

Project Bright IDEA 2: Interest Development Early Abilities

**A Jacob Javits Gifted Education Program
Funded by the US Department of Education
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Concept: Systems

Topic: Conservation

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Grade Level: 5

**The North Carolina Department of Public Instruction
Exceptional Children Division
Academically or Intellectually Gifted Program**

The American Association for Gifted Children at Duke University

Big Ideas Manifested

Topic: Systems
Text: *John Muir, America's First Environmentalist*
Author: Kathryn Lasky
Published: 2006

Concepts	Themes
Systems Interdependence	Man's use of resources changes the environment, which affects all ecosystems.
Issues or Debates	Problems or Challenges
How to use natural resources without destroying nature in the process. How do you balance human needs and wants with nature conservation?	Population growth vs. available resources. National borders vs. resource location. Pros and cons of developing new energy sources.
Processes	Theories
How we influence decision makers. How recycling can be improved and expanded. Describe the processes of the "Four Rs": recycling, re-using, reducing, and restoring.	Global warming is changing the environment. Humans are responsible for global warming. Global warming is interfering with natural systems.
Paradoxes	Assumptions or Perspectives
Nature conserves itself by its own consumption. "Harmony with land is like harmony with a friend; you cannot cherish his right hand and chop off his left." – Aldo Leopold	The increased use of renewable resources is essential; conservation is the key to survival. "Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and cheer to give strength to body and soul alike." – John Muir "Only within the moment of time represented by the present century, has one species—man—acquired significant power to alter the nature of his world." - Rachel Carson

Concept: Systems

Topic: Ecosystems

Suggested Text Selection(s): *John Muir, America's First Environmentalist*

Look, Listen and Identify:

Intelligent Behaviors

Story Focus: Thinking flexibly, Communicating with clarity and precision, Creating, Imagining, Innovating, Questioning the status quo, Responding with wonderment and awe.

Student Activities: Metacognition, Questioning, Communicating, Taking responsibility, Creating, Imagining, Innovating, and Responding with wonderment and awe.

North Carolina Standard Course of Study Goals and Objectives Met With This Unit:

Science:

Competency Goal 1 - The learner will conduct investigations to build an understanding of the interdependence of plants and animals.

1.01 Describe and compare several common ecosystems.

1.02 Identify and analyze the functions of organisms within the population of the ecosystem.

1.03 Explain why an ecosystem can support a variety of organisms.

1.04 Discuss and determine the role of light, temperature, and soil composition in an ecosystems capacity to support life.

1.05 Determine the interaction of organisms within an ecosystem.

1.06 Explain and evaluate some ways that humans affect ecosystems: Habitat reduction due to development; pollutants; and increased nutrients.

1.07 Determine how materials are recycled in nature.

Competency Goal 2 - The learner will conduct investigations and make observations to build an understanding of landforms.

2.01 Identify and analyze forces that cause change in landforms over time including: water and ice, wind, and gravity.

2.03 Discuss and consider the wearing away and movement of rock and soil in erosion and its importance in forming: canyons, valleys, meanders, and tributaries.

2.04 Describe the deposition of eroded material and its importance in establishing landforms including deltas and floodplains.

- 2.05 Discuss how the flow of water and the slope of land affect erosions.
- 2.06 Identify and use models, maps, and aerial photographs as ways of representing landforms.
- 2.07 Discuss and analyze how humans influence erosion and deposition in local communities including school grounds as a result of clearing land, planting vegetation, building dams.

Competency Goal 3 - The learner will conduct investigations and use appropriate technology to build an understanding of weather and climate.

- 3.02 Discuss and determine how the following are affected by predictable patterns of weather-temperature, wind direction and speed , precipitation, cloud cover , and air pressure.
- 3.06 Discuss and determine the influence of geography on weather and climate: mountains, sea breezes, and water bodies.

Social Studies:

Competency Goal 4 - The learner will trace key developments in United States history and describe their impact on the land and people of the nation and its neighboring countries.

- 4.07 Compare and contrast changes in rural and urban settlement patterns in the United States, Canada, Mexico, and selected countries of Central America.

Competency Goal 5 - The learner will evaluate ways the United States and other countries of North America make decisions about the allocation and use of economic resources.

- 5.01 Categorize economic resources found in the United States and neighboring countries as human, natural, or capital and assess their long-term availability.
- 5.02 Analyze the economic effects of the unequal distribution of natural resources on the United States and its neighbors.
- 5.07 Describe the ways the United States and its neighbors specialize in economic activities, and relate these to increased production and consumption.
- 5.08 Cite examples of surplus and scarcity in the American market and explain the economic effects.

Competency Goal 6 - The learner will recognize how technology has influenced change within the United States and other countries in North America.

- 6.03 Forecast how technology can be managed to have the greatest number of people enjoy the benefits.
- 6.04 Determine how citizens in the United States and the other countries of North America can preserve fundamental values and beliefs in a world that is rapidly becoming more technologically oriented.
- 6.05 Compare and contrast the changes that technology has brought to the United States to its impact in Canada, Mexico, and Central America.
- 6.06 Predict future trends in technology management that will benefit the greatest number of people.

Local Pacing Guide Timeline:**Thinking Skills Focus:**

Understanding systems and their parts, Cause and effect.

Topic Focus:

Ecosystems and Nature Conservation

Concept Focus: Systems**Level One: Overarching Generalizations:**

- A. Systems are orderly and purposeful.
- B. Systems are composed of subsystems that work together.
- C. Systems can interact with other systems.

Level Two: More Complex Generalizations (Two or more concepts):

- A. The purpose of a system determines its sustainability.
- B and C. Changes in an ecosystem lead to a complex series of effects within the ecosystem and in related systems.

Level Three: Even More Complex Generalizations:

- A., B., and C. The purposes of human systems affect the sustainability of the natural systems on which they depend.

Directions for Teachers:

Display sentence strips with the generalizations. Discuss topics and vocabulary words needed to gain a deeper understanding of the conceptual lessons.

Suggested Topics for Discussion:

Structure of predominant ecosystems of North America
 Benefits of natural places
 Work of John Muir, Aldo Leopold, B.W. Wells (NC ecologist), and other environmentalists
 Natural resources
 Human relationships with ecosystems (supportive, damaging, neutral)
 Climate change factors
 Attitudes and behaviors about environmental issues
 Conservation vs. restoration
 Governmental powers regarding environmental conservation and restoration
 Influence of government vs. society to change behaviors
 Are all natural resources to be used solely for the benefit of humans?
 Should all nations be held to same level of compliance with international standards for conservation?
 Pollution
 Habitats
 Risk factors that contribute toward endangered species
 Landforms and erosion

Suggested Vocabulary Words for Discussion:

Conservation	Diligent	Ecosystem	Sheep Herder
Non-renewal resource	Crag/Ice Crag	Renewal resource	Renew
Crevasse	Dismal	Restore	Bureau
Recycle	Speculator	Reuse	Corporation
Finite resources	Grassroot(s)	Biodegradable	Endangered
Landfill	Extinction	Wind farm	Life-cycle
Wilderness	Immense	Submerged	Sawmill
Water power	Barometer	Atmospheric Pressure	Bushel
Lodgings	Pillar	Malaria	Crescendo
Percussion	Gable	Geology	Biology
Zoology	Botany	Glacier	Pollution
Habitat	Endangered species	Conservation	Environment
Adapt	Destruction	Intentional	Unintentional
Environmentalist	Aurora Borealis	Thermometer	Speculators
Forest Preserve	Microscopic	Macroinvertebrate	Fungus
Biotic	Protist	Bacteria	Bio-indicator
Abiotic	Symbiotic	Interdependence	Extinction
Organism	Climate Change		

A Six-Step Process for Teaching Academic Vocabulary Terms:

1. Provide a description, explanation or example of the new vocabulary term.
2. Ask students to restate the description, explanation or example in their own words using complete sentences.
3. Ask students to construct a picture, symbol or graphic representing the term or phrase.
4. Engage the students periodically in activities that help them add to their knowledge of the terms in a booklet that they have created (Keep it simple.)
5. Periodically ask students to discuss the terms with one another (**Think** of your favorite vocabulary words from the unit; **pair** with a vocabulary buddy, **share** by discussing the vocabulary terms with your vocabulary buddy.) Teacher should model process each time before students do the Think, Pair, Share with Vocabulary Buddy.
6. Construct games to periodically involve students and allow them to play with the terms.

Robert Marzano

Vocabulary Extension:

Discuss words and meanings

Illustrate words

Write nature poems (see “Poet Tree” activity in *Project Learning Tree*) using vocabulary

Synonym/Antonym chart

Create a skit about John Muir’s life using the vocabulary

Hooks:

Select a generalization(s) and essential questions. Introduce one or more of the following topics:

Six Facets of Understanding

Facet 1 – EXPLANATION
Describe how an ecosystem is structured and the ways in which the parts are interdependent/symbiotic. How does energy move through a specific ecosystem? What are some of the parts of an ecosystem that are most sensitive/resistant to human interference? What do you predict will happen if humans do not conserve natural resources? Describe the attributes of a good “eco citizen.”
Facet 2 – INTERPRETATION
How are humans part of an ecosystem(s)? In what ways are we following the rules of the ecosystem(s) upon which we rely for survival? Which act is most important: recycling, re-using, reducing, or restoring?
Facet 3 – APPLICATION
How does your changing knowledge of environmental issues affect how you live your life? Give examples of ways people are changing behaviors, based on environmental awareness.
Facet 4 – PERSPECTIVE
Give evidence that human actions are affecting ecosystems. Consider an unusual environmental event—debate whether or not it is due to human actions. Why should people conserve natural resources? Is conservation more important than economic development?
Facet 5 – EMPATHY
How do your actions with regard to the environment affect other people? How do your actions affect the natural world? How might people who live in different ecosystems believe or feel about climate change?
Facet 6 – SELF-KNOWLEDGE
How did my upbringing affect my attitudes and beliefs about my role in environmental conservation? What is the hardest life change for me to make to be “better” for planet? What support would make it easier for me to change my environmental habits?

This IS OK!!!!

#1

**Read:
Task Rotation Learning Activities
Science-based on book**

5th grade

All conceptual activities must include discussing and/or relating to the selected generalization(s) through essential questions.

Mastery Learner (A) Sensing- Thinking	Interpersonal Learner (B) Sensing-Feeling
<p>In John Muir’s travels around the world he found plant and animal species that could be found nowhere else. Select a plant or animal from the list provided. Gather information about the ecosystem of which the animal or plant is indigenous. Describe the nonliving features of the ecosystem (i.e. soil, climate, altitude, etc.) Make a list of four plants and four animals that also live in the ecosystem.</p> <p>Create a chart of your information. Be ready to present your chart to the class. Complete a rough draft of the chart by _____.</p> <p>HOM 7: Which non-living features of the ecosystem support the plant or animal you selected?</p> <p>HOM 6: After you complete the rough draft, ask yourself if the information is correct. Also, consider whether you have communicated your information clearly and precisely.</p> <p>V * L * S * M * B * P * I * N *</p>	<p>John Muir said, “When we try to pick out anything by itself, we find it hitched to everything else in the universe.”</p> <p>With your group, create a dance, dramatic presentation, or song to demonstrate the interdependence of the components of your ecosystem.</p> <p>HOM 8: Consider the effect on the ecosystem of the removal or reduction of one of the parts then create an additional part to your dance, presentation or song to reflect the effects on the ecosystem.</p> <p>HOM 15: Think about your work. Reflect on how your group made the decisions that led to the final product and write a journal entry describing how you cooperatively solved problems and disagreements.</p> <p>V * L * S * M * B * P * I * N *</p>

<p align="center">Understanding Learner (C) Intuitive-Thinking</p>	<p align="center">Self-Expressive Learner (D) Intuitive-Feeling</p>
<p>Choose an ecosystem in North America. Debate preservation vs. progress in that ecosystem.</p> <p>HOM 4: Consider the different aspects of progress (population growth, resource use, transportation, food production, etc.) and the different components of ecosystems (food webs, habitats, interdependence, etc.). Make sure your debate addresses a variety of these issues.</p> <p>HOM 5: How did conducting research help you prepare your debate arguments and counter-arguments?</p> <p align="center">Need another HOM here!!!</p> <p align="center">V_*_L_*_S_*_M_*_B_*_P_*_I_*_N_*_</p>	<p>Choose an ecosystem (ex. desert, temperate or tropical rainforest, marine, etc.) and research it.</p> <p>Imagine a normal event in that ecosystem (ex. spring rains). Create a Cause-Effect Chain Mobile (see Appendix) to describe at least three effect chains. Now make a Cause-Effect Chain Mobile if the original event were different.</p> <p>HOM 7: Imagine you are a detective. You are charged with solving the mystery of how the event of one of the final links in either of your Mobiles came about. Use deductive reasoning to work your way back to your original cause.</p> <p>HOM 11: Think of a common human activity that alters the natural Cause-Effect Chain in this ecosystem. Describe one or two crucial long-term effects.</p> <p align="center">V_*_L_*_S_*_M_*_B_*_P_*_I_*_N_*_</p>

Do this in February or March 2010

Essential Question

(Include concept and intelligent behavior that leads to deeper understanding of the concept through exploration of the generalization)

Materials Needed for Task Rotation and/or Task Rotation Menu

MetaCognitive Discussion (Essential Questions):

(Whole Group)

Conceptual Perspectives:

What is the significance of the sustainability of a system?

Intelligent Behaviors:

Literary Perspectives:

Student/Teacher Reflections

Grade 5

Do not work on this one till later, if we have time. We also need to create the inquiry guidelines—can we even write a generic lesson for general audience???????

Each task in the rotation is based on an individual science inquiry completed by each student. See attached guidelines. Also, each task has an attached rubric.

<p>Mastery Learner (A) Sensing- Thinking</p>	<p>Interpersonal Learner (B) Sensing-Feeling</p>
<p>Using your science investigation, create a “Science Fair” project. You may use any format that best explains the information (poster, model, demonstration, etc.).</p> <p>Your project should be extremely complete, clear, and accurate.</p> <p>Include an analysis of how your ecological issue follows the essential elements of systems (follow rules; have parts to complete a task; have subsystems; subsystems are interdependent/ symbiotic; and interact with and are influenced by other systems).</p> <p>V_x_L_x_S_x_M_B_P_x_I_x_N_x</p>	<p>Consider and choose a large ecological issue to which your science investigation could be related. Create an imaginary student advocacy group to address the ecological issue and the impact it has on your school’s natural surroundings.</p> <p>Imagine how you would convince others that this issue influences their lives.</p> <p>Describe how your group follows the essential elements of systems (follow rules; have parts to complete a task; have subsystems; subsystems are interdependent/ symbiotic; and interact with and are influenced by other systems).</p> <p>Make a comic strip that the story of how you created the group, and shows the group in action.</p> <p>V_x_L_x_S_x_M_B_P_I_x_N_x</p>

A

**Self-Expressive Learner (D)
Intuitive-Feeling**

Start with your science investigation; imagine that a key component of this ecological situation were changed.

Hypothesize the differences in the ecosystem of which this component is a part.

Describe these differences using the essential elements of systems (follow rules; have parts to complete a task; have subsystems; subsystems are interdependent/symbiotic; and interact with and are influenced by other systems).

Create a fictional (but realistic) science inquiry that might occur, given this difference.

Write a ballad that elaborates the fictional investigation.

V_x_L_x_S_M_x_B_P_I_x_N_x

#2 Math—needs Geoboard activity written, and clarify the scale map activity!

Task Rotation Learning Activities

Grade 5 Math Task Rotation

All conceptual activities must include discussing and/or relating to the selected generalization(s) through essential questions.

These are preliminary activities to this Math Task Rotation:

1. Introduction to scale conversion
2. Introduction/review to map concepts: symbols/key compasses, etc.
3. Create large scale map of North America on playground or other large area (see attachment).

Mastery Learner (A) Sensing- Thinking	Interpersonal Learner (B) Sensing-Feeling
<p>(Gathering, Organizing, Presenting Info)</p> <p>Using Journey North website, locate following places: winter location of Monarchs, Raleigh, and northernmost summer spotting. Mark them on your paper map. Draw 3 straight lines between the locations. Describe the geometric shape as precisely as you can. Measure each side, and, using the scale, convert to miles. Which distance is longest; which is shortest? Estimate the area of this geometric figure in inches. Remember to include partial squares. Convert your answer to square miles.</p> <p>HOM 9: Write a paragraph clearly & precisely describing the steps you took; the tools you used and the results.</p> <p>HOM 11: Look at side of the polygon that links the summer and winter locations. Reduce it by half; then redraw the polygon, keeping either the summer or winter vertex the same. How would the new summer or winter location affect the Monarch?</p> <p style="text-align: center;">V_x_L_x_S_x_M_B_P_I_N__</p>	<p>(Expressing, Understanding, Acting on Feelings)</p> <p>Write a letter regarding habitat destruction to the Mexican President in which you discuss the need to stop logging in NAME OF forest.</p> <p>Be sure to include at least three facts that are clear and beyond dispute. Also include data from a survey that you designed gauging the reactions to Monarchs’ plight. Be sure to include in your sample group adults and children as young as six years old.</p> <p>HOM 3: As you do the survey, make sure to be an impartial listener, in order to accurately perceive another’s point of view and emotions. This will help assure the survey is unbiased.</p> <p>HOM 5: As you write, take, and compile your survey, score yourself on how well you are able to remain impartial. For those occasions when you realize that you were not neutral, what effect did that have on the results of your survey.</p> <p style="text-align: center;">V_x_L_S_M_B_PxIxNx__</p>

<p style="text-align: center;">Understanding Learner (C) Intuitive-Thinking</p> <p>(Examining, Interpreting, and Extrapolating from Data)</p> <p>Use the Journey North website archives for any spring or fall migration season after 2004 (http://www.learner.org/jnorth/archives.html). Go to the Monarch section,</p> <p>*****FIX the link info*****</p> <p>Maps</p> <p>Weekly Summaries for Classroom Mapping</p> <p>Find the approximate middle of the migration season and look at the Data for Classroom mapping. Find the populations and areas of the cities where sightings occurred. Compare each city's population density to the mean population of the state (population density equals population divided by area in square miles).</p> <p>Analyze the migration sighting data. How do you think population density may be related to monarch migration, as reported on the Journey North website?</p> <p>HOM 7: What information did you need to analyze population and migration? What problems did you encounter and how did you solve them?</p> <p>HOM 4: Consider other ways that human population and</p>	<p style="text-align: center;">Self-Expressive Learner (D) Intuitive-Feeling</p> <p>(Generating and Reorganizing Ideas, and Creating Original Work)</p> <p>Research the components of butterfly gardens. Then choose a specific site on the school's campus and design your own unique garden to fit on that site. Include in your work detailed information regarding the plants, grasses, and other materials used in your garden. Research milkweed or another important plant in butterfly gardens and describe how butterflies interact with this plant.</p> <p>HOM 12: What did you find awesome, mysterious, or intriguing about the way butterflies and plants are interdependent?</p> <p>HOM 8: What prior knowledge did you use to design your garden? For example, math skills, gardening, ecological systems?</p> <p style="text-align: center;"><u>V _ L _ x _ S _ x _ M _ B _ P _ I _ N _ x _</u></p>

Monarch migration may be related. Look at the situation from other perspectives.

V _ L x S _ M _ B _ P _ I _ N _ x

Real World Connections With Thinking Skills/Successful Habits:

Organize, analyze, evaluate, identify, describe, examine, problem-solving, decision-making

Real World Applications/Careers/Professions:

Developer, Conversationalist, Botanist, Zoologist, Oceanographer, Park Ranger, Architect
Urban Planner, Agronomist, Mycologist, Engineer

Real World Terms:

Connect all products in the unit to real world applications reflecting the concept, generalizations and topic. The above is an example of how this might be accomplished.

Prior to the math task rotation, do Geoboard activities and North America Scale Map Activity.

Geoboard

(THIS NEEDS MORE DETAIL)

North America Scale Map Activity

Reference: http://www.butterflyrecovery.org/education/docs/BFCI_ActivityGuide3.pdf
(Extension on page 2).

And Monarch migration maps from Journey North (**FIND THIS**) **CHOOSE** Spring or Fall and stick with it.

Materials: Transparencies: 100 ft. measuring tape, blackline master of North America with mileage scale, ¼ inch grid paper; paper copy for each student of N. America map with ¼ inch grid overlaid; clipboard for each student; EITHER colored tape (if activity will be done inside) OR 100 surveyors flags and 200 feet of string or twine (if activity will be done outside).

Introduction:

Show plain map on overhead projector

Lay on grid paper

Show how to convert ¼ inch to EITHER ¼ foot (INSIDE) or 1 foot (OUTSIDE).

Make large scale map's corner on floor or playground.

Use "What is a Square Foot?" activity from EPS to show how to do outline of continent.

Have kids mark migration areas.

Explain mileage scale from paper to large map.

Discuss why no migration in the Rocky Mountain area (temp, altitude, no food, or no data available).

Also, go to Journey North website and learn about habitat loss, etc. so that you have some data to work with.

Materials Needed for Task Rotation and/or Task Rotation Menu

Completed science inquiry

Notebook

MetaCognitive Discussion (Essential Questions):

(Whole Group)

Conceptual Perspectives:

Intelligent Behaviors:

Literary Perspectives:

Student/Teacher Reflections

*****This is the next thing we should do (3-27-09)

Brainstorms:

- create office of environment at some state/county level
- Create env. Curric. For school
- Convince others to go green
- Pull in the stuff from the early TR re: conservation org.
- Impact on land and people of conservation/NONconservation
- Ethnic groups and superfund sites, etc?
- Native Americans and “seven generations?”
- laws to protect environment? Which is better—laws or encouraging people informally to change environmental behaviors?
- Ecosystems compared to human social systems
- How can educational system help conserve Ecosystem
- Land development vs. ecosystems—we have something in one TR
- How are social movts for justice like/unlike conservation/preservation/restoration of ecosystems

Social Studies/Language Arts Task Rotation Learning Activities

All conceptual activities must include discussing and/or relating to the selected generalization(s) through essential questions.

<p>Mastery Learner (A) Sensing- Thinking</p> <p>-</p> <p>V _ L _ S _ M _ B _ P _ I _ N _</p>	<p>Interpersonal Learner (B) Sensing-Thinking</p> <p>V _ L _ S _ M _ B _ P _ I _ N _</p>
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Understanding Learner (C)
Intuitive-Thinking

Self-Expressive Learner (D)
Intuitive-Feeling

V_L_S_M_B_P_I_N_

V_L_S_M_B_P_I_N_

Real World Connections With Products:

Real World Applications/:

Real World Terms:

Materials Needed for Task Rotation and/or Task Rotation Menu

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MetaCognitive Discussion (Essential Questions):

(Whole Group)

Conceptual Perspectives:

Intelligent Behaviors:

Literary Perspective:

Student/Teacher Reflections

Did this on 1/8-10!

Concept: Systems

Topic: Ecosystems and Nature Conservation

Generalization(s):

- A. Systems are orderly and purposeful.
- B. Systems are composed of subsystems that work together.
- C. Systems can interact with other systems.

Essential Question(s):

What kinds of systems are found in nature? How do the systems of an ecosystem interact with each other? How can humans affect ecosystems in negative and positive ways?

Task Rotation Menu

Level	Mastery	Understanding	Self-Expressive	Interpersonal
1	After reading <i>John Muir: America's First Environmentalist</i> , make a map of his journey from Scotland to Yosemite. Make the map as accurate as possible (ex. Latitude/longitude, compass rose, map key, etc.). Use any materials you wish.	Create a conservation organization that focuses on an ecosystem found in North America. Who are your supporters and who opposes what you do and why?	Create a skit or song that describes the condition of the land of North America at the beginning of the 20 th century. Include classmates as actors, if necessary.	Work with a partner to create a conversation about John Muir and his contributions to America. How has he affected American ecosystems and the lives of Americans? Record your conversation with a Flip Cam, and show it to the class.

<p>2</p>	<p>After reading <i>John Muir: America's First Environmentalist</i>, make a map of his journey from Scotland to Yosemite. Make the maps as accurate as possible (ex. Latitude/longitude, compass rose, map key, etc.). Use any materials you wish.</p> <p>Include a timeline of the journey.</p>	<p>Create a conservation organization that focuses on an ecosystem found in North America. Who are your supporters and who opposes what you do and why?</p> <p>How would you convince a friend who is skeptical about environmental conservation that it is in his/her best interest to become active in your organization?</p>	<p>Create a skit, song, dance, or video documentary that describes the condition of the land of North America at the beginning of the 20th century. Include classmates as actors or dancers, if necessary. Make sure to include some of the issues that John Muir was concerned about.</p>	<p>Imagine it is 1914, right after the death of John Muir. Work with a partner to create a conversation about him and his contributions to America. How has he affected American ecosystems and the lives of Americans? Make sure to only refer to events and issues that had happened up to the year 1914. Record your conversation with a Flip Cam, and show it to the class.</p>
<p>3</p>	<p>After reading <i>John Muir: America's First Environmentalist</i>, make a map of his journey from Scotland to Yosemite. Make the maps as accurate as possible (ex. Latitude/longitude, compass rose, map key, etc.). Use any materials you wish.</p> <p>Include a timeline of the journey.</p> <p>Select three places that were particularly meaningful to him, and write a journal entry for each describing his observations. Include these places on the map and timeline.</p>	<p>Create a conservation organization that focuses on an ecosystem exclusively found in North America. Who are your supporters and who opposes what you do and why?</p> <p>How would you convince a friend who is skeptical about environmental conservation that it is in his/her best interest to become active in your organization?</p> <p>Write a script and perform this challenging conversation. Include a classmate as an actor.</p>	<p>Imagine if John Muir had been an ocean conservationist, living today.</p> <p>Create a skit, song, dance, or video documentary that describes the condition of the oceans of North America at the beginning of the 21st century. Include classmates as actors, dancers, etc.</p>	<p>Work with a partner to create a conversation about John Muir and his contributions to America. How has he affected the human and natural systems of America? Consider the impact on <i>groups of citizens</i> (such as farmers, ranchers, hunters, and city dwellers), as well as specific <i>natural locations and ecosystems</i>. Record your conversation with a Flip Cam, and show it to the class.</p>

Done on 1-29-10

Real World Connections With Products:

Maps, organizational mission statement, scripts, song music and lyrics, documentaries, personal letters, journals, biographies

Real World Applications:

Cartographer, journalist, lyricist, poet, photographer, environmentalist, biologist, videographer, dancer, author, urban and rural planners, soil and water conservationists, air quality researcher, government agencies

Real World Terms:

Construct, explain, decide, communicate, propose, design, describe, present, inform, archive, perform, imagine, research, investigate, organize, convince, adapt, cooperate

Materials Needed for Task Rotation and/or Task Rotation Menu

Flip Cam, maps, compasses, pencils, construction paper, computer/internet, tape recorder, musical instruments

MetaCognitive Discussion (Essential Questions):

(Whole Group)

Conceptual Perspectives:

In what ways are we following the rules of the ecosystem(s) upon which we rely for survival?

Which act is most important: recycling, re-using, reducing, or restoring?

Is conservation more important than economic development?

How might people who live in a variety of ecosystems believe or feel about climate change?

Intelligent Behaviors:

How does your upbringing affect your attitudes and beliefs about your role in environmental conservation?

Give examples of ways people are changing behaviors, based on environmental awareness.

What intelligent behaviors do you think are most important in our efforts to protect the environment?

Explain the areas of environmental conservation that would benefit from those specific intelligent behaviors.

Literary Perspective:

Silent Spring, Rachel Carson

The Sense of Wonder, Rachel Carson

The Assault on Reason, Albert (Al) Gore, Jr.

Earth in the Balance: Ecology and the Human Spirit, Albert (Al) Gore, Jr.

Songs:

This Land is Your Land by Woody Guthrie

Video Clips:

An Inconvenient Truth
Planet Earth

Paintings & Prints:

Landscapes by Frederic Church, Albert Bierstadt, and Thomas Cole

Teacher Reflections

Literary Selection

Date

School

Grade

1. What were the strengths of the task rotations and/or other activities?
2. How did the task rotations and/or activities reveal students' Intelligent Behaviors? Please discuss how each Intelligent Behavior manifested itself.
3. What would you change or add the next time you taught this lesson?
4. What opportunities for growth does the resource unit have?
5. What were "ah ha's?" for the students? For teachers?

"Additional Comments

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APPENDIX

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Additional Instructional Concept-Based Activities