



Lessons Learned From the Bald Eagle

Classroom Pre-Visit Program Description

Level: 4th, 5th or 6th Grade

Saginaw Bay Visitor Center Bay City State Recreation Area

SCHOOL SITE VISIT PROGRAM DESCRIPTION:

Students participate in a naturalist led lesson, involving 3 components:

- 1) Case Study of the Bald Eagle – Introduction of the traits and characteristics of our national bird using study skin, skull, egg and a short power point presentation highlighting how man's use of the land brought about environmental changes that nearly caused the extinction of many top level food chain members including the bald eagle and the resulting historical environmental legislation that was man's response to the dilemma (the Clean Water Act, the Clean Air Act and the Endangered Species Act).
- 2) Deadly Links -- students take part in a simulation game, in which they role play different members of the Eagle's food chain and discover how toxins accumulate in higher and higher levels as you go up the food chain-- Bio-accumulation of Persistent Toxins
- 3) Eat Safe Fish Lab – Students identify and measure a fish that they "caught" and look up on the Michigan Fish Consumption Advisory chart whether they should eat it or not.

PROGRAM GOALS:

1. Each student will gain knowledge about the role man has played in altering the freshwater ecosystem of the Saginaw Bay and its impact on future use of the resource.
2. Students will gain an awareness of how pollutants in the environment can affect the health of animals and humans.

PROGRAM OBJECTIVES:

1. Students will be able to identify one factor in the Great Lakes aquatic ecosystem that has influenced changes in fish and bird populations.
2. Students will be able to explain how environmental changes in the bald eagle's habitat produced a dramatic change in the food web.
3. Students will be able to determine what the fish advisory for a particular fish is by using a measuring stick and the MDCH Fish Advisory Guide.
4. Students will be able to identify run-off as the part of the water cycle that carries pollutants to rivers and lakes.
5. Students will be able to identify 2 toxic persistent chemicals found in the Saginaw Bay and their source.
6. Students will be able to describe physical traits of the Bald Eagle that contribute to their place in the food chain.
7. Students will identify themselves as predators at the top of the aquatic food chain.
8. Students will be able to construct a diagram showing how a persistent toxic chemical can bioaccumulate up a food chain.

REINFORCES THESE OBJECTIVES:

1. Students will be able to list and describe the four components which make up a fish's habitat: Food, Water, Shelter and Space.
2. Students will be able to describe 4 different members of a Great Lake food chain/food web and their place in it.
3. Students will be able to describe a behavioral characteristic of the bald eagle that helped them survive in their environment

PREPARING YOUR STUDENTS FOR THE CLASSROOM PRE-VISIT:

1. Review the components of the water cycle.
2. Review vocabulary: Predator, prey, bioaccumulation, persistent toxic chemical, pesticide, run-off, evaporation, condensation, infiltration, precipitation, acid rain, producer, consumer, habitat, macro-invertebrate, adaptation, consumption, endangered species, ecosystem
3. Discuss how the students think water becomes polluted.
4. Have the students compose a diagram of a freshwater aquatic food chain.

POST-VISIT SUGGESTIONS:

1. Discuss the dioxin pollution issue that has affected the flood plain of the Saginaw and Tittabawassee Rivers downstream of the Dow plant.
2. Obtain a list of land use precautions that the EPA has identified for people living or using land that has been contaminated by the dioxin.
3. Call the Saginaw U.S. EPA office and see if a field agent is available to make a visit to your classroom or if they can make supplementary classroom materials available to your students. Mary Breeden, EPA, 111 S. Michigan LL015, Saginaw, MI 48602 (989) 790-5215
4. Contact Saginaw or Bay County Health Department and ask for information on other environmental health programs which are available for your students.
5. Review the "Eat Safe Wild Game" brochure and discuss how bio-accumulation of dioxin affects turkey, duck and deer hunters and their families.
6. Have your students search the web for more information on bio-accumulation of toxins in the Great Lakes fish food chain.
7. Obtain a copy of Project Wild and conduct the lab, "What's in the Water?"
8. Obtain free highway maps from the MDOT. Have the students select a fish that they like to catch and eat (from the list of game fish that have advisories on them) and using the Michigan Fish Consumption Advisory, mark on a state map what bodies of water have fish advisories for their fish with a highlighter.

COORDINATING WITH MICHIGAN SCIENCE Grade Level Content Expectations:

Bold & Underlined=prominent program emphasis, Bold=reinforced through program, Italicized=program can be used to reinforce back in classroom

Science. Inquiry Process:

S.IP.04.11, **S.IP.04.12**, **S.IP.04.04.14**, **S.IP.04.15**,
S.IP.05.11, *S.IP.05.13*, *S.IP.05.14*, *S.IP.05.15*, *S.IP.05.16*,
S.IP.06.11, **S.IP.06.13**, *S.IP.06.14*, *S.IP.06.16*

Science. Inquiry Analysis & Communications:

S.IA.04.11, S.IA.04.12, S.IA.04.13,
S.IA.05.11, S.IA.05.12, S.IA.05.13,
S.IA.06.11, S.IA.06.12, S.IA.06.13,

Science . Reflection& Social Implications

S.RS.04.11, **S.RS.04.15**, **S.RS.04.16**, **S.RS.04.18**,
S.RS.05.11, **S.RS.05.12**, **S.RS.05.13**, **S.RS.05.15**, *S.RS.05.16*, **S.RS.05.17**, *S.RS.05.19*,
S.RS.06.11, *S.RS.06.12*, **S.RS.06.13**, **S.RS.06.14**, *S.RS.06.15*, *S.RS.06.16*, **S.RS.06.17**, *S.RS.06.19*

Life Science. Organization of Living Things:

L.OL.04.16,
L.OL.05.41, *L.OL.05.42*
L.OL.06.51, *L.OL.06.52*

Life Science, Evolution:

L.EV.04.11, **L.EV.04.22**,
L.EV.05.11, **L.EV.05.12**, L.EV.05.14, **L.EV.05.21**

Life Science Ecosystems:

L.EC.04.21, L.EC.04.21,
L.EC.6.11, **L.EC.06.21**, **L.EC.06.22**, **L.EC.06.23**, *L.EC.06.31*,
L.EC.06.32, L.EC.06.41, *L.EC.06.42*

Life Science.Heredity:

L.HE.05.11, *L.HE.05.12*

Life Science. Evolution:

L.EV.05.11, **L.EV.05.12**, **L.EV.05.14**, **L.EV.05.21**

COORDINATING WITH M.E.A.P. SOCIAL STUDIES CONTENT STANDARD BENCHMARKS:

Geographic Perspectives

II.1 --- k,e,2
II.2 --- l.e.1, l.e.2, l.e.4
II.4 --- l.e.5, II.5 --- l.e.1

Civil Perspective

III.4 --- l.e.1