Lesson 1.6

SNC1P

How can our actions promote sustainable ecosystems?

1. We must understand and commit to sustainability.

- **S**_____ is maintaining the abiotic and biotic parts of an ecosystem so that present populations can get the resources they need without risking the ability of future generations to get the resources that they will need.
- Sustainability helps to ensure that **p**_____ stay within **c**_____ of their ecosystem. We should **b**_____, **t**_____, and **a**_____ so that future generations will live a good life.

2. We must understand the link between biodiversity and sustainability.

- **B**_____ is all the different kinds of living things in a certain place, as well as all the different kinds of places within that place and elsewhere.
- How are biodiversity and sustainability linked? A sustainable ecosystem must maintain a state of **b**_____ between its diverse living parts and its non-living parts. This state of balance is called **e**_____. An ecosystem that is in equilibrium (in balance) tends to have a **h**___ degree of biodiversity. Such an ecosystem tends to be a sustainable ecosystem.

3. Our actions can maintain or rebuild sustainable ecosystems.

- We can both **h**_____ and **h**_____ ecosystems.

(a) A healthy wetland is a hotbed of biodiversity. More than 70 % of the wetland **A**_____ in southern Ontario is managed as a nature reserve – safe from mining and other activities that could harm it.

(b) Since 1990s, four populations are now re-established in the areas of Sudbury, Bancroft/North Hastings, Lake of the Woods, and the north shore of Lake Huron to restore **e**_____ to Ontario.

(c) A type of beetle (see photo on p.68 of your textbook), originally from Europe, is used to fight against purple loosestrife. The use of living things to control introduced species is called **b**_____.

(d) Farmers and some homeowners setup special boxes to provide places for birds to establish **n**_____ to make up for the trees that have been logged to clear space or provide timber for various products.

(e) To counteract **u**_____, a strategy called **s**_____ helps by concentrating growth in the centre of a city, rather than in outlying areas. Homes and businesses intermingle, while **g**_____ spaces are preserved. Smart growth also enhances public **t**_____, which reduces traffic **p**_____.

4. We can choose actions that benefit ecosystems now and for the future.

- Change in society starts with the change in **i**_____.
- Each one of us has a **r**_____ to help create a more sustainable future.

Homework *(Practice & Homework Book): pages 40,43,45*

Source: Science Links 9. McGraw-Hill Ryerson. 2009

Name _____ Date _____

Topic **1.6** Summary

How can our actions promote sustainable ecosystems?

Textbook pages 62–67

Before You Read

What do you think of when you hear or read the term sustainability? What does this term mean? Record your thoughts on the lines below.

_____

_____

Reading Check

1. What happens when a population in an ecosystem exceeds its carrying capacity?

_____

_____

_____

Reading Check

2. As a consumer, what types of questions can you ask about a product to ensure it contributes to a more sustainable ecosystem?

_____

_____

_____

How can we commit to sustainability?

The Haudenosaunee, also know as the Iroquois, speak of the need to remember to walk softly on our sacred mother, the Earth. They also state that we must consider the effects of our actions on the ability of next generations to live a good life. When the living and non-living parts of an ecosystem can get the resources they need without putting future generations at risk we say that the ecosystem is **sustainable**. **Sustainability** ensures that the population stays within the carrying capacity of the ecosystem. Do we always take time to consider the needs of future generations? Do we really look at the growth of our cities and reflect on what impact these changes will have for the future?

What is the link between biodiversity and sustainability?

Biodiversity is the number and variety of organisms found in a specific region. It can also refer to the diversity of ecosystems within and beyond that ecosystem. An ecosystem that is sustainable will have a high degree of biodiversity. A balance or **equilibrium** will exist between its living and non-living parts. All of these parts are interconnected.

Name _____ Date _____

Cloze Activity
Topic 1.6

Use with textbook pages 62–77.

Sustainability

Vocabulary	
abiotic	high
balance	individuals
biocontrol	smart growth
biodiversity	society
biotic	sustainability
change	wetland
climate change	

Use the terms in the vocabulary box to fill in the blanks. Use each term only once.

1. When the citizens of Sydney Australia were concerned about _____, they encouraged people and businesses to shut down their lights for one hour.
2. _____ is a way of believing, thinking, and acting that takes into account the effects that our actions will have on future generations.
3. An ecosystem's size and the number of populations it supports is limited by the _____ and _____ parts of that ecosystem.
4. The term _____ describes the great diversity of Earth's species and the great diversity of Earth's ecosystems at the same time.
5. A sustainable ecosystem must maintain a _____ between its diverse living parts and its non-living parts.
6. An ecosystem that is in equilibrium tends to have a _____ degree of biodiversity.
7. The Alfred Bog in Northern Ontario is a _____ that has been designated a nature reserve to protect this diverse and important ecosystem.
8. An example of _____ is the introduction of a beetle from Europe to control the spread of purple loosestrife.
9. _____ is a strategy that concentrates growth in the centre of a city rather than in outlying areas.
10. Change in _____ starts with change in _____. Each one of us has tools and gifts that can help us bring about _____.

Name _____ Date _____

Applying Knowledge
Topic 1.6

Use with textbook pages 68–69.

Maintaining or rebuilding ecosystems

We can harm ecosystems when we forget to think about the consequences of our activities. We also have the power to heal them.

The following are examples of activities that have impacted the health of their ecosystems in many different ways. Describe the consequences of these activities and the efforts of local communities to maintain or rebuild the ecosystem.

Activities	Consequences	Efforts to maintain or rebuild the ecosystem.
Mining in the Alfred Bog, Ontario.		
Overhunting of native elk populations in Ontario		
Introduction of purple loosestrife		
Trees removed by logging		
Urban sprawl		

Name _____ Date _____

Extension Activity
Topic 1.6

Use with textbook pages 70–71.

Strategies for the future of your community

Change in society starts with changes in individuals. Instead of waiting for change to come, many people are choosing to become the change they are waiting for.

What changes do you think are needed to make your local community more sustainable for the future?

1. With a partner or small group, brainstorm ideas about changes you think will lead to your local community being more sustainable.

2. What can you do personally to help your community become more sustainable?

Name _____ Date _____

Assessment
Topic 1.6

How can our actions promote sustainable ecosystems?

Use with textbook pages 62–77.

Match each Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

Term	Descriptor
1. _____ biocontrol	A. maintaining an ecosystem so that present populations can use resources without risking the ability of future generations to get the resources that they need
2. _____ biodiversity	B. any species that has been introduced into and lives in an ecosystem where it is not found naturally
3. _____ carrying capacity	C. the number and variety of different species of living things in an area.
4. _____ equilibrium	D. the largest population size that an ecosystem can sustain
5. _____ introduced species	E. use of living things to control introduced species
6. _____ species diversity	F. a strategy that concentrates growth in the centre of a city
7. _____ smart growth	G. a state of balance in an ecosystem
8. _____ sustainability	H. all the diversity of species that live an ecosystem, as well as all the diversity of ecosystems within and beyond that ecosystem

9. Explain the relationship that exits between sustainability and the carrying capacity of an ecosystem.

_____

_____

_____

10. What is a sustainable ecosystem?

_____

_____

_____

11. Give an example of how a community has adopted a program to help a particular ecosystem.

_____

_____

_____

12. What type of actions could you implement to benefit ecosystems now and for the future?

_____

_____