



Teacher:

Class: 2nd grade

Duration: 1–2 class periods

Course Unit:

Lesson Title: Tool-Making and Problem-Solving with Art

LESSON OVERVIEW

This lesson is designed to teach students that problems can have more than 1 solution and that “in complex forms of problem solving, purposes are seldom fixed, but change with circumstance and opportunity” (Elliot Eisner). Students will create artistic objectives, see their objectives challenged by limited resources, and invent solutions to reach their objectives. The lesson structure is designed to foster a positive attitude toward change by having students celebrate their problem-solving process and reflect on its impact on the success of their artwork.

STANDARDS

Tennessee State Standards

Visual Art—Grade 2

- 1.1 Use tools and media consistently in a safe and responsible manner.
- 3.1 Select subject matter, symbols, and ideas for the student’s own art.
- 3.2 Analyze subject matter, symbols, and ideas in the student’s own art.
- 5.1 Analyze the characteristics and merits of the student’s own work.
- 6.2 Identify connections between visual art and other disciplines in the curriculum.

Science—Grade 2

- GLE 0207.Inq.1** Observe the world of familiar objects using the senses and tools.
- GLE 0207.Inq.2** Ask questions, make logical predictions, plan investigations, and represent data.
- GLE 0207.T/E.1** Recognize that both natural materials and human-made tools have specific characteristics that determine their uses.
- GLE 0207.T/E.2** Apply engineering design and creative thinking to solve practical problems

Common Core Connections for Integrated Subjects

- CCSS.ELA-Literacy.W.2.3** Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
- CCSS.ELA-Literacy.SL.2.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- CCSS.ELA-Literacy.SL.2.2** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- CCSS.ELA-Literacy.SL.2.3** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

OBJECTIVES

1. Students will set an artistic objective and shift their objective in order to solve problems.
2. Students will create an artwork with salvaged materials.
3. Students will reflect on their process and explain how challenges led to solutions.

ASSESSMENT/EVALUATION

Informal Assessment

The teacher will observe students as they share materials with each other and follow instructions.

Formal Assessment

Students will be assessed on the following:

1. Their completion of an artwork aligned to their objective
2. Their responses to the writing prompts:
 - a. What was the biggest challenge you faced?
 - b. What did you learn during the experimenting stage?
 - c. Describe how you created and used your tools.
 - d. How did your challenges lead to solutions?

MATERIALS

- A PC-to-projector connection
- Newspaper and masking tape
- 1 slip of paper per student
- A cup to hold all the slips of paper
- 1 journal/notebook (or sheets of paper) and pencil per student
- 1 Q-tip per student
- 1 blank notecard per student
- Small wells of watercolor paint, with only 1–3 colors per station
- Small cups of water
- Clean salvaged materials (water bottles, bottle caps, sponges, egg cartons, bubble wrap, cardboard, old supplies, etc.)
- 1 roll of masking tape per group of four students
- One 3' x 3' sheet of butcher paper per group
- 1 sheet of watercolor paper per student

ACTIVATING STRATEGY

1. Watch the "[Technology and Art](#)" episode of [ArtQuest: Art Is All Around You](#).
2. [Say:] What was remarkable or interesting about the video? What does the word *technology* mean to you? What are some different tools you can think of? Do you think these tools are a form of technology? Why or why not?
3. Read this definition of *technology* to them: "the use of science to invent useful things or to solve problems" (paraphrased from Merriam-Webster).
4. [Say:] Some might say that chimpanzees show an example of technology when they use grass stems and twigs to extract ants from tiny holes in logs.
5. [Say:] Why do you think people invent new technologies? Why do people use technology?
6. Field and validate all answers and guide them toward the idea of finding solutions to challenges or problems.

INSTRUCTIONS

1. Prior to class, set up for this activity as follows:
 - a. Determine the number of workstations needed, with 3–5 students per station.
 - b. Using newspapers and masking tape, cover each workstation.
 - c. Write at least a half dozen different basic artistic objectives on little slips of paper (one objective per slip; for example, a leaf and a bug, a friend, a tree, a car, a table, their pet or favorite animal). Fold up the slips and place them in a cup.
2. Students should have their journals (or paper) and pencils with them as they take their seats.
3. Tell students to draw a slip of paper from the cup as you walk around the room. Tell them that written on the slip of paper is their first objective—it is what they will try to represent in their first artwork.
4. Next, give them this restriction: they can use only a Q-tip, and they will be painting on a very small surface.
5. Distribute to each student a Q-tip and a blank notecard. Add small wells of paint (1–3 colors per station) and small cups of water to each station. Advise students to use the Q-tips to make dots rather than strokes, which would wear out the tips.
6. Tell students that this is a kind of experiment, and ask them if they know what an experiment is. Provide them with this definition: “*Experiment*: something that is done as a test; something that you do to see how well or how badly it works.”
7. Tell them that in this experiment, they will have to adapt their objective and deal with the challenge of their restricted tools and materials. Compare creating an artwork 1 dot of paint at a time to Erin Brady Worsham creating her work 1 pixel at a time. Give them 5 minutes to finish their artwork.
8. As you collect all the Q-tips into a trash bin, assign this writing prompt: *How did the restrictions change your art-making?*
9. Tell students that they did a great job problem-solving and doing the best they could, and celebrate the work they were able to make. **[This is a good place to stop if you are dividing the lesson into 2 class periods.]**
10. Tell students to write down a different objective for a new artwork: Have them choose what they want to represent (landscape, etc.) or describe what kind of image or symbol they want to create, and encourage them to try for anything, no matter how challenging it may seem. If they are not sure, they can select from among the options originally in the cup.
11. Divide students into groups of 4, and separate the salvaged materials into piles for each table group. Give each group a pile and tell them that they must invent their own technology (using these materials and the provided paint) to create their artwork. Tell them that they can build their own tools or brushes using the materials and tape, or any other classroom materials.
12. Provide a large sheet of butcher paper to each small group of students, and give them 8 minutes to build tools and experiment with them. You can model an example of how to build a painting tool for your students if they need guidance, and show them that some of the materials might be great tools just the way they are. Encourage students to collaborate with each other and share ideas.
13. Pass out watercolor paper, and tell students to use masking tape to secure the paper to their table.
14. Make sure that they have enough paint, and give them at least 20 minutes to create their new artwork.
15. Instruct students on how to clean up.
16. Give them these writing prompts:
 - a. What was the biggest challenge you faced?
 - b. What did you learn during the experimenting stage?
 - c. Describe how you created and used your tools.
 - d. How did your challenges lead to solutions?
17. Have students share their writing and artwork within their groups, and ask for volunteers to share with the whole class.
18. Ask students to share their experimentation process, and how it helped them reach their objective.

ALTERNATE/EXTRA ACTIVITIES

- **Special Needs:** Students can use Q-tip painting templates such as those found at therapyfunzone.net/blog/q-tip-painting-with-templates/. Students can respond to the following prompt with guidance: *How did you make your artwork?*
- **Alternate Materials:** Any material will do, as long as it is sturdy enough to be in contact with paint.
- **A Step Further:** Students can write a narrative describing their process throughout the activity, including their interior thoughts at certain moments, as well as dialogue they recall from their peers and their teacher.
- **Life Science Connection:** Consider pairing this lesson with a lesson that teaches the basics of animal adaptation (such as the ones listed under Extended Learning). Highlight the idea of adaptation and how change can present opportunities to problem-solve.

CLOSURE

1. Suggest to the students that their artworks were made possible only by the challenges they had to overcome. Invite students to comment on this idea, asking how it is true for their artwork.
2. Lead them in discussion with the following questions:
 - a. What did you learn about problem-solving during today's lesson?
 - b. How might this lesson be applied to other parts of your life?
 - c. Is experimentation important for problem-solving? How so?
 - d. Can you think of a subject, different from art, where experimenting and applying understanding comes in handy? How about science?
 - e. What are some similarities between art and science?
 - f. How has your understanding of technology changed?
 - g. Are there any problems we cannot solve?
 - h. Are challenges always a bad thing? Why not?

CROSS-CURRICULAR CONNECTIONS

- Engineering
- Science
- Speaking and Listening
- Technology
- Writing

EXTENDED LEARNING

Activities:

- American Association for the Advancement of Science, "[Animal Adaptations](#)," sciencenetlinks.com
- Heather Spradling, "[Polar Bears and Their Adaptations](#)," UNC School of Education, learnnc.org

Videos:

- Frist Center for the Visual Arts, "[Technology and Art](#)," [ArtQuest: Art Is All Around You](#) (2014; available at fristkids.org)
- John Maeda, "[How Art, Technology, and Design Inform Creative Leaders](#)" (TEDGlobal, 2012; available at ted.com)
- Renaissance Center, "[Erin Brady Worsham](#)," *Creative License* (2010; uploaded by the Jackson Foundation to YouTube.com)

For additional lesson plans and activities, visit us at fristkids.org. This lesson plan was created by an art education student in the Frist Center for the Visual Arts' Teaching Assistant Program under the guidance of education department staff and/or a mentor teacher. The Teaching Assistant Program is designed to introduce participants to museum education by providing unique teaching experiences in an informal learning environment. For more information about this program or other educational opportunities offered by the Frist Center, please visit fristcenter.org.

