SCIENCE 2200

Study Guide for Ecosystems and Paradigms

Mini-Ecosystem Assignment

1. What is meant by self-sustaining?
2. Why are you asked to create a closed ecosystem?
3. What are some examples of macroscopic organisms?
4. List all materials you actually used in your mini-ecosystem
5. Include a step-by step outline of what you did so that others could repeat it.
6. Using your non-living components, explain the reasons you constructed your ecosystem in the manner that you did
7. State your reasons for including each living organism you selected to include in your ecosystem.
8. Explained what has happened in your closed mini-ecosystem and explain why you think you obtained this result.
9. Provide a rationale for the success or failure of your ecosystem.
10. How can your mini-ecosystem be related to your understanding ecology?

*Getting Started: An Ecosystem on the Moon*

1. How would you supply a continuous supply of oxygen?
2. How would you supply a continuous supply of food and water?
3. What will happen to wastes?
4. List the plants and animals that are essential to humans and must be included in your sustainable ecosystem. Explain why they are essential.
5. List the things that are needed for the survival of each of your plants and animals on your list.

*Paradigms*

1. Answer each of the following:

1. Define paradigm.
2. Describe one example of an early paradigm and explain why it has changed over time
   1. Explain the difference between renewable and nonrenewable resources and give two examples of each?
   2. Explain one way in which humans are making a positive impact on either the fishery or forestry industry?
   3. Explain one way in which humans are having a negative impact on either the fishery or forestry industry?

5. Why do you think that our forefathers had the attitudes and practices that our resources were limitless? Would they have the same attitude today?

6.  What role should governments play in keeping our resources in good shape for future generations? What role should you play as well?

7.  What must be done to ensure that there is a fishery and forestry industry remaining for the next thousand years?

8.  Do you think aquaculture and the replanting of trees will have an impact on keeping our forestry and fishing industries healthy?

*What Do you Already Know*

1. Spaceships have strict rules about what must be done to avoid polluting the air and overusing the food and water supplies. On spaceship Earth, we cannot really “throw” things away because everything we throw out stays on Earth.

(a) Suggest a set of rules for human passengers on spaceship Earth.

(b) How closely do we follow those rules now? Such some behaviours that we should consider changing.

1. Explain the difference between renewable and nonrenewable resources and give two examples of each.
2. Think about an example from your own community of how humans have affected the environment. Could this have been avoided? If so, what would have been the impact on your community?
3. Give an example of a food chain from a local ecosystem. Describe what you think would happen if one of the organisms were removed.
4. There are basically two views of the place of humans on Earth. The Western view describes humans as the centre of environmental changes, acting as stewards or protectors of the environment. The First Nations view describes humans as part of the environment, attempting to live in harmony with nature. From each viewpoint describe what has happened to the Great Lakes during the past century.