

***Exploring Indiana's Natural Resources***  
***Sherry Camden***  
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**Curricular Areas:** Reading, Language, Science, Social Studies, Math, Technology, Art

**Grade Level:** 4<sup>th</sup> grade

**Appropriate Group Size:** Lessons involve use of whole group, small group, and individual participation

**Time:** 2 weeks-4 weeks

**Objectives:** Students will be involved in many activities that will meet the following educational standards:

1. Language: Students will use compare/contrast skills.
2. Language: Students will learn and use proper letter writing form.
3. Language: Students will write in a journal from a given prompt.
4. Social Studies/Science: Students will gain understanding of "natural" resources.
5. Social Studies: Students will learn the importance of Indiana products in the world trade.
6. Social Studies: Students will describe early European exploration of Indiana.
7. Social Studies: Students will learn what motivated European settlers to stay in Indiana.
8. Social Studies: Students will learn mapping skills.
9. Math: Students will learn measurement to the nearest 16<sup>th</sup> inch.
10. Math: Students will gain an understanding of the stock market.
11. Physical Health: Students will learn the importance of nutrients to the body.
12. Agriculture: Students will learn the importance of climate on growing crops.
13. Agriculture: Students will learn the importance of soil on growing crops.
14. Art: Students will gain understanding of mood reflected by color.
15. Science: Students will learn the scientific method and how to record data correctly on given form.
16. Students will use acting skills to perform a small skit.
17. Students will use Powerpoint to create a slide show of their favorite prints from the Amico Library Database.
18. Technology: Use the Internet to collect stock market prices and access visual image databases and web sites.

**Indiana State Standards**

**Math**

9.4.1 Identify, describe, and draw rays, right angles, acute angles, obtuse angles, and straight angles.

9.4.2 Identify, describe, and draw parallel and perpendicular lines.

11.4.1 Measure length to the nearest quarter inch, eighth inch, and millimeter

11.4.4 Develop the formula for finding the perimeter of rectangular regions.

12.4.1 Discriminate, collect data, construct, and interpret picture, bar, circle, and line graphs.

12.4.2 Use graphs with scales marked off with units other than one.

12.4.4 Write a story problem using information from a graph.

13.0.0 Use technology to promote mathematical understanding.

## Language Arts

1. Exhibit a positive attitude toward language and learning through :
  - selecting reading materials from classroom libraries and school library media centers;
  - writing for personal satisfaction
2. Select and apply effective strategies for reading including:
  - establish a purpose for reading
  - making comparisons/predictions
  - drawing conclusions
  - using headings, pictures, captions, and other textual cues
3. Select and use developmentally appropriate strategies for writing, including
  - using literature as one stimulus for writing
  - using the writing process
  - select writing topics of personal interest
4. Write for different purposes and audiences producing a variety of forms, including:
  - messages/letters
  - responses to literature
5. Use prior knowledge and content area information to make critical judgements, including:
  - identifying cause and effect
  - choosing topics for writing
6. Communicate orally with people of all ages by:
  - giving and following directions
  - contributing to class discussions
7. Recognize the interrelatedness of language, literature, and culture by
  - comparing literature and arts from different cultures

## Social Studies

Historical Perspectives: Trace the historical movements which have led to the development of Indiana as a state.

1. Identify historic groups of Native Americans and their contributions to Indiana.
2. Describe the early European exploration of Indiana.
3. Explain what motivated early European explorers and settlers and identify the resources they needed.
4. Identify and classify natural resources, show their worldwide distribution patterns, and recognize the physical and human limits on the use of resources.
5. Describe the importance of Indiana's products in the world trade.
6. Describe the settlement patterns of cultural and ethnic groups in Indiana.
7. Construct simple maps, timelines, charts, and graphs.

## Science

- 1.1 Values and Attitudes
- 2.2 Computation and observation
- 2.4 Technology and Science
- 4.5 Flow of Matter and Energy
- 5.3 Basic Functions
- 6.1 Agriculture

## Health

4. Determine how nutritional intake and eating patterns affect and are affected by physical, social, mental, economic, and cultural factors.

## Art

1. Understanding the significance of visual art in relation to historical, social, political, spiritual, environmental, technological, and economic issues.
3. Describe, analyze and interpret works of art and artifacts.
4. Identify and apply criteria to make informed judgements about art.
7. Observe, select and utilize a range of subject matter, symbols and ideas in their work.
8. Understand and apply elements and principles of design effectively in their work.
9. Develop and apply skills using a variety of two dimensional and three dimensional media, tools, and processes to create works that communicate personal meaning.
10. Reflect on, revise, and refine work using problem solving and critical thinking skills.
13. Identify and make connections between knowledge and skill in art and all other subject areas such as humanities, sciences, and technology.

## Materials/Resources:

☺ **Art prints:** Corbis Images

Albert Bierstadt: [Emigrants Crossing the Plains](#)  
Unknown: [Explorer Jacques Cartier and Natives](#)  
Jennie Wookcock: [Collage Made by Primary School Children](#)  
Steve Wright and Jacqui Hurst: [Starting a Collage](#)  
Unknown: [Landscapes and Flower Fields Collage](#)  
Neil Beer: [Emphemera of the World](#)  
Tom Wesselman: [#25 Still Life](#)  
Helen Jennings: [Paper Collage](#)  
David Teel: [Ecology With Various Leaves](#)  
David Teel: [High Tech Collage](#)  
Vincent Van Gogh: [Landscape with Rising Sun](#)  
Monet: [Haystack at Sunset Near Giverny](#)  
Monet: [Haystack near Giverny](#)  
[19<sup>th</sup> Century Print of Native American Woman in Traditional Dress](#)  
[Delaware Native American Black Beaver](#)  
Benjamin West: [Penn's Treaty with the Indians](#)  
[Guerrier Iroquois](#)  
Theodor de Bry: [Native American Settlement](#)  
Theodor de Bry: [Native American Village](#)  
Theodor de Bry: [Native Americans Preparing Food](#)  
[Map of Indiana](#)  
[Native American Indians](#)  
[Native American Indians Trading](#)

☺ **Art prints:** Grove Dictionary of Art Online

Search Articles:

Collage; Assemblage

External Links:

- Ray Johnson; [January/February](#), Detroit Institute of Art
- Pablo Picasso: [Guitar on a Table](#), Hood Museum of Art

Native North American Art; Sub Article: Introduction, Geography and People, Woodlands

External Links:

- [Waverly Tablet](#), Cincinnati Art Museum
- Alfonso Roybal (Awa Tsireh), [Eagle Dancers](#), National Museum of American Art
- [Prescription Stick 1860](#), Detroit Institute of Art
- [Heddle 1860](#), Detroit Institute of Art
- Alfonso Roybal (AWA Tsireh), [Buffalo Mother](#), National Museum of American Art
- [Drumsticks 1875-1900](#), Detroit Institute of Art
- [Wooden Bowl With Brass Handles 1800](#), Detroit Institute of Art
- [Spoon 1870](#), Detroit Institute of Art
- [Coat 1835-50](#), Detroit Institute of Art
- [Shoulder Bag](#), Detroit Institute of Art
- [Mocassins c1830](#), Detroit Institute of Art
- [Storage Bag c1890](#), Detroit Institute of Art

George de Forest Brush, [The Moose Chase](#), National Museum of American Art

☺ **Museums:**

[Eiteljorg Museum of American Indians and Western Art](#);  
[Indiana Historical Society](#);  
[Indiana State Museum](#);

☺ **Web Sites:**

[Ohio Indians Learning Links](#);  
[Ohio Kids](#);  
[Kokomo - Howard County Public Library](#);  
[Project CanalTrek](#);  
[Francis Slocum](#);  
[Delaware Indians](#);  
[Study Web Native Americans](#);  
[Corn and Indians of the Northeast](#);  
[Tecumseh](#);

☺ **Books**

[A bibliography of books about Indians/Natives Americans of the Old Northwest Territory \(Ohio, Indiana and Michigan\)](#)

## ☺ **Other Materials**

Blank Indiana map  
Map indicating European settlements in Indiana  
3-4 different soil samples  
newspaper  
sifter  
glass jars with lids  
magnifying glass  
grow light  
Corn by Raymond Bial  
Almanac  
Scientific Method page  
Cut outs in shapes as follows: (one complete set for each student)

red heart (love), green rectangle (expensive), yellow pencil (skill), blue clock (time consuming), purple house (would like in house), brown triangle (hate it)

Materials for grain collage  
Poster Board  
Tag Paper  
Markers  
Journals  
Worksheets  
Movie "Squanto"

### **Teacher Notes:**

There are several great sites on the Internet that deal with agriculture. Use keywords that follow: agriculture, soil, Farm Bureau. The GLOBE website is a great resource. It is an interactive soil website for students and teachers. They recommend tens of books, videos, etc for the classroom.

Other art Web sites of interest:

[Amico Art Image Database](#)

[ArtsEdNet](#)

[Arts Connected](#)

[ArtChive](#)

[Corbis Images](#)

### **Preparation:**

Students should be to the point in time (Social Studies) when the French and British are moving westward toward Indiana. Teachers should have knowledge of the migration of early American settlers to disperse to the students. Teachers should allow students to question and research for answers instead of teacher directed lecture. Teachers need to prepare all materials mentioned in advance.

### **Student Instructions:**

#### **Activity #1**

Materials: art work, pencil, paper

Focus attention to Albert Bierstadt's Emigrants Crossing the Plains. Encourage students to focus on what is happening in the print. Ask the students the following:

*"What is going on here?"*

*"Why are they doing this?"*

Allow a few minutes for students to examine the work. After looking over the artwork, ask the students to compose 5 questions that they have about what they see. Students will compose one question for each 'W' question word.

*Example: Who are they? Where are they going? What are they driving? Why are they in carriages? When did this happen?*

Take time for students to share the questions they have written with the class. Collect questions for activity #2.

## **Activity #2**

Materials: small groups, Internet, student Soc. St. Text

1. Assign students to small groups. Decide which person in the group will be the recorder. He/She will be in charge of writing all the findings of the research. Assign each group one question to research.
2. Distribute teacher-selected questions. Choose questions that will lead students to the time and place of the French and British coming to the New World. Tell 2 groups the travelers are French. Tell 3 groups the travelers are British. Students may need some guidance in finding the answer to the questions. (These people are French or British; they are now in North America, early-mid 1700's, etc.)
3. Students need to research the question they have received during centers. Centers are 20-30 minutes each. Groups should rotate through the following to gain information about their question:

Center 1: Computer-internet accessible

Center 2: Student Text

Center 3: Library Reference books

Center 4: Library Reference books

Guide the students toward finding the information. Groups should be able to present the information they have gathered at the end of center rotation. After rotations are finished, students will provide the rest of the class with their knowledge by presentations in front of the class. Repeat and explain any weak areas from student research.

## **Assessment:**

Students are required to write at least 2 facts from each groups' presentation. Students will be given a quiz over knowledge gained.

## **Activity #3**

Materials: USA map with state outlines for students, overhead copy of same map for teacher, overhead marker for teacher, colored pencils for students.

Demonstrate the path that the French took to get to Indiana by drawing the path in red marker on the overhead map. Students will do the same with a colored pencil on their map. Repeat the same steps with a different color for the route the British took to get to Indiana. Discuss with students what the terrain and travel was like through each state as the path is drawn. Make sure to add a legend and key on your map.

### **Assessment:**

Journal: Students write a 15-minute timed writing in their journal reflecting on the following: *What would have been the hardest for the settlers? "easiest?" "most fun?"*

### **Activity #4**

Materials: art print from unknown artist titled: Explorer Jacques Cartier and Natives, movie Squanto, Journals.

Ask, "Why do you think the settlers stopped in Indiana?" Invite students to share ideas and place ideas on a web in front of the room.

Ask, "What did they find when they got here?" Again, make a web of student thoughts on tag board. After students are finished with their thoughts, present them with the work of art.

Challenge students to think of what it would be like to meet someone of a different culture for the first time. Students will record their personal feelings in their journal for 10 minutes.

Show Movie. After movie students immediately record feelings in journal. Reflect on what was written before the movie and after viewing the film.

### **Activity #5**

Materials: pictures of Native American Tribes in Indiana (picture and reference books, The Children's Museum, The Eiteljorg Museum, The Indiana Historical Society, The Indiana State Museum, Grove Dictionary of Art Online – Woodland Indians), sheet paper, crayons, markers, reference book for French/British language, reference for Native American Language.

1. Review things that the British were wearing and the belongings they had in the movie. Review what an Indiana Indian Tribe looks like. Inform students that trade was one way the settlers and Indians communicated. Students brainstorm things that the settlers and Indians would have traded.
2. In small groups students will create a skit representing the pioneers meeting the Native Americans for the first time. The students will illustrate a backdrop for their skit displaying what their tribe looks like. Use pictures for reference. (Students should have an understanding of Indian tribes from prior grades)
3. After drawing their backdrop, students will need to work on the acting part of the skit. Divide the group into Indians and Pioneers. Students will select dialogue and actions that display an encounter for the first time. Students are encouraged to bring outfits and goods for trade from home.
4. Students will need at least one-two weeks to complete the entire skit. When finished with the skits, invite parents to come and watch the skits that the children have created. Make sure to video or use digital camera to record the activity.

### **Assessment:**

Create a Rubric for requirements in skit.

### **Activity #6**

Materials: boxes of different grain cereal, blank Indiana map, glue, pencil

1. Introduce the term 'natural resource' to the students. Take time to explain what a natural resource is.
2. Brainstorm some of Indiana's Natural Resources. Create a list on the board. Have one student look in the Almanac to search for Indiana's natural resources.
3. Using the different types of cereal, mark the natural resources on the map by gluing the appropriate type of cereal. Make sure to include a legend on the map.

### **Extension Activity:**

Students can research the nutritional value of corn and other grains found in Indiana. Read labels from cans of corn, research nutrition and food pyramid on the Internet.

### **Activity #7**

Materials: "Corn" and "Corn is Maize"

Read "Corn" and "Corn is Maize" to the students. Reflect and discuss book with students.

### **Activity #8**

Materials: tag paper, marker

Ask, "*Why was corn important to the settlers?*" Explain to the students that corn is valuable to the Indians and Pioneers due to the number of things that come from the corn. On the tag board, make a map displaying students ideas for the uses for corn.

### **Extension Activity:**

Introduce students to the stock market on-line. Daily, have students check for the price per bushel of corn and wheat. Record amount in a spreadsheet. At the end of the unit, convert the spreadsheet into a graph.

### **Activity #9**

Materials: 'punch-outs' of heart, money, hand, clock, ribbon, house, triangle, prints of the following:

- [Collage Made by Primary School Children](#) by Jennie Woodcock
- [Starting a Collage](#) by Steve Wright and Jacqui Hurst
- [Landscapes and Flower Fields Collage](#) by Unknown
- [Ephemera of the World](#) by Neil Beer
- [#25 Still Life](#) by Tom Wesselman
- [Paper Collage](#) by Helen Jennings
- [Ecology with Various Leaves](#) by David Teel
- [High Tech Collage](#) by David Teel

1. Explain to children that each cutout is a symbol and represents a feeling or idea. (See materials list for explanation of each).
2. Discuss each symbol with the students. Give examples. Spread the prints across the room. **Silently**, students will put cards on the prints that express their feelings. After 15 minutes students write why they chose to put the card on that particular print.
3. Discuss with the children why so many people like one and disliked another. Encourage students to think of how people react to color, texture, layout, etc. Discuss the different types of collages, how they are different, but still collages. Compare/contrast the collages. Choose one student to look up "collage" in the dictionary or the Grove Dictionary or Art Online. Record the definition on the board.

### **Homework Activity to prepare for Activity #10:**

Students collect objects to put on a collage that represents all the things that we use corn for. (Taco shell box, can of corn, wrappers, etc.)

### **Activity #10**

Materials: Anything students collect that has to do with corn or anything that has corn in it, poster board, and markers

Creating the collage:

1. Using the knowledge gained about collages earlier, students will create their own collages with corn products. Students create a collage with the objects they have collected (cans, boxes, wrappers, etc).
2. Review with students what a collage is, and allow them plenty of time to create!
3. When collages are finished take time for students to share what they have created and hang them in a display. You may choose to take a digital camera photo of each student and their art work to make a slide show of class art and its creator!
4. Have a student count the number of different corn related objects in all.

### Activity #11

Materials: tag board, marker, and prints that follow:

- o Wheat by Thomas Hart Benton
- o Landscape with Rising Sun by Vincent Van Gogh
- o Wheat Field by Claude Monet
- o Haystack near Giverny by Claude Monet
- o Haystack at Sunset Near Giverny by Claude Monet
- o Wheat stacks, snow effect, morning by Claude Monet
- o Gray and Gold by John Rogers Cox

Ask, "What is needed for corn to grow?" Pass out Scientific Method Record Sheet. Students fill in the Hypothesis with the answer to that question.

Focusing on the prints, volunteers explain what they have written and what inspired them from the art to write about it.

### Activity #12

Materials: 4 samples of soil, newspaper, 4 sifters, magnifying glasses, 4 glass jars with lids, water

Separate class into 4 groups. Distribute a soil sample to each group. Students need to test the soil and record results on worksheet.

1. Dump soil on newspaper
2. Smear soil with finger. Does it smear, crumble? Is it sticky, hard, grainy? Record Data.
3. Place soil in sifter and sift over newspaper. Does it flake, clump, stay together, or crumble? Record Data.
4. Put soil in jar. Add water to top of jar. Put lid on jar. Shake jar. Does it dissolve, break apart, what particles do you see? Record Data.
5. Students create their own test and record the results.
6. Pour soil/water through sifter. Pour water down drain. Put soil back in bag.
7. Clean up.

Make sure all students have a complete chart before going on. Invite students to share their test results.

### Activity #13

Materials: pencil, paper, names and addresses of local farmers, farm stores, or local agricultural centers.

Review friendly letter writing skills. Brainstorm a list of questions students have about growing corn. Using the

questions, create letters to local farmers, etc. asking them to respond and explain the questions that the students have. Include e-mail and return addresses. Write a rough draft, edit, and type a final copy.

#### **Activity #14**

Materials: Kernels of corn, construction paper, colored pencils

Encourage students to think of a word that has something in common with corn. (yellow, hard, crunchy, buttery, taco shells, Etc...) Create an acrostic poem using the chosen word. The main word formed in the acrostic poem is made by gluing kernels of corn to form the letters. The words that come from the main letters are written in colored pencil or marker.

#### **Activity 15:**

Materials: Journal, Prints:

- Farmyard by George Wesley Bellows
- Last Days of Harvest by Winslow Homer
- Buckwheat Harvest by Jean Franois Millet
- The Farmers Home-Harvest by Frances F Palmer
- Hay Harvest At Eragny by Camille Pissarro

1. Ask, "*How do these people feel?*" Take time for a silent 10-minute art preview. After students have looked at the art, take a 10-15 minute journal writing response.
2. After students have written in their journals, take time to look at and discuss each print one at a time. Reflect on the actions of the persons in prints as well as the colors being used.

Ask, "*How did these people celebrate after working in the fields?*"

Student discussion will lead toward a Thanksgiving Celebration.

#### **Activity #16**

Materials: Pitch in menu items from students

Culminating Activity: Students bring in a product made from corn for a "Corn Feast."

Students may bring in items such as popcorn ball, corn tortillas, salsas, casseroles, etc.

#### **Extension Activities:**

Centers (Stations):

1. Using KidPix Deluxe, students may try to reproduce the prints.
2. Corn art (done by the art teacher)
3. Soil home page
4. Students download their images to create a Powerpoint presentation of their personal favorites. Students write a paragraph explaining why they enjoyed the artwork.
5. Read books from James Whitcomb Riley (Early American Literature Anthologies)
6. Read letter written by Christopher Columbus to Spain (Early American Literature Anthologies)
7. Read The Hoosier Schoolmaster by Edward Eggleston
8. Visit the Web sites, take a field trip, or hold a video teleconference with one of the following museums:  
The Eiteljorg Museum of American Indians and Western Art; Indiana Historical Society;