What you’re missing

Digital Detox Challenge

Grade 9 student Cody Hutchison was irritated. His friends were always glued to their smartphones. They were addicted to their screens. It was impossible to talk to them. So he came . . .

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A Prairie Fireball!

It was about 6:30 A.M. on a February morning. It was still dark outside. Suddenly the sky lit up with a blinding flash. Security cameras captured a streak of . . .

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With a subscription, you’ll receive eight full issues.

Each issue combines current Canadian events and issues with geography to expand students' knowledge of Canada while enhancing their ability to read and understand informational text.

Three levelled news stories are accompanied by detailed literacy-based lesson plans, organizers, and criteria for assessment, as well as comprehension checks and a language focus.

“Your package will be a part of my classroom for many years to come!!”
- M. Schneider, Saskatoon, Saskatchewan

"I love this publication! It is an excellent complement to my Social Studies curriculum and the activities enable me to cover many provincial outcomes."
- S. Giffin, Dartmouth, Nova Scotia

"When I have kids in grade 4/5 wanting to know when the next issue is coming, even in December and June, that’s when I know I have an excellent resource."
- A. Eisler, Burnaby, B.C.
The Canadian Reader is a made-in-Canada teaching and learning resource featuring all-Canadian content. It has three main components; use the entire package, or pick and choose the pages that suit your class the best.

1. Literacy Focus – This generic lesson plan focuses on seven key non-fiction reading comprehension strategies, presented in the following order:
   Issue 1: Using Text Features
   Issue 2: Making Connections
   Issue 3: Visualizing
   Issue 4: Asking Questions
   Issue 5: Making Inferences
   Issue 6: Determining Importance
   Issue 7: Transforming/Synthesizing
   Issue 8: Reading Strategies Review and Assessment

Teachers may introduce and practice each month’s strategy using any of the articles in the issue, or save it for another time or text.

2. Canadian news stories – Each of the three articles is leveled and accompanied by Comprehension Check questions, a Language Focus, and a literacy-based lesson plan and supporting materials. Teach the lessons as they are presented, or pick and choose the activities and assignments you’d like to explore with your students.

3. Did You Know? comic – This comic provides basic information about a current news story or event, or supports one of the articles with background information. It’s a great way to engage reluctant readers and build students’ background knowledge in a fun and graphic way.

Note: All URLs referenced in The Canadian Reader are posted as links on our student website at http://www.lesplan.com/en/links. Bookmark this URL on your school’s computer network to give students easy access to our recommended sites.

Share The Canadian Reader with other staff members in your school, including itinerant, relief, and substitute teachers.
The problem

Humans are planning longer trips into deep space. They aim to build a base on the Moon. They are anticipating multi-year voyages to Mars. One challenge will be to bring along enough food.

“Imagine a crew of six astronauts and a mission of three years,” says a Canadian Space Agency scientist. “That’s a lot of food that you need to bring.”

Usually, space travellers bring prepackaged food. It can be freeze-dried or dehydrated so it lasts a long time. But will it be nutritious after months or years? Will it taste any good?

What if, instead, we could grow fresh food in space?

A contest

“The Deep Space Food Challenge” is a competition. The Canadian Space Agency is one of the organizers. The challenge is to develop the best food production system for use in space.

Scientists, researchers, and inventors will submit their ideas to the contest. Judges will choose the most promising ideas. Then the...
contestants will turn those ideas into working models. They will use them to grow food.

What will make a good food production system? According to one expert on growing food in space, the food should taste good!

“We could force the astronauts to eat kale all the time,” he says. “The difficulty is that people don’t like eating kale that much.”

The food should also be high in antioxidants. These substances are found in certain fruits and vegetables. They can help protect astronauts from too much radiation. On Earth, our atmosphere helps protect us.

But radiation is a big health risk in space.

Here’s something else to think about. What will power this food production? Space missions will not have unlimited power. Also, growing food shouldn’t create a lot of waste. Finally, it should be automated. The crops should grow even when astronauts are not there all the time to tend them.

Could this be a model?

For ideas, contestants could look to Canada’s North. In Gjoa Haven, Nunavut, there’s a greenhouse that’s built inside a shipping container. Vegetables grow there year round no matter what the weather.

The greenhouse operates on solar and wind energy. Workers harvest lettuce and cherry tomatoes, broccoli, and strawberries.

Food for Earthlings, too

If we develop food production systems for deep space, they could be used on Earth too. In the desert, for example. On rocky islands, or in Antarctica.

Contest organizers hope these new ways of growing food will “help feed our grandchildren and future generations both on Earth and off Earth.”

What is the importance of this story? Explain.

The Naurvik project in Gjoa Haven grows crops using hydroponics. That means the plants root in a liquid solution instead of in soil.
Comprehension Check

Mark the statements T (True) or F (False). If a statement is true, write one fact to support it on the lines below. If a statement is false, write the word or words that make it true on the lines below.

1. The Deep Space Food Challenge wants to find a way to grow food in Gjoa Haven.

2. Experts don’t think taste is an important factor.

3. Space travellers usually bring fresh food into space.

4. There is a greenhouse on the Moon.

5. Antioxidants help protect astronauts from too much radiation.

6. Food production systems developed for deep space could also be used on Earth.
Growing Food in Deep Space

Language Focus

Prefixes are added to the beginning of a word. They change a word's meaning.

*Example:* un + done = undone

**Directions:** Add a prefix from the tag to each of the words below. Then, write a sentence to show that you know the meaning of each new word.

1. _____ patient: ________________________________
   ________________________________

2. _____ certain: ________________________________
   ________________________________

3. _____ place: ________________________________
   ________________________________

4. _____ respectful: ________________________________
   ________________________________

5. _____ reversible: ________________________________
   ________________________________

Which words from the article contain prefixes?
Growing Food in Deep Space

Lesson Plan

Before Reading:

☐ Read the title of the article aloud. Conduct a class poll: How many of you think that food can be grown in space? Facilitate a Think-Pair-Share discussion. Ask partners to brainstorm what would be needed to grow fresh food in space. Invite several groups to share their thinking. Record students' ideas on a class chart, titled: What would it take to grow food in deep space? Post for reference.

During Reading:

☐ As students read the article, encourage them to highlight important information about growing food in space.

After Reading:

☐ Revisit the before reading chart. Place a √ next to any ideas found in the article. Distribute to each student, or pair of students, a copy of What Would It Take to Grow Food in Deep Space? (p. 20).

☐ Use the second section of the article The problem to model how to: a) determine what’s important about growing food in space and b) explain why it’s important. Project a copy of the organizer using appropriate technology, or create a T-chart like the following:

<table>
<thead>
<tr>
<th>What’s important?</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space travellers can’t bring three years worth of food on space voyages.</td>
<td>This means scientists have to come up with ways to grow fresh food in space.</td>
</tr>
<tr>
<td>Scientists are unsure if freeze-dried or dehydrated food will be nutritious or taste good after long voyages (months or years).</td>
<td>This means that the food grown in space must taste good and be nutritious.</td>
</tr>
</tbody>
</table>

☐ Direct students or pairs to complete the organizer for the remaining sections. When they are finished, invite them to answer the over-arching question, using their organizer as reference. Or, if you prefer, have students create an illustrated web with the question written in the centre of the web.

☐ Criteria for Assessment: An effective synthesis (or conclusion) is clearly stated, includes important main ideas, and offers logical explanations/reasons.

Extension:

☐ Option 1: Design your own deep space food production system
   Challenge students to use information from the article on food production in space (and additional research from the links in Internet Connections) to design their own deep space food production system using recycled materials.
Option 2: Participate in the Tomatosphere project

The Canadian Space Agency (CSA) has created a program called ‘Tomatosphere’. Enroll your class and order a seed kit that contains two batches of seeds – one germinated in space or in space-like conditions; the other, control seeds. Students grow the seeds in a ‘blind’ experiment, record the results, and share their findings with scientists. Check out the link in Internet Connections to learn more about the project.

Internet Connections:

- Read more about this news story: https://www.cbc.ca/news/technology/deep-space-food-nasa-canada-1.5915888
- Watch the video that launched the competition: https://youtu.be/pVDnGdIlMmA
- Can you enter the competition? https://www.asc-csa.gc.ca/eng/educators/tomatosphere.asp
- Discover how food is eaten in space: https://www.asc-csa.gc.ca/eng/astronauts/living-in-space/eating-in-space.asp
- See how NASA is growing plants in space: https://www.nasa.gov/content/growing-plants-in-space https://www.nasa.gov/mission_pages/station/research/news/meals_ready_to_eat
- Learn more about the Naurvik project: https://www.asc-csa.gc.ca/eng/educators/tomatosphere.asp
- Find out about the Tomatosphere Project: https://www.asc-csa.gc.ca/eng/educators/tomatosphere.asp

Note: All URLs are posted as links at http://www.lesplan.com/en/links
**Growing Food in Deep Space**

**What Would It Take to Grow Food in Deep Space?**

<table>
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<th>What’s important?</th>
<th>Why?</th>
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</thead>
<tbody>
<tr>
<td>A contest</td>
<td></td>
</tr>
<tr>
<td>Could this be a model?</td>
<td></td>
</tr>
<tr>
<td>Food for Earthlings, too</td>
<td></td>
</tr>
</tbody>
</table>

*The Canadian Reader*
Complete this map assignment to help you better understand the context of the article *Growing Food in Deep Space*.

Label the following, then colour:

**Provinces**
- Alberta
- Saskatchewan
- Manitoba
- Ontario
- Quebec

**Territories**
- Nunavut
- Northwest Territories

**Islands**
- Devon Island
- Victoria Island
- King William Island
- Ellesmere Island
- Baffin Island

**Water Bodies**
- Beaufort Sea
- Arctic Ocean
- Baffin Bay
- Hudson Bay

**Capital cities**
- Yellowknife
- Iqaluit

**Other**
- Greenland (Denmark)
- Gjoa Haven

**Did you know?**
The Arctic Circle is an imaginary line of latitude that circles the globe at 66° 32’ North.

Can you draw and label the Arctic Circle on your map? Use an atlas or other reference source to help you, if necessary.

*A good map is complete, accurate, and visually appealing.*
Students Can Work In Word/Google Docs...

Did you know...

. . . that each issue of *The Canadian Reader* includes a PDF file (complete document) and a Word file (articles and questions only)

Students can complete assignments directly in a Word file. Teachers can email the file to students or post it on the Internet. The Word file also allows teachers to:

- easily modify and format content including changing fonts and text sizes
- create a PDF document and use Adobe Reader’s ‘Read Out Loud Mode’
- save paper and copying costs and help protect the environment
- promote and encourage students’ computer skills

Password Security

There are three ways to access data from a Word file that is password protected:

1) Select the data you wish to Copy and then Paste it into any word processing program. Use Select All to copy the entire document.

2) Import the entire Word file into LibreOffice (or another similar program) and then save as a new file.

3) To remove the password from a protected Word file, use Save As to make a new copy of the file. You can then change the Security settings and remove the password.

Google Docs and LibreOffice

- You can easily upload the Word file to Google Docs and share it with students or other teachers.

- You can translate Google Docs into another language (see Tools>Translate document) but you will need to edit the document to suit your requirements. Google Docs can translate into over 100 languages including Spanish, Mandarin, and German.

- LibreOffice is a free alternate to Microsoft Office and offers the same functionality. It’s easy to install and use. See: [www.libreoffice.org](http://www.libreoffice.org)

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Students want to know what’s happening in their world – but the news can be difficult and time-consuming to teach.

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The Canadian Reader

PDF/Word resource
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- Literacy-based lesson plans
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What in the World?

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News4Youth.com

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- Auto-graded quizzes
- Comment page for students to respond to the stories
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PDF/Word resource
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- Consistent with First Peoples Principles of Learning
- Encourages a respectful, reflective, empathetic, and inquiring frame of mind

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This classroom-ready resource combines current Canadian events and issues with geography to expand students’ knowledge of their country while enhancing their non-fiction literacy skills.

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Subscribe now for the 2021 - 2022 school year, and get this year’s March, April, and May issues FREE!

These current events are the perfect supplement for any Social Studies program. They are a wonderful jumping point for class discussion. Keep up the good work!

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It is a relief to have a resource that fits with the curriculum and is teacher-friendly (ready to hand out). The added bonus of having the answers to the questions and discussion notes makes my life just a little bit easier.

B. Thibodeau, Saskatoon, SK

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D. Faerber, Pembroke, ON

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