



Science 10 Teachers' Guide

**Youth Educating Youth –
Shifting to a Sustainable Culture**

Do you have questions? Need information? Please be in touch.

Brin Jones
MindShift Coordinator
490-4520
mindshift@earthed.ns.ca
www.earthed.ns.ca/mindshift

George Taylor
HRM Community Recreation Services
490-4584
taylorg@halifax.ca

This guide is not to be reproduced without the permission of the MindShift Development Team, © 2009.

MindShift

Science 10 Teachers' Guide

MindShift is sustainability education and youth leadership program for high school students that involves the development of peer education teams in each high school with the aim to develop environmental knowledge and positive environmental attitudes and behaviours among students. MindShift engages young people in a powerful teaching and learning process that inspires action towards more sustainable lifestyles. It was designed by a team of seven high school students working with the HRM Adventure Earth Centre, and is being piloted in 2008-2009 with interested high schools in HRM. This 2-part program specifically addresses outcomes in the sustainability of ecosystems unit of the Atlantic Canada Science 10 curriculum. It uses an interactive approach to engage young people in understanding humanity's role and impact on the earth while identifying how students can reduce their impact on a personal level.

With the support of an interested teacher, a high school peer education team will learn and present the one-hour presentation to each Science 10 class in their school. The presentation involves a humorous and hard-hitting dramatic approach and an interactive team game. The second part includes a reflection discussion and an assignment in which they consider practical ways through which they can adopt a more environmentally sustainable lifestyle. The presenters encourage students to take specific actions with respect to the 4Rs at home and/or to work on environmental and sustainability opportunities through school.

MindShift Outcomes

Participants (Science 10 students) and youth leaders (MindShift Team) will...

- be able to explain how their personal lifestyles have important environmental impacts
- explain how a paradigm shift can change scientific worldviews in understanding sustainability
- take step(s) to reduce the impact of their daily activities through refusing, reducing, reusing and recycling.
- increase their appreciation that they can make a difference to the health of the environment
- share their knowledge with others of how individuals' daily activities have important environmental impacts.

Youth leaders will...

- strengthen their presentation and drama skills
- gain confidence in presenting to others
- gain skills in working cooperatively with others as part of a team

Curriculum Links

The MindShift Program was designed to address **Specific Curriculum Outcomes** in the “Sustainability of Ecosystems” unit. Specifically, the following topics are addressed:

- ➔ How does sustainability fit into your paradigm and society’s paradigm
- ➔ What are the factors affecting the sustainability of an ecosystem
- ➔ Sustainability Issues in an Ecosystem
- ➔ Extension to the biosphere

In addition, the following **Attitude Outcomes** are addressed with respect to Stewardship:

- ➔ Have a sense of personal and shared responsibility for maintaining a sustainable environment
- ➔ Project the personal, social, and environmental consequences of proposed action
- ➔ Want to take action for maintaining a sustainable environment

Program Overview

FIRST VISIT	SECOND VISIT
<p>A one-hour presentation by the MindShift Team to a Science 10 class.</p>	<p>A reflection discussion facilitated by members of the MindShift Team, followed by an assignment administered by the teacher.</p>
<p>Spaceship in Distress (15 minutes) The presentation begins with the dramatic transformation of the classroom into the deck of the Starship Earth, with 7 astronauts in command. As the ship travels through time from the year 1890, it experiences increasing challenges to its life-support systems: water, atmosphere, terrain, health, and energy. Despite dire warnings, the ship stays on its course and reaches maximum distress in the year 2030, just before it crashes. The purpose of the “Spaceship” is to powerfully engage teens in the magnitude and importance of the environmental problems, so as to emphasize the need for them to take action.</p> <p>Lifestyle Skits (20 minutes) After the crash, there is a quick transition back to “real life”. The actors present a series of humorous, youth-friendly skits that translate the large environmental problems into actions applicable to the lives of teens. The skits depict everyday events in the lives of high school students: the morning routine, chemistry class, lunchtime, shopping, leisure time and watching TV, and address issues such as recycling, reusing, reducing and rethinking our use of materials and energy. In each skit a “shift” is made from less to more sustainable choices.</p> <p>Game & Closing: The Choice Is Yours (25 minutes) The skits end with the following question being posed: What are you going to do to “Shift It”? The interactive game “The Choice Is Yours” explores some ways to “Shift It” in a fun way. In teams, students work together to answer the game host’s questions. The final question challenges each student to come up with one way that they can take action in their own lives or at school.</p>	<p>Discussion (10-15 minutes) Two MindShift Team members will return and introduce an informal discussion with the students to gain feedback, reflect on the performance, and offer opportunities to “Shift It”. The student leaders will facilitate the discussion, drawing from the students their reflections and feelings on the presentation. The leaders will re-emphasize their challenge to follow through with their pledge to “Shift it”. The Science 10 students will be invited to join the MindShift Team, and encouraged to participate in MindShift events at the school throughout the year. The MindShift members will then pass the class over to the teacher and leave.</p> <p>Assignment (rest of period) The teacher will continue with the discussion and engage students in the follow-up assignment. This assignment has three sections: an opportunity for students to describe and discuss what they feel the future will be like in relation to sustainability, an opportunity for them to assess their current environmental lifestyle, and a section to define one action they could take to be more environmentally sustainable. The assignment may involve discussion and sharing in class. Teachers may implement additional (optional) follow-up activities with their students they see fit.</p>

Science 10 Teacher Role

Beforehand:

- Confirm date and time of visits with the MindShift Coach (teacher responsible for MindShift at your school)
- Accommodate a pre-visit by the presentation team to check the classroom and test the technology. This will be initiated by the student MindShift team.
- If you are choosing to use the provided follow-up assignment, familiarize yourself with it and determine how you will administer it. Photocopy (double-sided please!) enough assignments for your class. The assignment is 3 pages in length.
- Let your class know there will be a presentation, but divulge very few details (please refrain from using the term “environmental presentation” as this may turn some students off immediately).
- Ask students to arrive promptly on the presentation day.

Presentation Day:

- Help your class to settle quickly.
- Sit in the audience and enjoy the presentation.
- We encourage you to participate, as an audience member.

Afterwards:

- Optional: administer the assignment.
- Optional: Delve deeper into the assignment material and/or program themes. Please refer to the resources in this guide for more information.
- Encourage students to take part in school events organized by the MindShift team.

MindShift Follow-up Assignment (optional)

The following **3 pages** are the optional assignment for Science 10 students.

Name: _____

THE FUTURE— Where is this Spaceship headed?



What do you think the future is going to be like if our society and spaceship continues on its present course to the year 2030. Put a check in front of the *eight* words that you think best describe what the future will be like where you live 20 years from now.

- | | | |
|---|--|---|
| <input type="checkbox"/> Adventure | <input type="checkbox"/> Fun | <input type="checkbox"/> Respect from others |
| <input type="checkbox"/> Beauty | <input type="checkbox"/> Global warming | <input type="checkbox"/> Religious |
| <input type="checkbox"/> Big corporations | <input type="checkbox"/> Good jobs | <input type="checkbox"/> Safe good food |
| <input type="checkbox"/> Big cities | <input type="checkbox"/> Happy | <input type="checkbox"/> Safety and Security |
| <input type="checkbox"/> Clean water | <input type="checkbox"/> Healthy | <input type="checkbox"/> Sickness and Disease |
| <input type="checkbox"/> Computer control | <input type="checkbox"/> Helping other people | <input type="checkbox"/> Sense of community |
| <input type="checkbox"/> Close families | <input type="checkbox"/> Honesty | <input type="checkbox"/> Social Justice |
| <input type="checkbox"/> Caring people | <input type="checkbox"/> Hunger | <input type="checkbox"/> Sophisticated |
| <input type="checkbox"/> Competition | <input type="checkbox"/> Independence | <input type="checkbox"/> Spiritual |
| <input type="checkbox"/> Cool | <input type="checkbox"/> Inner peace | <input type="checkbox"/> Stable world |
| <input type="checkbox"/> Creative | <input type="checkbox"/> Lonely | <input type="checkbox"/> Struggle to survive |
| <input type="checkbox"/> Democracy | <input type="checkbox"/> Lots of Money | <input type="checkbox"/> Success |
| <input type="checkbox"/> Depressing | <input type="checkbox"/> More time for things | <input type="checkbox"/> Technology |
| <input type="checkbox"/> Dangerous | <input type="checkbox"/> Nature | <input type="checkbox"/> Too many people |
| <input type="checkbox"/> Care for Environment | <input type="checkbox"/> New Knowledge | <input type="checkbox"/> Water shortages |
| <input type="checkbox"/> Economic Growth | <input type="checkbox"/> No jobs | <input type="checkbox"/> Wars |
| <input type="checkbox"/> Efficiency | <input type="checkbox"/> Order | <input type="checkbox"/> Violence |
| <input type="checkbox"/> Everyone is equal | <input type="checkbox"/> Pleasure | <input type="checkbox"/> Wealth |
| <input type="checkbox"/> Excitement | <input type="checkbox"/> Power controlled by a few | <input type="checkbox"/> Work under pressure |
| <input type="checkbox"/> Fairness | <input type="checkbox"/> Poverty | Other: |
| <input type="checkbox"/> Fast living | <input type="checkbox"/> Pollution | _____ |
| <input type="checkbox"/> Frightening | <input type="checkbox"/> Privacy | _____ |
| <input type="checkbox"/> Freedom to do things | <input type="checkbox"/> Peaceful | _____ |
| <input type="checkbox"/> Friendships | <input type="checkbox"/> Physical Fitness | _____ |

Write down 3 words or phrases that describe the ways in which you would like our society to change. What would you like to see as the *MindShift*?

1.

2.

3.

What is My Lifestyle Like?

The choices we make in how we live will affect what kind of future we end up with. This scoring sheet gives you an idea of how environmentally friendly you are in your daily life. Be honest, it is not important what you score but rather that you become aware of your habits and that you are making choices. You may never have even thought of some of these things!

As best I can remember, in the last 24 hours...	Yes	No or Unsure
FOOD & MEAL CHOICES		
I ate fruits/vegetables that were grown in Nova Scotia	___	___
I ate food that was organically grown	___	___
I ate only vegetarian meals	___	___
My dishes were cleaned with earth friendly dish soap	___	___
My food waste at home went into a compost bin or pile	___	___
CHOICES IN MATERIALS I USED		
I wrote on both sides of a piece of paper to save paper	___	___
I used toilet paper made of recycled paper	___	___
I am wearing clothes made of organic materials (cotton, hemp, etc.)	___	___
I am wearing used clothing or clothing made at home	___	___
WATER AND ENERGY CHOICES		
I always turned off the lights when I left the room	___	___
I always turned off the TV and computer when I left the room	___	___
I turned off the water while brushing my teeth	___	___
I limited my showers to five minutes or less	___	___
I used biodegradable shampoo and soaps	___	___
As best I can remember, in the last 7 days...		
FOOD & MEAL CHOICES		
I bought organic or fair trade foods	___	___
I used a thermos, re-usable water bottle or enviro-mug to carry drinks	___	___
I did not use paper cups for hot drinks	___	___
I did not use paper or plastic plates and utensils in a restaurant	___	___
CHOICES IN MATERIALS I USED		
I used cloth bags or reused a plastic bag to carry things	___	___
I recycled the bottles and the cans I used	___	___
I reused or recycled the plastic bags I used	___	___
I recycled the paper I was finished with	___	___
I used rechargeable batteries	___	___
I used plastic containers for my lunch rather than throw away bags	___	___
WATER AND ENERGY CHOICES		
I did not use a hairdryer or hair straightener	___	___
My clothes were dried in the air rather than by a dryer	___	___
My clothes were washed with environmentally friendly soap	___	___
I only drank water from a tap, not bottled water.	___	___
TRANSPORTATION CHOICES		
I walked to a place I needed to go instead of getting a ride	___	___
I rode in a car with others as part of a carpool	___	___
I visited or took a walk in a natural area or park	___	___
I took the city bus or ferry to get somewhere	___	___
I rode a bike	___	___

**Add up checks in yes column
to get Environmentally-Friendly Score -->**

Think about whether you are happy with your score where it is or whether you would like to see it change. If you would, what areas would you like to change? There are many possible choices!

One Thing I Could Shift



1. Identify one personal step you could take over the next 7 days to reduce your impact on the environment. Be specific in defining what you would do, where, when and how often.
2. Explain how this step would save resources or reduce pollution and help the environment in the local area or in other places.
3. Identify two factors that could be barriers to actually doing plan.
4. Explain how you could keep track if you actually followed through and did the plan.

Taking MindShift Further

Resources & Follow-up Ideas for Science 10

The following descriptions are to provide Science 10 teachers with options for follow-up activities. These activities are meant to compliment the MindShift program, but are not required. Following the activity descriptions, there is a table of resources and links.

Activity A	Tracing the Story of Stuff
Topic(s)	Consumption, product lifecycle
Format	Short video, followed by investigative research
	Show the short video: "The Story of Stuff". "The Story of Stuff is a 20-minute, fast-paced, fact-filled look at the underside of our production and consumption patterns. The Story of Stuff exposes the connections between a huge number of environmental and social issues, and calls us together to create a more sustainable and just world."
	In small groups or pairs: investigate the lifecycle of an everyday product. Research it's extraction, production, distribution, consumption, and disposal. Present your findings in an eye-catching, creative, visual display (e.g. poster, photo essay, map, etc.).
Extension	Re-write what the lifecycle of the same product would be like if it were done "sustainably".
	Keep track of everything you intake and output in a day (things you buy or acquire and things you throw away or recycle).
Resources	http://www.storyofstuff.org/

Activity B	How big's your footprint?
Topic(s)	Ecological footprint
Format	On-line quiz and follow-up assignment
	Follow the link below to a Sierra Club lesson plan on Eco-footprint. It has students first complete the online footprint quiz (http://www.earthday.net/footprint/flash.html), and then complete a written assignment.
Extension	Challenge yourself to do one of the "Green Tips" from the website (www.earthday.net/greentips)
Resources	On-line Earth Day Footprint Calculator: http://www.earthday.net/footprint/flash.html Green Tips: www.earthday.net/greentips Sierra Club lesson plan: www.sierraclub.ca/bc-programs-education/educators/resources/Lesson%20Plans/Ecological%20Footprints%20From%20A%20round%20the%20World_lesson%20plan%20ai-205.pdf

Activity C	Where do you Stand?
Topic(s)	Climate change, paradigms
Format	Research, debate, dialogue
	In small groups, students prepare opposing sides of the statements below, which are then debated in front of the class.
	Debate topics: <ul style="list-style-type: none"> • Climate change is the biggest challenge that our generation will face. • Technology will save us. • The earth and everything on it is here for humans use. • Living more sustainably will mean a lower quality of life. • The next world war will be fought over natural resources.
	<i>Alternative Format:</i> Label the four corners of the room: strongly agree, agree, disagree, strongly disagree. Read a statement (a debate topic) and ask students to move to the corner of the room that best represents their opinion. Once there, students discuss/debate their relative positions. Proceed in the same manner with additional statements and/or come up with some of your own.
Extension	Write a one-page opinion paper supporting your position on one of the statements.
Resources	Intergovernmental Panel of Climate Change: www.ipcc.ch/ , UN Water Site: www.unwater.org , WorldWatch Institute: http://www.worldwatch.org , Green Facts www.greenfacts.org , The Global Education Project www.theglobaleducationproject.org

Activity D	Spaceship Earth: Officers' Reports
Topic(s)	The state of the earth (water, air, and soil cycles, biodiversity, etc.)
Format	Research and role play
	The Captain of Spaceship Earth has requested a report on the ship's vital signs from each of the Lieutenants. The Lieutenants have each gathered their top Officers (the students) to perform the tasks. The class is divided into the following groups: Terrain, Waterworks, Atmosphere, Health and Energy. The students become the Officers charged with providing their Lieutenant with the request report. Officers research the ship's systems (vital signs) and provide recommendations for the Captain.
	Topic areas: <u>Terrain:</u> terrestrial ecosystems, food chains, soil ecology, waste assimilation <u>Waterworks:</u> aquatic (fresh and saline) ecosystems, drinking water, aquatic life <u>Atmosphere:</u> climate change, carbon dioxide/oxygen cycle, greenhouse gases, air quality <u>Health:</u> epidemics and pandemics, AIDS, biodiversity, invasive species, species at risk <u>Energy:</u> fossil fuel use, wars over resources, alternative energy, renewable energy
	When the research is complete, design a skit play to communicate your findings and recommendations. The skit should depict the Officers presenting to the Captain in a creative way (consider the use of visuals in your skit).
Extension	Some people think the Captain plays the role of the government in MindShift. Find a way to communicate your findings and recommendations to our current government.
Resources	Intergovernmental Panel of Climate Change: www.ipcc.ch/ , UN Water Site: www.unwater.org , WorldWatch Institute: http://www.worldwatch.org , Green Facts www.greenfacts.org , The Global Education Project www.theglobaleducationproject.org

Activity E	Word on the Street
Topic(s)	Worldviews on sustainability (paradigms)
Format	Video journalism
	In pairs or small groups: design your own interview questions on people's attitudes around sustainability. For example: "What does sustainability mean to you? What do you value about the environment? What are you willing to change about how you live to ensure a sustainable world?" Ask these questions to students and staff at your school and film their responses. Edit the material into a 1 or 2 minute clip on what sustainability means at your school. Determine a way to show the videos (video announcements, mini-film festival, etc.).
Extension	Expand your interviewees to include community members, politicians, etc.

Activity F	Alert the Ship!
Topic(s)	Taking Action
Format	Research, marketing, media campaign
	You are one of the Lieutenants on Spaceship Earth. You have identified a way (or ways) that passengers can help change the course of the ship. Your task is to inform all passengers (all students in your school) about how they can change and to do it in a way that will actually get them to do it. Your challenge is to be creative and think beyond conventional marketing strategies (like posters). Consider a TV/video commercial, an advertising jingle (rap or song), or creative prompts that you can put around school.
Extension	Write a one-page opinion paper supporting your position on one of the statements.
Resources	Intergovernmental Panel of Climate Change: www.ipcc.ch/ , UN Water Site: www.unwater.org , WorldWatch Institute: http://www.worldwatch.org , Green Facts www.greenfacts.org , The Global Education Project www.theglobaleducationproject.org

OTHER RESOURCES

Topic	Item	Source
Paradigm Shifts	Videos on shifting worldviews from Global MindShift	<ul style="list-style-type: none"> • http://www.global-mindshift.org/memes/andrew.swf • http://www.global-mindshift.org/
	Wombat video from Global Community	• http://www.globalcommunity.org/flash/wombat.shtml#
Climate Change	An Inconvenient Truth (Education Guide)	• www.climatecrisis.net/
	“Taking It Global” Youth Guide to Climate Change	• www.takingitglobal.org/action/guide/
	Intergovernmental Panel on Climate Change	• www.ipcc.ch/
	The Manpollo Project (a high school teacher who’s created his own convincing videos on the climate change debate)	<ul style="list-style-type: none"> • http://manpollo.org/ • See one of the videos here: www.youtube.com/watch?v=mF_anaVcCXg
Food	“Taking it Global” GRUB (Growing Reflections, Understanding Bites):	• http://www.takingitglobal.org/tiged/projects/grub/
	The Real Food Challenge	• http://realfoodchallenge.org
	Free Range Studios: Videos	<ul style="list-style-type: none"> • The Meatrix: www.themeatrix.com/ • Grocery Store Wars: http://www.freerangestudios.com/index.php?option=com_portfolio&view=project&id=36&Itemid=58
Consumption	The Story of Stuff	• www.storyofstuff.org
	Be, Live, Buy Different—Make a Difference	• www.ibuydifferent.org
	“Youthxchange” Youth Guide to Consumption	• http://www.youthxchange.net/main/english-guide.asp
	Earth Day Network Footprint Calculator	• www.earthday.net/footprint/flash.html
Action	“Taking It Global” General Action Guide for Youth	• www.takingitglobal.org/action/guide/
	The Otesha Project (the group that inspired MindShift!)	• www.otesha.ca
	Earth Day Canada	<ul style="list-style-type: none"> • EcoMentors Program: www.ecomentors.ca • EcoAction Teams: www.ecoactionteams.ca
Local Organizations	HRM Adventure Earth Centre’s Environmental Youth Action Team (HEAT: Helping the Earth by Acting Together)	• www.earthed.ns.ca/heat/
	Sierra Club, Atlantic Chapter	<ul style="list-style-type: none"> • Youth Action site: http://www.sierraclub.ca/atlantic/programs/education/youth/index.htm • High School Program: http://www.sierraclub.ca/atlantic/programs/education/infhighschool.htm
	Clean Nova Scotia	• www.clean.ns.ca
Curriculum	Resources for Rethinking	• http://r4r.ca/en

Science 10 Teacher Checklist:

(please refer to the 3rd page of this guide for more details)

Beforehand:

- Confirm date and time of visits.
- Accommodate a pre-visit by the presentation team.
- Optional: Review the assignment and determine how you will administer it. Photocopy it (double-sided please!).
- Let your class know there will be a presentation, but divulge very few details.
- Ask students to arrive promptly on the presentation day.

Presentation Day:

- Help class to settle quickly.
- Sit in the audience and enjoy the presentation.
- We encourage you to participate like the other audience members.

Afterwards:

- Optional: Administer the assignment.
- Optional: Carry-out follow-up activities.
- Encourage students to take part in your school's MindShift events.