



“CAST SHADOW”

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SUMMARY

Students will explore the use of cast shadow in artwork, seeing what information and purpose a cast shadow can serve as well as why and how a cast shadow changes under various conditions.

OBJECTIVES

ART CONTENT

- Observation of cast shadow
- Actual creation and manipulation of cast shadow
- Experimentation with shadows cast on a variety of surfaces
- Rendering/drawing a still life with emphasis on cast shadow
- Awareness of possible purpose for cast shadow in art works

LITERACY/ART CONTENT

- Introduction and use of art terminology around cast shadows
- Verbalizing and writing with adjectives from observation
- Considering point of view of a cast shadow with writing

STANDARDS

National Art Content Standards:

VA:Cr1.1.1Ia

VA:Cr3.1.1a

VA:Re.7.1.1a

VA:Re.9.1.1a

Common Core Literacy Standards:

CCSS.ELA-Literacy.WHST.9-10.1.C

CCSS.ELA-Literacy.WHST.11-12.1.C

MATERIALS

- Portable light source (cell phone flash light, actual flash light, book light) one for every four students
- Hard-boiled egg, or Ping-Pong ball, one for every four students
- Variety of flexible surface materials preferably white or very light color (lace, tissue paper, muslin, canvas, felt, burlap, etc.) enough for one per 4 students, they can be rotated if materials are limited
- Group Criteria handout
- Writing paper, one piece per 4 students
- Writing utensils
- Writing Response Handout
- One piece of poster board for “make-shift light box”, one per four students
- Light source per “makeshift light box”
- Drawing paper, one per student
- Drawing pencils
- Erasers
- Writing Response and Studio Response Rubrics

BACKGROUND INFORMATION

The following is general information for the teacher’s understanding of the characteristics of a cast shadow in artwork:

- Any opaque object that interrupts the flow of light consequently projects behind itself a field or zone of shadow
- Darkened 3-D zones
- Any object introduced within them will be covered with this cast shadow
- Thrown with direction of light
- Appear as cut out shapes
- Edges generally appear to be more sharply defined

- Sharp when they are closest to the light (point of origin) and get softer as they travel farther from the light source
- Sharper when light source is more concentrated
- Penumbral shadows are an agglomeration of many cast shadows created from secondary light sources, that tend to soften the edges of the primary cast shadow

**STEP 1:
EXPERIENTIAL ACTIVITY**

Start with Cast Shadow PowerPoint.

Choose groups of 4 (hand out playing cards with same number of cards as students with 4 aces, four 2’s, etc. and let students find matches).

Explain that each group decides on who will perform which job per group for the activity:

- **Photographer:** uses call phone to take photos of object and cast shadow
- **Light Manipulator:** shines light source in various directions and angles to see what happens to the cast shadow, also casting onto a variety of materials
- **Observer:** Watches and verbalizes experience feeding descriptive words to the recorder, will later share out for group if requested, may also be needed to use a piece of poster board to block or control light for the photographer
- **Recorder:** listens and writes down descriptive words (adjectives) heard by group

Distribute eggs/Ping-Pong balls and possible surface materials

Give each group a card containing criteria for at least one example that the group will share out later (see GROUP CRITERIA HAND-OUT)

Students explore, set timer and mingle among the groups while giving periodic reminders of criteria and time left, also reminding group members to fulfill their obligations as photographer, light manipulator, observer and recorder. When time is up, prep students with how to give feedback on share out...no words...”thumbs up, down, or sideways” Each group gives a one-minute share out of their criteria and the corresponding best one photo that fits the criteria...class gives “thumbs up” if criteria is clearly evident, “thumbs down” if it isn’t and “thumbs sideways” if it is questionable.

STEP 2: WRITING RESPONSE

Each student individually completes the WRITING RESPONSE HANDOUT. They have 20 silent minutes to complete the activity.

STEP 3: STUDIO RESPONSE ACTIVITY

Depending on materials, instruct students to set up a still life containing one egg/ Ping-Pong ball, one type of material for the shadow to cast upon, and one light source, with “makeshift light box”. It may help to turn classroom lights out and/or close shades if possible.

Before students begin drawing the still life, present the Studio Response rubric and check for understanding. Students draw still life with emphasis and criteria focused on the cast shadow. Critique and display studies.

EXPANDING THE LESSON:

Cross-Curricular Math:

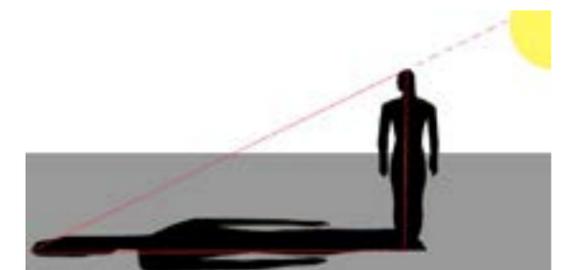
Did you know you can calculate the height of an object by measuring the length of the shadow and doing some geometry calculations? Here are some websites to learn from and use if you want to try this, or talk to your school’s math teacher about.

Common Core Math Content Standard: CCSS.MATH.CONTENT.HSG-MG.A.1

Figuring the height of an object knowing the shadow length and angle of light source, <http://planetcalc.com/1875/>

Measuring height of tree using angles and distance from tree, <http://www.wikihow.com/Measure-the-Height-of-a-Tree>

Additional math related measuring, height and shadow http://mathforum.org/mathimages/index.php/Solving_Triangles



RUBRICS

WRITING RESPONSE RUBRIC	3 pts	4 pts	5 pts
Art Response Literacy: Writing	Writing shows little evidence of empathetic response describing the point of view of the cast shadow with personified human expression	Writing shows some evidence of empathetic response describing the point of view of the cast shadow with personified human expression	Writing clearly indicates empathetic response describing the point of view of the cast shadow with personified human expression
Art response Literacy: Writing	Few or none of the observation (adjectives) from group activity are correctly incorporated in the context of the written response	Some of the observation (adjectives) from group activity are correctly incorporated in the context of the written response	Use of collected observations (adjectives) from group activity are correctly incorporated in the context of the written response
Writing Structure	Writing is one or less than one written paragraphs	Writing is less than three written paragraphs	Writing is three written paragraphs
Writing Structure	Writing uses a few or none of the adjectives collected by the group	Writing uses some of the adjectives collected by the group	Writing uses most of the adjectives collected by the group
STUDIO RESPONSE RUBRIC	3pts	4 pts	5pts
Art Creating	Group experimentation led to a still life set up that lacks altering of the cast shadow in some way	Group experimentation led to a still life set up that somewhat alters the cast shadow in some way	Group experimentation led to a still life set up that clearly alters the cast shadow in some way
Art Creating	Students chose a material to cast an “altered” shadow onto for their still life that is mildly or not challenging to draw	Students chose a material to cast an “altered” shadow onto for their still life that is somewhat challenging to draw	Students chose a material to cast an “altered” shadow onto for their still life that is challenging to draw

RUBRICS CONTINUED

STUDIO RE-SPONSE RUBRIC	3 pts	4 pts	5 pts
Still Life Drawing: Completion	Still life is mostly incomplete	Still life is partially complete	Still life is complete
Still Life Drawing: Craftsmanship	Care for and about the drawing is minimally or not evident	Care for and about the drawing is somewhat evident	Care for and about the drawing is very evident
Still Life Drawing: Emphasis	The rendering of the cast shadow minimally or does not show the texture or shape of whatever it is falling onto	The rendering of the cast shadow somewhat convincingly shows the texture or shape of whatever it is falling onto	The rendering of the cast shadow convincingly shows the texture or shape of whatever it is falling onto

ADDITIONAL RESOURCES

The Artist’s Complete Guide to Figure Drawing, Anthony Ryder
Drawing with an Open Mind, Ted Seth Jacobs
Light for the Artist, Ted Seth Jacobs

VOCABULARY

Opaque object
 Three-dimensional
 Light source
 Point of origin
 Penumbral shadow

GROUP CRITERIA HANDOUT

Cut into pieces and distribute one per group for Experiential Activity

Light source from upper right corner,
on smooth surface

Light source from lower right hand corner,
on smooth surface

Light source from directly above object,
on smooth surface

Light source from upper left hand corner,
on smooth surface

Light source from lower left hand corner,
on smooth surface

Cast shadow on bumpy surface

Cast shadow on another object of your choice

Cast shadow on wrinkly surface

Cast shadow on folded surface

Cast shadow on draped surface

WRITING RESPONSE HANDOUT

Student Name _____ period _____

Group criteria (from card) _____

Descriptive words (adjectives) collected from your group recorder _____

Using the collected adjectives from your group, write at least three paragraphs using the following prompt.
Underline each adjective used from your group.

Today as a cast shadow, this is what happened to me...



Ann Morton, Greg's Vase
<http://www.annmorton.com/still-life/gregs-vase.html>



Jason Patrick Jenkins, Three Eggs
<http://www.jasonpatrickjenkins.com/three-eggs/>

These two examples can be used as an additional activity to compare and contrast two ways Atelier painters approached the use of a cast shadow in their work.