

Subject/Grade: Science Education 4 Lesson Title: Exploring and Creating Kinesthetic Food Webs From Around the World
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Stage 1: Identify Desired Results

Outcome(s)/Indicator(s): *(List all of the Outcomes and Indicators that will be addressed during the lesson; when you do this for real, just using the codes will work BUT for the purpose of this assignment, I need you to cut and paste the full words for the indicators – this will help me during the assessment process!)*

Science

HC4.1 (h)

Analyze food webs as representations of multiple food chains.

HC4.1 (j)

Conduct a simulation or role play to demonstrate the interdependence of plants and animals in a habitat or community.

English Language Arts

CC4.2 (a)

Use a variety of visuals (e.g., chart, diagram) to communicate essential information when making an oral presentation.

Arts Education

CP4.2 (a)

Identify and use the elements of dance (actions, body, dynamics, relationships, and space) to express ideas.

Key Understandings: ('I Can' statements)

(Put the key learnings into student-friendly language that begin with 'I can...'. These should reflect the identified indicators. The students should know what these are at the beginning of the lesson. An example is: I can control how I throw a ball overhand. Doing this helps students engage in the learning since they know what it is that they will/need to learn).

I can analyze food webs and how they represent multiple food chains. (h)

I can express the interdependence of plants and animals in a habitat or community. (j)

I can use multiple visuals to present essential information. (a)

I can identify and use elements of dance to express ideas. (a)

Key Questions:

(What are three to four deeper learning questions that you want to make sure you ask during the lesson – write them out here – this will support you in asking purposeful questions during the lesson)

- What is a food web?
- What are trophic levels?
- What is the difference between a food web and a food chain?
- How does a food web link different food chains together?

Prerequisite Learning:

(What are some concepts, facts, and/or skills that students must already know/understand/be able to do in order to 'learn' what you expect of them today? An example is: what health promotions strategies are.)

Students must have previous knowledge of what food chains are, and various elements of dance (actions, body, dynamics, relationships, and space).
 Must understand vocabulary such as: habitat, ecosystem; or correlating synonyms.

Lesson Rationale

Through the unit that this lesson is embedded in, students will be able to understand how the environment around them supports the animals around them. Throughout this unit students will be able to identify the different habitats and ecosystems around them. When students learn about habitats it teaches them about the environment around them and makes them aware of the animals that need different conditions in order to live.

This lesson gives students the opportunity to understand food webs, examine the structure of them using trophic levels, and question how climate change can affect food webs. The environment considerations show the aspect of STSE that considers how we can protect our environment and sustain it for the future (Tippett et al., 2019). Once students begin to understand their environment within the community and why it's important to them they can better form this connection with the land. From here students will have a greater chance at understanding different teachings such as Indigenous ways of knowing, which would be looked at further into our unit.

Stage 2: Determine Evidence for Assessing Learning

(Identify your plans as either Formative and/or Summative and provide a brief description of what you will do to gain some form of evidence towards the O's and I's above, towards the 'I can' statements, towards the Key Questions. ALL of these should all connect and reflect each other! Strategy/process for how you will gather and retain this information should be briefly explained)

Formative Assessment:

Class Discussion/conversations:

- asking children how they feel during our discussions. (Are they understanding? Do they need clarification? Are they understanding that certain animals or plants belong on certain trophic levels? Do they know the difference between food webs and food chains?)
- their ideas on different food webs for different habitats (are they understanding that webs differ based on the habitat? Are they giving ideas on certain food webs we could find in other provinces, countries, or continents?)

Formative Assessment:

Observations:

- observing their group work (are they working well with others? Are they putting in equal amounts of effort? Are they being productive).

Formative Assessment:

Understanding and Participation while presenting:

- It is clear they understood the material they researched
- they are all taking part in the presentation; equal roles in the presentation.

Formative Assessment:

Compliment Sandwich and One Big Takeaway

- students will be tasked with individually writing a compliment sandwich for another group's presentations (Group A marks Group B, B marks C, C marks A.)

- one thing they think could be improved sandwiched between two things they liked about the presentation (Example: "I liked they actions used in the presentation, you could have spoken louder, but the animals you demonstrated were really cool!")
- Students will also note one big takeaway from watching and listening to their peers' presentation

Stage 3: Build Learning Plan

Set (Engagement):

Length of Time: 15 minutes

(Get their attention! And then tell them what you are going to learn through this lesson)

Task One: 15 minutes

Discussion/Developing Ideas

- Class will start with a discussion. We will view and discuss food webs.
- We will create an anchor chart as a class, using our discussion to develop an idea and understanding of what food webs are.
- We will decipher the difference between food webs and food chains, go over vocabulary words, trophic levels and examples of what animals might fit into which category.
- I will provide information and show examples of various land and marine food webs, as well as trophic levels to help better students' understanding
- I will prompt students to think about if they themselves would be part of a food web
- We will then consider how might climate change may affect these food webs
 - What happens when one source of energy (food) is taken away due to climate change?
 - How does the imbalance affect other animals?
- Finally I will ask students to think about different food webs that can be found in different habitats; List a few on the board (ask for a few examples of 1 producer and 6 consumers.. Encourage students to think of different food webs we would find across the world) Students could work in pairs or groups of three
- I will then move our anchor chart off to the side so we can reference it later if needed

Development:

Length of Time: 50 minutes

(Remember, everything you do here needs to align with the identified O's and I's and support the students in answering the key questions as well as reaching the 'I can...' statements).

Task Two: 10 minutes

Class Examples

- Task two will prepare students for their third task.
- As a class we will brainstorm our own food web typically found in the Canadian Prairies.
 - I will begin by writing something simple (a producer) such as grass at the bottom of the white board
 - I will then ask students to come up with two or three animals that would eat grass as a majority of their diet (rabbits, grasshoppers, mice, etc.)
 - After coming up with a few of the primary consumers, we will move on to secondary consumers (snakes, lizards, etc.)
 - Finally, I would ask them to think about tertiary consumers (hawk, owl, etc.)

Task Three: 40 minutes

Presentation Preparation

- Our third task will split students into groups of 7-8 students (depending on class sizes; Ideally three or four groups).
 - Each group will be assigned one of four distinct ecosystems: Canadian Freshwater, African Savanna, Tropical Rainforest and Arctic Ocean.
 - Sources for research will be provided.
 - Students will create a 7-10 minute visual and oral presentation
- Groups will create an anchor chart of their own to jot down their thoughts and ideas for their food web
 - Webs must consist of one producer or consumer per student (minimum 1, maximum 2 producers)
 - Anchor charts must have a diagram to represent the food webs
- Students will research their desired food web found in their assigned habitat, using classroom technology (computer, phone)
- After deciding which student is assigned to which plant, insect, or animal, students will create a kinesthetic presentation.
 - Students will plan what elements of dance (actions, body, dynamics, relationships, and space) should be used to express their food web (flapping arms like a bird, hopping like a rabbit, slithering like a snake, etc.).
- Students will have 40 minutes to do their research and preparation for their presentation, if they require more time they will have to do so on their own time unless given permission to work on it during free-time or work periods in other classes.

Learning Closure:

Length of Time: 45 minutes

(Do some form of 'check for understanding' and tell them or have them tell you what they learned. This can be done using a variety of strategies).

Learning Closure will take place during a later class period..

Task Four: 40 minutes

Presentations

- Students will be given 7-10 minutes to present their food webs
- During their presentation, students will orally and visually present their food web
 - They will visually and orally demonstrate how their animal moves, which animals eat what or whom, all while playing their role as their producer or consumer.
 - Using elements of dance/movement (actions, body, dynamics, relationships, and space)
 - They will also orally explain what is being demonstrated while playing the role of their assigned producer or consumer (What plant, insect or animal they play the role of, what trophic level they are, and what they eat).

Instructional Strategies:

- I will make time for class discussions and group work
- I will encourage lots of participation.
- I will observe students while they work independently on group work as well as their compliment sandwiches.
- I will set aside plenty of time for us to present our food webs.
- It will be noted and constantly reminded, that even though we are demonstrating what animals eat and playing roles of said animal, this is a hands-off environment and activity, and violence/hand-on engagement with peers is inappropriate and will not be tolerated

Materials/Resources:

- Anchor Chart Paper
- Markers/Pencil Crayons/Crayons
- Access to Technology
- Open Space
- Projector
- PowerPoint
- [Compliment Sandwich Feedback Resource](#)
- [Arctic Ocean Food Web Resource](#)
- [African Savanna Food Web Resource](#)
- [Tropical Rainforest Food Web Resource](#)
- [Tropical Rainforest Food Web Resource #2](#)
- [Canadian Lake Food Web Resource](#)
- [National Geographic: Trophic Levels Information](#)
- [Climate Drives Change in an Arctic Food Web](#)

Possible Adaptations/ Differentiation:

- We could take the class outside to present
- Students may choose to designate one member of their group to be a narrator of their presentation
- We may need to move desks to create more space or find an open space outside the classroom (gymnasium, outside)
- For visual learners we could post anchor charts from both class work and group work for students to refer to during and after presentations
- Create name tags for each students assigned producer or consumer

Management Strategies:

- I will provide clear expectations for our presentations

<p>Task Five: 5 minutes Compliment Sandwich and One Big Takeaway</p> <ul style="list-style-type: none"> Students will be tasked with writing a compliment sandwich for another group's presentations (Group A marks Group B, B marks C, C marks A.) <ul style="list-style-type: none"> 1 thing they think could be improved sandwiched between two things they liked about the presentation (Example: "I liked the actions used in the presentation! You could have spoken louder, but the animals you demonstrated were really cool!") Students will also note one big takeaway from watching and listening to their peers' presentation 	<ul style="list-style-type: none"> - I will provide clear instructions where I (the teacher) will clap my hands in a pattern and the students will repeat that pattern back to me. - I will check for understanding after discussions and explanations of the topic. - I will observe my students as they complete their Compliment Sandwiches. - If a hand is raised or I notice someone is having a hard time writing out their Compliment Sandwich, I will make my way over to them and answer any questions they may have. - I will orally acknowledge that students have X amount of time left to finish their Compliment Sandwich before we move on. - I will orally acknowledge when we will be moving on from one task to another <p>Safety Considerations:</p> <ul style="list-style-type: none"> - I will make sure when we are outside that there are no safety concerns such as holes, or things for students to get injured on while we do our food web presentations. - Offer help when needed. - I will be aware of actions and movements, and observe my class frequently and consistently to make sure everyone is respectful, kind and most importantly safe.
Reflection	
<p>I was excited to create a lesson about food webs as I have always been fascinated with food chains and how the hierarchy of the animal kingdom worked. I have also always been interested in the importance of the structure, curious about how things change when one variable is removed. Considering climate change and its effects on food webs is an interesting topic for not only me but young students as well, in the future I would like to build off this idea more.</p> <p>I taught my lesson to a few of my cousins, they found it interesting and engaging even though they are two grades higher. I think one thing I would add to my lesson would be a few more resources that had less photos so students actually have to read, however I was unable to find any that this grade level would be able to comprehend. I would also like to find some resources for movement/dance information and skills that I could educate my students on, in saying this I would also have to carve more time out for this extension to the lesson.</p>	
Rubric	

Formative Rubric for Kinesthetic Presentation	Exceeding	Meeting	Progressing	Beginning
Representation	The representation is clearly related to the chosen food web and ecosystem. The representation is creative and visually appealing.	The representation is clearly related to the chosen food web and ecosystem. The representation is visually appealing.	The representation is not clearly related to the chosen food web and ecosystem. The representation is somewhat visually appealing.	The representation is not clearly related to the chosen food web and ecosystem; it may also be messy and/or unfinished.
Food Web	The food web is relevant to the assigned ecosystem/habitat. The food web is clearly stated and is represented correctly. The parts of the food web are labelled (producer, consumer, decomposer) correctly.	The food web chosen is relevant to the assigned ecosystem/habitat. The food web is clearly stated and is represented correctly.	The food web chosen is not relevant to a surrounding community/habitat. The food web is stated and is represented fairly.	The food web chosen is not relevant to a surrounding community/habitat. The food web is not clearly stated and is not represented correctly.
Presentation	The presentation is clear, creative, and represents the food web thoughtfully. Both the anchor chart and kinesthetic presentation are accurate for the chosen subject.	The presentation is clear and represents the food web thoughtfully. The anchor chart and kinesthetic presentation are somewhat accurate for the chosen subject.	The presentation is somewhat clear but the food web is not represented clearly. The anchor chart and/or kinesthetic presentation are inaccurate for the chosen subject.	The presentation is not clear and the food web is not represented. The anchor chart and/or kinesthetic presentation are incomplete or missing. Students poorly/do not

	Students visually and orally demonstrate how their plant or animal moves, which animals eat what or whom, Students clearly demonstrate elements of dance/movement (actions, body, dynamics, relationships, and space) during their presentation	Students visually or orally demonstrate how their plant or animal moves, which animals eat what or whom, Students demonstrate elements of dance/movement during their presentation	Students somewhat demonstrate how their plant or animal moves, which animals eat what or whom, Students somewhat demonstrate elements of dance/movement during their presentation	demonstrate how their plant or animal moves, which animals eat what or whom, Students poorly/do not demonstrate elements of dance/movement during their presentation
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Resources

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