Critical Thinking Skills

Conservation: Waterway Habitat Resources

Skills For Critical Thinking		Reading							
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Hands-on Activities
LEVEL 1 Remembering	• List Details/Facts	✓		✓	✓				✓
	• Recall Information	✓	✓	✓	✓	✓	✓	✓	✓
	• Match Vocab. to Definitions	✓	✓	✓	✓	✓		✓	✓
	• Define Vocabulary	✓		✓		✓		✓	
	• Label Diagrams		✓						
	• Recognize Validity (T/F)	✓	✓	✓	✓	✓	✓	✓	
LEVEL 2 Understanding	• Demonstrate Understanding	✓	✓	✓	✓	✓	✓	✓	✓
	• Explain Scientific Causation	✓	✓	✓	✓	✓	✓	✓	✓
	• Rephrasing Vocab. Meaning				✓				
	• Describe	✓		✓	✓	✓	✓	✓	✓
	• Classify Into Scientific Groups	✓	✓	✓		✓	✓		✓
LEVEL 3 Applying	• Application to Own Life			✓				✓	✓
	• Model Scientific Proc[illegible]	✓		✓					✓
	• Organize & Classify [illegible]cts	✓	✓	✓	✓	✓	✓	✓	✓
	• Utilize Alternative Res[illegible]n Tools								✓
LEVEL 4 Analysing	• Distinguish Role[illegible]Meanings								✓
	• Make Inferences		✓	✓			✓		✓
	• Draw Conclusions Based on Facts Provided		✓	✓					✓
	• Classify Based on Facts Researched		✓						✓
LEVEL 5 Evaluating	• State & Defend Opinion	✓		✓		✓	✓	✓	✓
	• Justify Choices for Research Topics	✓							✓
	• Defend Selections & Reasoning			✓	✓			✓	✓
LEVEL 6 Creating	• Compile Research Information								✓
	• Design & Application	✓							✓
	• Create & Construct								✓
	• Imagine Self in Scientific Role								✓

Based on Bloom's Taxonomy

NAME: _____

How Climate Change Can Affect Aquatic Ecosystems

1. Circle the word **TRUE** if the statement is TRUE **or** Circle the word **FALSE** if it is FALSE.

a) The greenhouse effect traps ozone in Earth's atmosphere.
TRUE **FALSE**

b) Carbon dioxide is a greenhouse gas.
TRUE **FALSE**

c) Coal is a fossil fuel.
TRUE **FALSE**

d) When Earth gets warmer, ocean level rises.
TRUE **FALSE**

e) Animals that cannot adapt to change may become extinct.
TRUE **FALSE**

f) Global warming decreases evaporation.
TRUE **FALSE**

g) Rising temperatures will cause most salt lakes to get deeper.
TRUE **FALSE**

h) Using gasoline as a fuel releases greenhouse gases.
TRUE **FALSE**

2. Put a check mark (✓) next to the answer that is most correct.

a) Which of these is a fossil fuel?

- ○ **A** wood
- ○ **B** ethanol
- ○ **C** natural gas
- ○ **D** hydrogen gas

b) Which process determines the evolution of species?

- ○ **A** water cycle
- ○ **B** fossilization
- ○ **C** photosynthesis
- ○ **D** natural selection

NAME: _____

Changes In Freshwater Aquatic Ecosystems Caused By Human Activity

In the past, many factories in the United States dumped pollutants directly into streams and rivers. In the worst cases, some streams became so polluted, they supported almost no life. There were even rivers covered in such heavy oil slicks that they sometimes caught fire. The law called the Clean Water Act has eliminated almost all such direct pollution.

Indirect pollution, by way of the atmosphere, is still a problem. We have already learned that burning fossil fuels has changed aquatic ecosystems by raising global temperature. Fossil fuels can harm freshwater aquatic ecosystems in another way. **Sulfur dioxide** and **nitrous oxide** gases are released when some fossil fuels are burned. These gases dissolve in raindrops that fall to earth as **acid rain** which flows into streams and lakes. As the water becomes more acidic, many species are unable to survive in the aquatic habitat.

Agricultural **runoff** is another source of pollution of freshwater habitats. When water from fertilized fields runs into streams and lakes, it carries nutrients that encourage algae growth. When the algae die, the decomposition process removes oxygen from the water. If the oxygen content drops far enough, the water will no longer support fish and other organisms that take their oxygen directly from water.

When people build dams, they change freshwater ecosystems. To begin with, a dam changes part of a lotic (flowing) system into a lentic (still) system. This makes the habitat suitable for a different group of organisms. Dams can also disrupt the reproductive cycles of organisms. Dams can cause water temperatures to be unseasonably warm or cold. This confuses organisms whose growth and reproduction is triggered by temperature changes.

Many fish leave large lakes and oceans and swim up streams to lay their eggs. Dams can keep these fish from reaching their **spawning** grounds. Spawning grounds can also

NAME: _____

Predictions for Aquatic Ecosystems

1. Put a check mark (✓) next to the answer that is most correct.

a) Which is true of Earth's oceans?

- ○ **A** Sea ice is increasing.
- ○ **B** Coral reefs are expanding.
- ○ **C** Temperature changes very slowly.
- ○ **D** Some oceans are isolated from the others.

b) What is the main cause of the extinction of ocean fish species?

- ○ **A** predators
- ○ **B** overfishing
- ○ **C** invasive species
- ○ **D** rising temperature

c) As ocean temperature rises, fish species are likely to move

- ○ **A** to the Atlantic Ocean.
- ○ **B** to the Pacific Ocean.
- ○ **C** away from the equator.
- ○ **D** toward the equator.

2. Circle the word **TRUE** if the statement is TRUE **or** Circle the word **FALSE** if it is FALSE.

a) Polar bear population will continue to decrease.
TRUE **FALSE**

b) Removing foreign species from the Great Lakes will be expensive.
TRUE **FALSE**

c) Less developed countries are more likely to care for aquatic ecosystems.
TRUE **FALSE**

d) Human population is related to fish populations.
TRUE **FALSE**

e) Attempts have been made to reduce overfishing.
TRUE **FALSE**