

## THINKING TOOLS FOR INNOVATORS: PART 2— IMAGINING

Recent research has shown that we can build innovative thinkers by reinforcing a set of thinking tools, including such skills as observing, abstracting, pattern recognition, modeling, and transforming (among others). As these skills can all be taught, it makes sense that we can help students become the creative thinkers that we will need in the twenty-first century. This lesson plan is the second in a series that is focused on using art to enrich instruction in these critical skills. The research on which this information is based can be found in many sources, perhaps best summarized in the book *Sparks of Genius: The Thirteen Thinking Tools of the World's Most Creative People* by Robert and Michele Root-Bernstein.



*Giant Three-Way Plug (Cube Tap)*, 1970  
Claes Oldenburg, American (born Sweden)  
Cor-Ten steel, bronze  
117 x 78 x 58 inches (297.2 x 198.1 x 147.3 cm)  
Gift of Mr. and Mrs. David N. Pincus in memory of  
Anne d'Harnoncourt, 2010  
2010-15-1  
© Claes Oldenburg

### Grade Level

For grades 7–9, adaptable for elementary or high school

### Common Core Academic Standards

- [CCSS.ELA-Literacy.RI.7.1](#)
- [CCSS.ELA-Literacy.W.7.3](#)

### PA Academic Standards for Art

- 9.3.A: Arts & Humanities – Critical Processes

### Art Images Required

Click on the titles below to view high-resolution photographs on the Philadelphia Museum of Art website. Images that are available in the ARTstor Digital Library are indicated by an ID

number or search phrase. Entering that number or phrase into the ARTstor search bar will direct you to the corresponding image in that database.

- [Giant Three-Way Plug \(Cube Tap\)](#), 1929, by Claes Oldenburg  
ARTstor search: (although not the same image or object) Three-Way Plug-Scale B
- [The Burning of the Houses of Lords and Commons, October 16, 1834](#), 1834–35, by Joseph Mallord William Turner  
ARTstor search: M1928-1-41
- [Tapestry showing the Triumph of Constantine over Maxentius at the Battle of the Milvian Bridge](#), 1623–25, by Peter Paul Rubens  
ARTstor search: 1959-78-3
- [Sugar Cane](#), 1931, by Diego Rivera  
ARTstor search: 1943-46-2
- [Dog Barking at the Moon](#), 1926, by Joan Miró  
ARTstor search: 1952-61-82

For more information, please contact Division of Education and Public Programs: School and Teacher Programs by phone at 215-684-7580, by fax at 215-236-4063, or by e-mail at [educate@philamuseum.org](mailto:educate@philamuseum.org).

## Background

If you can't imagine, you can't invent. Imagination suggests possibilities, while knowledge limits those possibilities. Just as we can learn to be better observers, we can learn to be better imaginers. To begin, we must be more aware of our imagination. When you think of a slice of pizza, can you taste and smell it? If you listen to a story on the radio or on a CD, can you see the action and characters? When you read a passage silently, do you hear the words in your mind? Creative thinkers rely on imagining. When Albert Einstein faced a difficult puzzle in physics, he would play the violin or piano. As he noted, "The theory of relativity occurred to me by intuition, and music is the driving force behind this intuition." Both Mozart and Beethoven are known for visualizing musical arrangements before transcribing those notes to paper. When they imagined the notes, they could hear the music.

## Lesson Process

### PART 1: WARMING UP OUR VISUAL IMAGINATION

1. Direct students to think about some basic shapes studied in geometry. Have the class respond to the following questions:
  - o What object has a round profile from the top and also from the sides? (Answer: A sphere.)
  - o What object has a square profile from the top and from the sides? (Answer: A cube.)
2. Continue the exercise with more difficult descriptions:
  - o What object has a round profile from the top and a rectangular profile from the side? (Answer: A soup can.)
  - o Can you think of an object that has a square profile from the bottom and triangular profiles from the sides? (Answer: The pyramids in Egypt.)
  - o Identify an object that has a round profile from one side and triangular profiles from the other sides? (Answer: A candy drop, such as a Hershey's Kiss.)
3. Once students are able to visualize objects from the descriptions above, turn the process around. Ask the class to observe an object and imagine its profile.
  - o Have students view *Giant Three-Way Plug (Cube Tap)* by Claes Oldenburg and draw the profile of this object as seen from each side. (These profiles can also be imagined as shadows.)

### PART 2: IMAGINING THROUGH OUT OTHER SENSES

1. Imagination can also be used to create sensory experiences:
  - o Look at the painting *The Burning of the Houses of Lords and Commons, October 16, 1834* by Joseph Mallord William Turner. What sounds can be heard? What odors can be smelled? Have students write a brief description of these imagined sensory experiences.
  - o Repeat this exercise with *Tapestry showing the Triumph of Constantine over Maxentius at the Battle of the Milvian Bridge*.
2. Once imagining sensory experiences has been mastered, the next logical step is to combine the observations to tell a story. Have students select one of the works just examined and create a narrative account related to the images. (Avoid researching either of these two events, since the point is to combine imaginings rather than to retell history.)

# PHILADELPHIA MUSEUM OF ART

## Remediation

1. Have students select an object from home (car, television, or family pet) and outline the profiles of that object from several sides.
2. Examine the mural *Sugar Cane* by Diego Rivera. Ask students to describe the sounds they “hear” from looking at this scene. What about any smells or tastes? Tactile imaginings? Describe and discuss these.

## Enrichment

1. Profiles of shapes can become increasingly complex. Ask students to draw an object that has a rectangular profile on three sides and triangular profiles on two sides. Create other challenges for you students, making sure that your description matches an actual possible object.
2. Display the painting *Dog Barking at the Moon* by Joan Miró to the class. Have students write a brief story to explain what is happening, and why. Be sure to emphasize various sensory imaginings.