



MIXED COMPANY THEATRE PRESENTS...

# PLASTICO: AN EPIC ECO-ADVENTURE

Written by: Duncan McCallum, Erin Fleck, Liam Morris, & Maya Rabinovitch  
Directed by: Duncan McCallum & Maya Rabinovitch



**Mixed Company Theatre**  
Charitable Registration # 11903 1870 RR0001  
157 Carlton Street, Suite 201. Toronto, ON. M54 2K3  
Phone: 416-515-8080 Fax: 416-515-1832  
[info@mixedcompanytheatre.com](mailto:info@mixedcompanytheatre.com)  
[www.mixedcompanytheatre.com](http://www.mixedcompanytheatre.com)

## **TABLE OF CONTENTS**

### Module 1: Engagement

#### *1.1 Introduction to Mixed Company Theatre*

- a. Background
- b. Forum Theatre Format
- c. Goals of *Plastico –An Epic ECO Adventure*

#### *1.2 The Play*

- a. Synopsis
- b. Character Breakdown

#### *1.3 Pre-show Activities*

- a. Pre-show Principals
- b. Warm-up: Brainstorming Thoughts

### Module 2: Understanding

#### *2.1 Post-show Activities*

- a. Brainstorming: What Can We Do?
- b. Thinking about Your Ecological Footprint
- c. Calculating Your Waste
- d. Speaking Up!
- e. Junk Mail Overload
- f. Public Service Announcement

#### *2.2 Vocabulary Terms*

### Module 3: Action

#### *3.1 Resources for Students, Teachers, & Guardians*

- a. Online Resources
- b. Educational & Cultural Institutions

### Module 4: Evaluation

#### *4.1 Concepts & Topics Addressed in *Plastico –An Epic ECO Adventure**

#### *4.2 Ontario Elementary Science & Technology Curriculum Expectations*

### *Works Cited*

### *Appendix*

## **A NOTE FOR TEACHERS**

The resources and lessons provided are templates to work from. All resources should be adapted to the unique dynamics of each class to make for an inclusive, equitable, and respectful educational community for all students.

### **Module 1: Engagement**

#### **1.1 Introduction to Mixed Company Theatre**

##### **a. Background**

Since 1983, Mixed Company has engaged, educated, and empowered over 350,000 middle and secondary school students throughout Ontario. We tour three to four Forum Theatre presentations throughout the Greater Toronto Area and beyond each year.

One of Canada's premiere touring Forum Theatre companies, we bring an innovative approach to examining difficult issues for today's youth, including family relations, peer pressure, sexual health, racism, homelessness, drugs, alcohol, and violence. We consult with educators and the Ontario curriculum in developing each of our shows. Each show has been tailored to meet the needs and developmental levels of all learners.

The interactive nature of Forum Theatre involves the audience in developing real-time strategies for dealing with social and personal issues and engages audience members directly in creating practical solutions they can apply to similar situations in their own lives.

By using theatre as an educational tool, MXCO stimulates critical thinking and engages students in active problem solving. Our teaching guides are designed to help educators integrate our productions into their own lesson plans, and continue the active discussions long after the production itself.

##### **b. Forum Theatre Format**

Forum Theatre is an interactive approach that involves the audience in developing real-time strategies for dealing with social and personal issues. In a Mixed Company production, a story representing an issue is created, rehearsed, and performed. The story is then presented again –only this second time, audience members can intervene in the story as 'spect-actors', to create a positive alternative ending. A trained Forum Theatre facilitator (the Joker) prepares and encourages participants to replace the actors on stage and to change the story in a constructive way.

### c. Goals of *Plastico –An Epic ECO Adventure*

*Plastico –An Epic ECO Adventure* was developed with the Ontario Ministry of Education grade 1-8 curriculum in mind. Unlike the common Forum Theatre style that MXCO often implements in their productions, the characters of *Plastico –An Epic ECO Adventure* present problems and work to find solutions to live more environmentally friendly in one's daily activities. The production is resolved through highlighting practices that individuals and communities can develop to reduce, reuse, recycle, and refuse the use of materials that impact the environment negatively.

Outlined in Module 4: Evaluation are the Ontario Ministry of Education concepts, topics, and curriculum expectations, categorized by grade.

## 1.2. The Play

### a. Synopsis

Bernard Percival Archibald the III is the proud the owner, CEO, and big boss of PlastiCo., the biggest plastic factory in town. He is happy with the rising success of his company and he feels that his company does not have a negative effect on the environment. Bernard receives a mysterious package that leads him on an adventure outside of his factory and into nature. Bernard meets friends along the way and recognizes the damage that his factory and the plastics it produces have on the environment.

### b. Character Breakdown

- *Bernard*: An 11 year old who will become the owner, CEO, and big boss of PlasticCo., the best plastic company around town. Bernard sets out on an adventure where he discovers the ways that his uncle's plastic company can become more environmentally friendly.
- *Uncle Chairman*: The owner, CEO, and big boss of PlastiCo.. Uncle Chairman is sure that his factory is as environmentally friendly as it can be.
- *Fish 1, 2, & 3*: Teach Bernard about pollution from garbage, the harms of improperly handled plastics, and the importance of clean water.
- *Gopher*: Teaches Bernard about garbage pollution, its effect on the environment, and the importance of clean forests and lands.
- *Woody*: Teaches Bernard about deforestation.
- *Fern*: A member of the Environmental Action Committee who sends Bernard a special present that leads him to begin his adventure into nature.

- *Students 1, 2, & 3*: Members of the Environmental Action Committee that Bernard meets at the end of his adventure.

### 1.3 Pre-show Activities

#### a. Pre-show Principals

Please review the following theatre guidelines with your students prior to the performance:

- Please be considerate: talking, whispering, snacking, or shuffling about seats disrupts the actors and distracts the audience.
- Please remain seated during the performance. Plan washroom visits for before and after the show.
- Taking photographs and recording sound or video during performance is strictly prohibited by Canadian Actor's Equity regulations.

#### b. Warm-up: Brainstorming Thoughts

- What *do you know* about the environment?
- What is the environment? Nature?
- What do you know about the environment?
- What are some ways that the environment can be harmed?
- How do people harm the environment?
- What are the three Rs (recycle, reduce, reuse)?
- How do people help protect the environment?
- What does your school do to protect the environment?
- What do you do at home to protect the environment?
- What do you *want to know* about the environment?
- What topics about the environment do you *want to explore*?

Found in the Appendix is a (a. UNDERSTANDING THE ENVIRONMENT) KWL chart that can be administered to evaluate student knowledge and interest, and to help develop further lessons and activities surrounding *Plástico –An Epic ECO Adventure* and topics surrounding the environment and Science and Technology curriculum.

## **Module 2: Understanding**

### **2.1 Post-show Activities**

#### **a. Brainstorming: What Can We Do?**

*Participants:* This lesson can be adapted for grades 1-8

*Suggested time allowance:* 45 minutes-1 hour

*Resources/ Materials:*

-chalkboard & chalk, OR whiteboard & marker, OR chart paper & marker

*Objectives:*

- Students will summarize topics presented in *Plastico –An Epic ECO Adventure*
- Students will build on ideas presented in *Plastico –An Epic ECO Adventure*
- Student will develop new ideas
- Students will work as a community

*Activities/ Procedures:*

1. As a class, students will discuss the ways in which Bernard was able to prevent further damage to the environment
  - Care for plants, trees (sun, water, and soil), and wildlife (allow wild animals to live in their undisturbed, natural habitat)
  - Keep water sources clean
  - Reduce and refuse the use of plastics
  - Reduce and refuse the amount of waste we produce
  - Do not litter
  - Recycle and reuse paper products
  - Reduce and refuse the use of paper products
  - Reduce, reuse, recycle, and refuse
2. In small groups, students will discuss the ways that they help protect the environment.
3. As a class, students will develop ideas that they can implement in school to help reduce, reuse, recycle, and refuse products that damage the environment. The facilitator will write down ideas for class to read from.
4. As a class, students will agree to choose 10 (the number can be modified according to the amount of ideas suggested) of the ideas that will allow the class to produce less waste.

*Extension Activity:*

1. Discuss the ways that schools produce less waste (in the library and computer lab, science lab, offices, lunchroom, etc.)
2. Discuss the ways that students can help the environment at home (in the kitchen, bathroom, with electronics, etc.)

*Evaluation/ Assessment:*

a. Grade 1: Science and Technology

- Understanding Structures and Mechanisms
  - Overall Expectations
    - Assess the impact on people and the environment of objects and structures and the materials used in them
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (identify the kinds of waste produced in the classroom, and plan and carry out a classroom course of action for minimizing waste, explaining why each action is important)
- Understanding Matter and Energy
  - Overall Expectations
    - Assess uses of energy at home, at school, and in the community, and suggest ways to use less energy
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (Describe their own family's uses of energy; identify ways in which there uses are efficient or wasteful, taking different points of view into consideration; suggest ways to reduce personal energy consumption; and explain why it is important for people to make these choices)

b. Grade 2: Science and Technology

- Understanding Matter and Energy
  - Overall Expectations
    - Assess ways in which the uses of liquids and solids can have an impact on society and the environment
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (Asses the ways in which liquids and solids in the home are used, stored, disposed of in terms of the effect on personal safety and the health of the environment, and suggest responsible actions to replace inappropriate practices)
- Understanding Earth and Space Systems
  - Overall Expectations
    - Assess ways in which the actions of humans have an impact on the quality of air and ways in which the quality of air and water has an impact on living things
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (Asses the impact of human activities on air and water in the environment, taking different points of view into

consideration and plan a course of action to help keep the air and water in the local community clean)  
-1.2 (Asses personal and family use of water as responsible/ efficient or wasteful, and create a plan to reduce the amount of water used, where possible)

c. Grade 3: Science and Technology

- Understanding Matter and Energy
  - Overall Expectations
    - Assess the impact of various forces on society and the environment
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment  
-1.1 (Asses the effects of the action of forces in nature on the natural and built environment, and identify ways in which human activities can reduce or enhance this impact)

d. Grade 4: Science and Technology

- Understanding Life Systems
  - Overall Expectations
    - Analyse the effects of human activities on habitats and communities
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment  
-1.1 (Analyse the positive and negative impacts of human interactions with natural habitats and communities, taking different perspectives into account, and evaluate ways of minimizing the negative impacts)

e. Grade 5: Science and Technology

- Understanding Earth and Space Systems
  - Overall Expectations
    - Analyse the immediate and long-term effects of energy and resource use on society and the environment, and evaluate options for conserving energy resources
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment  
-1.1 (analyse the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts)  
-1.2 (Evaluate the effects of various technologies on energy consumption, and propose ways in which individuals can improve energy conservation)

f. Grade 6: Science and Technology

- Understanding Matter and Energy
  - Overall Expectations

- Evaluate the impact of the use of electricity on both the way we live and the environment
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess the short- and long-term environmental effects of the different ways in which electricity is generated in Canada)
        - 1.2 (Assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment)
- g. Grade 7: Science and Technology
  - Understanding Life Systems
    - Overall Expectations
      - Assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts
      - Investigate interactions within the environment and identify factors that affect the balance between different components of an ecosystem
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess the impact of selected technologies on the environment)
        - 1.2 (Analyse the costs and benefits of selected strategies for protecting the environment)
  - Understanding Matter and Energy
    - Overall Expectations
      - Evaluate the social and environmental impacts of the use and disposal of pure substances and mixture
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess positive and negative environmental impacts related to the disposal of pure substances)
        - 1.2 (Assess the impact on society and the environment of different industrial methods of separating mixtures and solutions)
- h. Grade 8: Science and Technology
  - Understanding Structures and Mechanisms
    - Overall Expectations
      - Assess the personal, social and/or environmental impacts of a system, and evaluate improvements to a system and/or alternative ways of meeting the same needs

- Specific Expectations
  - 1. Relating Science and Technology to Society and the Environment
    - 1.1 (Assess the social, economic, and environmental impacts of automating systems)
    - 1.2 (Assess the impact on individuals, society, and the environment of alternative ways of meeting needs that are currently met by existing systems, taking different points of view into consideration)
- Understanding Matter and Energy
  - Overall Expectations
    - Analyse how the properties of fluids are used in various technologies, and assess the impact of these technologies on society and the environment
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (Asses the social, economic, and environmental impacts of selected technologies that are based on the properties of fluids)

## **b. Thinking about Your Ecological Footprint**

*Participants:* This lesson can be adapted for grades 6-8

*Suggested time allowance:* 1 hour

*Resources/ Materials:*

-handout (Appendix b. ECOLOGICAL FOOTPRINT SURVEY)

-pen/pencil

-OR, computers with internet access

*Objectives:*

- Students will think about their ecological footprint
- Students will think about how one's daily practices impact the environment
- Student will develop an understanding of how one can reduce his/her ecological footprint

*Activities/ Procedures:*

1. Facilitator will outline the ways in which one increases their ecological footprint

- In the home
- Through transportation
- Energy use
- Paper use
- Water use

- Waste
  - What one eats
2. Students will take a quiz calculating their ecological footprint.
    - Appendix b. ECOLOGICAL FOOTPRINT SURVEY
    - Online: [<http://calc.zerofootprint.net/youth/>]
  3. As a class, discuss the ways that one can lower his/her ecological footprint

*Extension Activity:*

1. As a class, develop a list of habits that the class can practice reducing their ecological footprint in the classroom
2. Ask students to practice reducing their ecological footprint at home and record the ways that they do so
3. Allow the class to calculate their ecological footprint one or two months after introducing the topic calculating an ecological footprint. Compare and contrast the improvement or lack of improvement over that period of time.

*Evaluation/ Assessment:*

- a. Grade 6: Science and Technology
  - Understanding Matter and Energy
    - Overall Expectations
      - Evaluate the impact of the use of electricity on both the way we live and the environment
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess the short- and long-term environmental effects of the different ways in which electricity is generated in Canada)
        - 1.2 (Assess opportunities for reducing electricity consumption at home or at school that could affect the use of non-renewable resources in a positive way or reduce the impact of electricity generation on the environment)
- b. Grade 7: Science and Technology
  - Understanding Life Systems
    - Overall Expectations
      - Assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts
      - Investigate interactions within the environment and identify factors that affect the balance between different components of an ecosystem
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess the impact of selected technologies on the environment)

- 1.2 (Analyse the costs and benefits of selected strategies for protecting the environment)
- Understanding Matter and Energy
  - Overall Expectations
    - Evaluate the social and environmental impacts of the use and disposal of pure substances and mixture
  - Specific Expectations
    - 1. Relating Science and Technology to Society and the Environment
      - 1.1 (Assess positive and negative environmental impacts related to the disposal of pure substances)
      - 1.2 (Assess the impact on society and the environment of different industrial methods of separating mixtures and solutions)
- c. Grade 8: Science and Technology
  - Understanding Structures and Mechanisms
    - Overall Expectations
      - Assess the personal, social and/or environmental impacts of a system, and evaluate improvements to a system and/or alternative ways of meeting the same needs
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Assess the social, economic, and environmental impacts of automating systems)
        - 1.2 (Assess the impact on individuals, society, and the environment of alternative ways of meeting needs that are currently met by existing systems, taking different points of view into consideration)
  - Understanding Matter and Energy
    - Overall Expectations
      - Analyse how the properties of fluids are used in various technologies, and assess the impact of these technologies on society and the environment
    - Specific Expectations
      - 1. Relating Science and Technology to Society and the Environment
        - 1.1 (Asses the social, economic, and environmental impacts of selected technologies that are based on the properties of fluids)

### **c. Calculating Your Waste**

*Participants:* This lesson can be adapted for grades 1-3

*Suggested time allowance:* 10-15 discussion at the end of every school day

#### *Resources/ Materials:*

- Chalkboard & chalk, OR whiteboard & marker, OR chart paper & marker
- Tally chart (Appendix c. WASTE TALLY CHART)

#### *Objectives:*

- Students will develop an understanding of the amount of waste that their class produces
- Students will compare the amount of waste, recycle, compost, and reusable items that develop through daily school activities

#### *Activities/ Procedures:*

1. Facilitator will put forth the idea to keep track of the waste that the class produces
2. Facilitator will set up a tally chart (Appendix c. WASTE TALLY CHART) so that students can mark their own waste
3. Before students put their waste into specific bins, they will mark a point under each bin category on the tally chart that corresponds to each item that they discard
4. At the end of the day, the class can evaluate the amount of waste they produced throughout the day and compare and contrast each category of waste.

#### *Extension Activity:*

1. The Mathematics curriculum (data management & probability) can be further implemented into this activity by developing charts and graphs (collection and organizations of data), comparing categories of waste (data relationships), and calculating the percentage of waste is compost, recyclable, and waste (number sense & numeration: quantity relationships).

#### *Adaptations:*

- For younger students, facilitator can work individually with students to as they finish lunch, snack, or other activities where students will acquire waste
- Students can work in groups to discuss which categories their items fit under and which bin each item should be placed in

#### *Evaluation/ Assessment:*

##### a. Grade 1: Mathematics

- Data Management and Probability
  - Overall Expectations
    - Collect and organize categorical primary data and display the data using concrete graphs and pictographs, without regard to the order of labels on the horizontal axis

- Specific Expectations
  - Demonstrate an ability to organize objects into categories by sorting and classifying objects using one attribute, and by describing informal sorting experiences
  - Collect and organize primary data that is categorical and display the data using one-to-one correspondence, prepared templates of concrete graphs and pictographs, and a variety of recording methods
  - Read primary data presented in concrete graphs and pictographs, and describe the data using comparative language

b. Grade 2:

- Data Management and Probability
  - Overall Expectations
    - Collect and organize categorical or discrete primary data and display the data, using tally charts, concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with labels ordered appropriately along horizontal axes, as needed
  - Specific Expectations
    - Demonstrate an ability to organize objects into categories by sorting and classifying objects using two attributes simultaneously
    - Collect and organize primary data that is categorical or discrete and display the data using one-to-one correspondence in concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with appropriate titles and labels and with labels ordered appropriately
    - Read primary data presented in concrete graphs and pictographs, line plots, simple bar graphs, and other graphic organizers, and describe the data using mathematical language

b. Grade 3:

- Data Management and Probability
  - Overall Expectations
    - Collect and organize categorical or discrete primary data and display the data, using charts and graphs, including vertical and horizontal bar graphs, with labels ordered appropriately along horizontal axes, as needed
  - Specific Expectations
    - Collect data by conducting a simple survey about themselves, their environment, issues in their school or community, or content from another subject
    - Read primary data presented in charts, tables, and graphs, then describe the shape of the data

#### **d. Speaking Up!**

*Participants:* grade 1-8

*Suggested time allowance:* 45 minutes-1 hour

#### *Resources/ Materials:*

- Computers, OR pencils & paper
- envelopes & stamps

#### *Objectives:*

- Students will develop an understanding of practices that diminish a school and community's ecological footprint

#### *Activities/ Procedures:*

1. As a class, students will choose an organization or corporation to write a letter in order to encourage safer environmental policies and practices
2. Students will email or mail their letters to that organization

#### *Extension Activity:*

1. Students can research an organization of their own interest and write a letter
2. Students can write a thank you letter to an organization that has developed good environmental initiatives and practices

#### *Adaptations:*

- Students can write letters individually, in pairs/groups, or as a whole class.

#### *Evaluation/ Assessment:*

##### a. Grade 1: Language

- Writing
  - Overall Expectations
    - Generate, gather, and organize ideas and information to write for an intended purpose and audience
    - Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience
  - Specific Expectations
    - 1. Developing and organizing content
      - 1.1 (Identify the topic, purpose, audience, and form for writing, initially with support and direction)
      - 1.2 (Generate ideas about a potential topic, using a variety of strategies and resources)
      - 1.3 (Gather information to support ideas for writing, in a variety of ways and/or from a variety of sources)
    - 2. Using Knowledge of Form and Style in Writing
      - 2.1 (Write short texts using few simple forms)

-2.2 (Begin to establish a personal voice in their writing by using pictures and words that convey their attitude or feeling towards the subject or audience)

-2.5 (Begin to identify, with support and direction, their point of view and one possible different point of view about the topic)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet criteria identified by the teacher, based on the expectations)

b. Grade 2: Language

• Writing

○ Overall Expectations

▪ Generate, gather, and organize ideas and information to write for an intended purpose and audience

▪ Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience

○ Specific Expectations

▪ 1. Developing and organizing content

-1.1 (Identify the topic, purpose, audience, and form for writing)

-1.2 (Generate ideas about a potential topic, using a variety of strategies and resources)

-1.3 (Gather information to support ideas for writing, in a variety of ways and/or from a variety of sources)

▪ 2. Using Knowledge of Form and Style in Writing

-2.1 (Write short texts using a variety of forms)

-2.2 (Begin to establish a personal voice in their writing, with a focus on using familiar words that convey their attitude or feeling towards the subject or audience)

-2.5 (Identify their point of view and other possible points of view on the topic, and determine if their information supports their own view)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet identified criteria based on the expectations related to content, organization, style, use of conventions, and use of presentation strategies)

c. Grade 3: Language

• Writing

○ Overall Expectations

▪ Generate, gather, and organize ideas and information to write for an intended purpose and audience

- Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience
  - Specific Expectations
    - 1. Developing and organizing content
      - 1.1 (Identify the topic, purpose, audience, and form for writing)
      - 1.2 (Generate ideas about a potential topic, using a variety of strategies and resources)
      - 1.3 (Gather information to support ideas for writing, in a variety of ways and/or from a variety of sources)
    - 2. Using Knowledge of Form and Style in Writing
      - 2.1 (Write short texts using a variety of forms)
      - 2.2 (Establish a personal voice in their writing, with a focus on using concrete words and images that convey their attitude or feeling towards the subject or audience)
      - 2.5 (Identify their point of view and other possible points of view on the topic, and determine if their information supports their own view)
    - 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively
      - 3.8 (Produce pieces of published work to meet identified criteria based on the expectations related to content, organization, style, use of conventions, and use of presentation strategies)

c. Grade 4: Language

- Writing
  - Overall Expectations
    - Generate, gather, and organize ideas and information to write for an intended purpose and audience
    - Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience
  - Specific Expectations
    - 1. Developing and organizing content
      - 1.1 (Identify the topic, purpose, and audience for a variety of writing forms)
      - 1.2 (Generate ideas about a potential topic, using a variety of strategies and resources)
      - 1.3 (Gather information to support ideas for writing, using a variety of strategies and oral, print, and electronic sources)
    - 2. Using Knowledge of Form and Style in Writing
      - 2.1 (Write more complex texts using a variety of forms)
      - 2.2 (Establish a personal voice in their writing, with a focus on using words and stylistic elements that convey a specific mood such as amusement)

-2.5 (Identify their point of view and other possible points of view on the topic, and determine whether their information sufficiently supports their own view)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet identified criteria based on the expectations related to content, organization, style, use of conventions, and use of presentation strategies)

d. Grade 5: Language

• Writing

○ Overall Expectations

▪ Generate, gather, and organize ideas and information to write for an intended purpose and audience

▪ Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience

○ Specific Expectations

▪ 1. Developing and organizing content

-1.1 (Identify the topic, purpose, and audience for a variety of writing forms)

-1.2 (Generate ideas about a potential topic and identify those most appropriate for the purpose)

-1.3 (Gather information to support ideas for writing, using a variety of strategies and range of print and electronic sources)

▪ 2. Using Knowledge of Form and Style in Writing

-2.1 (Write more complex texts using a variety of forms)

-2.2 (Establish an appropriate voice in their writing, with a focus on modifying language and tone to suit different circumstances or audiences)

-2.5 (Identify their point of view and other possible points of view, and determine, when appropriate, if their own view is balanced and supported by evidence)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet identified criteria based on the expectations related to content, organization, style, use of conventions, and use of presentation strategies)

e. Grade 6: Language

• Writing

○ Overall Expectations

▪ Generate, gather, and organize ideas and information to write for an intended purpose and audience

- Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience
  - Specific Expectations
    - 1. Developing and organizing content
      - 1.1 (Identify the topic, purpose, and audience for a variety of writing forms)
      - 1.2 (Generate ideas about a potential topic and identify those most appropriate for the purpose)
      - 1.3 (Gather information to support ideas for writing, using a variety of strategies and range of print and electronic sources)
    - 2. Using Knowledge of Form and Style in Writing
      - 2.1 (Write longer and more complex texts using a wide range of forms)
      - 2.2 (Establish a distinctive voice in their writing appropriate to the subject and audience)
      - 2.5 (Identify their point of view and other possible points of view; determine, when appropriate, if their own view is balanced and supported by the evidence; and adjust their thinking and expression if appropriate)
    - 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively
      - 3.8 (Produce pieces of published work to meet identified criteria based on the expectations)
- e. Grade 7: Language
  - Writing
    - Overall Expectations
      - Generate, gather, and organize ideas and information to write for an intended purpose and audience
      - Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience
    - Specific Expectations
      - 1. Developing and organizing content
        - 1.1 (Identify the topic, purpose, and audience for more complex writing forms)
        - 1.2 (Generate ideas about more challenging topics and identify those most appropriate for the purpose)
        - 1.3 (Gather information to support ideas for writing, using a variety of strategies and a wide range of print and electronic resources)
      - 2. Using Knowledge of Form and Style in Writing
        - 2.1 (Write complex texts of different lengths using a wide range of forms)

-2.2 (Establish a distinctive voice in their writing appropriate to the subject and audience)

-2.5 (Identify their point of view and other possible points of view, evaluate other points of view, and find ways to acknowledge other points of view, if appropriate)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet identified criteria based on the expectations)

f. Grade 8: Language

• Writing

○ Overall Expectations

▪ Generate, gather, and organize ideas and information to write for an intended purpose and audience

▪ Draft and revise their writing using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience

○ Specific Expectations

▪ 1. Developing and organizing content

-1.1 (Identify the topic, purpose, and audience for more complex writing forms)

-1.2 (Generate ideas about more challenging topics and identify those most appropriate to the purpose)

-1.3 (Gather information to support ideas for writing, using a variety of strategies and a wide range of print and electronic sources)

▪ 2. Using Knowledge of Form and Style in Writing

-2.1 (Write complex texts of a variety of lengths using a wide range of forms)

-2.2 (Establish a distinctive voice in their writing appropriate to the subject and audience)

-2.5 (Identify their point of view and other possible points of view, evaluate other points of view, and find ways to respond to other points of view, if appropriate)

▪ 3. Applying Knowledge of Language Conventions and Presenting Written Works Effectively

-3.8 (Produce pieces of published work to meet identified criteria based on the expectations)

### e. Junk Mail Overload

(Lesson adapted from EducationWorld.com)

*Participants:* This lesson can be adapted for grade 1-3

*Suggested time allowance:* 10-15 minutes daily

#### *Resources/ Materials:*

-Facilitator can bring his/her un-opened mail to present to the class, OR facilitator can ask a guardian of a student who might be willing, OR can ask the secretary of school/organization

-Chalkboard & chalk, OR whiteboard & marker, OR chart paper & marker

- Tally chart (Appendix d. **MAIL ORGANIZATION TALLY CHART**)

\*As mail can have personal information attached to it, the facilitator must find a person that is willing for the students to sort through their mail

\*The facilitator can leave the mail un-opened and cover his/her address and other personal information

#### *Objectives:*

- Students will compare and contrast the amount mail that is not addressed to the receiver
- Students will think about the amount of mail that one receives and develop ideas of how to reduce the amount of paper that is sent through mail

#### *Activities/ Procedures:*

1. As a class, the students and facilitator will sort through daily mail, deciding which mail is 'unwanted' (not addressed to the receiver) and which mail is 'important' (must be sent through Canada Post) to receive.
2. Students will compare and contrast the two categories
3. Teacher will facilitate a conversation where students will discuss alternative options to delivering messages
  - E-greetings
  - Email
  - Posters rather than flyers

#### *Alternative Activities*

1. If appropriate, students can do this assignment individually at home
2. Facilitator can extend the activity and develop probability skills by predicting the amount of mail that could collect over certain periods of time

#### *Evaluation/ Assessment:*

##### a. Grade 1: Mathematics

- Data Management and Probability
  - Overall Expectations

- Collect and organize categorical primary data and display the data using concrete graphs and pictographs, without regard to the order of labels on the horizontal axis
  - Specific Expectations
    - Demonstrate an ability to organize objects into categories by sorting and classifying objects using one attribute, and by describing informal sorting experiences
    - Collect and organize primary data that is categorical and display the data using one-to-one correspondence, prepared templates of concrete graphs and pictographs, and a variety of recording methods
    - Read primary data presented in concrete graphs and pictographs, and describe the data using comparative language

b. Grade 2:

- Data Management and Probability
  - Overall Expectations
    - Collect and organize categorical or discrete primary data and display the data, using tally charts, concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with labels ordered appropriately along horizontal axes, as needed
  - Specific Expectations
    - Demonstrate an ability to organize objects into categories by sorting and classifying objects using two attributes simultaneously
    - Collect and organize primary data that is categorical or discrete and display the data using one-to-one correspondence in concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with appropriate titles and labels and with labels ordered appropriately
    - Read primary data presented in concrete graphs and pictographs, line plots, simple bar graphs, and other graphic organizers, and describe the data using mathematical language

b. Grade 3:

- Data Management and Probability
  - Overall Expectations
    - Collect and organize categorical or discrete primary data and display the data, using charts and graphs, including vertical and horizontal bar graphs, with labels ordered appropriately along horizontal axes, as needed
  - Specific Expectations

- Collect data by conducting a simple survey about themselves, their environment, issues in their school or community, or content from another subject
- Read primary data presented in charts, tables, and graphs, then describe the shape of the data

#### **f. Public Service Announcement**

*Participants:* Grades 6-8

*Suggested time allowance:* This can be developed into a short-term project

*Resources/ Materials:*

-Students can choose to introduce materials that fit the concept of their project (eg., computer, poster board, props, costumes, camera, video camera, etc.)

*Objectives:*

- Students will develop a point of view on positive environmental practices
- Students will present ideas through various forms of media

*Activities/ Procedures:*

1. Students will develop a public service announcement that encourages a positive environmental practice

Examples of topics which students focus on:

- Reducing water waste
- Reducing use of plastic
- Reducing use of electricity
- Proper waste and recycle management
- Reusing products
- Refusing products

Examples of project ideas that students can develop:

- Video
- Commercial
- Poster campaign
- Email blast sent to the school community
- Skit/ short play
- Photo essay
- Newspaper article
- Poem
- Essay
- Song

*Evaluation/ Assessment:*

-Cross-curricular (Science & Technology, Language, and The Arts) activity that can be evaluated as a unit project

## 2.2 Vocabulary Terms

The terms below are taken from the Ministry of Education: Science and Technology, Grades 1-8, curriculum document. Included are relevant terms that connect to the production.

- *\*Abiotic element*: a physical, but non-living feature of an ecosystem, such as climate, rocks, soils, ice, topography, and non-living organic matter
- *Atmosphere*: A gaseous mass surrounding a celestial body, such as the air surrounding Earth
- *Biodegradable*: Capable of being decomposed (broken down) by natural biological processes
- *Biodiversity*: The variety of organisms at all levels of classification and the variety of ecosystems within a specific geographic region and globally
- *\*Biotic elements*: The living parts of an organism's environment
- *Built environment*: That part of the environment that consists of human-made structures or has been modified for human use (e.g. buildings, roads, parks, farmland)
- *Climate*: The characteristic weather conditions within a region, including temperature, precipitation, wind, and other variables, averaged over a number of years
- *Climate change*: A significant, long-term change in the world climate, which can be brought about by either human or natural factors
- *\*Community*: Interdependent groups of plants and animals that live and interact together in a habitat
- *Composting*: An aerobic, biological process in which organic waste are converted into material (compost) that can be applied to land to improve soil structure and enrich the nutrient content of the soil
- *Conservation of energy*: The principle that energy can be neither created nor destroyed but can only be changed from one form to another. Conservation of energy is also used to describe the wise use of energy
- *Conservation of resources*: use of natural resources only when needed in order to reduce waste and prevent loss of resources
- *\*Consumer*: Organisms that feed on other organisms. Organisms that feed on green plants or decaying matter are called primary consumers. Carnivores are called secondary consumers, while those that feed on other carnivores are called tertiary consumers
- *\*Decomposition*: The process of rotting and decay, which causes the complex organic materials in plants and animals to break down into simple inorganic elements that can be returned to the atmosphere and soil
- *Deforestation*: The destruction of the world's forests, mainly rain forests, through direct human activity, such as logging and clearing for agriculture and grazing, and through the indirect effects of pollution and acid rain
- *Ecology*: The branch of science concerned with the interrelationships between organisms and their environments
- *\*Ecosystem*: A complex system that comprises living organisms and their environment, which interacts as a unit

- *Endangered species*: A species that is in danger of extinction in the foreseeable future
- *Environment*: All the biotic and abiotic elements that surround and affect organisms or groups of organisms and influence their survival and development
- *Environmental impact*: Positive and/or negative effects of a human activity or intervention on the environment (e.g., effects on natural resources, biodiversity, or the quality of air, water, and soil)
- *Extinction*: The complete and permanent disappearance of species from the earth
- *Global warming*: An increase in the earth's average atmosphere as a result of the enhancement of the greenhouse effect. The rise in temperature causes corresponding changes in other aspects of climate
- *Habitat*: The place where an organism lives and that provides it with the food, water, shelter, and space that it needs to survive
- *Hazardous waste*: Waste containing substances that are dangerous to human health and/or the environment
- *Introduced species*: A species that is brought to an environment where it did not live before. Introduced species can cause great problems for native species and for people
- *Pollution*: Contamination of the air, water, or soil that causes harm to human health or the environment
- *\*Population*: The number of individuals of a specific species in a specific area at a specific time
- *\*Producer*: An organism that produces new organic material from inorganic material with the aid of sunlight
- *Recycle*: Reduce waste by reprocessing used materials into new materials. Aluminum cans may be melted, for example, then reformed as aluminum cans or made into other aluminum products
- *Reduce*: Reduce waste by consuming less, so as not to have to reuse or recycle later
- *Reuse*: Reduce waste by using disposable materials such as packaging or building materials over again or by refurbishing worn or used products for further use
- *\*Sustainability*: A process that can be maintained without interruption, weakening, or loss of valued qualities. Sustainability ensures that a population remains within the carrying capacity of its environment

\*By the end of grade 7, students are expected to understand marked terms

## **Module 3: Action**

### **3.1 Resources for Students, Teachers, and Guardians**

#### **a. Online Resources:**

*Acer Acre*: [<http://www.acer-acre.ca/>]. Programs and resources focused on climate change developed for schools, teachers, and communities

*Canadian Environmental Network*: [<http://rcen.ca/home>]. Includes: directory of groups, organizations, agencies, and websites, and projects and resources put forth by CEN

*Canadian Parks and Wilderness Society*: [<http://cpaws.org/>]. National charity aiming to protect Canada's public land and water spaces

*Classroom Earth*: [<http://www.classroomearth.org/>]. Educational resources listed by topic and subject

*Earth Day Canada*: [<http://www.earthday.ca/>]. Outlines programs, campaigns, events, and resources connected to Earth Day

*Earth Rangers*: [<http://www.earthrangers.com/>]. Games, activities, and videos that bring awareness to environmental issues, in particular endangered animals

*Ecojustice*: [<http://www.ecojustice.ca/>]. Provides legal services to strengthen environmental laws that protect the environment

*Environment Canada*: [<http://www.ec.gc.ca/default.asp?lang=en>]. Includes: up to date news stories, documents, and information on governmental initiatives toward environmental issues

*Focus on Forests*: [<http://www.focusonforests.ca/>]. Activities, information, and lesson plans develop for teachers of K-12 students

*Green Action Centre*: [<http://greenactioncentre.ca/>]. Tips and information for living green, and list of programmes and events offered by the organization

*My Footprint*: [<http://www.myfootprint.org/>]. Online ecological footprint calculator

*Nature Canada*: [<http://www.naturecanada.ca/>]. Outlines the organization's initiatives toward the conservation and preservation of endangered species

*Toronto Environmental Alliance*: [<http://www.torontoenvironment.org/>]. Outlines campaigns and news that promote a greener Toronto

*United Nations Environment Programme*: [<http://www.unep.org/>]. Includes: initiatives put forth by the United Nations and background information on environmental topics

## **b. Educational & Cultural Institutions:**

*Canadian Museum of Nature:* [<http://www.nature.ca/>] (Ottawa, ON)

*Evergreen Brickworks:* [<http://www.ebw.evergreen.ca/>] (Toronto, ON)

*Royal Ontario Museum:* [<http://www.rom.on.ca/>] (Toronto, ON)

*Metro Toronto Zoo:* [<http://www.torontozoo.ca/>] (Toronto, ON)

*Harbourfront Centre:* [<http://www.harbourfrontcentre.com/schoolvisits/>]. (Toronto, ON). School visits for K-12 students focused on geography, and science and the environment.

## **Module 4: Evaluation**

### **4.1 Concepts & Topics Addressed in *Plastico –An Epic Adventure***

- BPA (chemical found in plastic) [Grades 4-6]
- Recycle, reduce, reuse [Grades 1 -6]
- Life cycle of plants [Grades 1-3]
- Effects of plastic on water, air, earth [Grades 3-6]
- Deforestation
- Activism
- Local food/gardens/composting
- Rethinking the R's – adding refuse
- Types of Plastic (the plastic numbering system)
- Working as a community to make lasting change

### **4.2 Ontario Elementary Science & Technology Curriculum Expectations**

#### **a. Grade 1**

- Understanding Life Systems: Needs and Characteristics of Living things
  - Big Ideas
    - Living things grow, take in food to create energy, make waste and reproduce
    - Plants and animals, including people, are living things
    - Living things have basic needs (air, water, food and shelter) that are met from the environment
    - All living things are important and should be treated with care and respect
  - Overall Expectations
    - Assess the role of humans in maintaining a healthy environment
  - Specific Expectations
    - 1.1 (identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans)

- 1.2 (describe changes or problems that could result from the loss of some kinds of living things that are part of everyday life)
  - 2.2 (investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources)
  - 2.4 (investigate the physical characteristics of plants and explain how they help the plant meet its basic needs)
- Understanding matter and energy: Energy in our Lives
  - Big Ideas
    - Everything that happens is a result of using some form of energy
    - Humans need to be responsible for the way in which we use energy
  - Overall Expectations
    - Assess uses of energy at home, at school and in the community and suggest ways to use less energy.
  - Specific Expectations
    - 1.1 (describe their own and their family's uses of energy; identify ways in which these uses are efficient or wasteful, taking different points of view into consideration; suggests ways to reduce personal energy consumption; and explain why it is important for people to make these choices)
    - 3.4 (identify everyday uses of various sources of energy)

## **b. Grade 2**

- Understanding Life systems: Growth and change in Animals
  - Big Ideas
    - Humans are animals
    - Humans need to protect animals and the places where they live
  - Overall Expectations
    - Assess ways in which animals have an impact on society and the environment and ways in which humans have an impact upon animals and the places where they live
  - Specific Expectations
    - 1.2 (identify positive and negative impacts that different kinds of human activity have on animals and where they live)
    - 2.5 (investigate the ways in which a variety of animals adapt to their environment and/or to changes in their environment, using various methods)
    - 3.3 (identify ways in which animals are helpful to, and ways in which they meet the needs of, living things, including humans, to explain why humans should protect animals and the places where they live)
- Understanding Matter and Energy: Properties of Liquids and Solids

- Big Ideas
  - Some liquids and solids can be harmful to us and the environment
- Overall Expectations
  - Assess ways in which the uses of liquids and solids can have an impact on society and the environment
- Specific Expectations
  - 1.1 (assess the ways in which liquids and solids in the home are used, stored, and disposed of in terms of the effect on personal safety and the health of the environment, and suggest responsible actions to replace inappropriate practices)
- Understanding earth and space systems: Air and Water in the Environment
  - Big Ideas
    - Air and water are a major part of the Environment
    - Living things need air and water to survive
    - Changes to air and water affect living things and the environment
    - Our actions affect the quality of air and water, and its ability to sustain life
  - Overall Expectations
    - Assess ways in which the actions of humans have an impact on the quality of air and water, and ways in which the quality of air and water has an impact on living things
    - Demonstrate an understanding of the ways in which air and water are used by living things to help them meet their basic needs
  - Specific Expectations
    - 1.1 (assess the impact of human activities on air and water in the environment, taking different points of view into consideration, and plan a course of action to help keep the air and water in the local community clean)
    - 1.2 (assess personal and family uses of water as responsible/ efficient or wasteful, and create a plan to reduce the amount of water used, where possible)
    - 2.4 (investigate, the stages of the water cycle, including evaporation, precipitation, and collection )
    - 2.5 (investigate water in the natural environment)
    - 3.3 (describe ways in which living things, including humans, depend on air and water)
    - 3.6 (state reasons why clean water is an increasingly scarce resource in many parts of the world)

### **c. Grade 3**

- Understanding Life Systems: Growth and Changes in Plants
  - Big Ideas

- Plants have distinct characteristics
    - Plants are the primary source of food for humans
    - Humans need to protect plants and their habitats
    - Plants are important to the planet
  - Overall Expectations
    - Assess ways in which plants have an impact on society and the environment, and ways in which human activity has an impact on plants and plant habitats
    - Demonstrate an understanding with plants grow and change and have distinct characteristics
  - Specific Expectations
    - 1.1 (assess ways in which plants are important to humans and other living things, taking different points of view into consideration)
    - 1.2 (assess the impact of different human activities on plants, and list personal actions that can engage in to minimize harmful effects and enhance good effects)
    - 3.1 (describe the basic needs of plants, including air, water, light, warmth, and space)
    - 3.4 (describe how most plants get energy to live directly from the sun and how plant help other living things to get energy from the sun)
    - 3.6 (describe ways in which plants and animals depend on each other)
    - 3.8 (identify examples of environmental conditions that may threaten plant and animal survival)
- Understanding earth and space systems: Soils in the Environment
  - Big Ideas
    - Soil is an essential source of life and nutrients for many living things
    - Living things, including humans, interact with soils and can cause positive or negative changes
  - Overall Expectations
    - Assess the impact of soils on society and the environment, and of society and the environment on soils
    - Demonstrate the relationship between soils and other living things
  - Specific Expectations
    - 1.1 (assess the impact of soils on society and the environment, and suggest ways in which humans can enhance positive effects and/or lessen or prevent harmful effects)
    - 1.2 (assess the impact of human action on soils, and suggest ways in which humans can affect soils positively and/or lessen or prevent harmful effects on soil)

- 2.4 (investigate the process of composting, and explain some advantages and disadvantages of composting)

#### **d. Grade 4**

- Understanding Life Systems: Habitats and communities
  - Big Ideas
    - Changes to habitats can affect plants and animals and the relationships between them
    - Society relies on plants and animals
  - Overall Expectations
    - Analyse the effect of human activities on habitats and communities
  - Specific Expectations
    - 1.1 (analyse the positive and negative impacts of human interactions with natural habitats and communities, and evaluate ways of minimizing the negative impacts)
    - 1.2 (identify reasons for the depletion or extinction of a plant or animal species, evaluate the impacts on the rest of the natural community, and propose possible actions for preventing such depletions or extinctions from happening)
    - 2.2 (build food chains consisting of different plants and animals, including humans)
    - 2.3 (use scientific inquiry/ research skills to investigate ways in which plants and animals in a community depend on features of their habitat to meet important needs)
    - 3.1 (demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life)
    - 3.2 (demonstrate an understanding of food chains as systems in which energy from the sun is transferred to producers and then to consumers)
    - 3.3 (identify factors that affect the ability of plants and animals to survive in a specific habitat)
    - 3.8 (explain why changes in the environment have a greater impact on specialized species than on generalized species)

#### **e. Grade 5**

- Understanding earth and space systems: Conservation of Energy and resources
  - Big Ideas
    - Energy sources are either renewable or non-renewable
    - Conservation (reducing our use of energy and resources) is one way of reducing the impacts of using energy and resources
  - Overall Expectations
    - Analyse the immediate and long term effects of energy and resource use on society and the environment and evaluate options for conserving energy and resources
  - Specific Expectations

- 1.1 (analyse the long term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts)

#### **f. Grade 6**

- Understanding life systems: Biodiversity
  - Big ideas
    - Biodiversity includes diversity of individuals, species and ecosystems
  - Overall Expectations
    - Assess human impacts on biodiversity, and identify ways of preserving biodiversity
  - Specific Expectations
    - 1.1 (analyse a local issue related to biodiversity, taking different points of view into consideration, propose action that can be taken to preserve biodiversity, and act on the proposal)
    - 1.2 (assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished)

#### **g. Grade 7**

- Understanding life systems: Interactions in the environment
  - Big ideas
    - Ecosystems are in a constant state of change. The changes may be caused by nature or by human intervention
    - Human activities have the potential to alter the environment
    - Humans must be aware of these impacts and try to control them
  - Overall Expectations
    - Assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts
  - Specific Expectations
    - 1.1 (assess the impact of selected technologies on the environment)
    - 2.4 (use appropriate science and technology vocabulary, including sustainability, biotic, ecosystem, community, population, and producer, in oral and written communication)
    - 3.1 (demonstrate an understanding of an ecosystem as a system of interactions between living organisms and their environment)

#### **h. Grade 8**

- Understanding earth and space systems: Water systems
  - Big ideas
    - Water is crucial to life on Earth

- Water is an important resource that needs to be managed sustainably
- Overall Expectations
  - Assess the impact of human activities and technologies on the sustainability of water resources
- Specific Expectations
  - 1.1 (evaluate personal water consumption, compare it with personal water consumption in other countries, and propose a plan of action to reduce personal water consumption to help address water sustainability issues)
  - 3.3 (explain how human and natural factors cause changes in the water table)

### Works Cited

Ministry of Education –The Ontario Curriculum: Science & Technology, Grades 1-8, 2007.

Appendix

a. UNDERSTANDING THE ENVIRONMENT: KWL chart

What you KNOW about the environment?	What WANT TO KNOW about the environment?	What you LEARNED about the environment?
e.g. (the forest is an environment, we have to protect the environment, littering is harmful to the environment)	e.g. (why is littering bad? What is global warming? What am I supposed to put in the recycle bin?)	e.g. (we have a choice to use certain materials and can make environmentally friendly choices)

b. ECOLOGICAL FOOTPRINT SURVEY

Question	Rate yourself: (1)Agree -----(5)Disagree
<b>Home</b>	
1. What is the size of your home?	(1) Apartment/studio (2) 2-3 bedrooms (3) Approximately 3 bedrooms (4) Approximately 4 bedrooms (5) More than 4 bedrooms
<b>Transportation</b>	
2. What you ride in most often?	(1) Walk, bike, skateboard, etc. (2) Bus, subway, streetcar, etc. (3) Carpool (4) Small car (5) Large car
<b>Energy Use</b>	
3. How many of the following energy saving habits do you practice at home?  -Turn off lights when leaving rooms -Turn off appliances & electronics when not in use -Turn off computers & monitors when not in use -Recharge batteries & electronic devices only when the battery is completely drained -Unplug small appliances when not in use  (Give yourself 1 point if you use all five. Give	(1) All 5 (2) 4 (3) 3 (4) 2 (5) 1

your 5 points if you do not use any of the 5 energy saving features.)	
4. How many electronic devices (computers, iPods, game systems, etc..) do you use for more than an hour every day?	(1) 1 (2) 2 (3) 3 (4) 4 (5) 5
<b>Paper Use</b>	
5. How many of the following paper saving habits do you practice at home & school?  -Use every page of a notebook -Use a computer when possible to complete homework and other writing tasks -Reuse paper that is printed on one side of the page -Recycle all paper that is waste -Air dry or towel dry your hands instead of using paper towel	(1) All 5 (2) 4 (3) 3 (4) 2 (5) 1
<b>Water Use</b>	
6. How many of the following water saving habits do you practice at home?  -Take short showers -Tell someone when there is a leaky faucet -Turn water off when not using it while taking a shower, or while brushing teeth -Help fill the dishwasher completely before running it -When pouring a glass of water, drinking all of it rather than pouring down the sink	(1) All 5 (2) 4 (3) 3 (4) 2 (5) 1
<b>Waste</b>	
7. What practices you do you follow? -Compost food scraps -Recycle paper products -Recycle plastic products -Recycle glass products -Reuse materials	(1) All 5 (2) 4 (3) 3 (4) 2 (5) 1
<b>Diet</b>	
8. What kind of diet do you follow?	(1) Vegan –plant based foods only (2) Vegetarian –plant based foods & some dairy

	<ul style="list-style-type: none"> <li>(3) Omnivore –meat, seafood, vegetables, dairy, &amp; grains</li> <li>(4) Carnivore –meat, seafood, &amp; dairy</li> <li>(5) Meat, seafood, or dairy at every meal</li> </ul>
9. Where does most of your food come from?	<ul style="list-style-type: none"> <li>(1) Farmers markets, gardens, and other local and fresh sources</li> <li>(2) Natural food markets</li> <li>(3) Supermarkets for some items, &amp; natural food stores for others</li> <li>(4) Supermarkets, convenience stores, &amp; prepared foods from restaurants</li> <li>(5) Restaurants, fast foods, and take out</li> </ul>
10. What do you carry your school lunch in lunch in?	<ul style="list-style-type: none"> <li>(1) Reusable containers and bag</li> <li>(2) Reusable containers and recyclable bag</li> <li>(3) Paper/ recyclable bag</li> <li>(4) Plastic bag</li> <li>(5) Everything I carry my lunch in must be thrown out</li> </ul>
<p>Count the amount of points you have received, multiply that number by 2. The higher your number, the more you need to think about the ecological footprint that you are leaving on the environment.</p>	

**c. WASTE TALLY CHART**

<b>COMPOST</b> (e.g., fruit & vegetable peels, used tissues, used napkins, etc.)	<b>RECYCLE</b> (eg., paper used on both sides, cardboard, plastic bottles, glass bottles and jars, etc.)	<b>WASTE</b> (e.g., food wrappers, ZipLoc bags, etc.)

**d. MAIL ORGANIZATION TALLY CHART**

<b>All MAIL</b> (How many pieces of mail do you receive each day?)	<b>UNLABELLED MAIL</b> (e.g., advertisements, flyers, etc.)	<b>IMPORTANT MAIL</b> (eg., bills, cards, etc.)
<b>Monday</b>		
<b>Tuesday</b>		
<b>Wednesday</b>		
<b>Thursday</b>		
<b>Friday</b>		