

GRADE 4 & 5 LEARNING EXPERIENCE

Guess How Long that Garbage Lasts

Summary

Learners will investigate how long various waste items take to decompose. They will learn about chemical changes that take place in landfills from solid waste to the production of methane gas. Through group discussion and creative assignments, students will examine the environmental impacts of landfills.

Objective

This lesson will educate students about the chemical changes that occur in landfills. The activities will promote proper waste sorting by engaging and educating students about what happens after items are disposed.

Pre-Activity

GROUP DISCUSSION

DIRECTIONS

Write the following words on the whiteboard:

decompose **landfill gas** **recycling**

Break students into small groups and assign a word to each group. Ask students to brainstorm a definition for their word.

As a class, share the definitions the students created, then lead a discussion using the points below:

- How long does it take different waste items to break down in the landfill.
- What are the negative effects that landfills have on the environment?
- What chemical changes might occur in landfills?
- How does the decomposition process produce gas or liquids?

The discussion will help the class understand how important it is to divert waste from landfills through recycling.

MATERIALS

Whiteboard and markers

DURATION

10 mins

MAIN LEARNING OUTCOME

GRADE:

4

5

SUBJECTS:

Social Studies



Grade 4 / Outcome 4

Students will examine the relationship between humans and the physical environment.

Indicators

- Question the impact that humans have on the environment.

Science



Grade 5 / Outcome 5

Investigate how physical and chemical properties and changes affect matter.

Indicators

- Differentiate between physical and chemical properties of matter.

CROSS-CURRICULAR LINKS

English Language Arts



Grade 4 & 5 / Outcome 1

Listening and Speaking

Students will communicate effectively and clearly and respond personally and critically, respecting cultural contexts.

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#NothingWasted



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province.

Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

Activity

TRASH TRIVIA

DIRECTIONS

Break the class into two groups and play the **Guess How Long That Garbage Lasts** trivia game; assigning one point per correct answer.

After the trivia game, ask the students what they learned about how long garbage lasts. Students should observe that organics and paper break down much faster than plastic, glass and metal.

MATERIALS

Appendix 1:
Guess How Long That Garbage Lasts Trivia Game (PDF)

DURATION

15 min

Post-Activity

RECYCLING AND YOU

DIRECTIONS

Break the class into groups of three or four. Ask students to brainstorm answers to the following questions:

- Why is it important to divert waste from the landfill?
- How does recycling divert waste from landfills?
- What connection is there between landfills and climate change?

Have them record and share their answers with the class.

As a class, brainstorm ways to divert waste from landfills through recycling or reusing. How can the students promote recycling at home and at school?

MATERIALS

Whiteboard and markers

DURATION

15 min

Assessment

FORMATIVE

Assess student understanding by observing their work at different stages throughout the lesson.

SUMMATIVE (OPTIONAL)

Option to collect and grade the small group discussion sheets.

ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we've helped build a culture of recycling through environmental stewardship, education, and innovation. Divert NS operates the **Beverage Container Deposit-Refund Program** and the **Used Tire Management Program**. In addition, we work in collaboration with government,

industry, and academia to divert waste-resources from landfill. Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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APPENDIX 1

GUESS HOW LONG THAT GARBAGE LASTS

Trivia Game

The following is a slide overview for the separate file entitled:

GR-4-5-Guess-How-Long-that-Garbage-Lasts-Appx1-Trivia.pdf

In the PDF, the answer slides follow the ten quiz question slides shown here.



BANANA PEEL



Decomposes in: a) 3-4 weeks
b) 5-6 months
c) 1-2 years

www.n5.ca

PAPER BAG



Decomposes in: a) 6 months
b) 1 month
c) 12 years

www.n5.ca

CARDBOARD BOX



Decomposes in: a) 6 months
b) 2 months
c) 6 years

www.n5.ca

WOOL SOCKS



Decompose in: a) 10 years
b) 20 years
c) 1 year

www.n5.ca

APPENDIX 1

GUESS HOW LONG THAT GARBAGE LASTS — TRIVIA GAME (PAGE 2/2)

MILK CARTON



Decomposes in: a) 100 years
b) 50 years
c) 1-5 years

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ALUMINUM CAN



Decomposes in: a) 1 year
b) 1000 years
c) 500 years

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LEATHER



Decomposes in: a) 1 year
b) 50 years
c) 300 years

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DISPOSABLE DIAPERS



Decompose in: a) 1 year
b) 2000 years
c) 500 years

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FISHING LINE



Decomposes in: a) 800 years
b) 1 year
c) 2000 years

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GLASS JAR



Decomposes in: a) 5 years
b) 175 years
c) 1 million years

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GRADE 4 & 5 LEARNING EXPERIENCE

Guess How Long That Garbage Lasts

TRIVIA GAME

BANANA PEEL



Decomposes in: a) 3-4 weeks
b) 5-6 months
c) 1-2 years

PAPER BAG



Decomposes in: a) 1 month
b) 6 months
c) 12 years

CARDBOARD BOX



Decomposes in: a) 2 months
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c) 6 years

WOOL SOCKS



Decompose in:

- a) 20 years
- b) 10 years
- c) 1 year

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b) 1-5 years

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Decomposes in:

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GRADE 4 & 5 LEARNING EXPERIENCE

Guess How Long That Garbage Lasts

QUIZ ANSWERS

BANANA PEEL



Decomposes in: a) 3-4 weeks ✓
b) 5-6 months
c) 1-2 years

PAPER BAG



Decomposes in: a) 1 month ✓
b) 6 months
c) 12 years

CARDBOARD BOX



Decomposes in: a) 2 months ✓
b) 6 months
c) 6 years

WOOL SOCKS



Decompose in:

- a) 20 years
- b) 10 years
- c) 1 year



MILK CARTON

The wax or plastic coating on milk cartons makes them slower to break down than plain cardboard boxes.



Decomposes in:

- a) 100 years
- b) 50 years
- c) 1-5 years ✓

ALUMINUM CAN

It can take 200 to 500 years for an aluminum can to decompose when it is buried in a landfill.



Decomposes in: a) 1000 years
b) 500 years
c) 1 year



LEATHER



Decomposes in: a) 300 years
b) 50 years ✓
c) 1 year

DISPOSABLE DIAPERS

This number is an estimate based on the plastics and other materials used in disposable diapers.



Decomposes in:

- a) 2000 years
- b) 500 years**
- c) 1 year



FISHING LINE

Plastic (nylon) fishing line can float around the ocean for hundreds of years before breaking down.



Decomposes in: a) 2000 years
b) 800 years ✓
c) 1 year

GLASS JAR

Glass can be broken into tiny pieces, but in a landfill, it will still be “glass” for a long, long time.



Decomposes in:

* or more.

- a) 5 years
- b) 175 year
- c) 1 million years *

