



global system choices

unit four

ask

How can Canada manage our natural resources in a more sustainable way?

acquire

- Teacher answer keys and lesson handouts
- Websites
- Articles
- PowerPoint

explore

- Building an MP3 player
- Article analysis—barriers
- Infographic and news articles
- Environmental protection inquiry

analyze

- Sustainability of products we use
- Sustainable oil production

act

- Exit card
- Design a label
- Analyze an issue
- Recommendations to the Canadian government
- Presentations—Environmental forum

U4L3 | Managing resources for sustainability

This series of activities will help students understand that products they buy are produced from natural resources, the development of which impact global sustainability. First, students will build an MP3 player and face some of the choices that impact the sustainability of their product. Then, they will explore four barriers to sustainable resource management by reading articles and sharing through a jigsaw. They then look at the Canadian context and compare Canada's resource management with that of Norway. Finally, they research and present on new strategies to work toward protecting the natural environment from the impacts of economic activity.

subjects: Geography, Law, Civics, Business, Technology

timing: **Activity 1**

Considering the hidden costs of production | **150 minutes**

Note: follow up with Activity 5, 6 and/or 7

Activity 2

Barriers to sustainable resource management | **75 minutes**

Note: follow-up with Activity 8

Activity 3

Sustainable resource management Canada vs Norway | **185 minutes**

Note: follow-up with Activity 9

Activity 4

Ensuring environmental protection | **150 minutes**

Note: follow-up with Activity 10

Activity 5

Considering the hidden costs of production exit card | **10 minutes**

Activity 6

Considering the hidden costs of production design a label | **75 minutes**

Activity 7

Considering the hidden costs of production issue analysis | **50 minutes**

Activity 8

Barriers to sustainable resource management summary organizer | **35 minutes**

Activity 9

Sustainable resource management Canada vs Norway Government proposal | **60 minutes**

Activity 10

Ensuring environmental protection forum | **150 minutes**

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learning goals

- To understand that manufactured items are produced through decision-making that impacts global sustainability.
- To understand that there are barriers, nationally and globally, to sustainable resource management.
- To understand the Canadian government's policies on environmental protection.
- To analyse the validity of these policies using the Alberta oil sands as a case study
- To compare Canada's perspective on oil extraction with that of Norway.
- To evaluate progressive strategies used globally to ensure environmental protection.

success criteria

- To complete an MP3 production organizer to demonstrate critical thinking with respect to decision making.
- To describe one barrier to a peer group.
- To accurately complete a summary organizer to explain the four main barriers to sustainable resource management.
- To investigate a variety of materials and complete assigned activities.
- To work cooperatively with group members to explore and share information.
- To prepare a presentation to share learning with my classmates on a related topic of my choice.

ask

Inquiry questions

- How do companies balance social and environmental sustainability with the need for profit when producing consumer goods?
- What are the barriers to sustainable resource management?
- How do Canada's sustainable resource management practices compare to those of Norway, another wealthy oil producing nation?
- How do we protect the natural environment from the negative impacts of economic development?

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acquire

Activity 1

Interactive: Building an MP3 player (link in student worksheet)
Considering the Hidden Costs of Production student worksheet

Activity 2

Barriers to Sustainable Resource Management student worksheet
Barriers to Sustainable Resource Management teacher answer key (appended to lesson plan)
Article 1: The great economy vs environment debate
Article 2: The Story of Stuff externalized costs and the \$4.99 radio
Article 3: Excerpts from Cambodia sugar rush
Article 4: Nunavut Premier wants more power over resource development

Activity 3

Sustainable resource management Canada vs Norway student worksheet
Sustainable resource management Canada vs Norway teacher answer key (appended to lesson plan)
Article 1: Canadian Geographic CCS
Article 2: Canadian Geographic water and tailings
Article 3: Canadian Geographic regulation and rehabilitation

Activity 4

Toward Environmental protection student worksheet
Cradle to cradle design PowerPoint presentation

explore and analyze

Activity 1 | Considering the hidden costs of production

Students complete the National Geographic activity on the MP3 player to understand that each stage of production requires choices for people, profit and planet. Throughout the activity students are acting as company owners and using critical thinking skills to try to produce a sustainable MP3 player.

Note: follow up with Activity 5, 6 and/or 7

Activity 2 | Barriers to sustainable resource management

Students read about four barriers to sustainable development and put the barriers into their own words. They then select an article from four choices and conduct a jigsaw to understand the four barriers in a real-world context.

Note: follow up with Activity 8

Activity 3 | Sustainable resource management Canada vs Norway

Students will examine an infographic to better understand the economic value of oil extraction in Canada. Then they will look at a resource from the Canadian government that outlines the measures the federal government takes to protect the environment. They will then read a selection of news articles outlining Canada's environmental protection strategies in action. Finally they will watch a video from the government in Norway and read an article to see how another wealthy nation is handling sustainable resource extraction.

Note: follow up with Activity 9

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Activity 4 | Toward environmental protection

Students conduct an inquiry individually or in groups (depending on time and class sizes) on a progressive strategy to promote environmental protection. They share their learning with the class in a presentation, summarized by the class into an organizer. One of the resources available to students in this activity is the Cradle to Cradle Design powerpoint.

Note: follow up with Activity 10

act

Activity 5 | Considering the hidden costs of production exit card

Students complete two questions as an exit card for the MP3 lesson.

Activity 6 | Considering the hidden costs of production design a label

Students answer questions and design a label to inform consumers about the sustainability of the MP3 player.

Activity 7 | Considering the hidden costs of production issue analysis

This activity will have students learn about the fossil fuel industry globally and within Canada.

Activity 8 | Barriers to sustainable resource management summary organizer

Students complete and submit their summary organizer on the four barriers to sustainable resource management using examples from their research.

Activity 9 | Sustainable resource management Canada vs Norway government proposal

Students draft a proposal to the Canadian Government outlining five recommendations for more sustainable management of Canadian oil resources.

Activity 10 | Ensuring environmental protection forum

Students will share their learning and presentations by preparing a Toward Environmental Protection forum for the class, school or for another public venue (library, community centre).


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U4L3 | Managing resources for sustainability

U4L3A1 | Considering the hidden costs of production | TEACHER ANSWER KEY

overview

Students complete the National Geographic activity on the MP3 player to understand that each stage of production requires choices for people, profit and planet. Throughout the activity students are acting as company owners and using critical thinking skills to try to produce a sustainable MP3 player.

learning goal

- To understand that the items students purchase are produced through decision-making that impacts global sustainability.

success criteria

- Students will complete the MP3 production organizer to demonstrate critical thinking with respect to decision-making.

Inquiry Question

- How do companies balance social and environmental sustainability with the need for profit when producing consumer goods?

To access the interactive activity on making an MP3 player, click on the link below:
<http://globalcloset.education.nationalgeographic.com/map-done>

1. Complete the inquiry into building a MP3 player. Pay particular attention to the hidden costs as you collect badges. If you would like to read the transcript of the video, click Show Transcript in the top left corner. If you would like to change your mind about a decision you made, click the back arrow on the webpage and it will take you back one step.
2. Complete the organizer on the next page according to the following instructions as you proceed through the activity:
 - a You need to complete the **'How will you decide?'** section by identifying the costs and benefits for each option. To identify the costs and benefits, select each option to hear more about the impacts of each choice. In addition, you need to use prior knowledge from your understanding about sustainability.
 - b You also need to complete the **'What decision did you make'** section by identifying your choice and **explaining how it balances care for people and planet with need for profits.**

U4L3 | Managing resources for sustainability

U4L3A1 | Considering the hidden costs of production | **TEACHER ANSWER KEY**

MP3 production stages	Options	How will you decide?	What decision did you make and WHY did you make it?
Metal	Reopen mine in the United Kingdom	<ul style="list-style-type: none"> • Mine will not cost as much to reopen, and also has the added bonus of copper and zinc. • Creates and reopens many jobs and helps local economy. • Miners will have to take extra care not to damage the surrounding environment. • Because of the materials, the product is slightly more expensive. • Shipping from the United Kingdom costs money and contributes to carbon emissions. 	<p>Note: In this section students should be showing evidence of balancing people, profit and planet.</p> <p>Student exemplar I would choose to use the metal from the reopened mine in the United Kingdom. This is because the metal from this mine is still quite affordable for most and it is also mined in a more environmentally friendly way than it would be in a brand new mine. I feel that this metal is a healthy medium between people friendly and planet friendly.</p>
	Choose recycled indium	<ul style="list-style-type: none"> • It is the most environmentally friendly choice but it also the most expensive. • May be made more accessible in the future with new technologies. 	
	Open new mine in Bolivia	<ul style="list-style-type: none"> • Lots of profit available from this new mine. • Many possible employees in the area. • Shipping to Canada costs money and gives off carbon emissions. • Building the mine displaces indigenous people and could have possible social or ethical effects. 	
Screen	Glass	<ul style="list-style-type: none"> • Is only manufactured in China, so it is not good for local businesses and shipping prices would be high. • Causes large amount of pollution in Asia and is unfair for the people living there. • Works very well for phone and MP3 player screens. 	<p>I would choose to use plastic in the meantime but would look into investing in specialist plastics. This is because plastic is currently the cheaper and more desired material by people but it is not very sustainable. Specialist plastics could someday be a very affordable and environmentally-friendly choice though that is not the case today. It is produced from a non-renewable resource.</p>
	Plastic	<ul style="list-style-type: none"> • Cheaper than glass most of the time. • Could become more expensive in the future as gas prices rise. • This is because plastic is made from oil which is non-renewable and will someday run out. • Not environmentally friendly. 	
	Specialist plastic	<ul style="list-style-type: none"> • These materials still are not very popular because their science needs to be perfected. • This would create jobs for scientists and workers. • Could be a very good choice in the future once it is made less expensive. 	

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U4L3A1 | Considering the hidden costs of production | **TEACHER ANSWER KEY**

MP3 production stages	Options	How will you decide?	What decision did you make and WHY did you make it?
Electronics	Factory with good human rights record	<ul style="list-style-type: none"> • More expensive to run but treats workers better and pays higher. • Helps out the local economy and provides good jobs. • Looks more appealing to buyers because they know that their product is not from a sweatshop or factory with unsafe working conditions. This could likely increase amount of sales. 	<p>I think that the smartest business decision would be to choose a factory that looks appealing to buyers and makes them feel good about what they have purchased. This is why the factory with a good human rights record would be the best choice. It is a bit more expensive but it produces a bulk amount of products that are good quality. It also creates safe, well-paying jobs, and also helps the local economy out.</p>
	Well-established factory with sketchy human rights record	<ul style="list-style-type: none"> • Easy to start up because there are workers immediately available. • Workers may not be paid or treated very well. • Could face judgement in the future from press because of working conditions, and lose buyers. 	
	Low-cost factory in a natural disaster-prone area	<ul style="list-style-type: none"> • Low cost appeal to a large amount of buyers. • Takes longer to ship because of these natural disasters. • People in poverty and desperate for work so there is no shortage of workers. • Natural disasters cause worker fatalities and damage to factory, which costs money to rebuild. (If companies choose not to rebuild though, factories could be left with unsafe working conditions.) 	

U4L3 | Managing resources for sustainability

U4L3A1 | Considering the hidden costs of production | **TEACHER ANSWER KEY**

MP3 production stages	Options	How will you decide?	What decision did you make and WHY did you make it?
Software	Buy a company abroad that specializes in MP3 player software	<ul style="list-style-type: none"> • Specializes in MP3 software and is reliable in that aspect. • May have a sketchy past though so companies would want to be careful working with them and associating your brand with them. • Workers can be from anywhere as long as they know how to use the software. 	I think that I would choose to recruit software developers of my own even though it may cost a bit more. It allows a company to create their product the way they want to. This can be good because buyers can find that a creative and “human” interface is a valuable selling point. This also allows a company to know for sure that they have been sustainable and will not be slandered in the future for that.
	Recruit software developers of your own	<ul style="list-style-type: none"> • May cost more to start with nothing rather than just purchasing an existing company. • Workers who are inspired, imaginative, and can choose how they want the software to work. • This can be a very valuable selling point for many who like a very “human” interface. 	
	Buy a licence to use someone else’s software	<ul style="list-style-type: none"> • Cheaper to use others software than create your own. • Companies don’t have to worry about copyrights or trademarks. • There can be software limitations (It may not allow your software to work the way you want it to work because someone else has made it). 	

U4L3 | Managing resources for sustainability

U4L3A1 | Considering the hidden costs of production | TEACHER ANSWER KEY

Using the information from the activity and from your prior learning about sustainability, answer the following questions:

- 1. Do you think you have produced a sustainable product? Why or why not? Provide two reasons, being sure to connect it to the themes of sustainability (people, profit, planet).**

Answers will vary, however students should be providing reasons that show a balance toward people and the environment, not just profit.

Exemplar

I think that yes, I have produced a sustainable product. To create this MP3 player, I have opted to use indium from a reopened mine in the United Kingdom. This costs less to produce and for the consumers, and it is also better for the environment to reuse an old mine. I also have chosen to use create my own software company so that I can know for sure that the people working to create this product are paid and treated well. These things help contribute to making a sustainable product.

- 2. What was difficult about choosing each of the materials for your MP3 player? Identify two barriers to making the sustainable choice for one raw material in the activity.**

Making choices that benefit people and the environment always cost more. For example, when deciding on the source of indium, reopening a mine was less expensive than building a new mine but both were less environmentally friendly decisions than using recycled indium because they are taking a non-renewable resource from the ground which damages habitat and both also involve shipping which creates pollution.

- 3. Did this activity accurately reflect the types of choices made by businesses in the ‘real world’? How was it perhaps easier for you to choose options than it would be for a business owner? Explain your answer using two examples from the activity.**

In theory it reflects similar choices to real businesses, however I did not have nearly the detail of information required to make an accurate choice. Also, I know this is a simulation so I can choose more expensive options, but in the real world price is very important in order to attract customers. I could have chosen the ‘environmental’ choice at each stage, and my product would reflect the true cost of production, but nobody would buy it because it is so expensive.

- 4. Explain the importance of trade to the production of your MP3 player.**

Without trade I would not have been able to access some of the raw materials I need. Different materials are produced in different locations globally and this allows countries to specialize in certain products.

- 5. Indium is a by-product of tin mining and is also produced in Canada. How would using Canadian indium affect the sustainability (the impacts on people, profit, planet) of your product? Provide three ways.**

Since I reopened a mine in the UK to get indium, using Canadian indium would reduce the environmental impacts due to carbon emissions from shipping. Using Canadian indium also ensures good working conditions and pay for workers because Canada has laws to protect worker rights. It should reduce costs as well since I would be using a more ‘local’ source of indium, perhaps reducing tariffs and transportation costs. But Canadian indium might cost more because of our higher paid workers.

U4L3 | Managing resources for sustainability

U4L3A2 | Barriers to sustainable resource management | TEACHER ANSWER KEY

overview

Students read about four barriers to sustainable development and put the barriers into their own words. They then select an article from four choices and conduct a jigsaw to understand the four barriers in a real-world context.

learning goal

- To understand that there are barriers, nationally and globally, to sustainable resource management.

success criteria

- Students will be able to describe one barrier to a peer group.
- Students will accurately complete a summary organizer to explain the main barriers to sustainable resource management.

Inquiry Question

- What are the barriers to sustainable resource management?

acquire

The Great economy vs environment myth

www.huffingtonpost.com/ian-carey/the-great-economy-versus-_b_1398439.html

Story of Stuff —the Externalization of Costs

www.huffingtonpost.com/annie-leonard/the-story-of-stuff-extern_b_490351.html

Cambodia's sugar rush leaves farmers frustrated at 'land-grab'—*The Guardian*

www.theguardian.com/world/2013/jul/09/cambodia-sugar-land-grab-claims

Nunavut premier wants more power over resource development

www.cbc.ca/news/canada/nunavut-premier-wants-more-power-over-resource-development-1.1310321

explore

In a working paper from the International Institute for the Environment and Development, Halina Ward describes the following four obstacles to sustainable development (2009).

- “Dominant economic growth models—too often it is these models which are considered inviolable, not people’s rights and welfare, or environmental processes and limits.
- Environmental costs and benefits of human activity are externalised (i.e. the environmental impacts of transactions of various kinds are not reflected in market prices, so they tend not to be taken account of in decision-making).
- Poor people are marginalized, and inequities entrenched
- Governance regimes are inadequately designed in terms of internalising environmental factors, ironing out social inequities, and developing better economic models (2009).”

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U4L3A2 | Barriers to sustainable resource management | **TEACHER ANSWER KEY**

1. Put the four barriers described above into your own words.
 - When economic growth is valued over environmental limits and human conditions.
 - Prices of goods and services do not reflect the true cost of environmental damage.
 - Poor people are not valued and disparities become policy.
 - Sustainable practices can often depend on the type of government in place.
2. Select one article from the choices provided and read it, highlighting main ideas and key points.

analyze

3. In your article groups, complete the article analysis organizer.

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U4L3A2 | Barriers to sustainable resource management | **TEACHER ANSWER KEY**

article analysis organizer

Important terms:

Main ideas:

The issues:

Explain how this article describes one of the following barriers:

1. Economy over environment
2. Externalizing the costs
3. Marginalizing poor people and increasing inequality
4. Governance that prevents sustainable decision-making

U4L3 | Managing resources for sustainability

U4L3A3 | Sustainable resource management: Canada vs Norway | TEACHER ANSWER KEY

overview

Students will examine an infographic to better understand the economic value of oil extraction in Canada. Then they will look at a resource from the Canadian government that outlines the measures the federal government takes to protect the environment. They will then read a selection of news articles outlining Canada's environmental protection strategies in action. Finally they will watch a video from the government in Norway and read an article to see how another wealthy nation is handling sustainable resource extraction.

learning goal

- To understand the Canadian government's policies on environmental protection.
- To analyse the validity of these policies using the Alberta oil sands as a case study.
- To compare Canada's perspective on oil extraction with that of Norway.

success criteria

- To investigate a variety of materials and complete assigned activities.
- To work cooperatively with group members to explore and share information.

Inquiry question

- How do Canada's sustainable resource management practices compare to that of Norway, another wealthy oil producing nation?

The following activities will help you gain an understanding of the economic benefits and the environmental issues around the oil sands in Canada.

1. Understanding why the Canadian government continues to promote the oil sands at home in Canada and abroad in the United States and Asia is important when analysing the Canadian perspective on environmental protection in this region.
 - a Read the following article and infographic on the economic benefits of oil sands production in Alberta and Canada.
www.huffingtonpost.ca/2014/02/12/canadian-oilsands-economic-impact_n_4776472.html
2. Complete the following organizer to summarize the economic value of the oil sands.

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U4L3A3 | Sustainable resource management: Canada vs Norway | **TEACHER ANSWER KEY**

Economic Benefit	Evidence from the article and infographic
Employment	<ul style="list-style-type: none"> • 349,000 jobs in Alberta, 63,800 in Ontario, 26,600 in BC, 20,800 in Quebec, 7,900 in Saskatchewan in 2012 • ~5% of total employment in Canada by 2025 • 753,000 jobs by 2025
Oil production (barrels)	<ul style="list-style-type: none"> • Double from 1.9 million barrels/day to 3.8 million barrels/day by 2025
\$ contributed to GDP	<ul style="list-style-type: none"> • \$6.1 billion Ontario • \$2.4 billion BC • \$1.9 billion Quebec • \$0.9 billion Saskatchewan • \$91 billion to Canada in 2012 • Expected to double by 2025
Government revenues (tax income)	<ul style="list-style-type: none"> • \$4 billion in royalties to Alberta in 2012 • \$3 billion in taxes to Alberta and Canada

3. Investigate the following webpage from the Government of Canada's Economic Action Plan that discusses strategies for environmental protection. Answer the questions that follow:

actionplan.gc.ca/en/backgrounder/r2d-dr2/enhancing-environmental-protection

a What claim does the government make in the first paragraph (from the Responsible Resource Development plan)?

The government claims that “no major natural resource project will receive federal approval unless it is safe for the environment and for Canadians.” (para. 1)

b In the first section of the website, 'Enhancing Enforcement and Liability,' how many times do the words intends, plans, will, 'proposed' and other future tense verbs appear? How is this section potentially misleading to Canadians?

8–10

c What is the National Energy Board?

The National Energy Board is an independent federal regulatory body that is responsible for ensuring the environmental protection over the life cycle of pipeline.

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U4L3A3 | Sustainable resource management: Canada vs Norway | **TEACHER ANSWER KEY**

d Identify one strategy that the Canadian government is implementing to ensure oil pipeline safety.

The government is increasing the number of annual inspections of pipelines by 50 per cent.

e How is the government protecting coastal regions in Canada against tanker spills?

The Canadian government is implementing a tanker safety system that will help prevent accidents through eight new measures including increasing inspections, monitoring and surveillance, establishing a Coast Guard command system, and an improved navigation system.

4. Read the following two articles from the news on current environmental protection regulation issues in Canada.

a Describe the main issue outlined in each article.

b Evaluate the government response in each situation, based on evidence from the articles.

www.cbc.ca/news/canada/british-columbia/taseko-new-prosperity-mine-at-fish-lake-rejected-again-1.2553002

www.theglobeandmail.com/news/british-columbia/canada-failing-to-learn-from-world-class-oil-spill-cleanups/article24017204

5. Oil extraction from the Alberta oil sands is a highly controversial environmental issue in Canada. The environmental impact of this energy project is debated internationally and has the potential to interfere with Canadian economic growth through rejected international pipeline initiatives and potential moratoriums on continued oil extraction in the region.

a In groups of three, read the accompanying article from *Canadian Geographic*. The article has been broken into three sections due to length. Each section has the introduction and the concluding paragraphs which will allow each member of the group to have the context.

b Complete the organizer together using point-form notes.

U4L3 | Managing resources for sustainability

U4L3A3 | Sustainable resource management: Canada vs Norway | **TEACHER ANSWER KEY**

Recommended Strategy	Why is this recommended?	What is the government and/or industry doing?
Carbon capture and storage (CCS)		
Dry tailings		
Reduce water usage		
Reducing emissions		
Protecting tracts of boreal forest		

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U4L3A3 | Sustainable resource management: Canada vs Norway | **TEACHER ANSWER KEY**

6. Understanding how Norway, another wealthy oil-producing nation is sustainably managing their resource can provide leadership to Canada.
 - a Watch the video titled *Sustainability: A Norwegian Perspective*
 - b Read the following article on Norway's strategies for economic growth within the context of environmental protection
www.theglobeandmail.com/report-on-business/international-business/european-business/norway-proves-oil-rich-nations-can-be-both-green-and-prosperous/article21514455
 - c Describe three strategies Norway is using, that Canada is not, that has allowed Norway to be one of the wealthiest, most productive countries in the world while still meeting targets for environmental protection.

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U4L3A5 | Considering the hidden costs of production: exit card | TEACHER ANSWER KEY

overview

In this activity you will act on your learning from Activity 1. In Activity 1, you conducted an inquiry by acting as a company trying to produce an MP3 player in a sustainable way, according to the learning goals and success criteria below. Now, you will reflect on your learning by answering the questions that follow.

learning goal

- To understand that the items I purchase are produced through decision-making that impacts global sustainability.

success criteria

- To be able to describe how I can be better informed on the sustainability of a product.

Inquiry question

- How do companies balance social and environmental sustainability with the need for profit when producing consumer goods?

Complete the following questions as an exit card for the lesson.

Student exemplars

As a consumer, what information do you need to make sustainable choices when purchasing new items?

It would be helpful to have information about the carbon footprint of a product, including distance traveled (for all parts) and the carbon emissions. Also, I would like to know whether it was produced in a factory with good working conditions (pay, safety). Lastly, I would want to know whether the community that produced the goods benefitted (like fair trade products).

What strategies could companies use to keep consumers better informed about working conditions and the environmental impacts of the products they produce? Identify and explain two ways.

I think companies should be much better about advertising the good about their products. For example, H&M has quite a good sustainability policy, but unless you look it up online you might not know. So definitely the internet is helpful, but I think it should be on the label as well so you know right away without having to google it.

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U4L3A6 | Considering the hidden costs of production: design a label | TEACHER ANSWER KEY

overview

In this activity you will act on your learning from Activity 1. In Activity 1, you conducted an inquiry by acting as a company trying to produce an MP3 player in a sustainable way, according to the learning goals and success criteria below. Now, you will reflect on your learning by answering the questions that follow.

learning goal

- To understand that the items I purchase are produced through decision-making that impacts global sustainability.

success criteria

- To develop a product label to inform consumers on the sustainability of a product.

Inquiry question

- How do companies balance social and environmental sustainability with the need for profit when producing consumer goods?

If the goal is to allow consumers to make better decisions about the products they buy, what information should be provided to help make this decision?

1. Brainstorm a list of information that you would like to see provided to consumers for products available in Canada (think of it like the nutritional information provided to you on a food label).

- | | |
|---|---|
| • Distance travelled (total for all the parts involved) | 4 |
| • Carbon emissions | 3 |
| • Workers pay | 2 |
| • Working conditions | 6 |
| • Tested on animals | 8 |
| • Kg of solid waste produced | 5 |
| • Water use in production | 1 |
| • Where it was made (all the parts individually) | 7 |

2. For the list you created, rank the information in order of most important to least important, using your prior knowledge of sustainability and the information you learned in the MP3 activity.

Answers will vary

3. Design a label to provide consumers with sustainability information.

Answers will vary

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U4L3A7 | Considering the hidden costs of production: issue analysis | TEACHER ANSWER KEY

overview

In this activity you will act on your learning from Activity 1. In Activity 1, you conducted an inquiry by acting as a company trying to produce an MP3 player in a sustainable way, according to the learning goals and success criteria below. Now, you will reflect on your learning by answering the questions that follow.

learning goal

- To understand that the items I purchase are produced through decision-making that impacts global sustainability.

success criteria

- To apply my learning about sustainability to a case study in Venezuela.

Inquiry Question

- How do companies balance social and environmental sustainability with the need for profit when producing consumer goods?

Read the accompanying article on a Venezuelan initiative and answer the questions that follow:
venezuelanalysis.com/news/5792

1. What is the Venezuelan government initiative described in this article?

The Venezuelan government is distributing laptops to children in elementary school. This article discusses the latest installment (109 of 350,000) but they have already distributed 228,000.

2. How is this project being funded, and what is the total cost?

It is being funded from the profits from oil produced in the country (in an agreement with Portugal, who is producing the computers). The total cost is \$163 million USD.

3. How does this initiative improve social sustainability in Venezuela?

Providing computers to school children should improve their access to information, which should elevate the education level of the country and making it more competitive globally.

4. Based on your learning from the MP3 activity, explain how this initiative impacts environmental sustainability, both in Venezuela and globally.

A laptop is a product. The production of 525,000 computers in Portugal requires raw materials and resources and energy to produce them. In addition, these computers need to be shipped from southern Europe to South America, requiring fuel and producing waste emissions. In addition, after they are no longer functioning, they will need to be disposed of, creating electronic waste which is highly toxic to the environment if not disposed of properly.

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U4L3A7 | Considering the hidden costs of production: issue analysis | **TEACHER ANSWER KEY**

5. The Venezuelan Minister of Education, Jennifer Gil, is quoted in the article as saying:

“Only in socialism is it possible to make real the rights of children, the rights of the people, to an improved quality of education and standard of living.”

Based on your prior knowledge of the Venezuelan government and the drive to improve the quality of life in Venezuela, explain what Jennifer Gil means by this statement.

The government of Venezuela controls much of the country's infrastructure and in this case, has nationalized oil production. This means that the profits from oil can be spent on social development, like the laptop initiative. Her statement implies that social spending like the laptop initiative could not have occurred without the money from oil and a directive from the then President Hugo Chavez to improve the quality of life of Venezuelan people.