



SHORTS PROGRAM

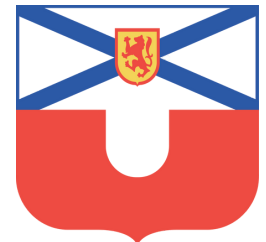
THE CARETAKERS

CURRICULUM RESOURCE

PRESENTED BY



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Nova Scotia
Teachers Union

CURRICULUM BY

Mrs. Krista LeBlanc

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 short documentary film *The Caretakers*. This resource is designed to help teachers frame discussions with their class, with classroom viewing activities for the film as well as an assignment relating to the themes of the film that can be completed after viewing.

ABOUT THE FILM

"I had no idea that a ladybird is a beetle!" is the reaction I often get whenever I talk about this incredible group of insects, and it perfectly sums up why I wanted to make a film about them. Not many people really know what beetles get up to, other than perhaps the famous dung beetle that tirelessly scoops up elephant dung into a ball then seemingly goes about its day, and at this point people seem to end their line of inquiry here. What does it do with this ball? How does it know where it's going? What's the point of a dung beetle in the first place? These are the kind of questions I wanted to set out to answer and more; I wanted to show that these innocuous, inconspicuous insects are far more interesting and important than they appear.

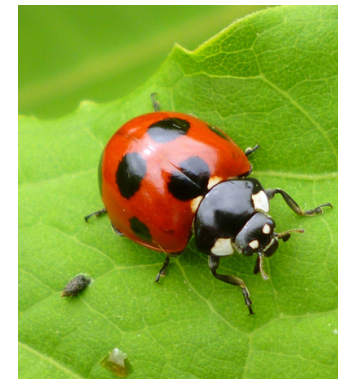
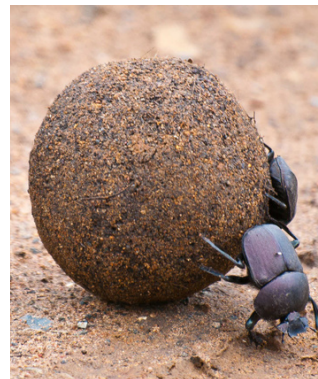
The overall thing that struck me throughout this production is how characterful each beetle was, showing an intelligence I had no idea insects were capable of which only made me love them more. To be able to venture outside my comfort zone and do something incredibly rewarding like this has been the experience of a lifetime."

Source: Tom Hanner, <https://www.tomhanner.com/the-caretakers>

ABOUT THE FILMMAKER

"Specialising in Blue Chip wildlife projects, I'm an award-winning photographer and filmmaker, recently nominated at numerous international film festivals including JACKSON WILD, the nature equivalent to the Oscars. The projects I have been involved in have so far covered the underwater world of Wales, the ecological importance of beetles and the audacious wildlife of London to name a few. Because of this, I have extensive experience working with filming teams around the world in remote locations. It's been an amazing adventure so far, and I can't wait for more!"

Source: Tom Hanner, <https://www.tomhanner.com/about-3>



SCIENCE 6

OUTCOME STATEMENT	
Learners will analyse diversity of life in nature and significant relationships within the natural world.	<ul style="list-style-type: none"> Investigate the characteristics of living things (COM, CT) Classify a set of living things (COM, CI, CT) Investigate applications of taxonomy for learning about diversity of life (COM, CT) Compare animals based on their characteristics (COM, CT) Analyse how organisms adapt depending on where they live (CZ, COM, CT) Investigate significant ecological relationships (CZ, COM, CT)

SCIENCE 7

OUTCOME STATEMENT	
Learners will analyse the interconnectiveness of living things and the environment, in relation to the concept of Netukulimk.	<ul style="list-style-type: none"> Analyse the interactions of various organisms within an ecosystem (CZ/CT/COM) Analyse the impact of humans on ecosystems, including pollution and green technologies (CZ/CT/TF) Analyse choices about resource management and sustainability in relation to Netukulimk (CZ/COM/CI/CT) Investigate energy input and matter recycling in an ecosystem (COM/CT) Analyse the interconnectiveness of biotic and abiotic components in nature, inclusive of a Mi'kmaw perspective (COM/CZ/CT) Investigate biological indicators of environmental health (COM/CT/TF)

SCIENCE 10 STUDENTS WILL BE EXPECTED TO...

OUTCOME #	OUTCOME STATEMENT
213-7, 215-1, 318-4	<ul style="list-style-type: none"> Diagnose and report the ecosystem's response to short-term stress and long-term change
214-1, 318-6	<ul style="list-style-type: none"> Describe how the classification involved in the biodiversity of an ecosystem is responsible for its sustainability

BIOLOGY 11 STUDENTS WILL BE EXPECTED TO...

UNIT	OUTCOME STATEMENT
Classifying Living Things	<ul style="list-style-type: none"> Describe and apply classification systems and nomenclatures used in the biological science (214-1) Use organisms found in local or regional ecosystems to demonstrate an understanding of the fundamental principles of taxonomy (316-5) 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)
Diversity Amongst Living Things	<ul style="list-style-type: none"> Describe the anatomy and physiology of a representative organism from each kingdom, including a representative virus (316-6) Analyze and explain the life cycle of a representative organism from each kingdom, including a representative virus (313-1)

PRE-VIEWING BRAINSTORMS:

What do you know about beetles?



Do you think beetles hurt or harm ecosystems? Justify your answer.



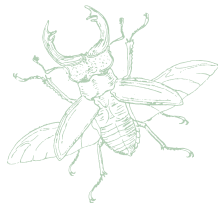
VIEWING QUESTIONS: 1) Why are beetles considered to be the caretakers of the Earth?

2) What makes beetles so successful?

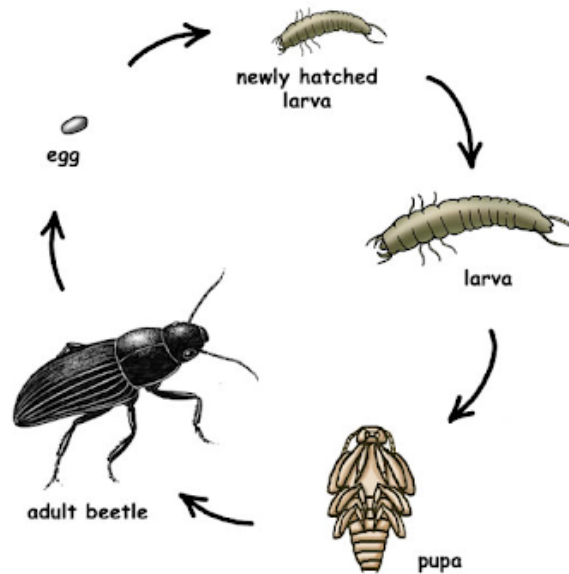
a) Wings:

b) Thorax protective armour:

c) Metamorphosis:



Life Cycle of the Common Ground Beetle
©Sheri Amsel www.exploringnature.org



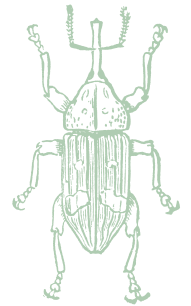
3) Describe the life cycle of a beetle. What surprised you the most about this unique lifecycle?



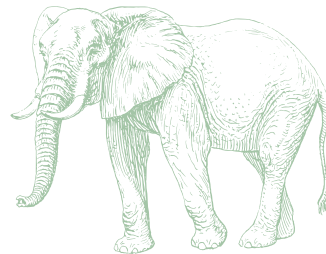
4a) What is the relationship between beetles and flowering plants?

4b) Were you surprised by the information provided in the video about bees versus beetles and flowers?

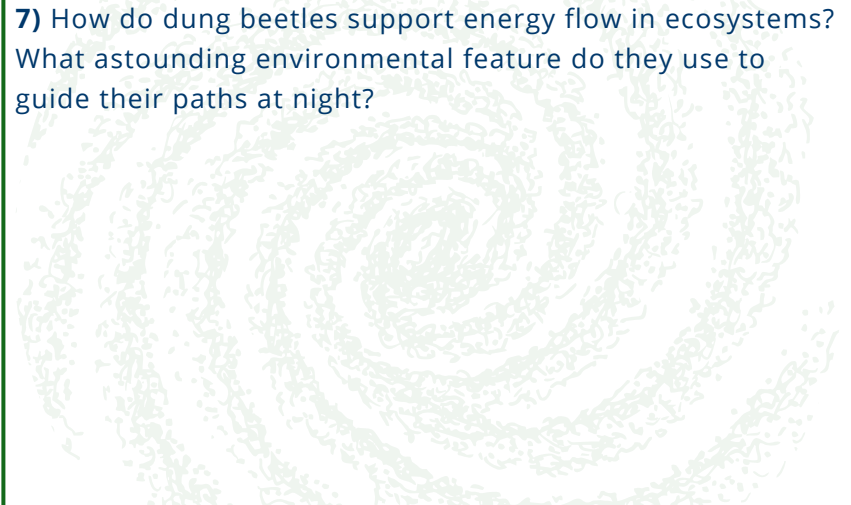
5) What special adaptations do weevils have that help them use different plant parts other than pollen from flowers?



6) How have mammals and beetles co-evolved? What is the ecological relationship that these two species have?



7) How do dung beetles support energy flow in ecosystems? What astounding environmental feature do they use to guide their paths at night?



8) How do beetles help control aphid populations?



9) How have beetles helped to inform scientists about plate tectonics?

10) The film's narrator warns that beetles are the coal mine canary for climate change. Describe what is meant by this comparison. How are beetles warning that climate change is happening? How can biological indicators be used as a marker for environmental health?

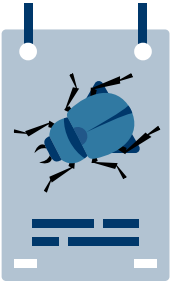


11) What are the implications to ecosystems if beetles cannot thrive?

12) How can beetles help with plastic pollution?



OPTION 1: POSTER CAMPAIGN



It is likely that while viewing *The Caretakers* short film, your perception of beetles changed; perhaps you now view them in a more positive light. Form a small group, gather art supplies from your teacher (or use an online program) and **design a poster summarizing the key learning points from the film.**

Questions to consider:

- What do you want others in your school to know about the importance of beetles?
- How do beetles and flowering plants network together?
- How can we advocate on behalf of beetles?

OPTION 2: NATURE JOURNAL PROJECT OUTLINE

“Nature offers us a thousand simple pleasures - plays of light and colour, fragrances in the air, the sun’s warmth on skin and muscle, the audible rhythm of life’s stir and push - for the price of merely paying attention. What joy! But how unwilling or unable many of us are to pay this price in an age when manufactured sources of stimulation and pleasure are everywhere at hand. For me, enjoying nature’s pleasures takes a conscious choice, a choice to slow down to seed time or rock time, to still the clamoring ego, to set aside plans and busyness, and simply be present in my body, to offer myself up.” - Lorraine Anderson, Sisters of the Earth



In this course you have been learning about life’s unity and diversity within the environment. We have explored the importance of abiotic factors and their importance in helping biotic systems. We have learned about naming systems and classifying organisms into Kingdoms (Eubacteria, Archaeobacteria, Archezoa, Protozoa, Chromista, Plantae, Fungi and Animalia). For this project, I invite you to **keep a nature journal** and to **use the nature journal to help with your metacognition about yourself as a learner, as a tool to help you relax and enjoy nature and for you to further develop as a naturalist.**

As humans, we have a tendency to place ourselves at the top or the center of the circle of life, but in class we have discussed the limitations of this perspective and we have expanded our thinking to include a radical repositioning to see humans as learners, learning from the knowledge of the Earth. David Suzuki (2002) states that “There is wisdom that we can learn in listening to ecosystems.” This assignment is “an invitation to go outside in nature, our home, that sustains us and is in every one of us and to appreciate, and observe our relatives” (Suzuki, 2002).

You may think that you need to travel to find nature, but this is not true. “The purpose of your nature journal is to study where you live and how you relate to it. Season by season, habitat by habitat.” (Leslie and Roth, 2000) As you will see, nature journaling is incredibly flexible. How you will curate your journal is entirely up to you! Perhaps you will use photography, poetry, drawings, sample collections, audio recordings, musics or other tools to record what you see, feel, hear when you are in nature.

OPTION 2: NATURE JOURNAL PROJECT OUTLINE (CONTINUED)



I encourage you to celebrate “linkages within communities”, and am optimistic that time spent outside will rekindle your sense of wonder and excitement about the world around you and that it will engender a feeling of peace and harmony at being, in balance with the natural world that is our home (Suzuki, 2002). I am excited for your nature journal project to sharpen your experiences and to help create a memory record that you can return to for reflection and reconnection (Leslie and Roth, 2000). Your nature journal will serve as an educational tool to connect some of the strands we have discussed in Biology 11, but also as a personal tool for your own curiosity and wonder. You will share your nature journal with the class in a world cafe platform later in the semester.

Skills and Knowledge Fostered by Nature Journaling (Leslie and Roth, 2000)


- > Scientific and aesthetic observation
- > Creative and technical writing
- > Layout and presentation of ideas and observations
- > Perception and analysis
- > Questioning, inventiveness, and synthesis
- > Reflection and silence
- > Meditation, focus and personal healing
- > Greater appreciation of nature and place
- > Shared family/class experiences
- > Finding your own voice, learning to open yourself up to new experiences
- > Self-confidence and the ability to express yourself

Timeline

This project will start at the beginning of the semester, and will end at the end! This will give you ample time to tinker, explore, create, and visit nature throughout two seasons! It is expected that you will work on your nature journal throughout the semester, and not leave it until the end. There will be opportunities for sharing during the semester and we will travel outside as a class frequently in the course to work on our nature journals together.

Reflection and Grading

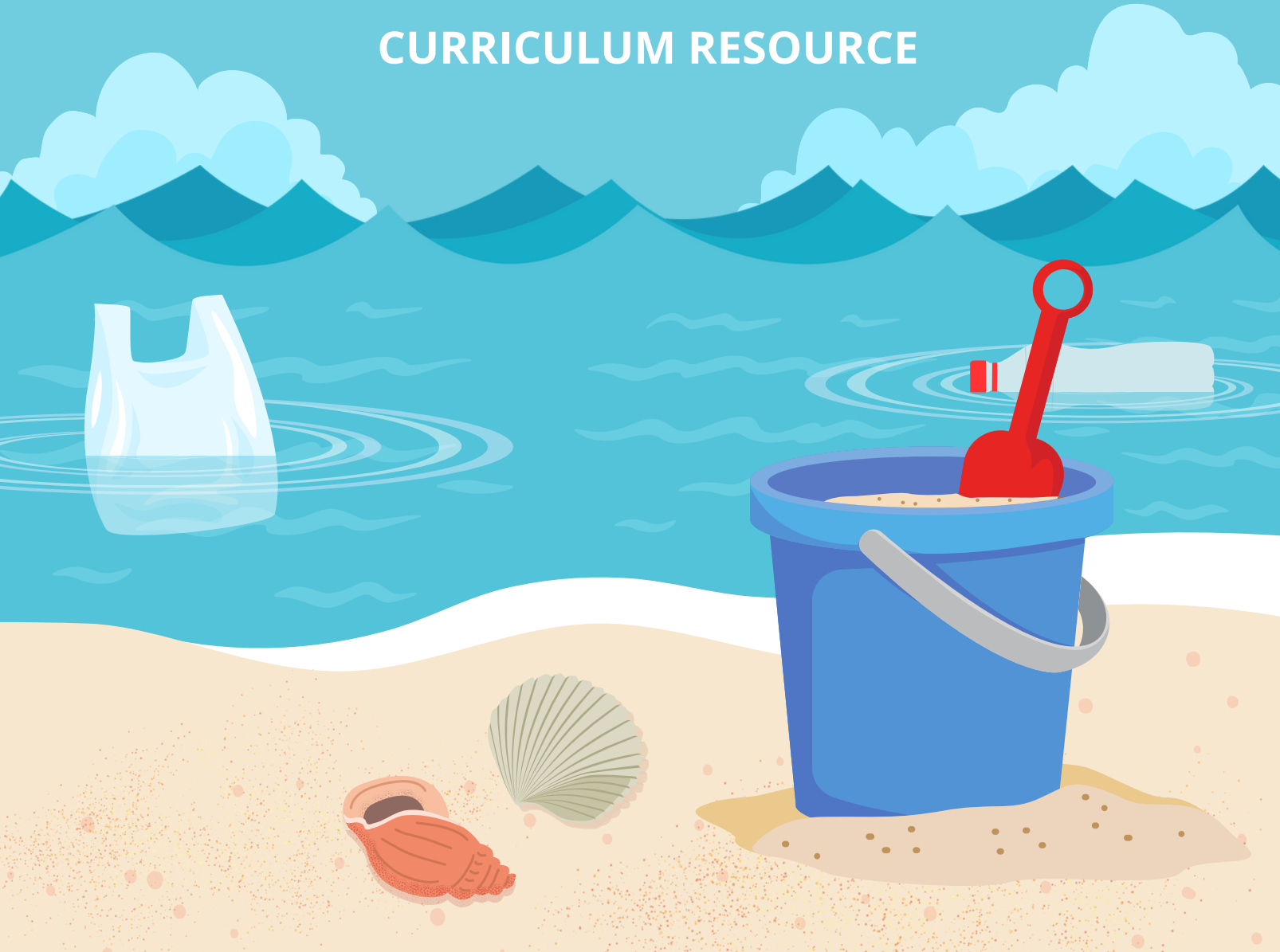
For this project, you will self grade the project and then have a conversation with your teacher about your growth during this assignment. You will score the project out of 10 total points. To guide you with your self-assessment, you should aim to answer the following questions:

- 
- *Who am I? How have you developed as a naturalist through this project?*
 - *What do you know? What have you learned about nature in your local area though journaling?*
 - *So what? Why was nature journaling important to you, and your community? How have your experiences shaped your beliefs about nature and the environment?*
 - *Now what? What action will you take now that you know more about your local community?*

SHORTS PROGRAM

IN LOVE WITH A PROBLEM

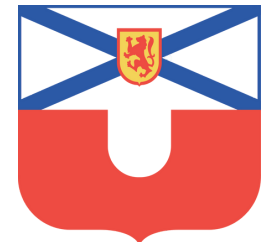
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IN LOVE WITH A PROBLEM

A SHORT DOCUMENTARY BY JULIE KIM

2021 | CANADA | 22 MINUTES | [TRAILER](https://vimeo.com/561994837) (<https://vimeo.com/561994837>)

TEACHER'S GUIDE

This curriculum resource will guide teachers and students to enrich their viewing experience of the short documentary film *In Love With a Problem*. This resource is designed to help teachers frame discussions with their class, with classroom viewing activities for the film as well as an assignment relating to the themes of the film that can be completed after viewing.

ABOUT THE FILM

Two innovative teens set out to rid the world of plastic waste. Along the way, they discover plastic-eating bacteria, unlock breakthroughs in chemistry and journey from Vancouver to Silicon Valley.

Miranda Wang and Jeanny Yao were still in high school when they discovered plastic-eating bacteria in Vancouver's Fraser River.

Passionate about the problem of plastic waste, the two millennial innovators have been on an inspiring journey to solve it ever since. Their dedication has taken them all the way to Silicon Valley — and from bacteria to cutting-edge chemistry.

Source: <https://www.cbc.ca/shortdocs/shorts/in-love-with-a-problem>

ABOUT THE FILMMAKER

Julie Kim is an award-winning Director / Director of Photography based in Vancouver that captures honest moments, imbued with drama and beauty.

Source: <https://filmfreeway.com/JULIEKIM>



SCIENCE 7 FROM THE RENEWED NS CURRICULUM SCIENCE 7 GUIDE

OUTCOME STATEMENT	
Learners will implement an environmental stewardship plan.	
Learners will analyse the interconnectiveness of living things and the environment, in relation to the concept of Netukulimk.	<ul style="list-style-type: none"> Students will analyse the interconnectedness of biotic and abiotic components in nature, inclusive of Mi'kmaq perspective.

SCIENCE 10 STUDENTS WILL BE EXPECTED TO...

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

OCEANS 11 STUDENTS WILL BE EXPECTED TO...

UNIT	OUTCOME STATEMENT
Coastal Zones	<ul style="list-style-type: none"> Identify and explain sustainability and human use of an environment (i.e. the ocean), including populations and resources, locally and globally (CZON-3).

BIOLOGY 11 STUDENTS WILL BE EXPECTED TO...

UNIT	OUTCOME STATEMENT
Classifying Living Things	<ul style="list-style-type: none"> 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) Construct arguments to support a decision or judgment, using examples and evidence, recognizing various perspectives (118-6) Describe the anatomy and physiology of a representative organism from each kingdom, including a representative virus (316-6)

INTRODUCTION: *In Love with a Problem* is a Canadian short film about youth, science, and technology. Before viewing the film, think about the following questions.

BEFORE VIEWING THINKING ACTIVITY 1 (INDIVIDUAL REFLECTION):



1) As a Canadian youth, what pressing issues do you feel your generation is facing today?

2) When you think about the future of the Earth, what feelings resonate with you? Jot down a quick rationale for these feelings.

BEFORE VIEWING THINKING ACTIVITY 2 (CLASS ACTIVITY):



3) The film *In Love with a Problem* provides a welcomed positive perspective pertaining to environmental concerns. There is an enthusiastic tone throughout the film. As a class, review the pressing issues that you listed in Question 1 above, and determine if you think these problems are unlikely or likely to be solved in your lifetime. If you selected that a problem is unlikely to be solved, can you identify a larger reason why you feel that a solution isn't available for that issue?



VIEWING QUESTIONS: 1) As the film opens, we meet two youth scientists, Miranda Wang and Jeanny Yao. The film begins with them telling the viewer that *“we keep track of our time on the planet based on what material we have to build it: the Stone Age, Bronze Age, Plastic Age.”* Jeanny highlights the importance of plastic and she states that it is a miracle material, which is something we don’t really consider recently. Justify why Jeanny considers plastic to be a miracle material. How do you personally rely on plastic?



2) What is so unique about Miranda and Jeanny’s project? How are they re-imagining what the status quo could be?

3) How was club involvement in High School pivotal to Miranda and Jeanny’s project?

4) Pause the film or return to this question after viewing. What is Canada’s Sanofi Biogenius Project? (<https://biogenius.ca/>)



5) Do you agree that most people significantly underestimate High School students? Justify your answer.

6) Summarize Miranda’s sentiments after she visits the Vancouver Transfer Station.

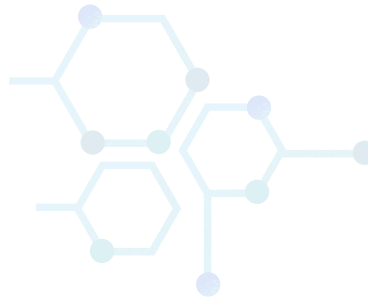
7a) Environmentalists are pressing for a more sustainable approach to be taken by citizens. When we adopt a systems thinking mindset, we believe in *emergent property design* (that the whole is greater than the sum of its parts). When we consider whole systems and their dynamic interconnectedness, we discover relationships between factors and this mindset promotes compassion and care. When we care about a problem, we tend to be better change agents. How would adopting a systems thinking mindset alter how you look at plastic pollution?



7b) Rhiannon Moore is a microplastics researcher. She says, *“You cannot argue with the fact that there is 8 million metric tons of plastic entering the ocean every year. That is something that you have to address! This pollutant gets in every species and every ecosystem. The amount of plastic that we have produced has grown so much that it will be in the fossil record.”* How does this statement affect your mindset about the world’s current plastic production?

8) What do Miranda and Jeanny discover through polluted environment lab investigations?

9) Even though Miranda and Jeanny don’t have chemistry backgrounds, as their project continues they realize that they must travel down a biochemistry path if they want to continue to pursue their research question. Do you think that it would be beneficial to learn science as an interwoven subject? Explain the pros and cons of this idea.



10) How was having a mentor important to Miranda and Jeanny?

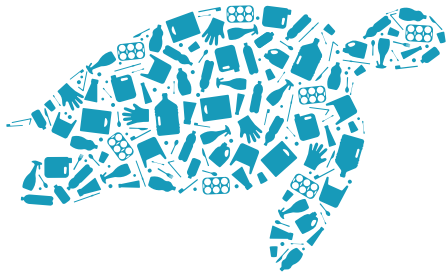
11) *“Once you show people how the future can be different, you don’t need to do much convincing from there. Be in love with the problem!”* Jeanny states. How does their proof of concept turning polyethylene into polyurethane building blocks help Miranda and Jeanny?

12a) What do Miranda and Jeanny suggest we open up to capture endless amounts of carbon?

12b) In 2015, Miranda and Jeanny founded BioCellection (now Novoloop) and took their project to Silicon Valley. Read more about their journey in this article: [Biocollection's Miranda Wang and Jeanny Yao Aim to Make Treasure Out of Plastic Trash](https://cen.acs.org/environment/recycling/BioCellection-Miranda-Wang-and-Jeanny-Yao-aim-to-make-treasure-out-of-plastic-trash/98/i9) (<https://cen.acs.org/environment/recycling/BioCellection-Miranda-Wang-and-Jeanny-Yao-aim-to-make-treasure-out-of-plastic-trash/98/i9>)

What do you find more surprising about Miranda and Jeanny’s journey?

What types of character traits do you think that Miranda and Jeanny have that make them life-long learners?



INTRODUCTION

Plastic pollution is one of the most significant issues facing our planet. Every piece of plastic ever produced still exists today! Plastic is built to last so it doesn't biodegrade; it shrinks, but it doesn't go away. Unfortunately, less than 10% of the plastic we produce actually gets recycled. It is estimated that 10 million tonnes of plastic is dumped into the ocean each year, and by 2050, the amount of plastic waste is expected to quadruple (Plastic Oceans International, 2021; Young, 2021). How can we help to protect the ocean and ourselves against the damage of plastic pollution?

ACTIVITY: THE PROBLEM WITH PLASTIC

Objective: Students will develop a sense of agency around the issue of plastic pollution by completing this task. Students will engage in a school/home clean up and collect plastic products to be used in upcycled art they will be tasked with designing.



Introductory Activity

1) As a class, students will brainstorm about plastic following the following prompts:

- Has anyone used a plastic product today?
- Where do we find plastic?
- What things contain plastic?
- What happens to plastic when we get rid of it?
- Is all plastic bad?
- Why is plastic so damaging to the ocean?
- How does plastic enter the ocean?
- How does plastic move around in the ocean?

2) Next, students will read the following article: 'Exercise extreme caution': 40 shipping containers lost in rough seas off Vancouver Island' (<https://vancouverisland.ctvnews.ca/exercise-extreme-caution-40-shipping-containers-lost-in-rough-seas-off-vancouver-island-1.5635069>)

3) Finally, students will predict what will happen to the pollution spilled from the 40 containers. Students will create a "Big Issues" concept map, identifying the big issues associated with ocean pollution and plastic products.

Viewing Activity



Watch the following TED-Ed video: "The Nurdles' Quest for Ocean Domination" (<https://www.youtube.com/watch?v=KpVpJsDjWj8>)

Design Challenge

Given the destructive nature of plastic pollution, it is critical for ocean sustainability that plastic products are replaced with better, more ecologically friendly products. Using your knowledge of the environment and biodegradable materials, as a group, redesign and create a more environmentally friendly plastic product. You can choose to redesign a plastic product that has been collected; alternatively, you may choose to research ocean plastic products (fishing nets, fishing line, flip flops, water bottles, etc.) and come up with a better strategy for these products.

Parameters for Success:






- The product must still function as the original product.
- The new design is more environmentally friendly.
- You have not just created a new form of garbage (the production of the design is not more resource intensive than the original).
- Your design can be sold to customers at roughly the same price.
- Your design must take sea creatures into consideration.

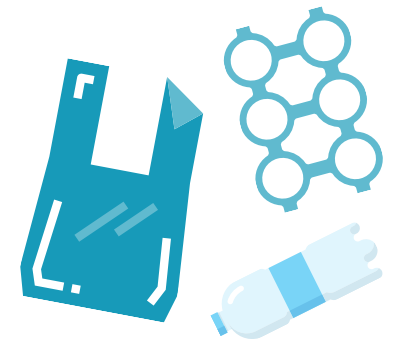
Guideline for Completion of the Challenge:

- Your design must be *completed in the allotted time*.
- You may use *any of the materials provided by your teacher or items that can be brought in from home* (these should be environmentally friendly products; think upcycling!). Your class may also wish to do a local school garbage clean up.
- Your group must work *within the designated budget*.
- You must be able to *present your design to the class* and explain why the product is a better version of the old product.

What is the product that you are going to redesign?: _____

Now that you have created your product, it's time to do some marketing! Create a written advertisement or a video commercial to market your product. Be sure to include:

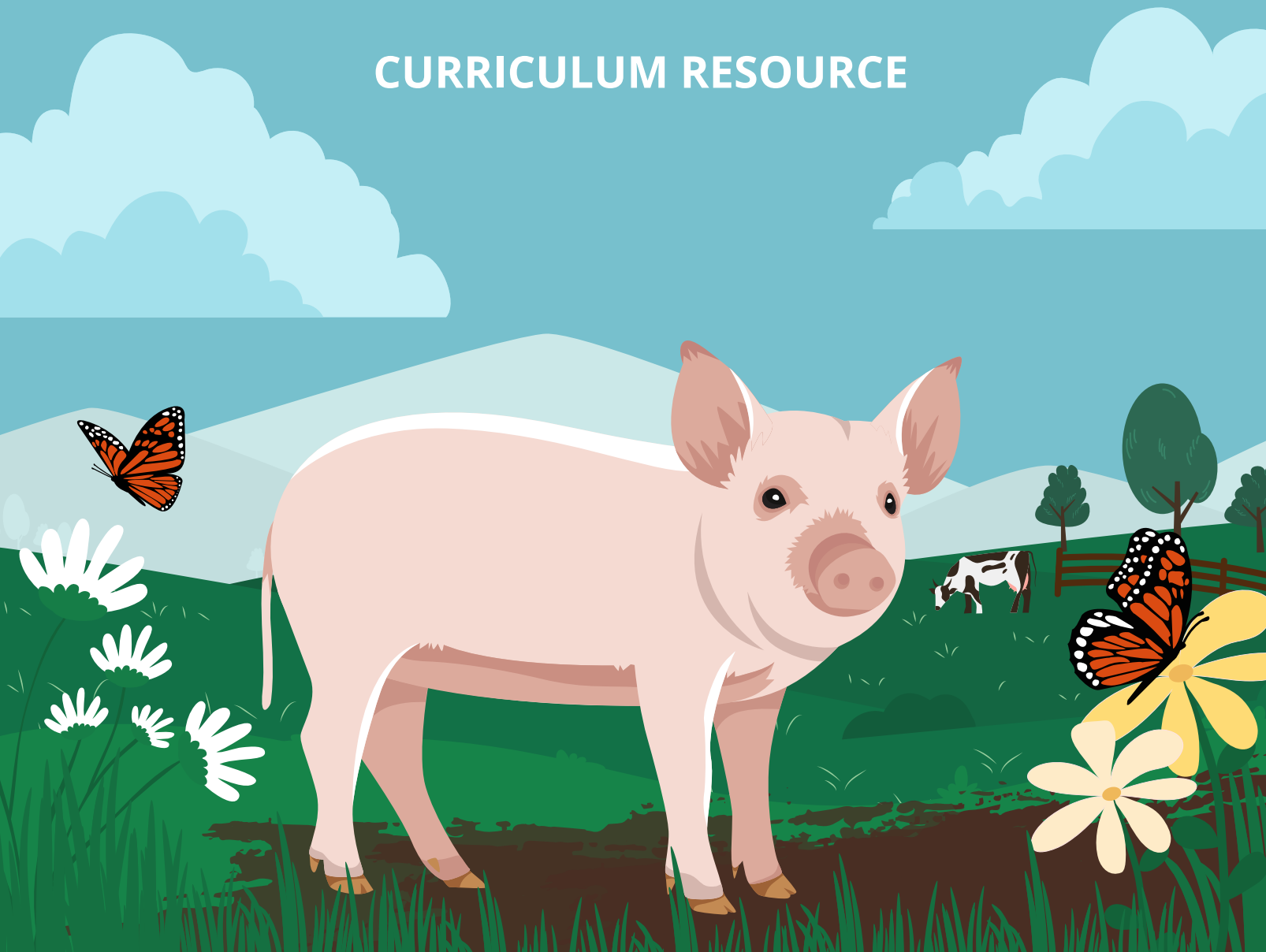
-  **What** the product is
-  The **function** of the product
-  How the new product is **superior** to the old product
-  The product's **price**
-  A **picture** of the product, or include the product in the video



SHORTS PROGRAM

TRANSFORMATION

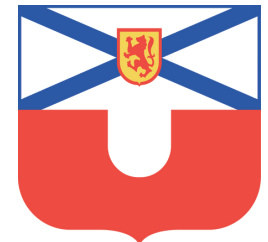
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TRANSFORMATION

A SHORT DOCUMENTARY BY THOMAS MACHOWICZ & SABINA DIETHELM
2022 | UNITED STATES | 6 MINUTES

TEACHER'S GUIDE

This curriculum resource will guide teachers and students to enrich their viewing experience of the short documentary film *Transformation*. This resource is designed to help teachers frame discussions with their class, with classroom viewing activities that can be completed while watching the film.

ABOUT THE FILM

As the founder of the "Transformation" concept, Sarah works to fundamentally change the system, not to simply oppose agriculture or to close individual farms. She wants a plant-based, nonviolent, more environmentally sustainable agriculture, not one that relies on farmed animals.

Filmmakers Thomas Machowicz and Sabina Diethelm visited Sarah in April 2022 and accompanied her to different farms all over Switzerland that she is working with and who are in various phases of their "transformations".

Source: <https://stock.weanimalsmedia.org/asset/24714/>

ABOUT THE FILMMAKERS

Thomas Machowicz is a documentary photographer and filmmaker focusing on animal rescue efforts and social issues. Thomas' work has been published by BBC News, Vox, The Arizona Republic, The Raw Society and We Animals Media. He is a Pro Member of The Raw Society and as a regular contributor to We Animals Media his work has been also featured in multiple animal rights campaigns.

Source: <https://www.thomasmachowicz.com/about-thomas>

Sabina Diethelm is a photographer based in Winterthur, Switzerland, who is passionate not only about creating beautiful imagery, but also about the people and stories behind it. [Sarah] knows the importance of good storytelling and with her photography, she seeks to create visually strong and meaningful narratives that go beyond the obvious.

Source: <https://www.sabinadiethelm.com/about>

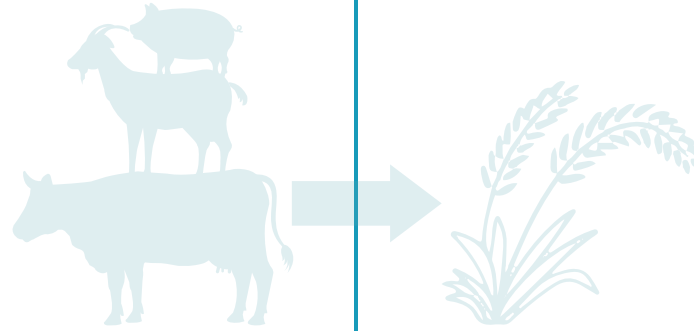
SCIENCE 7

OUTCOME STATEMENT	GUIDING QUESTIONS
Learners will analyse the interconnectiveness of living things and the environment, in relation to the concept of Netukulimk.	<p>Interconnectiveness</p> <ul style="list-style-type: none"> • What are some of the interconnections that can be observed in various ecosystems? • How do abiotic and biotic components interact in various ecosystems? • How can biological indicators be used as a marker for environmental health?

SCIENCE 10 STUDENTS WILL BE EXPECTED TO...

UNIT	OUTCOME #	OUTCOME STATEMENT
Sustainability	114-1	<ul style="list-style-type: none"> • Question and analyze how a paradigm shift in sustainability can change society's views

1) What does it mean to "Transfarm"?



2) What is an ecosanctuary or vegan farm?

3) What role does Sarah Heiligtag assume while helping farmers?

4) What crops do "transfarms" produce? How is this helpful towards decreasing carbon emissions?





SHORTS PROGRAM

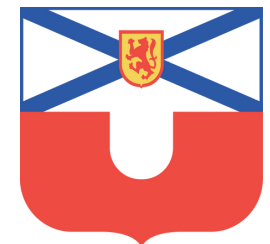
WHEN THE SWALLOWS FLY AWAY

CURRICULUM RESOURCE

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CURRICULUM BY

Mrs. Krista LeBlanc

IB Biology HL
Biology 11/12
Food Science 12

WHEN THE SWALLOWS FLY AWAY

A SHORT DOCUMENTARY BY SÉBASTIEN PINS

2021 | BELGIUM | 19 MINUTES | [TRAILER](https://youtu.be/i6ToollU2Yw) (https://youtu.be/i6ToollU2Yw)

TEACHER'S GUIDE

This curriculum resource will guide teachers and students to enrich their viewing experience of the short documentary film *When the Swallows Fly Away*. This resource is designed to help teachers frame discussions with their class, with classroom viewing and post-viewing activities for the film.

ABOUT THE FILM

In a small rural village, a young boy befriends Fernand and Andrée, a farmer couple who, at the age of 80 years, find themselves at trouble feeding their remaining livestock.

Source: <https://www.hirondelleslefilm.com/en>

ABOUT THE FILMMAKERS

Fascinated by the beauty, fragility and mystery of Nature, Sébastien Pins shows an early interest in photography. He relentlessly strives to capture strong and magical moments of connection between Man and Nature. His work has received numerous awards across Europe.

Source: https://www.imdb.com/name/nm5346563/bio?ref =nm_ov_bio_sm

SCIENCE 7

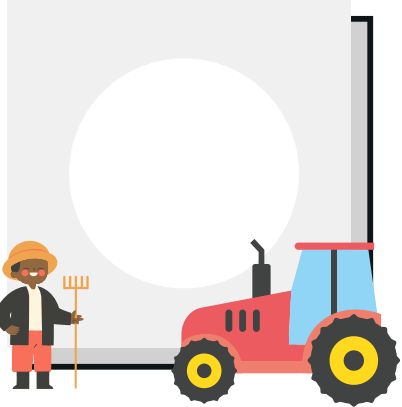
OUTCOME STATEMENT	GUIDING QUESTIONS
Learners will analyse the interconnectiveness of living things and the environment, in relation to the concept of Netukulimk.	<p>Interconnectiveness</p> <ul style="list-style-type: none"> • What are some of the interconnections that can be observed in various ecosystems? • How do abiotic and biotic components interact in various ecosystems? • How can biological indicators be used as a marker for environmental health?
	<p>Netukulimk</p> <ul style="list-style-type: none"> • How can natural resources be used in a sustainable way? • How does environmental racism impact various local and global communities? • How have human relationships with the environment changed over time? Human Impact • How are humans impacting ecosystems? • How has the impact of humans on ecosystems changed over time? • How are green technologies changing the impact of humans on ecosystems?

PRIOR TO VIEWING: Take a guess!

1) What is the average age of our Canadian farmers?

2) What information did you use to make your age guess?

3) Do you think that farming is a growing profession in Canada? Support your answer.



VIEWING QUESTIONS: **1)** Describe the relationship between the little boy and the older couple Fernand and Andrée in the film.

2) What feelings do you notice when you watch the couple and the little boy working with the animals in the film?

3) What happened to Fernand's tractor?

4) What is happening to Fernand's cattle? Why?



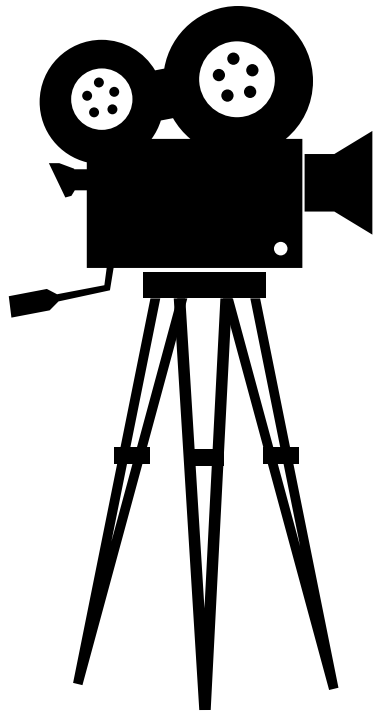
5) What isn't explicitly said in the film is that there is a relationship between cattle and barn swallows. When cattle numbers are high, there are more insects for the swallows as a result of the manure that the insects use as a food source. What is happening to the barn swallows as a result of Fernand's decreasing cattle numbers?



6) What do you think is preventing the little boy and his parents from purchasing the farm from Fernand and Andrée?



POST-VIEWING ACTIVITY: *When the Swallows Fly Away* is a very moving film with a very somber message. Imagine you are the director and you are asked to curate this film from a drama into a lighter movie.



What ending would you have created so that the audience would walk away feeling empowered that they could make a positive impact towards cattle farming?

What resources would you need to change the ending so that Fernand, Andrée and the boy continued living happily ever after?



Share your thoughts with your classmates.