stress and long-term change (213-7, 215-1, 318-4)</li> </ul>
<b>STSE and Sustainable Development</b>	<ul style="list-style-type: none"> <li>Describe how different geographical locations can sustain similar ecosystems (331-7, 318-3)</li> <li>Identify, investigate, and defend a course of action on a multi-perspective social issue (118-9, 215-4, 118-5)</li> <li>Identify and describe peer review, Canadian research, and global projects where science and technology affect sustainable development (114-5, 116-1, 117-3, 118-1)</li> </ul>

## BIOLOGY 11 STUDENTS WILL BE EXPECTED TO...

UNIT	OUTCOME STATEMENT
<b>Maintaining Dynamic Equilibrium I</b>	<p><b>Homeostasis:</b></p> <ul style="list-style-type: none"> <li>Explain the importance of nutrition and fitness to the maintenance of homeostasis, debating the merits of funding specific scientific or technological endeavours and not others (117-4, 317-3)</li> <li>Explain, with specific examples, how behaviours such as tropisms, instinct, and learned, help to maintain homeostasis and identify multiple perspectives that influence a decision/issue (215-4, 317- 8)</li> </ul>
<b>Biodiversity</b>	<p><b>Classifying Living Things:</b></p> <ul style="list-style-type: none"> <li>Analyze and describe examples where scientific knowledge evolved, was enhanced, or revised as a result of new laws, theories, and/or technologies (115-7, 116-2)</li> </ul> <p><b>Diversity Among Living Things:</b></p> <ul style="list-style-type: none"> <li>Construct arguments to support a decision or judgment, using examples and evidence, recognizing various perspectives (118-6)</li> <li>Describe the anatomy and physiology of a representative organism from each kingdom, including a representative virus (316-6)</li> </ul>

## MI'KMAW STUDIES 11

CHAPTER	OUTCOME STATEMENT
<b>Culture 3</b>	<ul style="list-style-type: none"> <li>Demonstrate an understanding of the importance of the roles Mi'kmaw Elders continue to have in maintaining cultural values.</li> </ul>
<b>Culture 4</b>	<ul style="list-style-type: none"> <li>Explore traditional and contemporary expressions of Mi'kmaw art, crafts, music, dance, and literature.</li> </ul>
<b>Spirituality 1</b>	<ul style="list-style-type: none"> <li>Demonstrate an understanding of the beliefs, customs, and values of traditional Mi'kmaw spirituality.</li> </ul>

Although the film *“The Magnitude of All Things”* has been created by the National Film Board of Canada, the film will take you all over the world. Centering around the love of land, and connection and clarity through loss, for the first half of the film you will travel through cinematography around the world learning about the climate crisis that is occurring. In the second half of the film, you will have the opportunity to learn how the citizens (climate refugees) who live in these areas of the world that are plagued by climate crises are becoming activists. All of the people you will meet have all experienced the climate crisis and all mention that they are not classifying themselves as activists but instead as people who care **“a heck of a lot”** about their homeland.



**VIEWING ACTIVITY 1:** As you watch the first 45 minutes of the film, please return to this table to take notes about the type of climate crisis that has occurred in these locations. Near the end of the film, you will have an opportunity to listen and learn about the type of climate action that is happening in these areas.

LOCATION	CLIMATE CRISIS - What is happening in these locations? What are the concerns of those people who are living in these areas?	ACTION REQUIRED OR BEING TAKEN
Nunatsiavut, Canada		
Island Nation of Kiribati		
Great Barrier Reef, Australia		
Hunter Valley, New South Wales, Australia		
Amazon Rainforest, Ecuador		
Tasmania, Australia		
Muskkrat Falls, Labrador		

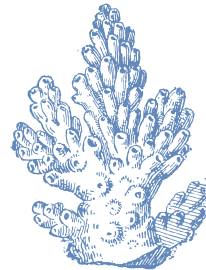
**VIEWING ACTIVITY 2:** Through the film, we are taken to Australia where we meet Charlie Veron, a Marine Scientist who is nicknamed the “Godfather of Coral”. As he floats over the Great Barrier Reef and we see corals that are bleached he says: *“But of course, you feel it completely. You are not separated from it, you are part of it, and if it is sick, then you are part of the sickness and it affects you as part of the sickness.”*

1) What role do corals play in ecosystems?

2) How long does it take for coral communities to develop?

3) What is coral bleaching?

4) What are the long-term effects of coral bleaching?



5) Why should land creatures, including humans, be concerned about the health of corals?



**POST-VIEWING ACTIVITY 1:** Through viewing this film, there should be a reshaping of understanding not only as a student but also as a global citizen. In science we often learn about symbiosis and symbiotic relationships, but we rarely include conversations about reciprocity. In the film we hear through climate change survivors the importance of living in harmony with each other, but also in living in harmony with nature as we are all connected.

1) What do you think Auntie Patricia Hansson, Wonnarua Traditional Custodian means when she says *“If this land hurts, we all hurt”*? Explain using examples given from the film.

2) Make a brainstorm with the word **reciprocity** in the center. What gifts does the world give us for free? How can we live in symbiosis with Mother Earth?





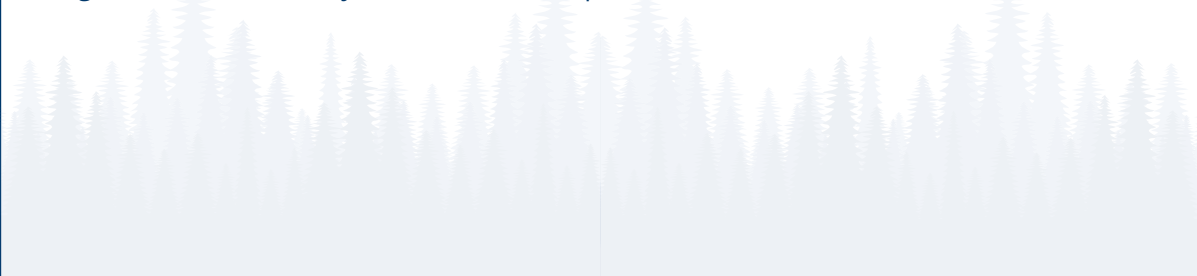
**POST-VIEWING ACTIVITY 2:** Etuaptmunk (two-eyed seeing) offers a welcomed breath of relief into our classrooms as we learn about sustainability. The anthropocentric Western worldview framework of quantitative science is not enough to help us out of this mess we have created (Marshall & Bartlett, 2018). We need both views to blend together and shape our understanding of sustainability (Robin Wall Kimmerer, 1993). When we see with both eyes in Science, we have data that is much richer than if we work with solely one perspective. We need both the qualitative and quantitative data as we interpret our findings. We need the numbers and the stories if we are going to plan and make decisions that affect our grandchildren.

As we listen to Canada’s Mi’kmaw Elders and bring the knowledge of Netukulimk into our classrooms, blending the holistic practices and policies of Elders in our communities along with the knowledge of science, together we can help heal our Oceans, land and all of its inhabitants.



**1)** Take a moment to listen to East Coast Poet Laureate Rebecca Thomas as she speaks about etuaptmunk. As you listen, write your thoughts in the space below. <https://www.youtube.com/watch?v=bA9EwcFbVfg>

**2)** Review this movie clip. When you think about where you live, do you think that your eyes see what your grandparents saw? How has the landscape around you changed? How has it stayed the same? <https://vimeo.com/450172272>



**POST-VIEWING ACTIVITY 3:** The film highlights youth activists around the world. We hear from Mukutsawa Montahuano (Sapara Nation), Lethly Vargas (Kichwa First People of Santa Ana) and Greta Thunberg (Swedish environmentalist) as they discuss climate change and the need for immediate action. They argue that climate change action is both a government and individual responsibility. Use the space below to record government actions and individual actions that we can do today to help slow down climate change.

**GOVERNMENT ACTION**

**INDIVIDUAL RESPONSIBILITIES**

**POST-VIEWING ACTIVITY 4:** Read the following quote: *"The world used to seem invincible to me. Just like you did, but time eventually showed me few things are as they appear, and some things we don't see at all until it is too late. Greenhouse gases work surreptitiously."* What do you think is meant by this statement?

**POST-VIEWING ACTIVITY 5:** Belen Paez, Executive Director of the Amazon Programs Pachamama Alliance, speaks about being a climate crisis activist. She describes there being "one energy" in the universe, amongst the galaxies and in the environment. She is not optimistic about the future for her child as she describes her dreams about the future: *"Climate change in a weird sort of way asks a lot of humanity."* Who do we want to be moving forward? How do you see yourself within this web of relations that we have destroyed?



**POST-VIEWING ACTIVITY 6:** How has your worldview shifted after viewing this film? Why should a student in a Nova Scotia classroom care about these issues that are happening around the world?



## INTRODUCTION

During the film *The Magnitude of All Things*, we collect stories of first hand experiences from survivors of the climate crisis. Some climate activists think that 2020 will be seen in the history books as a tipping point, where a world wide global awakening happened as a virus brought us all together and we were forced to consider life through different perspectives. We started to slow down and think responsibly for nature and for all of its inhabitants. The youth of 2020 pushed for not only a responsible way of living, but the fair treatment of all people regardless of race. The landscape changed, and people realized that no longer were we passengers of the ride on Earth, but that they needed to all be participants. In 2020, the focus shifted and people became agents of change for the betterment of the world.



### ASSIGNMENT 1: LETTER FROM THE FUTURE

Take a moment to imagine that Mother Earth is writing a letter from the year 2050 to 2021. How do you think future generations might feel about the way the human race is managing the world? What themes and emotions do you want to give to 2021 from 2050's perspective? What will be the main message in your letter?



### ASSIGNMENT 2: DIG DEEPER WITH RESEARCH - A CANADIAN FOOTPRINT

Answer the following questions:

- How does Canada contribute to climate change?
- What Canadian locations, companies and actions are increasing our carbon emissions?
- What economies are more vulnerable to climate inaction?

**ASSIGNMENT 3: GET LOUD! BE A DIGITAL CITIZEN! PODCAST LISTEN AND LEARN**

**PART 1:** Create an informative podcast that explains the climate crisis and identify actionable items that students can do in their immediate location. *Inherited* is a podcast made for and by youth. Take a few minutes to listen to Episode 4: "The Green New Dream". How does listening to this podcast shape your world view about climate change?

**PART 2:** There are likely many climate change/sustainability issues close to you within your community. Perhaps you are passionate about an international issue like carbon emissions or ocean acidification. For this assignment you are asked to discover a group, local community organization, an individual, an initiative or a policy/plan that is working on a climate change issue close to where you live.



- Identify the group and their hope/mission.
- Provide a short summary of the work that they do within your community.
- Visit their website, participate in one of their events or contact someone from the organization to see how people just like you in your class/community can help.
- Provide helpful links for others in your class who are interested in learning more.

The way that you communicate this group to your classmates is up to you. You can **make a video, develop a social media campaign, record a podcast, make a google slides presentation** or **create a poster**. The choice is yours.

**ASSIGNMENT 4: HEADLINES AND HEROES PROJECT**

**PART 1:** Imagine that as a group of 3-4, you are responsible for creating a time capsule that highlights the major headlines and heroes from 2020 and 2021. Use social media, news clips, posters, and other artifacts to curate a time capsule. **Include at least 8 different items.** These could be photographs of important events or people, video/audio files. You are welcome to use the participants from the film as Heroes for the project too. You can learn more about the people in the film from this link: <https://www.themagnitudeofallthings.com/about>

**PART 2:** For each piece in your collection, include a voice clip or a typed paragraph outlining the importance of your item in the time capsule. What is the overall message or theme of your time capsule? Is it a message of hope, union, optimism, sadness, illness or despair? Ensure that there are enough details supporting your rationale so that if someone was to open the file or capsule, they would have a solid overview of what 2020-2021 encompassed.