



Lesson Plan: Integrated Waste Management, Grade 9 Science (SNC1D and SNC1P)

Introduction

Garbage can have a significant impact on the environment if it is not managed properly. In this lesson, students will be introduced to integrated waste management and learn about the roles and responsibilities of Durham Region's Waste Management department. They will also begin to explore the connection between waste management and the health of terrestrial and aquatic ecosystems. Students will be encouraged to provide suggestions on how we can improve our current waste practices.

Learning Objectives

1. Understand and explain what is meant by Integrated Waste Management
2. Demonstrate and understanding the waste hierarchy and explain each step
3. Evaluate the best ways of dealing with different waste using the waste hierarchy
4. Access the benefits of separating solid waste

Resources Provided (located in the resource folder)

- [Durham Region Waste Management Website](#)
- [Long Term Waste Management Plan 2022-2040](#)
- Infographics:
 - How does Durham Region currently manage waste?
 - Waste hierarchy
 - What is a circular economy?

Questions

1. What does Integrated Waste Management mean?
2. Why has the Region been expanding and evolving their Integrated Waste Management Strategy?
3. How does the waste hierarchy fit into the Durham Region Waste Management program?
4. Could the waste hierarchy be improved? Explain your response.
5. How can we emphasis more focus on the more desirable options in the waste hierarchy such as Rethink and Reduce?
6. Using the resources provided, what will impact Durham Region's waste management decisions over the next 20 years?

Activity

1. Divide the class into two groups and assign one group terrestrial ecosystems (a type of ecosystem found only on landforms) and the second group aquatic ecosystems (an ecosystem in a body of water).

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2. Each group will brainstorm and list how improper waste management might affect their assigned ecosystem.
3. Once each group has completed their lists, they will discuss how they could assess / evaluate the effectiveness of the Region's waste management programs. Students should consider the waste hierarchy in their discussions.
4. Once complete, each group will share their main discussion points with the class.

Summary

Garbage can have a significant impact on the environment if it is not managed properly. This includes potential impacts on terrestrial and aquatic ecosystems. The Region's integrated waste management system aims to ensure our waste is managed responsibly to protect the environment and the community.

Curriculum Connections Expanded

The Ontario Curriculum, Grades 9 and 10: Science, 2008 (revised)

Science, Grade 9, Academic (SNC1D)

A. Scientific Investigation Skills and Career Exploration

- A1. Science Investigation Skills: demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating)

B. Biology: Sustainable Ecosystems

- B.1 Relating Science to Technology, Society, and the Environment: assess the impact of human activities on the sustainability of terrestrial and/or aquatic ecosystems, and evaluate the effectiveness of courses of action intended to remedy or mitigate negative impacts
- B.2 Developing Skills of Investigation and Communication: investigate factors related to human activity that affect terrestrial and aquatic ecosystems, and explain how they affect the sustainability of these ecosystems
- B.3 Understanding Basic Concepts: demonstrate an understanding of the dynamic nature of ecosystems, particularly in terms of ecological balance and the impact of human activity on the sustainability of terrestrial and aquatic ecosystems

Science, Grade 9, Applied (SNC1P)

A. Scientific Investigation Skills and Career Exploration

- A1. Scientific Investigation Skills: demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing, and recording, analysing and interpreting, and communicating)

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B. Biology: Sustainable Ecosystems

- B.1 Relating Science to Technology, Society, and the Environment: analyse the impact of human activity on terrestrial or aquatic ecosystems, and assess the effectiveness of selected initiatives related to environmental sustainability
- B.2 Developing Skills of Investigation and Communication: investigate some factors related to human activity that affect terrestrial or aquatic ecosystems, and describe the consequences that these factors have for the sustainability of these ecosystems
- B.3 Understanding Basic Concepts: demonstrate an understanding of characteristics of terrestrial and aquatic ecosystems, the interdependence within and between ecosystems, and the impact humans have on the sustainability of these ecosystems