

Welcome to environmental science 20!

**We will be using McGraw hill Ryerson textbook, "Environmental Science a Canadian Perspective"**

### Unit 1 essential science background

The environment of an individual Organism includes biotic ( living ) and abiotic ( nonliving ) components.

On page four of your textbook you will see a diagram outlining an ecosystem with biotic components and abiotic components.

Natural processes move in a continuous cycle from biotic and abiotic parts. The four spheres make up the earth.

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1. \_\_\_\_\_ . The gaseous part of the earth concentrated mainly within 10 kilometers of the surface
2. \_\_\_\_\_ also called the lithosphere. The solid mainly rocky part of the earth
3. \_\_\_\_\_. This is all water liquid and solid that exists on and within the geosphere
4. \_\_\_\_\_. The biosphere all of the areas on and under the geosphere in the atmosphere and in the hydrosphere that are inhabited by and support life.

\_\_\_\_\_ are elements, chemical \_\_\_\_\_, and ions that all organisms need for \_\_\_\_\_, cellular maintenance and all other life processes.

The continuous flows of nutrients in and out of \_\_\_\_\_ in the biosphere are called nutrient cycles.

The water cycle is a process of evaporation, \_\_\_\_\_, and precipitation of water continually through the earth's spheres.

The carbon cycle is the cycling of \_\_\_\_\_. See page 6 in your textbook

The nitrogen cycle is the cycling of nitrogen through animal waste, \_\_\_\_\_ decay evaporation and human activity.

The phosphorus cycle cycles the element phosphorus through the biosphere by plants animals and \_\_\_\_\_ systems.

Biodiversity is a general term that describes different kinds of \_\_\_\_\_ within communities. A rich and diverse ecosystem makes for a healthy environment period

Page 8 in your textbook shows a chart of ecosystem services that benefit organisms including humans.

The carrying \_\_\_\_\_ of an ecosystem is the largest size of population and environment can support. Humans need to be good stewards of the environment that we have been given. Our ecological \_\_\_\_\_ represents the impact we have negatively on our environment. The biblical directive of being good \_\_\_\_\_ of creation helps us to thrive in our environment.

**Section 1.1**

Everyone has a part to play in solving environmental issues. Look on page 13 of your textbook and talk about the three news reports making headlines in 2012 and 2013 with a neighbor. Jot down your thoughts in the space provided.

1. Superstorm Sandy slams the northeast triggers massive blackouts and flooding
  - a. What could have caused this storm to be so devastating?
  
2. Canadians produce more garbage than anyone else
  - a. Is there a way to change this? What can you do??
  
3. Lake Winnipeg most threatened in the world in 2013.
  - a. What could have caused this to happen (look closely at the picture and make a guess)
  
4. What other environmental related news have you heard about recently?

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\_\_\_\_\_ are everything in the environment that supports and \_\_\_\_\_ the life of organisms.

The environment is the non-living and \_\_\_\_\_ surroundings that affect an organism's survival.

Of all the organisms on earth, \_\_\_\_\_ have the greatest ability to change and to cause change to the \_\_\_\_\_. Look at the chart on page 14 at how the human population has increased the last 1000 years. What does the future of Earth look like in the next 100 years??

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Environmental Challenges Graphic.

In this course we will study challenges that affect our environment. They include \_\_\_\_\_, the environment and human health, \_\_\_\_\_ management, biodiversity and \_\_\_\_\_ use, air quality, and \_\_\_\_\_ quality.

Considering these challenges research an individual or small group that has taken action to help with an environmental problem. Answer the questions.

1. What was the problem? And what caused it?

2. Who identified it?

3. What have they done to help?

Be ready to share your findings next class.

### **Section 1.2**

\_\_\_\_\_ is different than environmental science. Environmentalism is often seen as \_\_\_\_\_, radical, and where specific issues are often difficult to identify. This class tackles specific issues and problems and possible \_\_\_\_\_ from a \_\_\_\_\_ perspective. It's OK to be passionate about the environment, and doing our part is certainly easier when we are informed.

The industrial revolution was an important part of human history in the 1700s and 1800s. During this time. Many new \_\_\_\_\_ inventions made production of materials and the advancement of \_\_\_\_\_ much easier. This was a time where waste and pollution also became a \_\_\_\_\_

Scientists have discovered the law of conservation of \_\_\_\_\_ which means that everything that is created comes from something else. Nothing \_\_\_\_\_ can be generated without using something else up and \_\_\_\_\_ it indefinitely. Also for waste and pollution, everyday things break down into other things which are sometimes \_\_\_\_\_. Nothing comes from nothing.

The law of conservation of \_\_\_\_\_ is similar, everything that takes energy uses energy from another \_\_\_\_\_. \_\_\_\_\_ energy can never be used again. Renewable energy such as wind, \_\_\_\_\_, and hydropower is not a one-time use type of energy, we call it \_\_\_\_\_ energy.

\_\_\_\_\_ is it balance of energy and matter consumption with responsible production. It is a \_\_\_\_\_ that is able to be sustained indefinitely. This should be the goal of proper stewardship of the environment, not using excessive amounts of things to produce \_\_\_\_\_ amounts of waste. This is where the notion of \_\_\_\_\_ comes in. And also to use more renewable energy sources when possible so we don't use up the one-time energy (too \_\_\_\_\_) that we have around us.