

# Lesson Plans for using Photos

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**Title: Blues, Jazz, and Rock 'n' Roll Music on the Mississippi**

**Author: Jeff Horney, technology educator**

**Email: [jhorney@madison.k12.wi.us](mailto:jhorney@madison.k12.wi.us)**

**Subject Matter Emphasis and Level: Music with Social Studies and Geography integration, Grades 7-8.**

Students will identify cities on the Mississippi River that have a rich musical tradition, as well as what styles of music and musicians are associated with those cities. They will use technology resources, such as the Internet and specified software, to gather data, including sound and photographs. Extension: Students' findings may be presented through a specified presentation medium.

Standards –

"[The student] understands the relationship between music and history and culture."  
Consortium of National Arts Education Associations. (1994). Standard #7. In *National Standards for Arts Education*, (p. 28).

"[The student] understands that culture and experience influence people's perceptions of places and regions."

Geography Education Standards Project. (1994). Standard #6. In *National Geography Standards*, (p. 117).

**Title: Wetland: Past, Present, Future**

**Author: Judy Green, K-12 technology coordinator, Waukegan District #60**

**Email: [jgrntec@aol.com](mailto:jgrntec@aol.com)**

**Subject Matter Emphasis and Level: Ecology, mathematics, science, and social studies Grades 5-8**

Students investigate a local wetland ecosystem to determine how human interactions affect the system. Their investigation is guided by open-ended questions that they generate in work teams. This unit takes an interdisciplinary approach, looking at present-day issues related to the natural community, such as habitat destruction due to farming, roadways, housing, landfills, recreation, and environmental protection/restoration efforts.

[The Amazing Picture Machine](#) wetland images are used as part of the introductory brainstorming activity in which cooperative student work teams generate a question that will guide further research. The images also are used as an information source for the student teams to use in their research and development of their final multimedia product.

Standards –

**The national science standards this unit addresses include:**

"Students will develop an understanding of diversity and adaptation of organism."  
Content Standard C/ Life Science Level 5-8, from National Science Education Standards (see [Materials and Resources](#)).

"Students will exhibit the ability to use appropriate equipment, technology, and observation skills necessary for scientific inquiry."  
Content Standard E/Science and Technology Level 5-8, from National Science Education Standards (see [Materials and Resources](#)).

"Students will be able to use appropriate equipment and technology in scientific inquiry."  
Content Standard A/Science Inquiry Level 5-8, from National Science Education Standards (see [Materials and Resources](#)).

**The national mathematics standards this unit addresses include:**

"Students will be able to understand and use methods of data collection and analysis, including tables, charts, and comparisons."  
Standard 10, from Curriculum and Evaluation Standards for School Mathematics (see [Materials and Resources](#))

"Students will make predictions that are based on experimental or theoretical probabilities."  
Standard 11, from Curriculum and Evaluation Standards for School Mathematics (see [Materials and Resources](#))

**Title: What Do You See?**

**Author: June Apaza, 5th Grade teacher, Hot Springs, SD**

**Email: [apazaj@triton.dsu.edu](mailto:apazaj@triton.dsu.edu)**

**Subject Matter Emphasis and Level: Language arts and writing grades 3-6**

This unit comprises three lessons in descriptive writing using artwork available on [The Amazing Picture Machine](#). These lessons will allow students to observe pictures of art and generate written descriptions based on answers to guiding questions about their perception of the sensory details.

Standards-

*National Standards for English Language Arts* from McREL Content Knowledge, pages 295 and 299.

*Standard:* "Demonstrates competence in the general skills and strategies of the writing process."

*Benchmark:* "Demonstrates competence in expressive writing." (p. 295)

*Standard:* "Demonstrates competence in the stylistic and rhetorical aspects of writing."

*Benchmark:* "Writes compositions that show attempts to use descriptive language that clarifies and enhances ideas." (p. 299)

**Title: Biome Investigation**

**Author: Ms. Karen Taylor, 5th Grade Science/Math teacher**

**Email: [taylor@aberdeen.k12.sd.us](mailto:taylor@aberdeen.k12.sd.us)**

**Subject Matter Emphasis and Level: Science, math, and technology grades 4-6**

Students will use science process and research skills to investigate the six biomes of the world. These activities are designed to enhance an integrated unit on biomes through the use of visual resources.

Standards –

*Standard 7:* "Understands how species depend on one another and on the environment for survival"

"Knows that an organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and numbers of other organisms present, the availability of food and resources and the physical characteristics of the environment."

*Standard 15:* "Understands the nature of scientific inquiry."

"Knows that scientists use different kinds of investigations (e.g., naturalistic observation of things or events, data collection, controlled experiments) depending on the questions they are trying to answer."

"Plans and conducts a simple investigation (e.g., systematic observations, simple experiments to answer questions)."

"Uses simple equipment and tools to gather scientific data and extend the senses (e.g., rulers, thermometers, magnifiers, microscopes, calculators)."

### **NCTM National Standards**

#### *Standard 1: Mathematics as Problem Solving*

"Use problem-solving approaches to investigate and understand mathematical content;

"Verify and interpret results with respect to the original problem situation;

"Acquire confidence in using mathematics meaningfully."

#### *Standard 2: Mathematics as Communication*

"Relate physical materials, pictures, and diagrams to mathematical ideas;

"Reflect on and clarify their thinking about mathematical ideas and situations;"

#### *Standard 3: Mathematics as Reasoning*

"Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs;"

#### *Standard 4: Mathematical Connections*

"See mathematics as an integrated unit;"

### **Title: Fractions in Pictures**

**Author: Pam Hall, Teacher**

**Email: [phall@mail.kindred.k12.nd.us](mailto:phall@mail.kindred.k12.nd.us)**

### **Subject Matter Emphasis and Level: Fractions grades 5-8**

These activities are designed to enhance a unit on fractions. Pictures of flags and everyday objects are used to reinforce concepts of fractions, equivalent fractions, and operations with fractions.

Standards –

**National NCTM Standards addressed:**

*Standard 2. Mathematics as Communication:* Use the skills of reading, listening, and viewing to interpret and evaluate mathematical ideas

*Standard 3. Mathematics as Reasoning:* Validate their own thinking.

*Standard 5. Number and Number Relationships:* Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real-world and mathematical problem situations.

Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.

*Standard 6. Number Systems and Number Theory:* Understand and appreciate the need for numbers beyond the whole numbers.

Develop and use order relations for whole numbers, fractions, decimals, integers, and rational numbers.

Extend understanding of whole number operations to fractions, decimals, integers and rational numbers.

Content Outcome 2: "The student develops and practices effective communication using mathematical ideas and relationships."

Content Outcome 7: "The student demonstrates confidence in using mathematics."

Content Outcome 8: "The student understands and applies number concepts to calculations and estimations."

**Title: Using Pictures to Compare Lifestyles of Native Americans Past and Present**

**Author: Nancy Johnson, K-5 Lead Teacher in Technology**

**Email: [jcjyb@aol.com](mailto:jcjyb@aol.com)**

**Subject Matter Emphasis and Level: Culture of Native Americans in present-day society, grades 4-6**

After studying the culture of Native Americans of the past, students seem to form the misconception that present-day Native American groups live exactly as they did in the past. This lesson, comprising three learning activities, will use images from [The Amazing Picture Machine](#), and other Internet resources and books to allow students to compare and contrast lifestyles of present-day Native Americans with their ancestors.

Standards –

This lesson addresses the national *K-4 History Standard 1*:

Students will know the cultural similarities and differences in clothes, homes, food, communication, technology, and cultural traditions between families now and in the past. It also addresses the national Life Skills Standards: Thinking and Reasoning Standard 3: Students can identify the similarities and differences between persons, places, things, and events using concrete criteria.

**Title: Properties of Matter**

**Author: Vicki Oswald**  
**English Valleys Elementary Education**

**Subject Matter Emphasis and Level: Physical Science, Grade 1**

This activity is intended to enhance a unit on the properties of matter. Its purpose is to provide students with images to help them develop their understanding of the three forms of matter: solid, liquid, and gas. Students will browse through pre-selected pictures chosen to help them identify the forms of matter, with an emphasis on increasing global awareness.

Standards –

These standards come from the [McREL Website \(www.mcrel.org/standards/\)](http://www.mcrel.org/standards/) and more information about standards and standards-based education can be found there.

**National Standards**

Standard 10: Physical Science

Students will develop an understanding of properties of objects and materials.

Standard 1: Thinking and Reasoning

Students will apply the basic principles of presenting an argument.

Standard 3: Thinking and Reasoning

Students will effectively use mental processes that are based on identifying similarities and differences (compares, contrasts, classifies).

Standard 5: Language Arts

Students will demonstrate competence in general skills and strategies of the reading process.

Standard 11: Language Arts

Students will demonstrate competence in speaking and listening as tools for learning.

Visual Literacy:

Students will use visual literacy as a way of gaining information about their world.

**Title: Technological Advances in Communication: The Pony Express Rides the Information Highway**

**Author: Linda S. Hallenbeck, Teacher.**

**Subject Matter Emphasis and Level:**

- **Science (with much social studies and technological advances): Grade 5**
- **Language arts: Could be adapted to historical fictional writing, Grades 5+**
- **Social studies: Migration/westward movement of people/inventions, Grades 5+**

This investigation is intended to engage students in exploring the technological advances made in the field of communication. Students will examine various forms of communication, the need for these inventions, and the benefits and calamities associated with each technological advance.

National Standards (from AAAS, 1993. *Benchmarks for Science Literacy*. New York: Oxford University Press.), pp. 45 - 55, "The Nature of Technology," grades 3-5.

*Benchmarks*, Chapter 3: Technology and Science

"Throughout all of history, people everywhere have invented and used tools. Most tools of today are different from those of the past but many are modifications of very ancient tools. " (p. 45)

"Technology extends the ability of people to change the world: to cut, shape, or put together materials; to move things from one place to another; and to reach farther with their hands, voices, senses, and minds. The changes may be for survival needs such as food, shelter, and defense, for communication and transportation, or to gain knowledge and express ideas." (p. 45)

"Technology has been part of life on the earth since the advent of the human species. Like language, ritual, commerce, and the arts, technology is an intrinsic part of human culture, and it both shapes society and is shaped by it. The technology available to people greatly influences what their lives are like. " (p. 54)

**Title: Where Should I Put This Business? A GIS Simulation and How It Can Work for You**

**Author: Mark Dorhout, Middle School Science Instructor**  
[mndorho@brookings.cfa.org](mailto:mndorho@brookings.cfa.org)

**Subject Matter Emphasis and Level:**  
**Geography, Math, Social Studies, and General Science, Middle School**

A Geographic Information System (GIS) is a computer tool that analyzes and interprets existing information from maps and events (land use, floods, etc.) that occur on these maps. In this lesson, we will be using a GIS to analyze the best location for a mock business that must meet specific constraints. A GIS uses varying selection procedures and statistical analysis to visualize and geographically analyze these maps.

Applications for GIS vary widely and can include agricultural, wildlife management, and city planning uses, among others. Learning to use a GIS is important for understanding, using, and applying various data sets to solve problems. The amount of information available in different data sets (e.g., populations, topography, etc.) is incredible, but the data sets can be used only if they can be filtered to select the information that one needs.

This unit will discuss:

- Basic parts of a Geographic Information System (GIS).
- How a GIS is similar to (and different from) a typical road map.
- The types of spatial information that can be used in a GIS.
- The application of a GIS to solve the problem of where to put a fictitious business on a varied landscape.

Standards –

1. *Science Standard 17*: Understands the nature of technological design.  
A. Identifies appropriate problems for technological design (e.g., identifies a specific need, considers its various aspects, considers criteria for a suitable product).
2. *Science Standard 18*: Understands the interactions of science, technology, and society.  
A. Knows that technology is essential to science because it enables observations of phenomena that are far beyond the capabilities of scientists due to factors such as distance, location, size, and speed.
3. *Geography Standard 1*: Understands the characteristics and uses of maps, globes, and other geographic tools and technologies.  
A. Knows the purposes and distinguishing characteristics of different map projections, including distortion on flat map projections.  
B. Uses thematic maps (e.g., patterns of population, disease, economic features, rainfall, and vegetation).  
C. Knows the advantages and disadvantages of maps, globes and other geographic tools to illustrate a data set (e.g., data on population distribution, language use patterns, and energy consumption at different times of the year).

D. Knows the characteristics and purposes of geographic databases (e.g., databases containing census data, land use data, and topographic information).

E. Knows the characteristics and uses of geographic technologies (e.g., geographic information systems (GIS) and satellite-produced imagery).

4. *Mathematics Standard 6*: Understands and applies basic and advanced concepts of data analysis and distributions.

A. Collects and organizes simple data sets to answer questions.

**Title: Graphic Literacy: How to Help Your Students Get the Most Out of Pictures**

**Author: Mike Macklin, Teacher.**

[mmacklin@mail.ms.maquoketa.k12.ia.us](mailto:mmacklin@mail.ms.maquoketa.k12.ia.us)

**Subject Matter Emphasis and Level: Any graphic content material, K-12**

This lesson is intended to help teachers design viewing guides for their students. The purposes of these viewing guides are as follows:

1. Define for students a purpose for viewing pictures of content material.
2. Give students a vehicle for gathering data from pictures.
3. Help students understand content found in graphic form.

Standards –

McREL. (1996) Content knowledge. In National Standards (p. 306), Aurora, CO: Mid-continent Regional Educational Laboratory. Language arts standards: "Demonstrates Competence in the General Skills and Strategies of the Reading Process Through the Use of Pictures as an Aid to Comprehension."