

## Project Essential Questions

- How does the time of day affect the relationship between an object and its shadow?

### PROJECT DESCRIPTION

In this project, students will work in small groups to create a painted triptych showing the relationship between an object and its shadow in the morning, noon, and afternoon. Students will then have the opportunity to analyze how and why the shadows changed throughout the course of the day.

### LEARNING TARGETS

“I Can...”

- Create a painting using canvas that shows shadows at various times of the day
- Work in a group of three to demonstrate and explain shadow progression throughout the day

[www.artsnowlearning.org](http://www.artsnowlearning.org)

Units provide differentiated ideas and activities aligned to a sampling of standards.

The units do not necessarily imply mastery of standards, but are intended to inspire and equip educators.

Produced through the U.S. Department of Education: Arts in Education—Model Development and Dissemination Grants Program  
Cherokee County (GA) School District and ArtsNow, Inc.

**DURATION: 1 week**

Project Description	Learning Targets
In this project, students will work in small groups to create a painted triptych showing the relationship between an object and its shadow in the morning, noon, and afternoon. Students will then have the opportunity to analyze how and why the shadows changed throughout the course of the day.	<p>"I Can..."</p> <ul style="list-style-type: none"> <li>Create a painting using canvas that shows shadows at various times of the day</li> <li>Work in a group of three to demonstrate and explain shadow progression throughout the day</li> </ul>

**ESSENTIAL QUESTIONS**

- How does the time of day affect the relationship between an object and its shadow?

**STANDARDS**

Curriculum Standards	Arts Standards
<p><b>S1P1</b> Students will investigate light and shadows.</p> <p>a. Recognize sources of light.</p> <p>b. Explain how shadows are formed.</p> <p><b>1.MD.A.2</b> Students will measure the length of objects using nonstandard units.</p>	<p><b>VA1MC.3</b> Selects and uses subject matter, symbols, and ideas to communicate meaning.</p>

**KEY VOCABULARY**

Content Vocabulary
<ul style="list-style-type: none"> <li>Light source (manmade &amp; natural)</li> <li>Shadows</li> <li>Measure</li> <li>Nonstandard unit</li> </ul>
Art Vocabulary
<ul style="list-style-type: none"> <li>Media: the tools and materials an artist uses</li> <li>Subject matter: the things that are represented in a work of art such as people, buildings, and trees</li> <li>Emphasis: in a composition, developing points of interest to pull the viewer's eye to important parts of the body of the work</li> <li>Triptych: a picture or relief carving on three panels</li> <li>Sketch: a simple drawing giving the essential features without the details</li> <li>Still life: a representation of inanimate objects, as a painting of a bowl of fruit</li> <li>Background: the area of artwork that appears furthest away and is smallest</li> </ul>

**TECHNOLOGY INTEGRATION**

- Gallery walk of Van Gogh's paintings that use sources of light:  
<https://www.google.com/culturalinstitute/user-gallery-edit/what-light-sources-does-van-gogh-use-in-his-paintings/iAISEBIBPT3qIA?projectId=art-project>

**ASSESSMENTS**

Formative	Summative
<ul style="list-style-type: none"> <li>Observe the accuracy of how groups demonstrate the progression of shadows throughout the day.</li> <li>Questioning</li> </ul>	<ul style="list-style-type: none"> <li><b>Waves: Lights and Sounds Rubric</b> (See Downloads)</li> </ul>

**MATERIALS**

- 4x6 canvas (1 per student)
- Acrylic paint (various colors)
- Paint brushes
- Smocks
- Sidewalk chalk
- iPad or video camera
- <https://www.google.com/culturalinstitute/user-gallery-edit/what-light-sources-does-van-gogh-use-in-his-paintings/iAISEBIBPT3qIA?projectId=art-project>

**Activating Strategy (5- 10 min)**

- Gallery Walk on Google Cultural Institute (see technology link)
- Ask students activating questions:
  - What do you see in this artwork?*
  - What do you see that makes you think that?*
  - What more can we find?*
  - What do you think the light source is for this artwork?*
  - How can you tell? What evidence do you see?*
  - Do you see a shadow?*
  - Based on the shadow, what time of day do you think it is? (Refer to shadow exploration from outside activity if needed.)*

**Main Activity****PART 1: Shadow Exploration**

- Tell students that we are going to explore shadows.
- Ask students what they already know about shadows. Make a chart of their responses.
- Take students out three different times of day (morning, noon, and afternoon).
- Students will choose a partner. One will trace the shadow of the other. (Have them write their name on the shadows so they remember which one is theirs.)
- Take students out at noon and in the afternoon.
- After each time they will trace the shadow, they will measure the shadow with a nonstandard unit such as student chairs.
- Students will record the lengths of their shadows at each time of day for comparison (see resources).
- After all comparisons have been made, in a class discussion, ask students what they now know about shadows.
- Record student responses with the original responses and discuss findings as a class.

**PART 2: Looking at Van Gogh**

- Show students gallery from Google Cultural Institute (see link in technology).
- As you progress through the artwork, focus on the light sources, how the background relates to the time of day, and shadow placement.



- Examine Van Gogh's style of painting. Zoom in and look at brush strokes and differing colors used in background to give the art some depth.
- Tell students that they will create their own artwork showing the relationship between shadows, objects, and time of day.

**PART 3: Painting**

- Set up still life by manipulating a light to set to up the time of day.
- Tell students to pay close attention to the size relationship between the still life and the canvas panel.
- Students will then sketch lightly with a pencil to their object and the shadow that it cast, paying close attention between the two.
- Students will then paint their sketch using acrylic paints. (Wear smocks during painting.)
- Tell students the background should correspond to the time of day being represented. Refer back to Van Gogh paintings if needed.

**Classroom Tips:**

- Review proper handling of paint and painting tools, process of painting, and clean up procedures. Make paint pallet with a disposable plastic/Styrofoam plate. Cover with saran wrap to save for following days.

**REFLECTION****Reflection Questions**

- Students will write what they learned about shadows.
- Students will record their thoughts (using an iPad or video camera) on how the project helped them understand how shadows are created and move through space.
- Reflection questions:
  - *Did this project help you understand lights and shadows more than others we have done? Why?*
  - *If you could do this project over, what would you do differently?*
  - *How can you prove to the teacher you know the objective?*

**DIFFERENTIATION****Accelerated:**

- Advanced students could create their "shadow pictures" in colors representing the different times of day. For example, the morning shadow might be a cool color because the temperature is cooler in the morning, the afternoon might be a neutral color, and the late afternoon might be a warm color.

**Remedial/EL Students:**

- Part 2: Preview in small group Van Gogh's paintings with remedial and EL students before doing whole group lesson. Review content and visual arts vocabulary. Have the students restate vocabulary definitions in their own words.
- Reflection:
  - Use simplified vocabulary, with verbal and visual cues.
  - Allow students to use sentence frames to form their sentence about what they learned.

**APPENDIX (See Downloads)**

- **Waves: Lights and Sounds Rubric**
- **Shadow Recording Sheet**

**CREDITS**

U.S. Department of Education

Arts in Education--Model Development and Dissemination Grants Program

Cherokee County (GA) School District and ArtsNow, Inc.

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## Shadow Recording Sheet

Time of Day	Length of Shadow
Morning	
Noon	
Afternoon	






### Waves: Lights and Sounds Rubric

CHECKLIST			
My painting reflects an accurate representation of an object and its shadow to the time of day.	All three representations are accurate.	Only two of the representations are accurate.	One or none of the representations are accurate.
My writing explains why shadows are different lengths at different times of the day.	My writing includes references to both types of changes (length and position).	My writing includes references to only one of the changes.	My writing does not reference either change.
I wrote complete sentences to tell what I learned about light and shadows.	All sentences are complete and begin with a capital letter and end with punctuation.	Most sentences are complete and begin with a capital letter and end with punctuation.	Few to no sentences are complete. Most do not begin with a capital letter or end with punctuation.
I worked well with my group. I took turns listening and speaking when brainstorming and working together.	I listened to my group members, considered all ideas, and took turns speaking all the time.	I listened to my group members, considered all ideas, and took turns speaking some of the time.	I did not listen to my group members, consider their ideas, nor take turns speaking.

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