

## Lesson—Go Bananas: Scale and proportion in contemporary art

In this lesson students make a pattern and build a scale replica of a banana that can be enlarged or reduced to demonstrate the effects of scaling. Students will then incorporate their sculpture with other objects to create a still life that demonstrates the concepts of scale and proportion.

### Goals:

*Standards for Art Practice “Studio Habits of Mind”*

1. Develop craft
2. Engage and persist
3. Envision
4. Express
5. Observe
6. Reflect
7. Stretch & Explore
8. Understand the Art World

*Standards for Mathematical Practice*

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

*Content Standards*

Grade 6: Mathematics

- Solve real-world and mathematical problems involving area, surface area, and volume:
- Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Grade 6: Visual Art

- Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.
- Students analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.

#### Grade 7: Mathematics

- Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- Solve real-world and mathematical problems involving area, volume and surface area of two- and three- dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

#### Grade 7: Visual Art

- Students perceive and respond to works of art, objects in nature, events, and the environment. They also use the vocabulary of the visual arts to express their observations.
  - Identify and describe scale (proportion) as applied to two-dimensional and three-dimensional works of art.
- Students analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.
  - Explain the intent of a personal work of art and draw possible parallels between it and the work of a recognized artist.
  - Analyze the form (how a work of art looks) and content (what a work of art communicates) of works of art.

#### **Art Materials:**

*For each student group:*

Fresh bananas (pre-scored for easy peeling)— 1 per student

Scissors

Scotch tape

½" grid printed on 80lb (8½ x 11") cardstock—2 per student

Compost container

Colored pencils/pens

Banana template (pre-printed)

11x17" cardstock printed in a variety of grid sizes (¼ inch, ½ inch, 1 inch)—4-8 sheets per group.

*For the teacher:*

LCD projector and laptop

Overhead projector

Tri-fold cardboard (like those used for science fairs)

Solid black or white fabric large enough to cover board and drape onto table for photo shoot

Digital camera

Mini-tripod

Props (everyday and fun objects to use in photoshoot)

Transparencies of:

Grid paper in 3 units  
 (¼ inch, ½ inch, 1 inch)  
 x-acto knife to pre-score the bananas

### Lesson Flow

<b>I N T R O</b>	<p>Introduce students to scale and proportion in contemporary art. You may want discuss classical proportion with your students and pose three key questions: How is scale being used in this picture?; How is proportion being used?; What is out of scale?; How do you know?; How does the change in proportion affect your idea of the object?</p>
<b>E X P L O R E</b>	<p>Part A: Following along with the teacher working on the overhead, each student labels and skins a banana, places the peel on 1/2" grid cardstock and traces its outline. Students then cut and reassemble the peel to form a 3-D replica of their banana.</p> <ol style="list-style-type: none"> <li>1. Students explore materials by tracing and object of their choice: a hand, key, pencil, etc. on newsprint or grid paper to get a feel for the action of tracing.</li> <li>2. Students labels her bananas with number 1-4 sequentially (clockwise) to note how the peel fits together—they also draw an “up” arrow on each peel toward the stem</li> <li>3. Following the instructor working on the overhead projector, students peel their banana into 4 parts and align each part to fit onto an 8.5 x 11" cardboard grid—skin side up.</li> <li>4. In unison students secure their peels and trace the outline of each one</li> </ol> <p>After disposing the peels, students cut out the peel shapes, reassemble and tape them together to form a replica banana sculpture.</p> <p>Part B: After discussing scale and proportion (and possibly finding the area and volume of their banana replica), students form groups. Together they face the challenge of enlarging or reducing the banana. They make a problem solving plan and make choices about what materials and processes to use.</p> <ol style="list-style-type: none"> <li>1. The instructor demos contour drawing—looking at a form and drawing it's outline</li> <li>2. Instructor demonstrates the use of tools and techniques to help draw curvilinear lines (protractor, French curve, etc.)</li> <li>3. Students receive the new banana/cube pattern, graph paper and tool options and go to work in groups to solve the problem.</li> </ol> <p>Part C: Students incorporate their banana models and other props to create a still life that deliberately engages with the concepts of scale and proportion. Perspective, depth of field and composition are discussed briefly. Students document these scenes through digital photography. Diorama station includes: Photography station with draped fabric, camera, tri-pod, props and handout/instructions/information about how to set-up a still life using perspective</p> <ol style="list-style-type: none"> <li>1. Students explore this primarily self-guided activity where they are encouraged to incorporate their banana sculpture into a fun composition.</li> <li>2. The group takes several photographs and notes their names and the title of the piece on a clip board</li> </ol>

<b>C O N C L U D E</b>	<ol style="list-style-type: none"><li>1. What is the scale factor that you used to resize your banana?</li><li>2. How did you go about building the new model? Tell us about your process.</li><li>3. Why did you choose to do it that way? What would you do differently?</li><li>4. How did you incorporate scale and or proportion in your still life? What was your intention as an artist? How, if at all, does your image relate to the examples of professional artists work that we saw at the beginning of class?</li></ol>