

IMPROVING TEACHER QUALITY
Arts and Science Integration

Visual Art and Physical Science

Grade 3

Winter 2012

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 3
VISUAL ART AND PHYSICAL SCIENCE**

**Do You Know That Shadow?
Lesson 1**

FOSS Kit Grade 3, Physical Science: Matter and Energy, Investigation 2, Part 1 Reflected Light

CONTENT STANDARDS

Visual Art

1.2 Describe how artists use tints and shades in painting.

Physical Science

PS2 Light has a source and travels in a direction.

PS2.a Students know sunlight can be blocked to create shadows.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What is the difference between a cast and a form shadow?
- How do artists show cast and form shadows in paintings?
- How can I tell the time of day from the shape and length of a cast shadow?
- How can I use tints and shades to create cast and form shadows in my artwork?
- What directions do shadows always point?
- How does knowing light travels in a straight line help me to think about light in art?

OBJECTIVES & STUDENTS OUTCOMES (*Students will be able to...*)

- explain how light moves in a direct path away from a light source.
- describe how a cast shadow is created.
- describe how artists use tints and shades to create highlights, cast and form shadows.
- explain how a cast shadow relates to time of day.
- create a drawing of a simple object including highlights, form and cast shadows.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for teacher:**
 - Informal assessment of student skill by observation
 - Formal assessment: "Do You Know That Shadow? Class at a Glance"
- **Feedback for student:**
 - Informal verbal feedback from teacher
 - Direction and suggestions offered at conferences throughout work process

WORDS TO KNOW

Visual Art Vocabulary:

- **Cast shadow:** A shaded area on a surface next to the object that is blocking the light.
- **Color:** Depends upon how objects reflect light and how they appear to our eyes.
- **Form shadow:** The shaded area on an object created when part of the object itself blocks light.
- **Highlight:** A bright or reflective area in a painting, picture, or design.
- **Light source:** Anything that makes light, such as the Sun, a light bulb, or a flame.
- **Shade:** A pure color mixed with black.
- **Shadow:** Created when objects or surface.
- **Still life:** Arrangement or work of art showing a collection of inanimate objects.
- **Tint:** A pure color mixed with white.
- **Value:** Lightness or darkness of a hue or neutral color. A value scale shows the range of darkness to lightness from black to white.

Science Vocabulary:

- **Light source:** Anything that makes light, such as the Sun, a light bulb, or a flame.
- **Shadow:** A dark area or shape created by an object blocking rays of light.

MATERIALS

- Reproduction of at least one landscape masterwork
- A variety of simple geometric objects (e.g., a basketball, football, suit case, back pack, basket)
- Flashlight or desk lamp
- 9" x 12" drawing paper, one per student
- Pencil and eraser, one per student
- Value Scale in black and white
- Science Notebooks, one per student

RESOURCES

- *FOSS Kit Grade 3*, "Physical Science: Matter and Energy," Investigation 2: Light
- *Portfolios, Grade Three*, "Forms" (pg 47), "Shadow" (p. 44, 45)
- Websites for Reproductions of Masterworks of art
 - Search "web images" on google.com or ask .com
 - Landscapes with shadow
 - www.vangoghartprints.net
 - www.georgiaokeefe.org
 - <http://www.nga.gov/press/exh/194/index.shtm> (Cezanne)
- Prints available from the Instructional Media Center (IMC), 2441 Cardinal Lane, San Diego, CA 92123
 - *House by the Railroad*, 1925 by Edward Hopper
http://www.moma.org/collection/object.php?object_id=78330
 - *The Midnight Ride of Paul Revere*, 1931 by Grant Wood <https://picamerica.wikispaces.com/3-A+Midnight+Ride+of+Paul+Revere>

PREPARATION *(To be completed prior to the lesson)*

- *FOSS Kit Grade 3*, "Physical Science: Matter and Energy," Investigation 2: Light, Part One: Reflected Light

WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)*
(5 minutes)

- Display at least one landscape that has an obvious **light source** and distinct **shadows** in an area easily seen by all students. This work may be a drawing, painting or photograph. (see suggested works in the "Resources" section of this lesson or project the reproductions at the end of this lesson)
- **Ask:**
 - *What is the **light source** in this work of art?* [e.g., sun, lamp, candle]
 - *What is the pathway the **light** takes from the **light source** to the objects in the work?* [in a straight line]
 - *How is a **shadow** created?* [an object blocks the light that is traveling in a straight line from the light source and causes darkness]
- **Say:**
 - *In art, we call the **shadows** an object makes on a surface other than the object a **cast shadow**.*
- Display two value scales, one in black and white, one in a single color.
- **Ask:**
 - *How did the artist use **color** and **value** to show the presence of light in this painting?*
 - *How did the artist use **color** and **value** to show **cast shadows**?*

MODELING *(Presentation of new material, demonstration of process, direct instruction)*

(10 minutes)

- Place one simple geometric object (e.g., a basketball, football, suit case, back pack, basket) in the center of the classroom with all desks surrounding it in a large circle.
- Turn off overhead lights and close blinds to create a dark space.
- Shine a flashlight or desk lamp onto the geometric object.

- Ask:
 - What is the **light** source that is putting light on our object? [flashlight or desk lamp]
 - What pathway is the **light** taking from the source to the object?
 - What part of the object is the brightest?
- Say:
 - This bright area is called a **highlight**.
- Ask:
 - What part of the object is the darkest? [shaded areas]
- Say:
 - The **shaded areas on the object** are called **form shadows**.
- Ask:
 - Where is the **cast shadow**?
 - Predict how the **cast shadow** will change when the **light source**, (still shining on the object) is moved.
 - Think about the shadows you have seen outside, how does the change in the shadow relate to the possible time of day?
- Change the direction of the light to prove or disprove the students' theories about the **cast shadow**.
- Discuss what changes occurred to the **form shadows** when the **light source** is moved.
- Set the flashlight or desk lamp in a stable position causing a significant **cast shadow** and interesting **form shadows** on the object for a simple **still life** arrangement.

GUIDED PRACTICE (*Application of knowledge, problem solving, corrective feedback*)
(20 minutes)

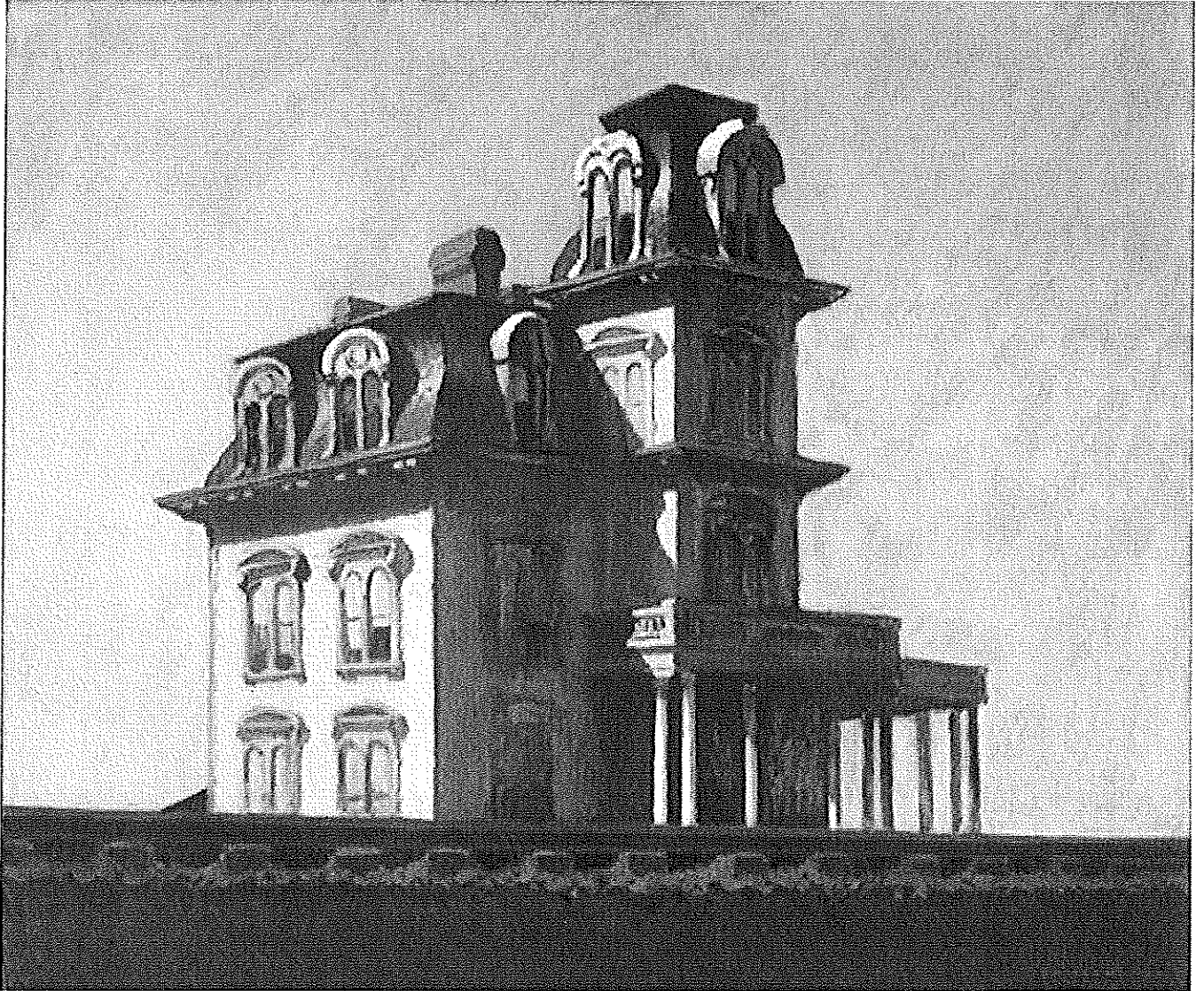
- Distribute a pencil, eraser and 9" x 12" drawing paper to each student.
- Instruct students to draw the object on display using pencil.
- Say:
 - Use the pencil to sketch the basic shape of the object filling at least half of the paper.
 - Put an "X" on the edge of their paper representing the angle of the **light source**.
 - This will be different for each one of you as you are looking at the object from individual points of view.
 - Use a pencil to draw the **form shadow** or **shaded areas** on the object and the **cast shadow** on the surface of the table.
- Have students lay their pencil on its side to cover large areas with graphite. They can use fingers or a small rolled piece of paper towel to blend and smear the graphite.
- Allow students to use the eraser to clean edges of the smeared/shaded areas.

DEBRIEF AND REFLECT (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?*)
(15 minutes)

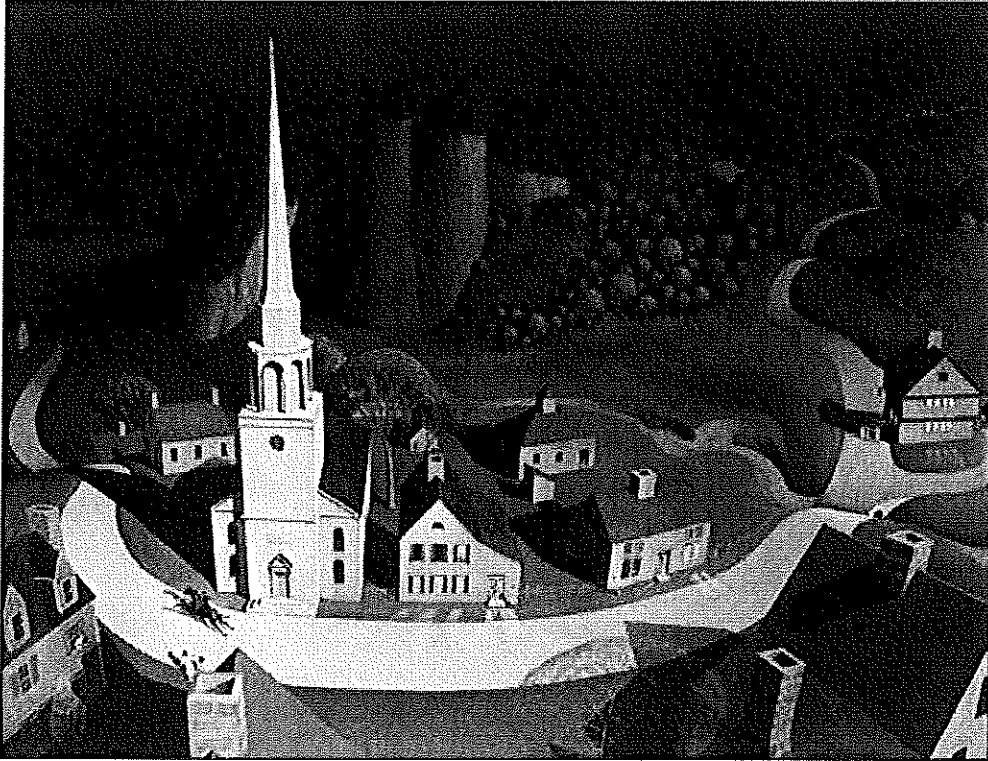
- When students have completed their drawings, gather all students in a circle each holding their drawing for the rest of the class to see. (Use "Do You Know That Shadow? Class at a Glance" for recording your formal assessment.)
- Say:
 - When it is your turn, point out the **highlight**, **form shadow** and **cast shadow** in your work of art.
- Ask: (After each student has had a turn)
 - Why did each drawing turn out so differently? [each student was looking from a different point of view]
- Science Notebook Prompt: How does knowing light travels in a straight line help me to think about light in art?

EXTENSION (*Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences*)

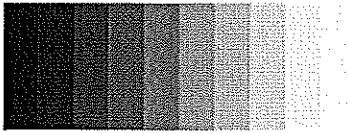
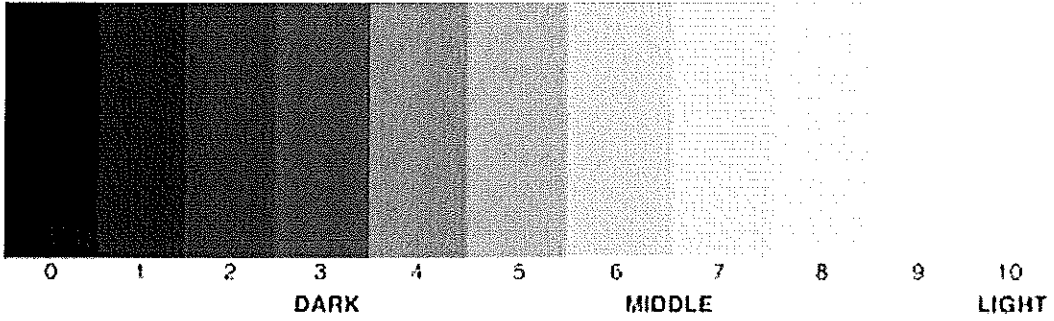
- Ask students to identify concepts learned in this lesson as they move throughout the campus.
 - Identify **light source**, path of light to chosen objects.
 - Discuss **cast shadows** and how they change throughout the day and throughout the seasons.



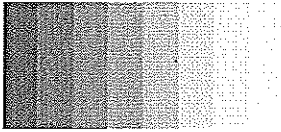
http://www.moma.org/collection/object.php?object_id=78330



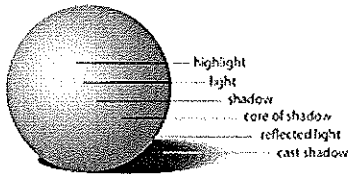
<http://www.wikipaintings.org/en/grant-wood/the-midnight-ride-of-paul-revere-1931>



A. Achromatic value scale



B. Chromatic value scale



C. Values creating the illusion of volume

http://www.thomsonedu.com/art/book_content/0495094870_lazzari/study_guide/ch02.html

Do You Know That Shadow? Class at a Glance
Visual Art and Physical Science
Grade 3, Lesson 1

Student Name	Correctly shows Shadow away from Light source		Form Shadow Highlight and shading drawn correctly		Cast Shadow Appears accurate in placement and length	
	Yes	No	Yes	No	Yes	No

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 3
VISUAL ART AND PHYSICAL SCIENCE**

**Mirror, Mirror on the Wall
Lesson 2**

FOSS Kit Grade 3, Physical Science: Matter and Energy, Investigation 2: Light

CONTENT STANDARDS

Visual Art

2.4 Create a work of art based on the observation of objects and scenes from daily life, emphasizing value changes.

Physical Science

PS2 Light has a source and travels in a direction.

PS2b. Students know light is reflected from mirrors and other surfaces.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- How can I create a representational drawing of objects that I see in everyday life?
- How do I draw an object and its image as reflected in a mirror?
- How does light "travel?"

OBJECTIVES & STUDENTS OUTCOMES (*Students will be able to.....*)

- explain how light travels in a straight line from a light source and reflects off objects.
- draw an image of an object seen in everyday life.
- draw an object as seen in a mirror (mirror image).

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for teachers:**
 - Informal assessment of student skill by observation
 - Formal assessment: "Mirror Image Worksheet," "Mirror Image Illustration Class at a Glance"
- **Feedback for students:**
 - Informal verbal feedback from teacher
 - Direction and suggestions from conferences throughout work process

WORDS TO KNOW

Visual Art Vocabulary

- **Value:** Lightness or darkness of a hue or neutral color.
- **Value scale:** Shows the range of values from black to white

Earth Science Vocabulary

- **Light source:** Anything that makes light, such as the Sun, a light bulb, or flame.
- **Mirror image:** An image or object that is identical in form to another, but with the structure reversed, as in a reflection.
- **Ray:** A line of light that travels straight out from a light source.
- **Reflect:** To bounce off an object or surface.

MATERIALS

- Mirror from the *FOSS Kit*, one per student
- Mirror clips from the *FOSS Kit*, two per student
- "Mirror Image Worksheet," one per student
- 9" x 12" white construction paper, one per student
- Simple everyday object, one per student

- Colored pencil, one per student
- Science Notebook, one per student

RESOURCES

- *FOSS Kit Grade 3, "Physical Science: Matter and Energy," Investigation 2: Light*
- *Portfolios, Grade: Three, "Seeing like an Artist" (pg. 2,3)*

PREPARATION *(To be completed prior to the lesson)*

- *FOSS Kit Grade 3, "Physical Science: Matter and Energy," Investigation 2: Light*

WARM UP *(To engage students, access prior learning, review, hook or activity to focus students for learning)* (5 minutes)

- Distribute one mirror from the *FOSS Kit* to each student.
- Allow students two minutes to experiment with the mirrors by directing them to observe small objects (pencils, glue bottles, erasers, etc.) from interesting points of view at their desks.
- Observe the students and comment on creative ways individual students use the mirrors. [mirror to mirror creating "eternity", looking at writing or text]
- Ask students to find an object in the classroom when given permission to go to that object and place their mirror next to it, over it and under it.
- Discuss what they see in the mirror from each direction.
- **Ask:**
 - *What is the **light source** for this activity?* [overhead bulbs, sun from windows]
 - *How is the image in the mirror different from the actual object?* [reversed image, flipped, opposite]
- **Say:**
 - *Today we are going to learn about how light "travels."*
 - *Light travels through space in a form called **rays**. Light **rays** travel in straight lines. They never curve. Light **rays** can bounce off surfaces or be absorbed by them. When light bounces off an object it is called a **reflection**. Mirrors reflect light.*
- Allow students to take mirrors back to their desks or tables for use later in the lesson.

MODELING *(Presentation of new material, demonstration of process, direct instruction)*

(15 minutes)

- Distribute a "Mirror Image Worksheet" to each student.
- Instruct students to write their name and date on the worksheet.
- Show students how to fold the worksheet in half with the back-sides of the paper together.
- Place the folded papers so that the left side of the worksheet is showing with the instruction at the bottom saying "with a mirror".
- Demonstrate how and instruct students to lay a mirror on the thickened line in the example box.
- Study how the image in the mirror is perceived, then draw the **mirror image** in the example area of the worksheet.
- Instruct students to create a **mirror image** of the next three drawings on the worksheet using the mirror and a pencil.
- **Tip:** If students are having trouble creating a **mirror image**, demonstrate how to place dots in sequence representing the image and then connect the dots.
- Place a correct version of the left side of the worksheet under a document camera.
- Quickly go over each item and ask students to correct the **mirror image**, if necessary, using a colored pencil for the corrections.
- Place mirrors aside.
- Instruct students to complete the right side of the work sheet without a mirror using regular pencil.
- Place a correct version of the worksheet under a document camera.
- Ask students to correct the mirror images using a colored pencil if necessary.

GUIDED PRACTICE (*Application of knowledge, problem solving, corrective feedback*)

(25 minutes)

- Distribute 9" x 12" white construction paper to each student.
- Ask each student to choose an object from their desk (e.g., scissors, crayon box, eraser, pencil sharpener) as their subject for a drawing.
- Demonstrate how and instruct students to fold the construction paper in half, short sides together.
- Demonstrate how and instruct students to draw a line on the fold.
- Direct students to place the chosen object on their desk in an interesting position.
- Demonstrate how and instruct students to turn the paper so the line drawn on the folds is horizontal.
- Draw the object in detail on the lower half of the paper using pencil.
- Demonstrate how and instruct students to attach mirror clips to their mirror for upright orientation.
- Place the upright mirror behind the object. The horizontal line on the paper represents the mirror.
- This relationship is critical. For this reason, each mirror *could* be in a different place depending on the student's drawing.
- Check each student's mirror for **orientation**.
- Demonstrate how and instruct students to draw the mirror image on the 12" x 18" construction paper as the object is **reflected** in their mirror.
- Refer to the "Mirror Image Worksheet" if necessary.

DEBRIEF AND REFLECT (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?*)

(7 minutes)

- **Ask:**
 - *What difficulties did you experience when drawing your object from the **reflected** mirror image?*
- Collect the "Mirror Image Worksheet" and the illustrations.
- Use the "Mirror Image Illustration Rubric" to assess the illustrations.
- Science Notebook Prompt: "How is drawing a mirror image different from copying an image? How is it the same?"

EXTENSION (*Expectations created by the teacher that encourage students to participate in research, make connections, and apply understanding and skills previously learned to personal experiences*)

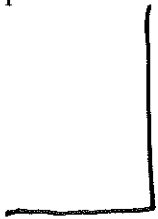




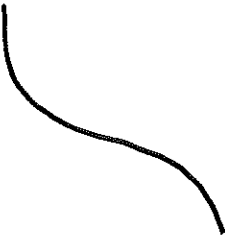
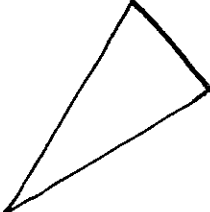


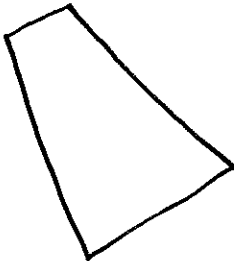

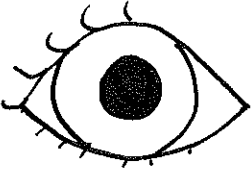
- On the back of the **Mirror Image Worksheet**, allow students to make an image, then draw its **mirror images** on the right, left, above and below.
- Read about **Leonardo da Vinci** and his habit of **Mirror Writing**. Look at the alphabet in a mirror. Write the alphabet backwards for reference. Ask students to compose a simple sentence then translate it into mirror writing. Remember, the sentence would read backwards and so would each word.
- Fold a 12" x 18" sheet of construction paper in half with the long sides together. Unfold then draw a line on the fold using pencil. Turn the paper horizontally and write the first name in very large cursive letters using black crayon on the line. Refold the paper with the name inside. Lay the paper on a desk and use a ruler to rub the paper creating a mirror image inside on the black side of the paper. Open. Trace over the mirror image using black crayon. Turn the paper vertically and use colors to create a symmetrical design.

NAME: _____ *Mirror Image Worksheet*

Visual Art/Physical Science

DATE: _____ Grade Three, Lesson 2

Draw the line or shape in mirror image in the box to the right.

Example: 	Example: 		
			
			
			

With a mirror

Without a mirror

Mirror Image Illustration Class at a Glance
 Visual Art/ Physical Science
 Grade Three, Lesson 2

Student Name	Drawing represents object and orientation correctly		Correct mirror image	
	Yes	No	Yes	No

Mirror Writing

Leonardo was left-handed and wrote backwards. No one is sure why, but it certainly stopped people from reading over his shoulder! Use this backwards alphabet to learn to write like Leonardo.

All you need is a piece of plain paper and a pen. Here is the alphabet as it would be seen in a mirror:

ZYXWVUTSRQPONMLKJIHGFEDCBA

Write a message in mirror writing and send it to your friends. They'll have to hold the paper up to a mirror to read your secret message.

Study of the hand and arm,
Leonardo da Vinci, 1510



Herbert, Janis, Leonardo da Vinci for Kids: His Life and Ideas, Chicago Review Press, 1998, page 32.

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 3
VISUAL ART AND PHYSICAL SCIENCE**

**Tints, Shades and Colored Light
Lesson 3**

FOSS Kit Grade 3, Physical Science: Matter and Energy: Investigation 2: Light

CONTENT STANDARDS

Visual Art

2.2 Mix and apply tempera paints to create tints and shades and neutral colors.

Physical Science

PS2 Light has a source and travels in a direction.

PS2.c The color of light striking an object affects the way an object is seen.

PS2.d An object is seen when light travels from the object and enters the eye.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What happens when colored light is reflected off colored objects?
- How can I mix paint to create tints and shades?
- How can I use tints and shades in my artwork to demonstrate my understanding of how light reflects off of a colored object?

OBJECTIVES & STUDENTS OUTCOMES (*Students will be able to.....*)

- explain how light travels in a straight line from the light source, reflects off an object to the eye where information is transferred to the brain.
- explain how light is reflected from or absorbed into objects and causes the visual sensation of color
- mix tints and shades of red.
- apply tints and shades accurately in a representative still life painting.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for teacher:**
 - Informal assessment of student skill by observation
 - Formal assessment: "Tints, Shades and Colored Lights Class at a Glance"
- **Feedback for student:**
 - Informal verbal feedback from teacher
 - Direction and suggestions from conferences throughout work process

WORDS TO KNOW

Visual Art Vocabulary

- **Color:** Depends upon how objects reflect light and how they appear to our eyes.
- **Orientation:** the relative position of the work of art, portrait or landscape
- **Shade:** Color darkened by adding black.
- **Tint:** Color lightened by adding white.
- **Value Scale:** Scale showing the range of values from black to white and light to dark.

Physical Science Vocabulary

- **Absorb:** To take in or soak up.
- **Reflect:** To bounce off an object or surface.
- **White light:** Apparently colorless light, for example ordinary daylight. It contains all the wavelengths of the visible spectrum at equal intensity.

MATERIALS

- "How We See Light and Color" graphic (at end of this lesson)
- Bright desk lamp
- Red and green gels
- Large red cube or box
- 9" x 12" white construction paper, one per student
- value scale from Visual Art Physical Science Grade 3 Lesson 1
- Foam plate to be used as a palette, two per student
- Paint brush, one per student
- Paper towel, two per student
- Red, black and white tempera paint
- Pencil, one per student
- Container with water
- Baby wipes, one per student
- "Tints, Shades and Colored Light Class at a Glance"
- Value Scale
- Science notebook, one per student

RESOURCES

- FOSS Kit Grade 3, "Physical Science: Matter and Energy," Investigation 2: Light, Part Two: Colored Light
- Portfolios, Grade: Three, "Mixing colors" pages 28 & 29

PREPARATION *(To be completed prior to the lesson)*

- FOSS Kit Grade 3, "Physical Science: Matter and Energy," Investigation 2: Light, Part Two: Colored Light
- As a class go to <http://www.fossweb.com/ca/modules3-6/MatterandEnergy/index.html> . On the left side of the page in the area entitled "Activities" click on "Colored Light and complete the activities.
- Color the circle red on the "How We See Light and Color" graphic

WARM UP *(Engage students, access prior learning, review, hook or activity to focus the student for learning)* (5 minutes)

- Project "How We See Light and Color" graphic so that all students easily see.
- Ask:
 - What kind of light does the sun give off? [white light]
 - What colors of light are in white light? [all colors in the spectrum: red, orange, yellow, green, blue and violet]
 - If white light is hitting the ball in this illustration, how do we see red on the ball? [White light with all of its color travels from the sun to the ball, where all the other colors are absorbed and red is reflected.]

MODELING *(Presentation of new material, demonstration of process, direct instruction)*

(25 minutes)

- Place a large red box in the middle of the classroom at a height that students can see at least one side and the top.
- Arrange student desks in a circle around the box so that each student has a clear view.
- Close the blinds and turn off all lights.
- Shine a bright desk lamp on to the box. Discuss how white light travels from the desk lamp to the box surface.
- Ask:
 - What color light is reflected off the box? [red]
 - What colors of light are absorbed? [orange, yellow, green, blue, violet]
 - What do you think will happen if we place a green gel over the desk lamp and shine it onto the red box?
- Write predictions on chart paper or the whiteboard.
- Place the green gel over the end of the desk lamp and compare predictions with the actual result.
- Turn the overhead lights back on.
- Distribute 9" x 12" white construction paper, two foam plates, two paper towels, one paintbrush, one container

with water and a pencil to each student.

- Instruct students to write their names on the paper and then turn the paper over.
- Demonstrate how and instruct students to draw the outline of the box showing three surfaces from the angle they see.
- Display the **value scale** from Visual Art/Physical Science Grade 3 Lesson 1 in an area easily seen by all students.
- Distribute about one tablespoon (1 T.) of red tempera paint to each student on one of the foam plates.
- Discuss which side of the box reflects the purest color of red in **white light**, which appears the lightest and which appears the darkest. Note: The side may not be the same for every student depending on the angle they are seeing the box. Use the value scale to discuss what part of the **value scale** would be used for the darkest area of the box, the medium lighted area and the highlighted area.
- Demonstrate how and instruct students to paint the area on their drawing that **reflects** medium light as pure red.
- Discuss which side of the box seems to be darkest or in shadow.
- Distribute one tablespoon (1 tsp.) of black tempera on to the student palettes.
- Demonstrate how and instruct students to create a **shade** of red by mixing in black.
- Demonstrate how and instruct students to paint the side of the box that is in shadow.
- Instruct students to clean the brushes using water and place them onto a paper towel.

GUIDED PRACTICE (*Application of knowledge, problem solving, corrective feedback*)

(15 minutes)

- Distribute about one tablespoon (1 T.) of red tempera paint to each student on the other foam plate. Note: Using two plates helps student success in creating **tints** and **shades** of red, instead of red-gray mixture.
- Distribute one teaspoon (1 tsp.) of white tempera paint onto the student palettes.
- Instruct students to paint the area of their drawing that represents the side of the box that appears the lightest.
- Place work in an area to dry.
- If there is time, allow students to predict what will happen if they blend all the paint left on their foam plate.
- Allow students to blend the left over paint and compare the results to their predictions.
- Dispose of foam plates, paper towels, water and containers if applicable.
- Clean brushes in water.
- Clean hands and desk surfaces with wipes.

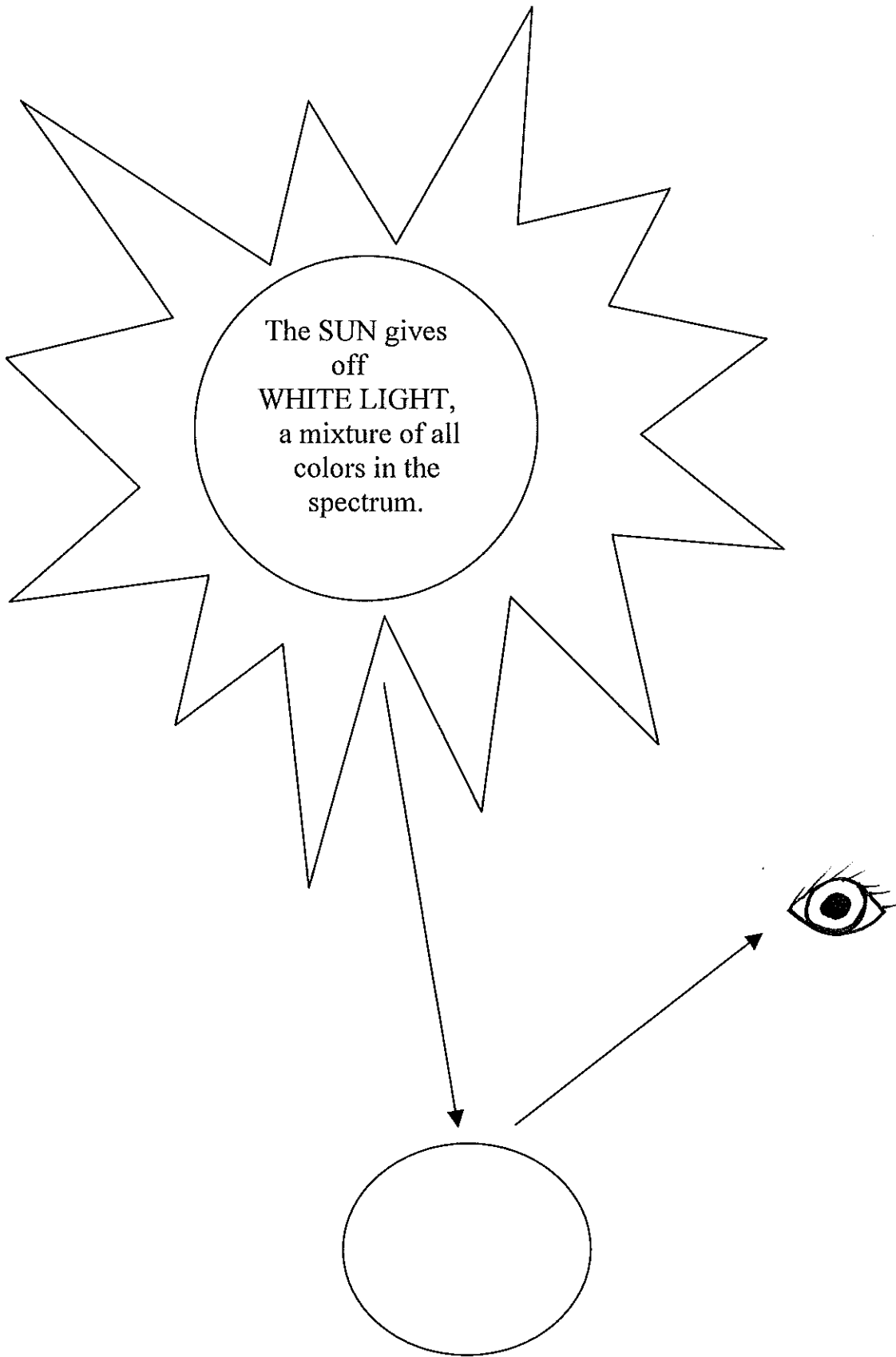
DEBRIEF AND REFLECT (*Identify problems encountered, ask and answer questions, come up with solutions, discuss learning that took place and review*)

(5 minutes)

- **Ask:**
 - *How does light help us see?* [light travels from the source to the object and is reflected to the eye]
 - *How many names can we list for the color blue?*
- As the students share color names from the blue family, place them into groups of tints and shades.
- Use the Tints, "Shades and Colored Light Class at a Glance" to evaluate student learning.
- Prompt for reflective writing in the science notebook: "Describe how white light allows us to see the color of objects."

EXTENSION (*Climate of expectation is created by the teacher that encourages students to do further research, look for connections and apply understanding and skills previously learned to personal experiences*)

- As students move about the campus and throughout the day ask students to describe how light travels from the source to an object and then **reflects** to the eye.
- Examine black and white photos. Discuss the **tints** and **shades** of gray and how they might be mixed, then changed.
- Allow students to paint a scene, still life or portrait using black, white and mixtures of gray only.



Tints, Shades and Colored Lights Class At a Glance
Visual Art/Physical Science
Grade Three, Lesson 3

Student Name	Color Mixing 1 tint and 1 shade mixed correctly		Color Placement Color represents highlights and shadow correctly	
	Yes	No	Yes	No