



ROCK EAGLE 4-H CENTER

CANOEING

Pre-Post Trip Activities

Rock Eagle's Environmental Education Field Study

Practice Paddling

Materials: long sticks or broomsticks

Procedure: With broomsticks (or any long stick), practice the movement for certain strokes (especially the forward and backward stroke). This can even be done at their desks! Remember to remind your students to switch their hands on the grip. If they're paddling on their left side, then their right hand should be on the grip. If they're paddling on their right side, then their left hand should be on the grip. This can be the hardest concept for students!



Canoe & Paddle Match-Up

Students can learn canoe and paddle parts from the diagrams on the included canoe worksheet.

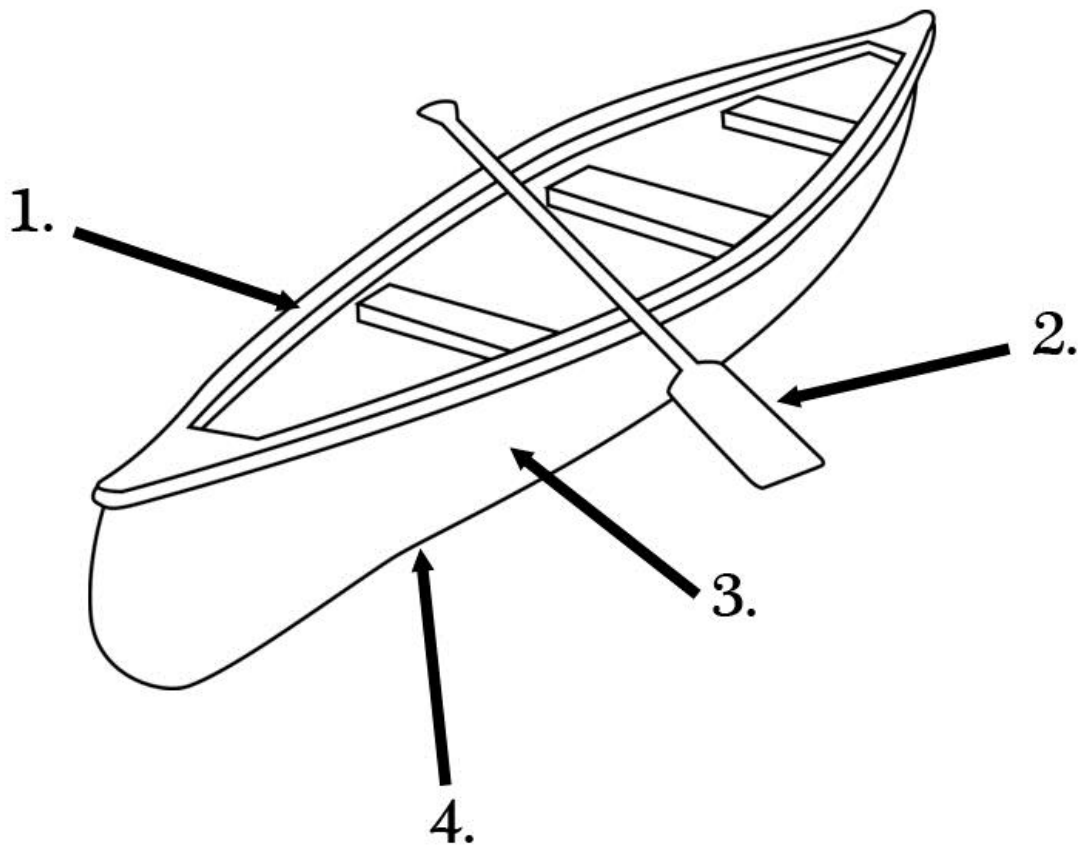
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Know Your Canoe

See if you can label the canoe parts!



Front of Canoe _____

Back of Canoe _____

Right Side _____

Left Side _____

1. _____

2. _____

3. _____

4. _____

Answers:
Front – Bow, Back – Stern, Right – Starboard, Left - Port
1. Gunwales 2. Paddle 3. Hull 4. Keel

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CANOEING

Journal Questions

Rock Eagle's Environmental Education Field Study

1. What are three things a person should have when going canoeing?
2. Which part of the canoe should you sit in if you want to have the most control in steering the canoe?
3. What wildlife did you see while you were out in the canoe?
4. Did you enjoy your canoeing experience? What did you like most about canoeing?
5. Have you been out in a canoe or boat before? Describe this experience.

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CANOEING

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Bow:** The forward (front) of the boat.
- Canoe:** Small, long, and narrow human powered boat. Usually pointed at both ends and typically open. The operator(s) can either kneel or sit in the hull of the boat and should face in the direction of travel.
- Fulcrum:** The area around which a lever turns.
- Hull:** the main body of a ship or other vessel, including the bottom, sides, and deck but not the masts, superstructure, rigging, engines, and other fittings.
- Keel:** the structure along the centerline of a boat on which the rest of the hull is built.
- Paddle:** The tool used to push and pull the canoe through the water.
- PFD:** Personal flotation device; a jacket or vest worn to keep a person afloat in water.
- Port:** The left side of the boat when facing the bow; when facing the stern, port is on the right.
- Starboard:** The right side of the boat when facing the bow.
- Stern:** The rear (back) part of the boat.

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CHALLENGE COURSE

Journal Questions

Rock Eagle's Environmental Education Field Study

Key Words: communication, cooperation, safety, team

1. What three qualities were most important to the success of your team?
2. What activity from this class best demonstrated each quality?
3. How could you use each quality after you leave Rock Eagle?
4. Do you think you were a good team member on the challenge course today? Why or why not?

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CHALLENGE COURSE

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Communication:** the imparting or exchanging of information or news.
- Planning:** to decide on and arrange in advance.
- Respect:** a feeling of deep admiration for someone or something elicited by their abilities, qualities, or achievements.
- Team:** two or more people working together.

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HERPETOLOGY **PRE-POST ACTIVITIES** **ROCK EAGLE ENVIRONMENTAL EDUCATION FIELD STUDY**

Breeding for Corn Snake Morphs

Explore the genetics involved in breeding corn snake color morphs. Discuss how parental genetics can influence offspring traits.

Classification of Herpetofauna

Give students a collection of toy reptiles and amphibians and ask them to sort the animals into groups. Then ask them to explain the criteria through which they sorted animals. Have them try different criteria a few times.

Research papers

Students write research papers on specific Georgia reptiles and amphibians. After researching, students could present in front of the class a day in the life of their animal. The presentation must be from the point of view of their animal.

No Hands!

Have your students feel what it's like to be a snake! They must perform an 'easy' task without using their hands! Tasks could include: opening a bottle of water; moving objects from one point to another; turning pages in book; etc.





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HERPETOLOGY **JOURNAL QUESTIONS** **ROCK EAGLE ENVIRONMENTAL EDUCATION FIELD STUDY**

1. What is herpetology?
2. Give an example of a keystone species. How is this species important to the ecosystem it lives in?
3. What are three factors that may lead to the extinction of a reptile or amphibian?
4. List two differences and two similarities between aquatic and terrestrial turtles.
5. What are three major differences between reptiles and amphibians?
6. List two reasons why all snakes are important.
7. List 3 things that snakes and humans have in common.

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HERPETOLOGY

VOCABULARY

ROCK EAGLE ENVIRONMENTAL EDUCATION FIELD STUDY

Adaptation:	special characteristics of an animal that help it to survive.
Ectothermic:	an organism whose body temperature is determined by the surrounding environment (cold-blooded)
Endothermic:	an animal that regulates its own body temperature internally (warm-blooded)
Herpetology:	the study of reptiles and amphibians
Jacobson's Scent Organ:	small opening in the upper mouth in some reptiles allowing the molecules picked up by the tongue to be interpreted
Keystone Species:	A species that has a disproportionate effect on its environment relative to its abundance. An ecosystem may experience a dramatic shift if a keystone species is removed, even though that species was a small part of the ecosystem by measures of biomass or productivity .
Metamorphosis:	a change in the form or function of an organism by a natural process of growing or development.
Nictitating Membrane:	a third clear eyelid found in some animals that protects the eyes
Scute:	an enlarged scale on a reptile
Venomous:	a toxic substance that causes harm by injection

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HISTORIC CAMPFIRE



JOURNAL QUESTIONS ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. What is folklore? Are there any stories or songs you know that have been passed down from your family?
2. Why did pioneers gather and hold campfires?
3. If you were a pioneer, what kinds of activities do you think you would have done at night?
4. What was your favorite activity during the historic campfire? Why?

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HISTORIC CAMPFIRE

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

American Frontier: the extent of settlement west of the Appalachian Mountains; the point beyond which was unknown and inhabited only by natives

American Revolution: the political upheaval during the last half of the 18th century in which thirteen colonies in North America joined together to break free from the British Empire, becoming the United States of America. The American Revolutionary War lasted from 1775 to 1783.

Bonnet: a soft head covering worn mostly by women, used to keep hair tidy, to keep dust out of hair, and to prevent sun tanning or burning.

Cherokee: a Native American people historically settled in the Southeastern United States (principally Georgia, the Carolinas and East Tennessee).

Contra dancing: refers to several partnered folk dance styles in which couples dance in two facing lines.

Folklore: the traditional beliefs, customs, and stories of a community, passed through the generations by word of mouth.

Muskogee: a Native American people historically settled in the Southeastern United States (principally Alabama, Florida, Georgia, and the Carolinas).

Pioneer: any of the people in American history who migrated west to join in settling and developing new areas. The term especially refers to those who were going to settle

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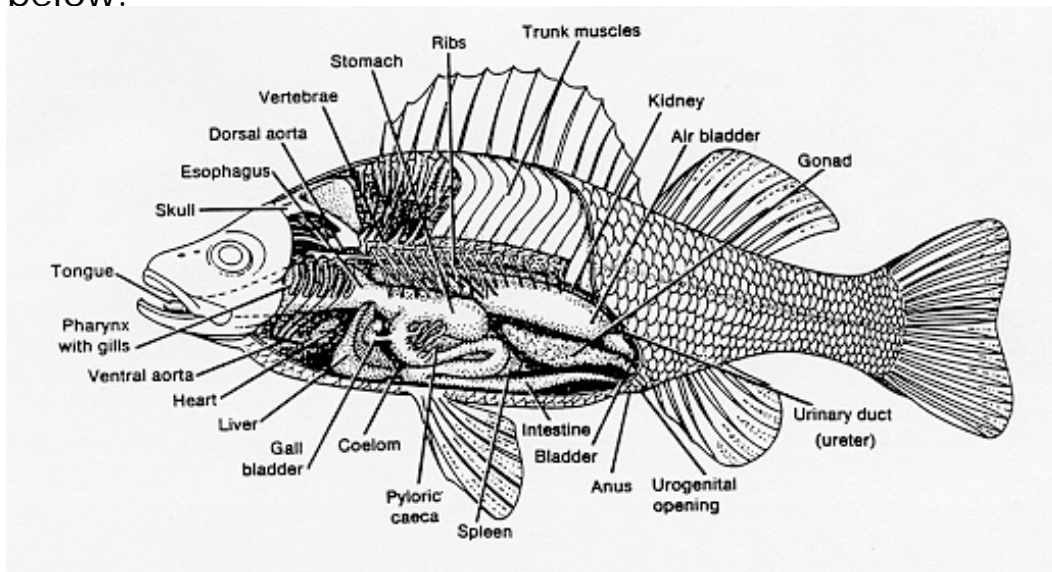
ICHTHYOLOGY

INTERNAL ANATOMY- FISH DISSECTION JOURNAL QUESTIONS



ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. What is the function of the swim bladder?
2. Imagine a perch ate a small fish. Color in the passage of the prey through the perch's digestive system on the diagram below.



3. On the diagram above, label the fins shown. What is the name of the fin that not shown in this picture?
4. What is the purpose of the operculum?
5. Give two reasons why perch are important to their ecosystems.

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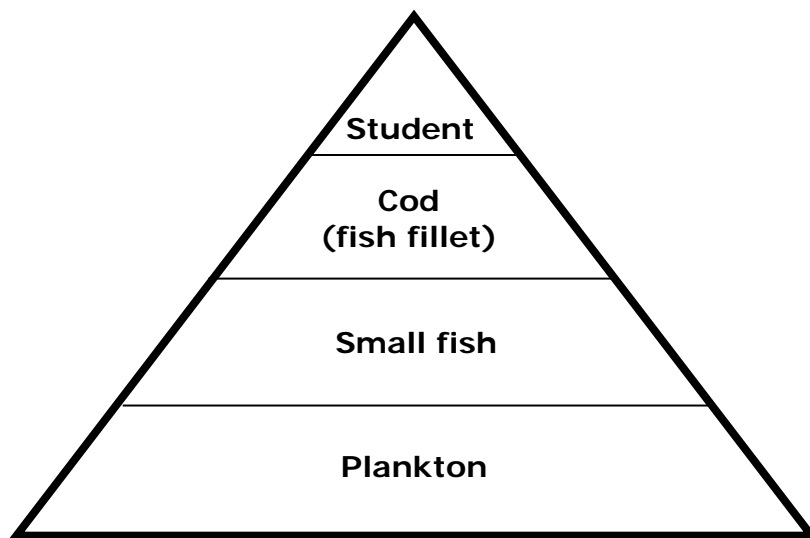


LAKE ECOLOGY PRE-POST ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL FIELD STUDY



Food Pyramid

Have the students draw a food pyramid that represents eating a steak, a fish fillet, or a bowl of beans. See below for example:



A Day in the Life

Students write research papers on common macroinvertebrates that can be found in the lake. After researching, students could present in front of the class a day in the life of their animal. The presentation must be from the point of view of their animal.

Reservoirs Study

Almost all the lakes in Georgia are manmade reservoirs. The National Dam registry which list dams over 6 feet tall lists 4,435 reservoirs in Georgia. Reservoirs have many benefits for Georgians such as municipal and industrial water supplies, flood control, navigation, recreation and drinking water. Have students research which reservoir is nearest their home and what benefit it provides to the surrounding communities.

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LAKE ECOLOGY JOURNAL QUESTIONS ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY



1. Draw a food web or food pyramid using producers, consumers and decomposers.
2. Identify the inputs and outputs of a lake.
3. List 2 biotic and 2 abiotic components (parts) of the lake. Why are both important?
4. What was your favorite animal in the lake and what 2 adaptations did it have to live in that environment? Was it an invertebrate or a vertebrate?
5. Did you find any litter during your lake class? If so, why is it important to remove it and place it in a trash or recycling container?

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LAKE ECOLOGY

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Abiotic:** material lacking any biotic (once living) substances.
- Adaptation:** special behavioral or physical characteristics of an animal that help it survive.
- Biotic:** material composed of living or once alive components.
- Consumer:** an organism that uses a producer for food; cannot make their own food.
- Decomposer:** an organism that breaks down dead or decaying organisms and in doing so carries out the natural process of decomposition
- Detritus:** dead organic matter and the accompanying decomposers feeding upon it.
- Food Web:** a network of feeding relationships by which energy and nutrients are passed on from one species of living organisms to another.
- Invertebrate:** an animal lacking a backbone.
- Macroinvertebrate:** invertebrates that are large enough to see without the aid of a microscope.
- Producer:** an organism that creates its own food using the sun's energy.
- Vertebrate:** an animal distinguished by the possession of a backbone or spinal column.

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LAKE ASSESSMENT



JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. What are some factors that you would need to consider before raising fish in a body of water?
2. Why would you need to consider the substrate material when trying to raise fish in a body of water?
3. What are some changes in the experimental process that would improve the accuracy of your results?
4. When doing field work in this class what problems did you run in to and how what would you change next time to help solve those problems?

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LAKE ASSESSMENT

VOCABULARY

ROCK EAGLE ENVIRONMENTAL EDUCATION FIELD STUDY

- Acid:** A substance with a pH of less than 7. A substance with more free Hydrogen ions (H^+)
- Base:** A substance with a pH of more than 7. A substance with more free Hydroxide ions (OH^-)
- Dissolved Oxygen:** Oxygen gas that has been dissolved into water (DO).
- Habitat:** The environment in which an organism normally lives.
- Niche:** The role of an organism in its environment.
- pH:** "parts Hydrogen" A measure of how acidic/basic water is. Specifically, it is a measure of the relative amount of free hydrogen and hydroxyl ions in the water.
- Scientific Method:** A method of research in which a problem or question is stated, the topic is researched, a hypothesis is formulated, the hypothesis tested, test results are analyzed and then reported.
- Substrate:** The surface or material on or from which an organism lives, grows, or obtains its nourishment
- Temperature:** The amount (degree) of heat present in a substance or object.

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VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Journal:	a book in which you write down your personal experiences and thoughts
Nature Journal:	a book in which you write down your personal experiences and thoughts pertaining to nature or the environment
Naturalists:	a person who studies plants and animals as they live in nature
Contour Line:	a line representing an outline of an object
Contour Drawing:	an artistic technique where the artist sketches the contour lines of an object ultimately producing an outline of the subject
Field Sketch:	a drawing that is produced to help support data collected within a field study
Observation:	the act of careful watching and listening: the activity of paying close attention to someone or something in order to get information
Descriptive Writing:	the clear description of people, places, objects, or events using appropriate details
Poetry:	writing that formulates a concentrated imaginative awareness of experience in language chosen and arranged to create a specific emotional response through meaning, sound, and rhythm
Haiku:	an unrhymed verse form of Japanese origin having three lines containing usually five, seven, and five syllables
Cinquain:	a 5-line stanza
Diamante:	a style of poetry that is made up of seven lines that form a diamond shape

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NATURE HIKE PRE-POST TRIP ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

GRADES 1-5

Play-doh Creation

Use Play-doh to build a creature with special adaptations for living at night. Discuss why each characteristic is beneficial to the animal

Animal Charades

Have students act out behaviors beneficial to day/night/twilight survival

Sky Chart Creation

Have the students make their own constellation from a sky chart. They can include a story/myth to go along with their constellation

Grades 6-8

Face your Fear

Each student picks a fear they may have. They will name it, study it, write their feelings about it and try to conquer it. Discuss what fear is and where does fear come from.

Life Strategies

5 min presentation on one animal life strategies (behavior/physical) for survival at night (ex: coyote-big ears, bat-echolocation, etc.)

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NATURE HIKE **JOURNAL QUESTIONS** **ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD** **STUDY**

1. What does it mean to be nocturnal, crepuscular, and diurnal?
2. Give two examples of nocturnal animals and explain how they use their senses?
3. Describe the most interesting thing you encountered on your nature hike?
4. Draw a picture of a nocturnal/ crepuscular animal that you learned about during your nature hike?

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NATURE HIKE

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Adaptation:** a behavioral or genetic alteration or response in an organism that facilitates survival and reproduction in response to surroundings
- Cones:** parts of the retina that interpret color
- Crepuscular:** animals most active at twilight (dusk/dawn)
- Diurnal:** animals most active during daylight hours
- Echolocation:** reflected sound emitted from an animal (for example: bat/dolphin) to locate objects
- Nocturnal:** creatures most active at night
- Rods:** parts of the retina that interpret shades of black and white
- Triangulation:** a system used by animals to interpret the source of a sound

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NATIVE AMERICAN GAMES

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. List two reasons that Native Americans played games.
2. What was your favorite Native American Game and why?
3. Are there any games that you played with your friends that are similar to games the Native Americans played?

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NATIVE AMERICAN SKILLS

PRE-POST TRIP ACTIVITIES

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Design a Native American Village

Students design their own Native American village. Through drawing and writings, students can describe what would be in their village (example: buildings, location of buildings, location of village, is it close to a stream or a lake, open land or forests, land for farming). What would they use to make their houses? Their clothes? What would they eat or hunt? How many people would live in their village? What types of plants and animals would be found around their village? Then have the students discuss why they chose to place their village in a certain area, what plants they chose and why.

Let's Play!

Have the students come up with a new Native American game using natural products such as pine cones, sticks, deer hide, etc. There should be a reason behind the game (for land, for rain, to avoid war, etc). Afterwards, test the game out!



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NATIVE AMERICAN STUDIES

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. Are there any examples in your community that reflect Native American culture?
2. Name three skills you learned in this class. Would any of the skills you learned in this class be important to Native Americans today? Why or why not?
3. Identify at least one environmental influence affecting a skill you learned.
4. What are some tasks you might have been responsible for if you were a member of the local Native tribe?

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NATIVE AMERICAN STUDIES

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Paleo:** time period 11,500-8,000 BCE Small nomadic groups of hunters and gatherers. Hunted large animals with large spear points made out of flint or quartz.
- Archaic:** time period 8,000-1,000BCE group of nomadic hunters and gatherers. Started hunting smaller animals with the atlatl and also started using fishhooks, knives and stone axes.
- Woodland:** time period of 1,000 BCE - 800 CE. Started cultivation of gardens, though they were still reliant on hunting and gathering. This caused an increase in permanent settlement. Developed trade. Also invented the bow and arrow, pottery, and copper tools.
- Mississippian:** time period was 800BCE-1540CE. They flourished in the southeast around 800A.D. and collapsed after contact with the Spanish around 1540. They were the ancestors to the Muskogee. A ranked society chiefs and priests.
- Cordage:** rope or string made from two or more strips of animal or plant fibers twisted together
- Creek/Muskogee:** Muskogee was a language family of tribes in the Southeast. The British settlers who came into contact with them called them Creek due to their villages being near rivers, streams and creeks. With the threats of European arrival in the Southeast, many of these tribes united into the Creek Nation.
- Megafauna:** large animals that existed in North America before 8000 BCE, including mammoths, mastodons, ground sloth, giant beavers, saber-tooth cats, etc.
- Mortar and Pestle:** a club shaped tool (pestle) that is used to grind and crush substances in a stone or wood bowl (mortar)
- Sinew:** tendon fibers from a deer or large mammal used to make cordage
- Waddle and Daub:** a method of architecture in which clay is packed onto a woven support

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ORIENTEERING

PRE-POST TRIP ACTIVITIES

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Making a compass

Materials: sewing needle about 1 inch long, small bar magnet or a refrigerator magnet will work, a small piece of cork, small glass or dish of water to float the cork and needle in.

Procedure: Run the magnet over the needle about 20 times in the same direction. This will magnetize the needle for you. Take a small piece of cork and push the needle through the circle (not length wise but width wise). Float the cork and needle in your cup so that the needle lies roughly parallel to the surface of the water. Now place your compass on a still surface and see what happens. The needle will point to the nearest magnetic pole, north or south depending on where you do this activity. If you want to experiment further you can place a magnet near the compass and see what happens.

Making a topographic map

Have students make a topographic map of either their school or their neighborhood. Using a topographic map as an example and reference have, students draw their own map with a key. They must also know the distance, degrees and height of the different areas or sites on their maps.

How well do you know your compass?

Students label compass parts on the following compass worksheet.

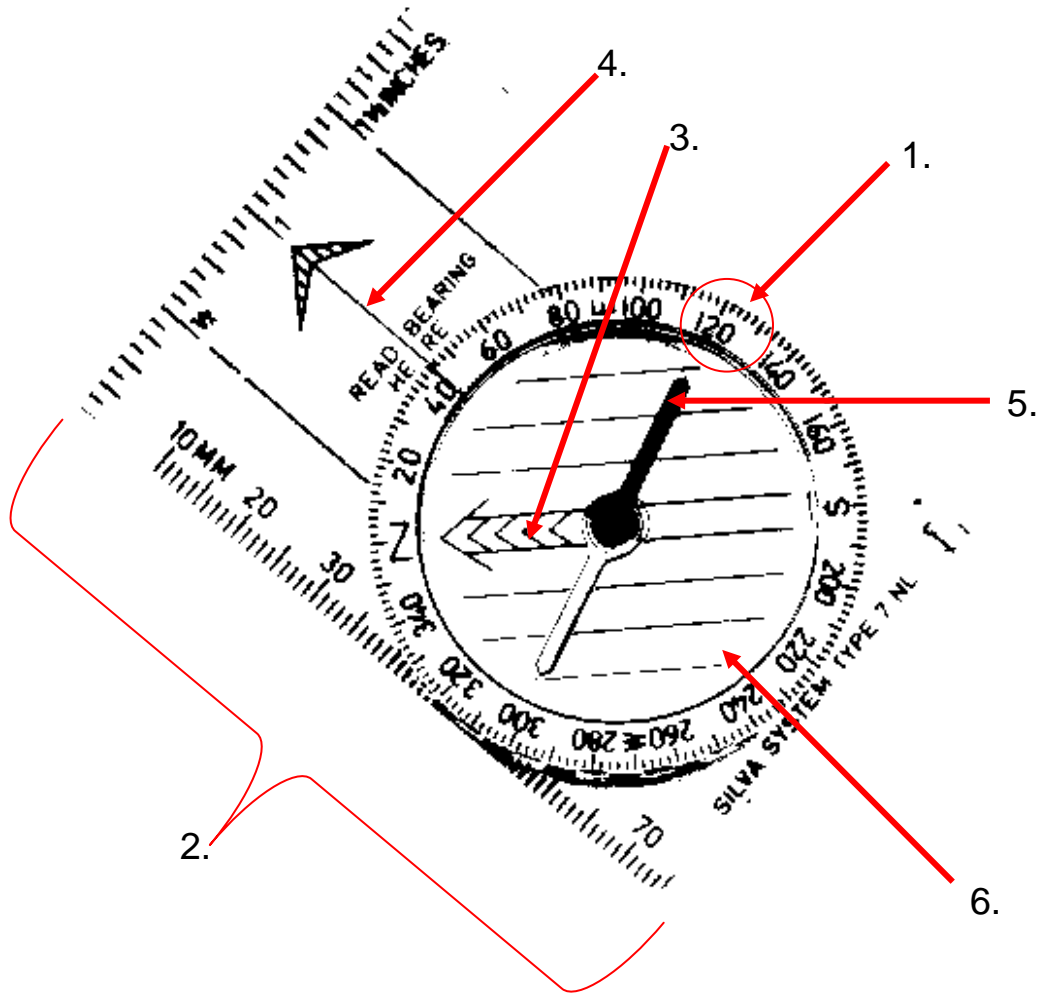
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How Well do You Know Your Compass?

See how well you know your compass by labeling the parts of the compass. Use the given words. Be careful, not all the words are used!



Words: Base Plate, Bearing, Declination, Degrees, Dial, Direction-of-Travel Arrow (Fred), Needle (Red), Orienting Arrow (Shed),

1. _____
2. _____
3. Orienting Arrow (Shed)

4. _____
5. _____
6. _____

Answers: 1. Degrees, 2. Base Plate, 3. Orienting Arrow, 4. Direction-of-Travel Arrow, 5. Needle, 6. Dial

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ORIENTEERING

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Key Words: bearing, compass, needle, pace, true North, magnetic North

1. If someone turned 180 degrees, what did they do?
2. The red magnetic needle in a compass always points in which direction?
3. How did you measure distance today?
4. What are some things that might affect your compass?
5. How might you use any of the skills you learned in this class?

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ORIENTEERING

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Base plate:** square plate that the dial sits on, also contains a ruler on the sides and the direction of travel arrow
- Bearing:** direction, measured from one position to another using geographical reference lines
- Compass:** instrument used to determine geographic direction of travel
- Declination:** angle between the direction the compass needle points and true north
- Dial:** part of the compass which rotates to align degrees with directional arrow; usually filled with water and marked with numbers representing the degrees
- Direction-of-travel:** arrow on base plate pointing to your destination
- Arrow:**
- Needle:** magnetized arrow inside compass dial, which always points to north and south
- Orienteering:** the act or sport of someone using a map and compass to find points in a landscape
- Pacing:** system of counting every other step to measure the distance traveled
- Topographic maps:** graphic representation of the surface features of a place or region on a map, indicating positions and elevations their relative

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ORNITHOLOGY



PRE-POST TRIP ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Paper Airplane Competition- Students build different styles of paper airplanes, representing the wing shape of different birds, to explore aerodynamics and flight patterns. Use the following resource from Nebraska's "Project Beak."

- http://projectbeak.org/teacher/pdf/adaptations_wings_and_flight_paper_airplances.pdf

Project Flying Wild's "Adaptation Artistry"- Students draw a fictional bird and use it's adaptations to interpret what kind of habitat that bird utilizes.

Dissecting Owl Pellets- Students dissect owl pellets to discover what's hiding inside! Challenge the students to try and put the skeleton of the prey back together by using diagrams.

Nest Building- Students, in pairs, select a nesting site somewhere on school grounds (or inside due to weather). Give each pair nesting material (various sized sticks, newspaper, rags, cardboard, Styrofoam, etc.) and challenge them to build a nest with the materials provided. To make things more difficult, don't let them use their hands, only their feet, legs, and arms!

Through the Eyes of a Bird- How would life be as a bird? Have students write a story about the typical day of a bird as if they were that bird.

Myths, Legends, & Superstitions- Throughout history birds have been apart of various myths, legends, and superstitions. Have students research and report how various birds were viewed in history and through different cultures.

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ORNITHOLOGY



JOURNAL QUESTIONS ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. What is ornithology?
2. Describe four characteristics birds have that make them different from other animals?
3. Explain how you would identify a bird.
4. What are two problems that affect bird populations? What can you do to help?
5. What was your favorite bird you saw? Why?

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ORNITHOLOGY

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Adaptation: special characteristics of an animal that help it to survive

Bioaccumulation: the build-up of toxins within a food chain often leading to negative effects for the top predators.

Habitat: the environment which an organism lives

Indicator Species: a species extremely sensitive to environmental changes; humans use these species to detect if environmental problems are occurring

Molting: the process of replacing feathers

Nictitating a clear third eyelid used by some raptors

Membrane: for extra eye protection

Ornithology: the study of birds

Raptors: birds of prey that have sharp talons, a shredding beak, and usually hunt their prey

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PIONEER LIFE

PRE & POST TRIP ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

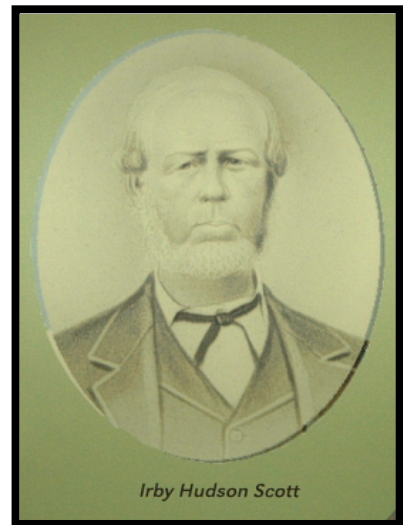


Compare pioneer times (early 1800's) to now

Find the difference between our lifestyle and theirs. Make a list of these differences and then think about how pioneers may have lived without the luxuries we take for granted now. This may require a little research as well.

Journals

Have students write a detailed journal of all the things they do during one day. Ask the students to question their grandparents about a typical day when they were young. Allow the students to compare the differences. Have students ask their grandparents whether they know what a typical day was like for their grandparents. Now the students can compare their typical day to their grandparents and great-grandparents typical day. This allows the student to see how American lifestyle has changed from 1850's to 2000's. What will a typical day be for the student's grandchildren?



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PIONEER LIFE

JOURNAL QUESTIONS ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY



1. How have advancements in technology affected some of the tasks you performed in class?

2. Compare and contrast your life at home with that of pioneer children.

3. Do you perform chores at home? How are your chores different from those you performed in this class?

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PIONEER LIFE VOCABULARY ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Pioneer-(noun) a person who is among those who first enter or settle a region, thus opening it for occupation and development by others. (Adjective) being the earliest, original, first of a particular kind.

Historic- well-known or important in history.

Archaeology- the scientific study of historical or prehistoric peoples and cultures by analysis of artifacts and other such remains, especially those that have been excavated.

Tenant farming-An agricultural production system in which landowners contribute their land and often a measure of operation capital and management: while tenant farmers contribute their labor along with varying amounts of capital and management.

Sharecropping- A system of agriculture in which a landowner allows a tenant to use the land in return for a share of the crop produced on the land.

Garden Hoe-a long-handled implement with a thin, flat blade used to break up the surface of the ground and destroy weeds.

Saddlebag House-a common type of pioneer dwelling featuring two or more large rooms and a chimney set in a central, interior wall.

Outhouse/Privy-an outbuilding with one or more seats and a pit serving as a toilet.

Smokehouse-an outbuilding in which various meats, fish and game are cured with smoke.

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PIONEER TOOLS

PRE & POST TRIP ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY



How have tools changed / stayed the same?

Compare and contrast the tools used by pioneers with the tools used by people today. What tools, if any, do you use regularly? How are those tools like the tools pioneers used? How have they changed? What factors led to this change?

Journals

Ask students to compose a list of tools or other handheld items they use on a daily basis. This list may include writing implements, calculators, phones, and even eating utensils. Then have them speak to an older person (parents, grandparents, aunts, uncles) and ask them to provide a similar list and discuss how the lists are different. Are there similarities? What changes have taken place to cause the lists to change? Have students imagine a future list of tools and item that people will use daily.

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PIONEER TOOLS



JOURNAL QUESTIONS ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. How did the invention of electricity affect tools?
2. Name some tools a pioneer might use to make shingles for a roof.
3. Name two types of simple machines and give examples of each from the tools you used today.
4. What are some things you do at home after school?
5. What do you think you might do after school if you lived in the early 1850's?

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PIONEER TOOLS VOCABULARY ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Tool- An implement for performing or facilitating mechanical operations.

Pioneer-(noun) a person who is among those who first enter or settle a region, thus opening it for occupation and development by others. (Adjective) being the earliest, original, first of a particular kind.

Simple Machine-a device that alters the magnitude or direction of a force.
Examples: lever, pulley, wheel and axle, screw, wedge, and inclined plane.

Mechanical Advantage- the ratio of force exerted by a machine to the force applied to it. In other words, mechanical advantage is a calculation of how much faster and easier a machine makes your work.

Shaving horse- A traditional woodworking tool used to hold a piece of wood in place while it is worked by a cutting tool such as a drawknife or spokeshave.

Froe & Maul- A set of tools for cleaving wood by splitting it along the grain. The froe is a straight, metal blade which is struck with the maul, a piece of hardwood shaped similar to a hammer a club.

Drawknife-A traditional woodworking hand tool used to shape wood by removing shavings.

Spoon Gouge- A tool with a curved, chisel-like working edge used for woodworking purposes.

Brace & Bit- A hand tool used to drill holes in wood.

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RAPTORS

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. What does the word "raptor" mean?
2. What are 3 characteristics that make a raptor unique from other birds?
3. Why are raptors an important part of our ecosystem?
4. List two ways humans may harm raptors.
5. What are 2 things you can do to help prevent raptors from becoming injured?

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RAPTORS

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Adaptation: special characteristics of an animal that help it to survive

Bioaccumulation: the build-up of toxins within a food chain often leading to negative effects for the top predators.

Habitat: the environment which an organism lives

Indicator Species: a species extremely sensitive to environmental changes; humans use these species to detect if environmental problems are occurring

Molting: the process of replacing feathers

Nictitating Membrane: a clear third eyelid used by some raptors for extra eye protection

Ornithology: the study of birds

Raptors: birds of prey that have sharp talons, a shredding beak, and usually hunt their prey

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ROCK EAGLE HIKE PRE-POST TRIP ACTIVITIES

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Creating Monuments

Have each student construct their own monument. It should be made to represent something significant or important to the student. Students can prepare oral presentation to explain how their monument represents them. (The effigy should be a collection of materials. For example a student who loves to fish should not bring in a fishing pole, instead they could objects placed together to make a fishing pole or a fish.) This could also be a school wide project. Each class planning to come to Rock Eagle could construct their own monument. Classes could all place their monuments on display with a short written explanation on the significance.



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ROCK EAGLE HIKE JOURNAL QUESTIONS

1. Do you think the Rock Eagle looks like an eagle? If not, what do you think it looks like?
2. No one really knows who built the Rock Eagle or why it was built. What is your guess about why the Rock Eagle was built?
3. What is an effigy?
4. The observation tower and the Rock Eagle Lake were built in the 1930's as part of President Roosevelt's Work Progress Administration (WPA). The goal was to put men back to work. Why was this important at this time in the United States?
5. Did the land surrounding the Rock Eagle look like it does today 50 years ago? What did it look like 100 years ago? Will it look like same 50 years from now?

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ROCK EAGLE HIKE

VOCABULARY

- Archaeology:** the study of historic and prehistoric cultures conducted by analyzing their artifacts, inscriptions and monuments. Usually uses other areas of science such as zoology, botany and geology.
- Artifacts:** objects that are made or modified by humans. Examples are arrowheads, baskets, pottery, stone tools and glass or metal objects.
- Effigy:** a representation of a person, animal or object especially in the form of sculpture
- Excavation:** method of exposing past cultures and artifacts by systematically removing layers of soil.
- Historic:** important or influential in history
- Mound:** a raised platform made from piled soil, stone or other material
- Pre-historic:** time period before written records, passed on orally and written about later on.
- Stratigraphy:** a principal that states that artifacts found in an upper layer of soil will be younger than those found in deeper layers of soil. This rule also assumes that any major geological processes have not disturbed the area.
- Surface survey:** a walk over the site before excavation when surface features and artifacts found lying on the ground are identified and recorded.
- Quartz:** a hard, glossy mineral consisting of silicon dioxide in crystal form

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SNAKES

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. List 3 things snakes and humans have in common.
2. How does a constrictor kill its prey?
3. Name two characteristics of snakes.
4. Were you nervous at all about handling any of the snakes? Why?
5. What are two positive things that snakes do for humans?

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TEAM INITIATIVES

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Key Words: communication, cooperation, safety

1. What three qualities were most important to the success of your team?
2. What activity from this class best demonstrated each quality?
3. How could you use each quality after you leave Rock Eagle?
4. Do you think you were a good team member on the challenge course today? Why or why not?

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TEAM INITIATIVES

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Communication:** the imparting or exchanging of information or news.
- Planning:** to decide on and arrange in advance.
- Respect:** a feeling of deep admiration for someone or something elicited by their abilities, qualities, or achievements.
- Team:** two or more people working together.

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ULTIMATE

Journal Questions

Rock Eagle's Environmental Education Field Study

Key Words: Cooperation, Defensive player, Integrity,
Offensive player, Pivot, Sportsmanship, Team

1. Was your team better at playing offensively or defensively? Why?

2. Why is good sportsmanship important?

3. When did you see someone displaying good sportsmanship?

4. How did it feel to be a part of a team?

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ULTIMATE

VOCABULARY

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

Cooperation: a situation in which people work together to do something.

Defensive player: A player whose team is not in possession of the disc. A defensive player may not pick up a live disc, a disc in play, or call for a pass from the thrower.

Integrity: firm adherence to a code of especially moral or artistic, total honesty and sincerity, the quality of being honest and fair.

Offensive player: A player whose team is in possession of the disc.

Pivot: The particular part of the body in continuous contact with a single spot on the field during a thrower's possession once the thrower has come to a stop or has attempted a throw or fake. When there is a definitive spot for putting the disc into play, the part of the body in contact with that spot is the pivot.

Sportsmanship: fair play, respect for opponents, polite behavior by someone who is competing in a sport or other competition, gracious behavior in winning or losing.

Team: a group of people who work together; a number of persons associated together in work or activity.

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WATERSHED STUDIES

PRE-POST TRIP ACTIVITIES ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

What watershed are you in?

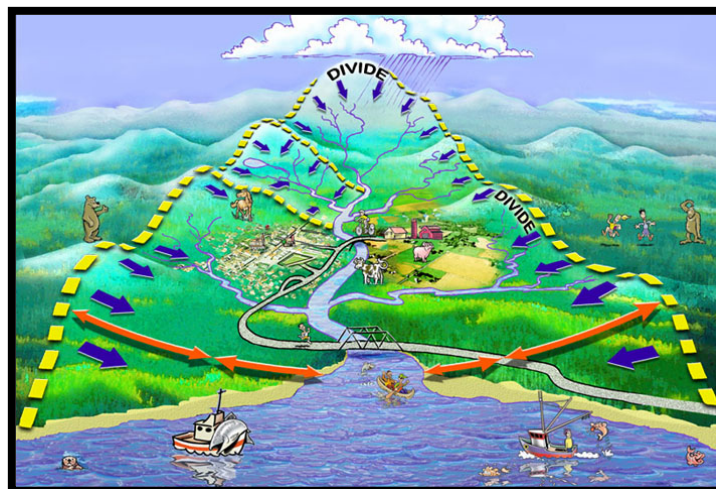
Determine what watershed your school is in by looking at various maps. A great resource is the Environmental Protection Agency at <http://www.epa.gov/surf/>.

Adopt a Watershed

Work with the Environmental Protection Agency and monitor your local watershed. Look at <http://www.epa.gov/adopt/> for more information.

Paper Watershed

Students see how large watersheds can be by making a paper watershed. Each student wrinkles one piece of paper into a ball. After unwrapping the paper ball (but don't flatten!), the students will use washable markers to color the bumps green (represents land) and the wrinkles blue (represents streams, lakes, etc.). Then the students take spray bottles and spray their paper.



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WATERSHED STUDIES

JOURNAL QUESTIONS

ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

1. Describe a watershed. What watershed do you live in?
2. How do humans effect erosion within a watershed? How does this affect the water bodies within the watershed?
3. How does increased erosion affect the plants/animals living within the stream ecosystem?
4. Why does stream monitoring help us determine a watershed's health? Describe one measurement you took during the stream monitoring and why it was important.
5. Explain how you can help keep your local watersheds healthy. How can your school? Your local community?

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WATERSHED STUDIES

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ROCK EAGLE'S ENVIRONMENTAL EDUCATION FIELD STUDY

- Bioassessment:** a scientific discipline that uses the response of aquatic organisms to various stressors as a method of evaluating ecosystem health.
- Dissolved Oxygen:** microscopic bubbles of oxygen gas in the water
- Erosion:** the process of wearing away by wind, water, or other natural agents.
- Indicator Species:** an animal or plant species that can be used to determine conditions in a particular habitat.
- Macroinvertebrate:** animals that have no backbone and are visible without magnification. Stream-bottom macroinvertebrates include such animals as crayfish, mussels, aquatic snails, aquatic worms, and the larvae of aquatic insects.
- Ph** scale to measure how acidic or basic a liquid is. The scale measures values from 0 all the way up to 14. Distilled water is 7 (right in the middle). Acids are found between 0 and 7. Bases are from 7 to 14.
- Riparian Areas:** of, relating to, or situated on the banks of a river or other body of water.
- Runoff:** the draining away of water (or substances carried in it) from the surface of an area of land, a building or structure, etc.
- Watershed:** an area or region drained by a river, river system, or other body of water. Also an area or ridge of land that separates waters flowing to different rivers, basins, or seas.

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