Lesson Plan Seven - Great Lakes of East Africa – Lesson 3

Reference to: Understanding Life Systems, Interactions in the Environment

- **2.5** use a variety of forms (e.g. oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes.
- **3.8** describe ways in which human activities and technologies alter balances and interactions in the environment.

Resources

- Taboo cards – cut up (may require a few sets of cards depending on class size: allow one set for 8 students)
- Stop clocks
- Answers from African students
- Lake Victoria cartoon handout

Vocabulary

- Extirpated
- Greenhouse effect
- Siltation

Summary

Students will play a game of Taboo to recap their knowledge about the Great Lakes Ecosystems. They will then receive answers from the questions they submitted to the East African students. They will discuss their findings and then produce a comic strip on the history of Lake Victoria.

Objectives

Students will:

- Learn about the ecology of Lake Victoria from East African students.
- Compare the conservation issues occurring in the East African Great Lakes ecosystem with that here in the North American Great Lakes ecosystem.

Starter Activity

Taboo

Description

This activity is a word guessing game, adapted from the popular game Taboo. Students have to use their knowledge on a subject to get their partners to guess what the word it is they are describing. All the words are related to Great Lake conservation issues.

Instructions

- Students are to get into teams of 3 or more, the number of teams will have to be equal then they can compete against each other.
- Two teams are to sit together and play a game of Taboo. If there is more than one pair of teams they will play a separate game of taboo at another table.
- Each pair of teams will require one set of Taboo cards.
- One person from a team will sit with the other team. They will pick up a Taboo card from a pile of cards which have been faced down. (They sit with the other team so that the team can make sure that none of the taboo words are being spoken).
- The stop clock is started.
- The person has one minute to try and get their team mates to say the word on the top of their Taboo card. They are not allowed to say any of the words listed underneath. If they do, their turn is over, they will return to their team members and someone from the other team will come and sit with their team and pick up a new card and try to get their team to say the word at the top of that card.
- Students can only speak, they cannot act anything out.
- Students cannot spell out any words, or say “sounds like”
- The team members are to shout out their guesses of the word, there is no penalty for wrong guesses.

- If their team members guess the word then that team gets a point.
- If the minute runs out, it is the other teams turn, and one of their member's goes to sit with the other team.
- The team with the most points wins.

Main Activity

Answers from East Africa

Description

This activity involves students receiving back the questions they submitted to the East African students. They are to read the answers and discuss in their groups. They are then to share their findings with the rest of the class.

Instructions

1. Receive the answers from the African students, distribute to the groups who created the questions.
2. The students are to read and discuss the answers within their group, focusing on:
   - What were the similarities/differences between Lake Victoria and Lake Ontario?
   - What are the common things that can be done to help save both ecosystems?
3. The groups are then to share with the rest of the class interesting points that they have learnt. Were they surprised by anything they found out?

Plenary Activity

Lake Victoria cartoon

Description

This activity consolidates the knowledge learned on Lake Victoria. It is a cartoon detailing the history of the Lake Victoria region and problems the lake is facing. Students are to create images to go with the text.

Instructions

1. The students are to draw pictures corresponding to the text in the first six boxes.
2. They are then to complete the text in the last two boxes and draw appropriate pictures.

Taboo Cards

Ecosystem
• Plant • Animal • Together • Live

Organism
• Plant • Animal • living • one

Environment
• Home • Live • Ocean • Land

Invasive species
• Foreign • Alien • Zebra mussel • Exotic

Pollution
• Chemicals • factories • Air • Smoke

Biotic factor
• Living • Plant • Animal • Habitat

Abiotic factor
• Non-living • Soil • Environment • sunlight

Food chain
• Plant • Producer • Feed • Web

Producer
• Start • Food • Plant • Eat

Consumer
• Eat • Plants • Animals • Producers

Decomposer
• Bacteria • Nutrients • Dead • Soil

Food web
• Eat • Chain • Producer • Consumer

Atlantic salmon
• Extirpated • Ontario • Endangered • Predator

Zebra Mussels
• Shell • Lake • Exotic • Foreign

Sea Lamprey
• Sucker • Teeth • Fish • Invasive

Lake Ontario
• Water • Sail • Big • Blue

Redside Dace
• Endangered • River • Insects • Minnow

American eel
• Predator • Fish • Slimy • Risk

Spiny Waterflea
• Invader • Exotic • Small • Lake

Freshwater
• Ocean • Salt • River • Lake

Biodiversity	Population	Herbivore	Global warming
• Different • Plant • Animal • Earth	• Together • Habitat • Animal • Same	• Eat • Tree • Plant • Vegetation	• Hot • Earth • Cars • Pollution
Conservation	**Carbon dioxide**	**Urbanization**	**Extirpated**
• Save • Protect • Preserve • Help	• Gas • Factory • Car • Pollution	• Build • House • Road • Field	• Local • Endangered • Place • Location
Extinct	**Habitat destruction**	**Deforestation**	**Siltation**
• Gone • Lost • Exist • Forever	• Trees • Land • Lost • Cut	• Tree • Cut • Chopped • Axe	• Soil • Banks • Water • Trees
Fertilizer	**Pesticide**	**Climate change**	**Greenhouse effect**
• Farm • Grow • Muck • Animal	• Kill • Weed • Farmer • Field	• Temperature • Hotter • Colder • Drier	• Blanket • Carbon dioxide • Earth • Hot
Over-fishing	**Carpooling**	**Litterless lunch**	**Garbage**
• Net • Line • Catch • Many	• Share • Lift • Ride • Work	• Garbage • Trash • No • Waste	• Litter • Bin • Recycle • Trash

The history of Lake Victoria Cartoon

	Early 1900's…	1905…	1950-1970…
Over 500 species of haplochromine cichlids present, labeo, tilapia.	Intensive farming on land around lake. Lots of towns developed around shores – Kisumu, Mwaza, Jinja. Lots of immigration to the area. All this activity poured large amounts of nutrients into the lake and algae population began to explode.	Papyrus nets and traps were replaced by gill nets. This enabled more fish to be caught. As fish numbers declined fishermen turned to using smaller mesh size meaning immature fish were also being caught, causing a decrease in the number of breeding fish.	Ngege commercially extinct. Nile tilapia and Nile Perch introduced into the lake. UN survey found haplochromine cichlids still made up 80% of lake's fish biomass.

1980's – 1990's…	2000…	Future A…	Future B…
Nile perch now 80% of lake's fish biomass. Haplochromine cichlids dropped to 1%. Invasive water hyacinth reduces haplochromine cichlid breeding and nursery grounds.	15,452 canoes fishing on lake (3,200 in 1972). Perch forced to find new food as number of haplochromine cichlids decreased. Cannibalizing own young (jeopardizing own survival). 300 species of haplochromine cichlid now extinct.	To save Lake Victoria…	If we don't do anything…