

## 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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## 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](http://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

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### 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

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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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