Monet's Japanese Bridge -A Scientific Journal

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Following visual prompts the students develop skills in the area of scientific inquiry and enterprise. They answer critical questions in a Science journal about a bridge they design in a cooperative group setting. The teacher uses the images of Monet's Japanese Bridge to introduce the students to the subject of bridges. Following the discussion with the teacher, the students work in groups of two or three to create an idea, a drawing, and a plan for the appearance and use of their bridge. They are given materials and told to start building a bridge. Additionally, each student must make at least one independent observation about the project in their daily journal. At the completion of the project the students use journaling activities to evaluate their bridge. They comment on their expectations at the beginning of the project, including their estimations of time and materials. They list the good and bad points. Individually they rate their bridge on aesthetics (how pleasing to the eye it appears), usability, material usage (too much glue required? too little support?, etc.).

Lesson Plan Title: Monet's Japanese Bridge -A Scientific Journal

Keywords: Monet, Art, Journal

Curriculum Area: Science

Grade Level: Fourth Grade Level

Appropriate Group Size: Whole Group Instruction, Small Group Implementation, Individual Recording

Time Expected to Complete Instructional Plan: On the first day,15 minutes for whole group instruction followed by a 20-minute work period are needed. On subsequent days a 20 to 30 minute work period is needed until the projects are completed these subsequent work periods should also allow time for individual recording of the building process.

Instructional Objectives: Following visual prompts the students develop skills in the area of scientific inquiry and enterprise. They answer critical questions in a Science journal about a bridge they design in a cooperative group setting.

Indiana State Proficiencies:

- 2.2 Scientific Inquiry

  Students should know that the results of scientific investigations are seldom exactly the same, but if the differences are large it is important to try to figure out why. One reason for following directions carefully and for keeping records of one's work is to provide information on what might have caused the differences.

- 2.3 Scientific Enterprise

  Students should know that clear communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to evaluation by other

scientists, and stay informed about scientific discoveries around the world.

- 2.5 Designs and Systems

Prior Knowledge: Students should know that there is no perfect design. Designs that are best in one respect (safety or ease of use, for example) may be inferior in other ways (cost or appearance). Usually some features must be sacrificed to get others. How such trade-offs are received depends upon which features are emphasized and which are downplayed.

Students should know that even a good design may fail. Sometimes steps can be taken ahead of time to reduce the likelihood of failure, but it cannot be entirely eliminated.

Students should know that the solution to one problem may create other problems.

Materials and Resources Needed: The teacher will need to have several images of bridges which are available in historically acclaimed art works as well as several different images of the Japanese bridge and other bridges painted by the French impressionist, (Oscar) Claude Monet. Specific Images chosen for this lesson from the Corbis Images Database are listed in the "Teacher Hints" area. The students will need toothpicks, Popsicle sticks, glue, scissors or another means to cut the wooden sticks (i.e. exacto knife and pliers), white school glue, and a journal for recording their procedures and outcomes.

Preparation: The teacher should be prepared with a brief knowledge of Monet's life and work. The Grove Dictionary of Art Online is an excellent source of biographical material. It is not necessary for the students to be directly presented with the biographical material, but they may have questions regarding his living arrangement, work habits, family life, and historical context. The teacher uses the images of Monet's Japanese Bridge to introduce the students to the subject of bridges. He painted the Japanese Bridge from his water garden at Giverny repeatedly in the last years of his life and these images are easily found on the Internet, or purchased through museums, bookstores, or art stores, as post cards, or calendars. The teacher discusses reasons why the Japanese bridge is called a "Japanese bridge" the teacher asks the students to speculate about the bridge. You could use the KWL paradigm to stimulate discussion and to engender an interest in the images. After this in-depth discussion spurred by Monet's paintings, quickly show the students more images of bridges other artists have painted or drawn. Between 10 to 12 images would be best. These images should be chosen from a variety of different styles from different artists and time periods. Include images that were painted by Japanese artists so that the students may see the similarities between Monet's bridge and the traditional Japanese Bridge.

Student Instruction: Following the discussion with the teacher, the students work in groups of two or three. As a group they devise an idea, a drawing, and a plan for the appearance and use of their bridge. Individually, they draw this plan in their journals on the first day of the project. Also on the first day, they estimate how many toothpicks they need and how long it will take them to accomplish this project. They must give reasons for their design and explain why they chose the design they chose. They indicate, in their journals, where their bridge would ideally be used and what type of traffic would be using the bridge. The students recorded all these decisions and speculations in their journal on the first day. All members of the team will work on only one bridge. They are given materials and told to start building a bridge. They will have to wait for the glue to dry on some parts before building on these foundations. The building project will take three days at the minimum to complete but may last longer if student interest is high and building skills are above average.

Each day thereafter, the students add to their construction and record the following observations: About how many toothpicks were used? What problems did you experience with materials? What problems did your group experience in working cooperatively? What would you have done differently? How could your project have gone more smoothly? What was the best part of the day's activities? Additionally, each student must make at

least one independent observation about the project in their daily journal.

At the completion of the project the students use journalizing activities to evaluate their bridge. They comment on their expectations at the beginning of the project, including their estimations of time and materials. They list the good and bad points. Individually they rate their bridge on aesthetics (how pleasing to the eye it appears), usability, material usage (too much glue required? too little support?, etc.).

Student Assessment: From the very beginning the students must be aware that they are not being graded on the way their project looks or how well it turns out. They are graded on how they complete their journal. Assessment of the student journal answer questions such as: Do they express complete thoughts? Are their thoughts clear, and presented in an orderly fashion? Do they give only the basic information required or do they fully express their ideas above and beyond the required information? If the project were left for several days and then returned to later, would they understand what they had written? Additionally, the teacher should state at the beginning of the project to what extent grammar, spelling, and syntax will be a factor in the grade that the students receive on this record keeping task. Cooperative skills could also be considered as part of the grade.

Expansion/Interdisciplinary Connections This lesson is part of a thematic unit. The focus of the unit is Claude Monet with a special emphasis placed on his picture, La Gare Saint-Lazare. Other interdisciplinary titles include:

- Getting to Know Claude Monet
- Impressions of Leaving - Writing Home
- Finding Fresh Scenes - Geography with Monet
- Monet's Haystacks - An Experiment with Light
- Time for Monet - Time Line Game

Family Activities: A museum visit would be an activity that would reinforce the student's artistic intelligence gained by this lesson involving classical works of art. Particularly if the museum was fortunate enough to own or have on loan a Monet Painting. Model building is another family activity that reinforces the skills need in scientific investigation.

Teacher Notes: Some things for consideration include: limiting the number of Popsicle sticks the students may have to force them to devise ways of using the more restrictive, and smaller, toothpicks; including a minimum size for the project to help redirect students who would rush through the project in order to "just get it done"; limiting student access to the images of bridges to force them to be more creative, or allowing students unlimited access to images of bridges to help motivate them in their construction; storage availability for the unfinished projects.

The following is a list of pictures on the Corbis Images Database, which I selected for use with this lesson. This is not a definitive list and images from the Internet or other databases of bridges would work equally as well.

Footbridge of Claude Monet's Garden at Giverny
Photographer: Farrell Grehan

Railroad Bridge
Creator Name: Claude Monet

The Bridge at Argenteuil
Creator Name: Claude Monet

The Gare St-Lazare
Creator Name: Claude Monet

Water Lily Pool
Creator Name: Claude Monet

Waterloo Bridge, London (1903)
Creator Name: Claude Monet