

6.9 Biodiversity in a Shoebox

Story Extension for This Lesson:

This activity can be done in each of John Rae's voyages to the arctic as each voyage offers a different set of challenges.

Grade: 6

Strand: Biodiversity

Big Ideas:

- Biodiversity includes diversity of individuals, species, and ecosystems. (Overall expectations 2 and 3)
- Because all living things are connected, maintaining diversity is critical to the health of the planet. (Overall expectations 1 and 3)
- Humans make choices that can have an impact on biodiversity. (Overall expectation 1)

Overall Expectations:

1. assess human impacts on biodiversity, and identify ways of preserving biodiversity
2. investigate the characteristics of living things, and classify diverse organisms according to specific characteristics
3. demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans

Specific Expectations:

- 1.2** assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished
- 3.5** describe interrelationships within species, between species, and between species and their environment, and explain how these interrelationships sustain biodiversity
- 3.6** identify everyday products that come from a diversity of organisms
- 3.7** explain how invasive species reduce biodiversity in local environments

Inquiry Skills:

Inferring, Reviewing, Reporting

Instructions:

The objective of this task to have your class summarize what they have learned about living in the arctic. This is an open-ended task where students are asked to create a shoebox diorama.

Be creative. Be adventurous.

Materials List:

- card stock
- coloured construction paper
- glue stick
- paint
- paintbrushes
- markers
- pencil crayons
- pencils
- erasers
- rulers
- etc.

Resources:

- How to Make a Diorama [http:// www.wikihow.com/Make-a-Diorama](http://www.wikihow.com/Make-a-Diorama)

Assessment Strategy:

It is recommended you focus your assessment on process skills. To help get you started on this path, a series of charts have been provided for you. Information provided in the charts are from Smarter Science: Introducing the Framework. For more information about Smarter Science, go to www.smarterscience.ca.

- Process-Skill-Reviewing-5
- Process-Skill-Reporting-11
- Process-Skill-Infering-14

Connections:

This lesson can be linked to a series of visual art lessons taught at the junior grades.

Subject Area:

Art

Connects to:

Grade 4, Grade 5, Grade 6

Process Skill - Reviewing

Process Skill	Students	Teachers	What This Skill Should Lead To
Reviewing	☐ picking out key facts and information ☐ perusing information carefully and thoroughly ☐ making connections between key content and concepts ☐ listing new questions that have arisen as a result of their investigation ☐ identifying directions for future investigation	☐ to be done independently, in pairs, and/or in small groups ☐ encouraging students to justify their choices of key points ☐ encouraging students to use multiple reviewing strategies e.g., mnemonic devices, acronyms, music, concept maps ☐ encouraging students to make personal jot notes identifying key points ☐ encouraging students to make connections between key elements	Students will become more able to recognize key concepts and ideas. They will hone their ability to make connections—concept to concept, self to concept, concept to world—and thus become more aware of their own understanding (metacognition). This in turn will make them more independent learners.

Teacher Notes:

Process Skill - Reporting

Process Skill	Students	Teachers	What This Skill Should Lead To
Reporting	☐ sharing ideas, based on facts and evidence, with others ☐ using creative and original presentation formats ☐ using an extensive vocabulary, yet writing or speaking succinctly ☐ giving others the opportunity to understand the world as the reporter does	☐ encouraging connections, inferences, and predictions ☐ promoting the sharing of ideas and evidence in a logical and concise manner ☐ encouraging creativity and the use of technology ☐ differentiated. Permitting and encouraging different presentation formats allows all students to successfully communicate their findings. ☐ scaffolding the process for students. Students can start by using a structured report format which evolves into a more sophisticated self-structured format. ☐ a natural literacy link	Students acquire research, speaking, and presenting skills through reporting. It is this step in an inquiry that establishes the factual and investigative background that informs their investigation. They gain an improved sense of logical sequences and often improve their ability to use vocabulary. A skilled reporter knows how to summarize background information and present it in a manner that piques the audience's interest.

Teacher Notes:

Process Skill - Inferring

Process Skill	Students	Teachers	What This Skill Should Lead To
Inferring	□ deducing information from incomplete evidence using reasoning or logic. The information does not need to be factual or correct. (For example, “The grass is wet in the morning, so I infer that it rained overnight.” This is a valid inference, but not necessarily a correct one— the wet grass could be from morning dew or a sprinkler system.) □ clarifying observations as evidence □ making a connection between what is known and what is unknown □ creating a tentative understanding of the situation without knowing or being given the “answer”	□ guiding students to make logical connections from available evidence □ encouraging students to consider alternative inferences □ scaffolded and deliberate □ using a modified K-W-L chart to show the process of making an inference: replace “What I know,” “What I want to learn,” and “What I learned” with “What I know,” “What I observed,” and “What I infer”	□ improved observation and deduction skills □ the ability to identify and analyze available evidence □ improved literacy skills as inferencing skills are applied to make meaning of written texts

Teacher Notes: