Improving Teacher Quality

Arts and Science Integration

Visual Art

Earth, Physical and Life Sciences

Grade 3

2013-2014

Grade 3

EARTH SCIENCE

and

Visual Art

Lessons

#1. Reading Cast Shadows

#2.Creating Shadows

#3. Landscape and the Night Sky

ITQ ARTS AND SCIENCE INTEGRATION
GRADE 3
VISUAL ART AND EARTH SCIENCE

Reading Cast Shadows
Lesson #1

FOSS Kit Grade 3, Earth Science: Sun, Moon and Stars, Investigation 1

CONTENT STANDARDS

Visual Art Grade Three

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

4.1 Compare and contrast selected works of art and describe them, using appropriate vocabulary of art.

Science Grade Three

ES4e Students know the position of the Sun in the sky changes during the course of the day and from season to season.

PS2a Students know sunlight can be blocked to create shadows.

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

- What is a shadow and how is it created?
- How do I describe a work of art?
- What do I understand about shadows, light and the position of the sun when I look at a landscape?

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

- describe how a shadow is created
- describe landscapes using the vocabulary of art
- interpret shadows to determine time of day in works of art and in the natural environment
- sketch a landscape using graphite pencil

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

- **Feedback for Teacher**
  - Informal observation of students
  - Responses during discussion
  - Formal assessment: “Reading Cast Shadows Class-At-A-Glance Checklist”
- **Feedback for Student**
  - Informal responses to discussion
  - Comments and suggestions from teacher

WORDS TO KNOW

Visual Art

- **Horizontal:** parallel to the plane of the horizon; at right angles to the vertical; across
- **Landscape:** a work of art about the land
- **Light:** an area of something that is brighter or paler than its surroundings.
- **Light source:** the source of illumination
- **Rendering:** a finished, detailed drawing
- **Shadow:** a dark area or shape produced by a body coming between rays of light and a surface.
- **Shape:** a two-dimensional area or plane that may be open or closed, free form or geometric. It can be found in nature or made by humans.
- **Sketch:** a rough or unfinished drawing or painting, often made to assist in making a more finished picture.

Earth Science

- **Cardinal Directions**: the four main points on a compass: north, south, east and west.
- **Compass**: a tool used to determine directions.
- **East**: one of four cardinal directions. The point where the Sun appears to rise.
- **Light**: the natural agent that stimulates sight and makes things visible; a source of illumination
- **North**: one of four cardinal directions.
- **South**: one of the four cardinal directions.
- **West**: one of the four cardinal directions. The point where the Sun appears to set.

MATERIALS

- 2 - 3 landscape works of art with distinct shadows
- Compass from FOSS kit, one per student
- 9" x 12" white construction paper
- Pencil
- Paper compass for the classroom from the FOSS kit
- Science notebook, one per student

RESOURCES

- FOSS California, Grade 3, "Earth Science: Sun, Moon and Stars", Investigation 1
- Portfolios, Grade 3, by Robyn Montana Turner, Kendall Barrett Publishing
  - "A Sunday on La Grande Jatte-1884" by Georges Seurat (page 16)
- Internet
  - "The Lighthouse at Two Lights" by Edward Hopper, www.metmuseum.org/toah/works-of-art/62.95
- Instructional Media Center
  2442 Cardinal Lane, San Diego, CA 92123
  To order instructional materials on line: http://destiny.sandi.net

PREPARATION

- This lesson is most successful when done outside in full sun. Early morning or later afternoon is best for longer, more obvious shadows.
- After FOSS Kit Grade 3: Earth Science: Sun, Moon and Stars, Investigation 1, Part 1. This lesson can be done in tandem with Investigation 1, Part 2

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

(10 minutes)

- As a review of FOSS Kit Grade 3: Earth Science: Sun, Moon and Stars, Investigation 1, Part 2, take students outside to observe and discuss **shadows** in the campus environment. (e.g., trees, buildings, telephone poles, overhead wires, fences) A bright sunny day works best because the **shadows** are crisp. Early morning or later afternoon is best for longer, more obvious **shadows**.
- *Ask:*
  - *Where is the **light** coming from?* [the sun]
  - *What do you call this darkness on the ground?* [cast **shadow**]
  - *How is a **shadow** created?* [an object blocks the **light** creating darkness]
  - *Which way is the **shadow** cast or which way does the go in relationship to the sun?* [away from the direction of the sun]
  - *What do you notice about the **shape** of this **shadow**?* [**shape** of **shadow** is similar to the **shape** of the object]
- Distribute a **compass** to each student.
- *Say:*
  - *Let's review how a **compass** works.*
  - *Which way does the needle always point?* [north]
  - *Line up the red end of the **compass** needle with the N on the compass face. Turn your body so*

*you and your **compass** are facing **north**.*
  - *Which side is of your body is **east**?* [right]
  - *Which side is of your body is **west**?* [left]
  - *Where did the sun rise this morning?* [have students point east with their right hands]
  - *Where will the sun go down this evening?* [have students point west with their left hands]
  - *Now, let's examine which way the **shadow** is cast from the object we are observing.*
  - *Which way is the **shadow** cast in relationship to the **light source**, the sun?* [away from or in the opposite direction]
- *Say:*
  - *Imagine you are a painter. You have an easel, paints, brushes and a blank canvas with you right now.*
- *Ask:*
  - *How would you paint the shadows and the light you see right here?*
- Review how time of day can be determined by **shadows**.
- Return to the classroom.

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

- Display "A Sunday on La Grande Jatte-1884" by Georges Seurat or another **landscape** that depicts distinct **shadows**. If possible place the reproduction on the north wall of the classroom during the FOSS Kit Investigation 1.
- Allow students 1 minute to visually examine the work of art silently.
- *Say:*
  - *What is the **light source** in this work of art?* [sun]
  - *If you could see the sun in this work of art, where would it be?* [mid to lower left]
  - *How did you know that?* [**shadows** are pointing away from the sun, light is reflecting on the sides of the objects nearest the sun]
- Display a paper **compass** from the FOSS kit, Investigation 1.
- Set the paper **compass** to show **north** heading upward.
- *Say:*
  - *If **north** is this direction, which way is **east** in this work of art?* [right]
  - *Which way is **west** in this work of art?* [left]
  - *Where did the sun come up in this work of art?* [right]
  - *Where will the sun set in this work of art?* [left]
  - *What time of day is it in this work of art?* [afternoon]
  - *How do you know? What tells you that?* [color of the light, way folks are dressed, what they are doing in the painting]
  - *Let's look at the **shadows** closely. Why are some of the **shadows** curved?* [the **shadows** are on a hill]
- Display *The Lighthouse at Two Lights* (1929) by Edward Hopper or another **landscape** that shows distinct **shadows**. If possible place this reproduction on the south classroom wall during the FOSS Kit Investigation 1.
- Ask students to determine the **light source** and its location.
- Turn the displayed paper **compass** upside down to show **north** pointing downward, in the opposite direction.
- *Say:*
  - *We don't know which direction the painter was facing when he painted this painting.*
  - *So, if **north** is this direction, which way is **east** in this work of art?* [left]
  - *Which way is **west** in this work of art?* [right]
  - *Where did the sun come up in this work of art?* [left]
  - *Where will the sun set in this work of art?* [right]
  - *So, what time of day is it in this work of art?* [mid afternoon]
- Distribute a 9" x 12" piece of white construction paper and pencil to each student.
- Instruct students to turn their paper in the same orientation as *"The Lighthouse at Two Lights***", horizontal**ly or **landscape.**

- Explain that we will start with a **sketch. (**A sketch is a rough or unfinished drawing, often made to assist in making a more finished picture.) For the sketch students need to press very lightly while drawing so that no erasure later is necessary. We will later refine our sketch into a "rendering" (a finished, detailed drawing).
- Demonstrate and instruct students how to draw a lighthouse scene explaining line, shape, and form and utilizing the instructions found on pages 9 – 11 of the lesson plan. These instructional steps are for **teacher reference only**. They are NOT to be displayed to students.

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

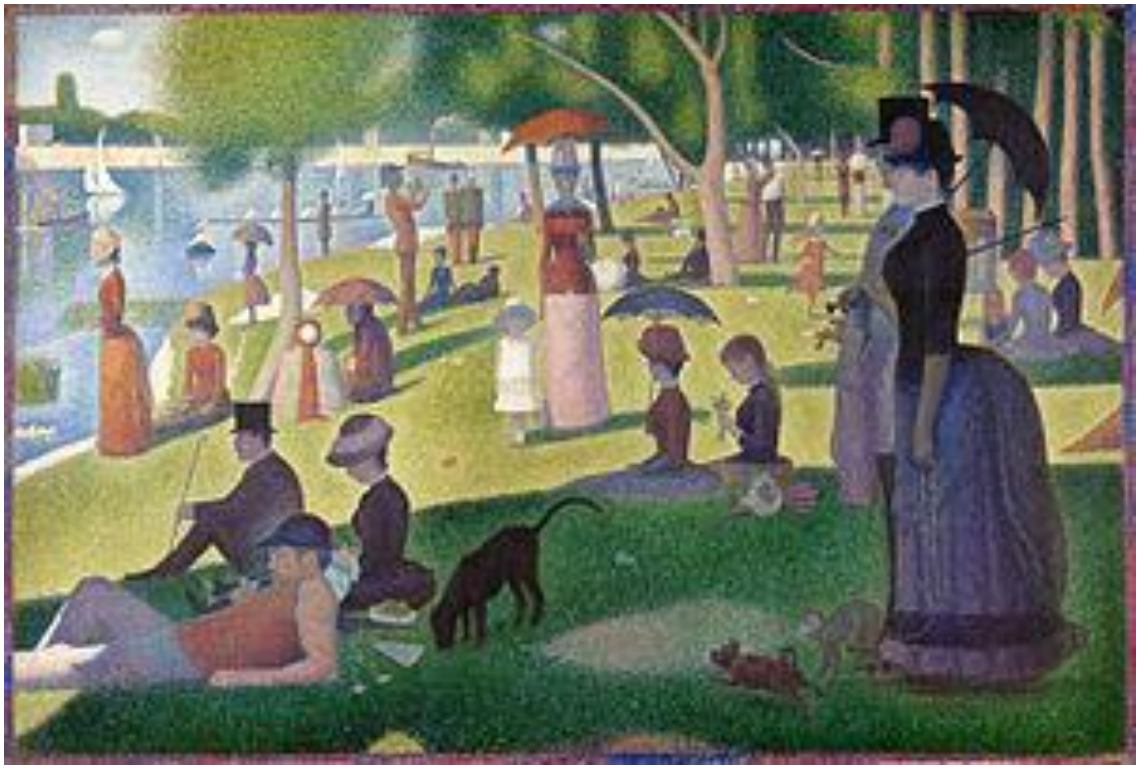
- Remind the students that a **sketch** is a rough or unfinished drawing.
- *Say:*
  - *If you make a line that you don't like, don't worry about it, just make a new line and continue drawing. Don't use an eraser because this is just a sketch, a way to get your idea on paper, not a final or finished drawing.*
- Reinforce the concept that a **shadow** is always cast in the opposite direction from the **light source** and that the length of **shadow** indicates time of day.
- Discuss changing the sketch to a finished rendering by making the lines they would like to keep a little darker and erasing the other lines before starting the shading process.

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

- Allow students to stand in a large circle holding their works of art so that all other students can see their work.
- Ask each student to tell the class his or her favorite part of the drawing.
- Science Notebook Prompt: What do I understand about shadows, light and the position of the sun when I look at a landscape?

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.)*

- Allow students to draw another scene in which there is a light source and cast shadows. Offer students the opportunity to use colored pencils or watercolor paint over their drawing.



A Sunday Afternoon on the Island of La Grande Jatte by Georges Seurat
http://upload.wikimedia.org/wikipedia/commons/thumb/7/7d/A_Sunday_on_La_Grande_Jatte,_Georges_Seurat,_1884.jpg/300px-A_Sunday_on_La_Grande_Jatte,_Georges_Seurat,_1884.jpg

Lighthouse at Two Lights by Edward Hopper
http://www.edwardhopper.net/images/paintings/the-lighthouse-at-two-lights.jpg

Reading Cast Shadows

Class-At-A-Glace Checklist

Student Name	Orientation Is landscape		Erasures No erasures		Original Likeness Representation of master work			Shadow Indicate one time of day	
	YES	NO	YES	NO	Excellent	Somewhat	Unrecognizable	Consistent	Not Consistent
1.									
2.									
3.									
4.									
5.									
6.									
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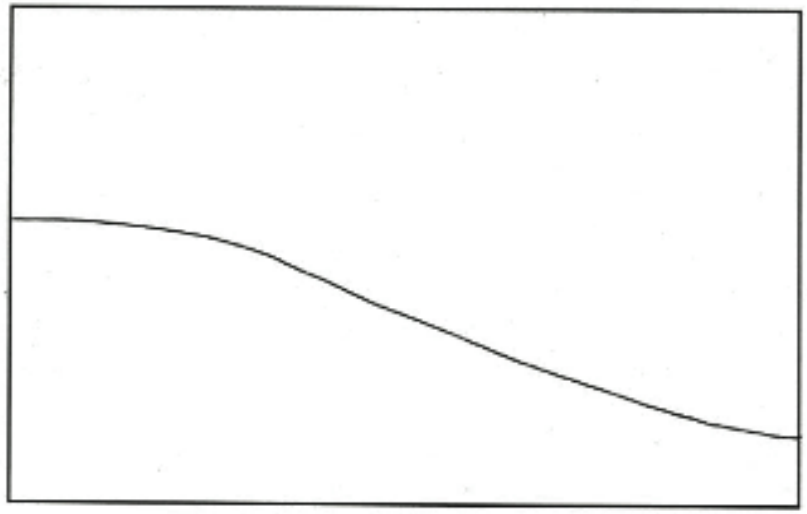
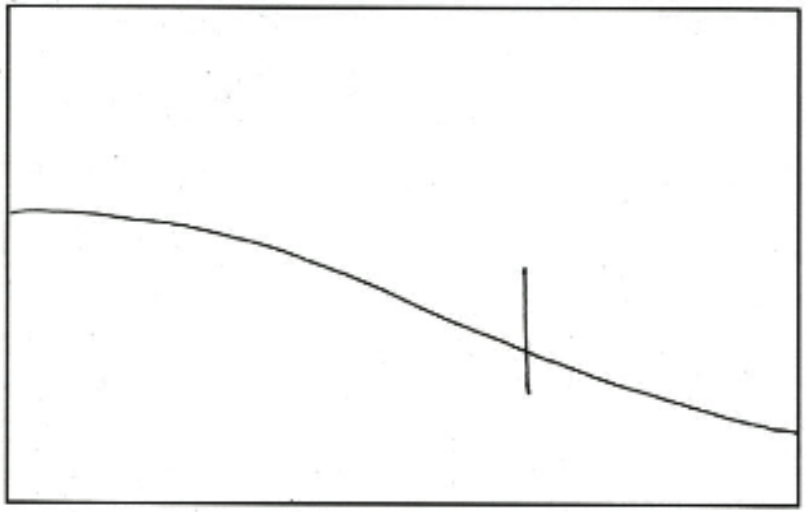
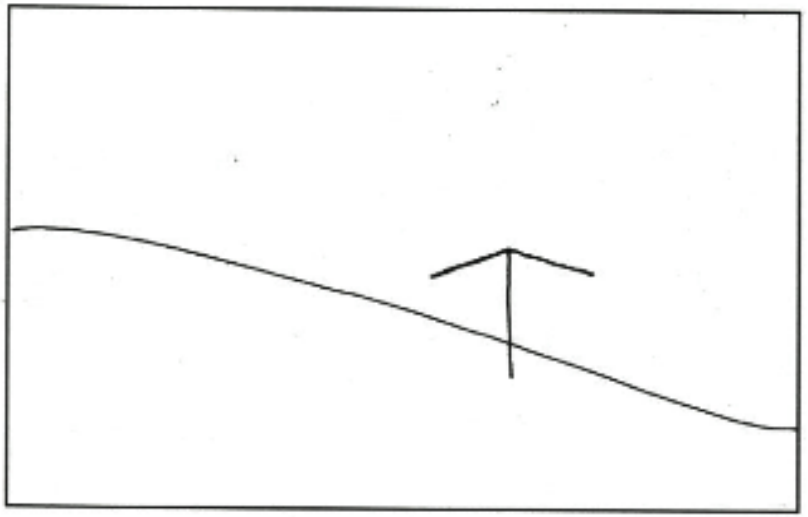


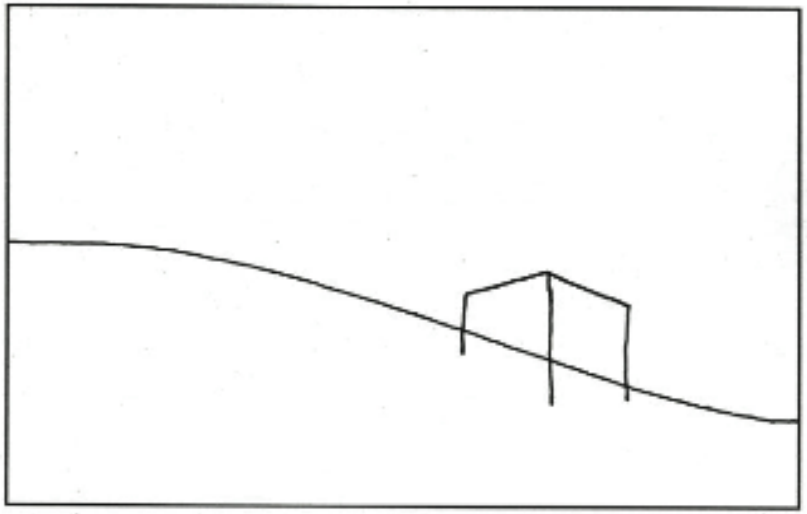
- Draw the **horizon line** sloping down from left (near the middlle of paper) to right (near the bottom of paper)



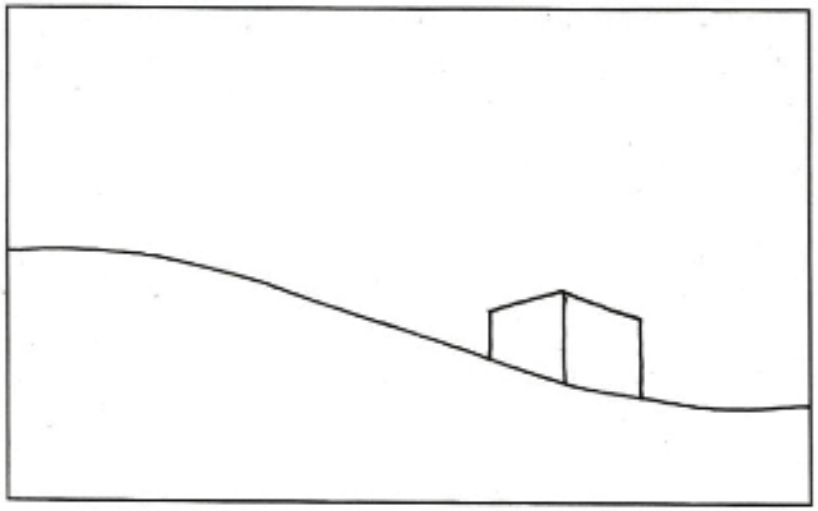
- Draw a **verticle** line to start the base of the lighthouse which is a cube **form**



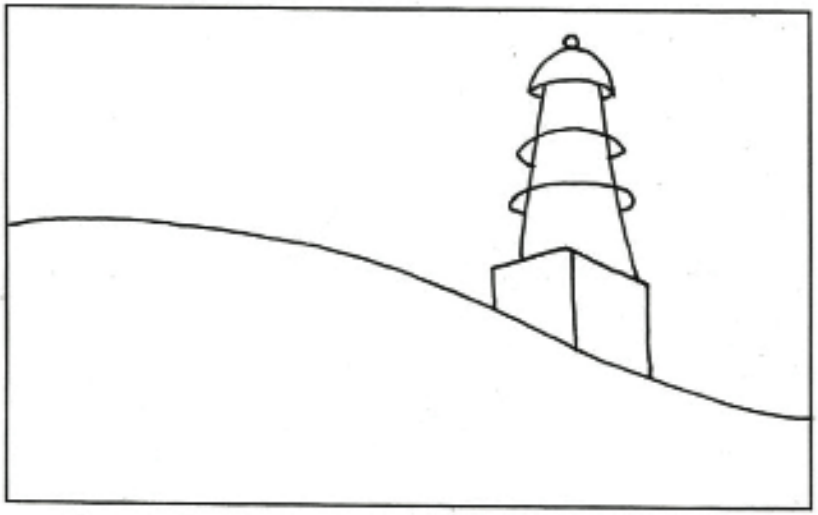
- Draw two straight lines sloping slightly down from the top of the **verticle** line ("Like the letter T but it is broken, or having a bad day")



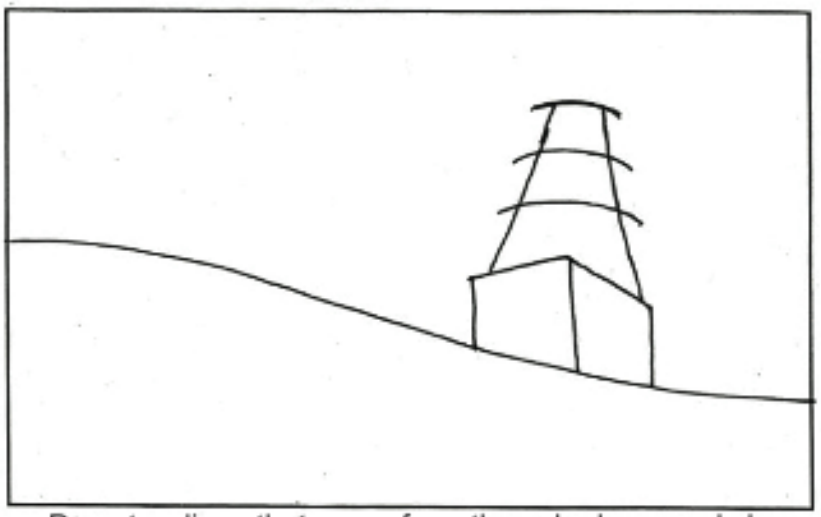
- Draw two **verticle** lines that come down from the ends of the T. ("Remember verticle lines go straingt up and down")



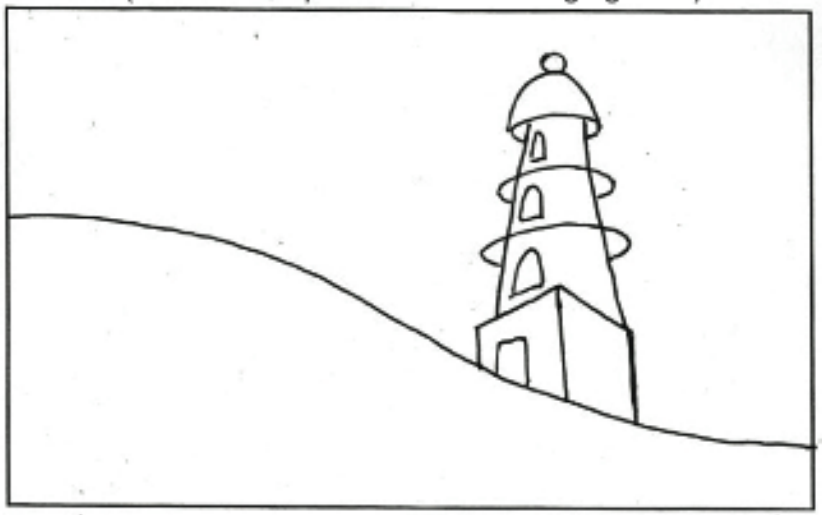
- Erase the part of the verticle lines that have crossed over the horizon line. Our lighthouse, like Edward Hopper's, is slightly behind the hill.



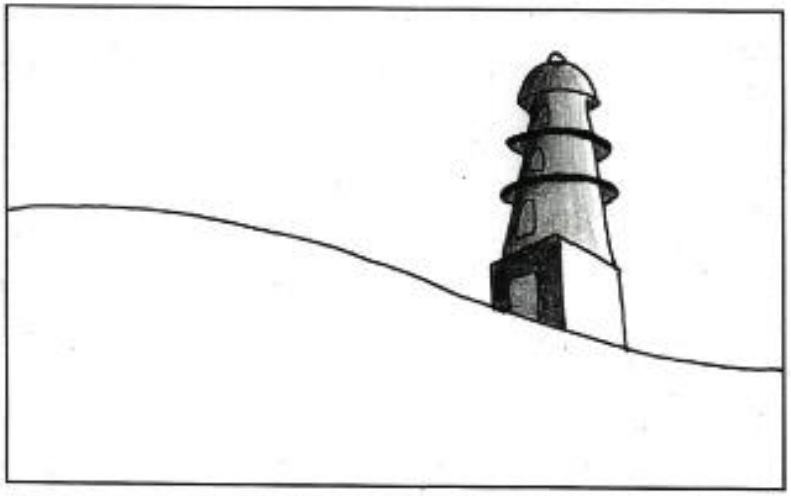
- Draw a domed roof with a decorative sphere on top
- Connect the arched lines back around to the tower



- Draw two lines that go up from the cube base and slope closer together at the top (but do not touch)
- Draw three arched lines that cross over the lighthouse tower (one at the top of the two converging lines)

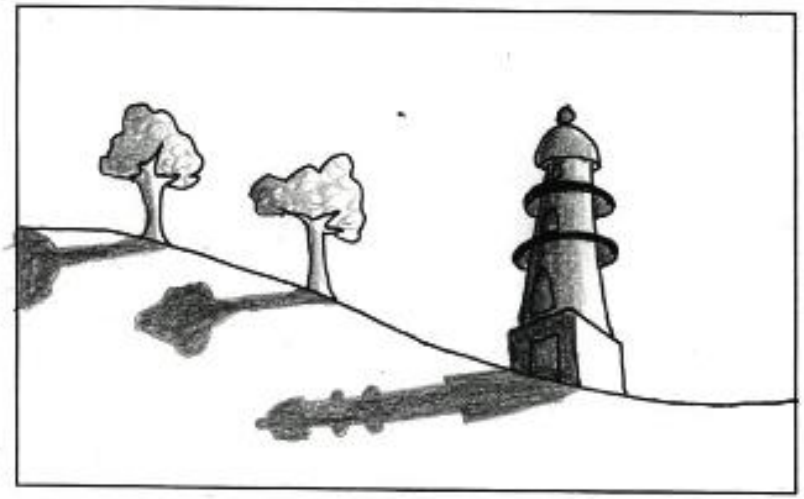


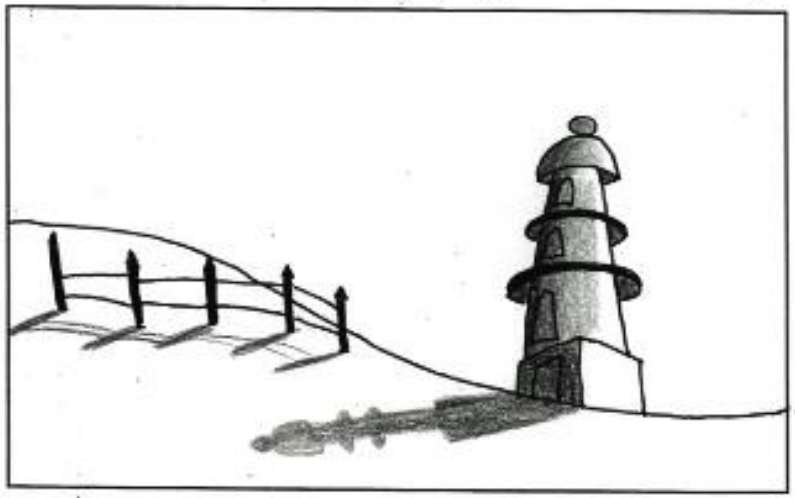
- Add windows and doors if you would like (students can begin to make design choices, for example, arched or rectangular windows)



- Discuss the light source (the sun) and on what side the lighthouse is darker and needs to be shaded.
- Shading (to create light and dark **values**) can be done by pressing lighter or harder with the pencil, blending from dark on the left side of the **forms** to light on the right side of the **forms**

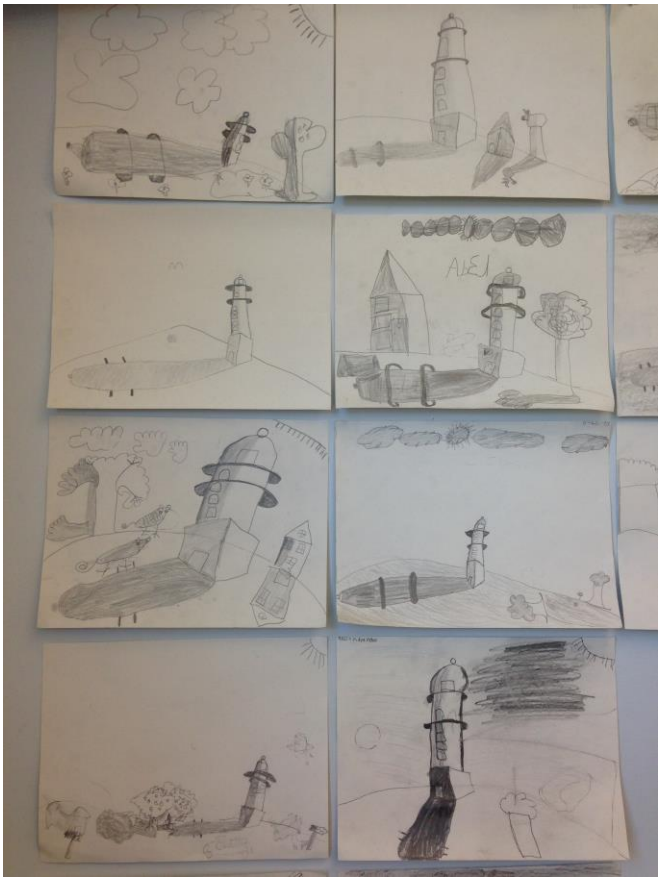
- Students should hold their pencil near the eraser and use the side of the graphite for shading
- Discuss the **cast shadow**. It should come away from the base of the lighthouse and away from the lightsource (the lighthouse is blocking the sun)
- The cast shadow should resemble the shape of the whole lighthouse but might be stretched depending on the time of day
- Draw the cast shadow (very lightly) and shade it in evenly





- Encourage students to use their imagination to add something else to the lighthouse scene that they will shade appropriately and create a cast shadow for (i.e. tree, bush, fence, another building, flagpole, etc.)

Student Examples



ITQ ARTS AND SCIENCE INTEGRATION

GRADE 3
VISUAL ART AND EARTH SCIENCE

Creating Shadows
Lesson #2

FOSS Kit Grade 3, Earth Science: Sun, Moon and Stars, Investigation 1, Part 2

CONTENT STANDARDS

Visual Art Grade Three

1.5 Identify and describe elements of art in works of art, emphasizing line, color, shape/form, texture and space.

Science Grade Three

PS2a Light has a source and travels in a direction. As a basis for understanding this concept students know sunlight can be blocked to create shadows.

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

- How does the shape and size of a shadow relate to the object(s) blocking the light?
- What does the position and length of a shadow tell about the position of the light source?
- How does the position and length of a shadow tell about the time of day?

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

- demonstrate their understanding of how a shadow is created
- compare and contrast position, size and shape of objects and the shadow they create
- draw simple objects and their shadows demonstrating the position of the light source
- estimate the time of day and position of the sun from examining shadows in works of art

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

- **Feedback for Teacher**
  - Informal assessment of student skill by observation
  - Formal Assessment:
- **Feedback for Student**
  - Informal feedback from teacher
  - Directions and suggestions from conferences throughout work process

WORDS TO KNOW

Visual Art

- **Horizon Line:** the line at which the earth's surface and the sky appear to meet.
- **Vertical:** at right angles to the horizontal plane.

Earth Science

- **Cardinal Directions:** four main points on a compass, north, south, east and west
- **Compass Rose:** a circle showing the principal directions printed on a map or chart
- **Light Source:** a thing from which illumination originates
- **Shadow:** the dark area behind an object that blocks light

MATERIALS

- 9” x 12” white construction paper, one per student
- Pencil and eraser, one per student
- Scissors, one per student

- Stapler
- Set of 12 colored pencils, one per student
- Science notebooks, one per student

RESOURCES

- *FOSS Kit Grade 3, Earth Science*: "Sun, Moon and Stars", Investigation 1, Part 1 and Part 2
- *Portfolios, Grade Three*, by Robyn Montana Turner, Barrett Kendall Publishing
  - Shadows: p. viii, 16, 56, 76,
- Internet
  - http://mondomuralsanddesign.files.wordpress.com/2012/05/monet_haystacks.jpg
  - http://www.ibiblio.org/wm/paint/auth/monet/haystacks/matin.jpg
  - http://www.metmuseum.org/toah/images/h2/h2_29.100.109.jpg
  - http://www.ibiblio.org/wm/paint/auth/monet/haystacks/wheatstacks.jpg
  - National Schools Observatory-Daytime Shadows: http://www.schoolsobservatory.org.uk/astro/esm/shadows
- Instructional Media Center
  2442 Cardinal Lane, San Diego, CA 92123
  To order instructional materials on line: http://destiny.sandi.net

PREPARATION

- This lesson is an extension of *FOSS Kit Grade 3, Earth Science: Sun, Moon and Stars, Investigation 1, Part 2*

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

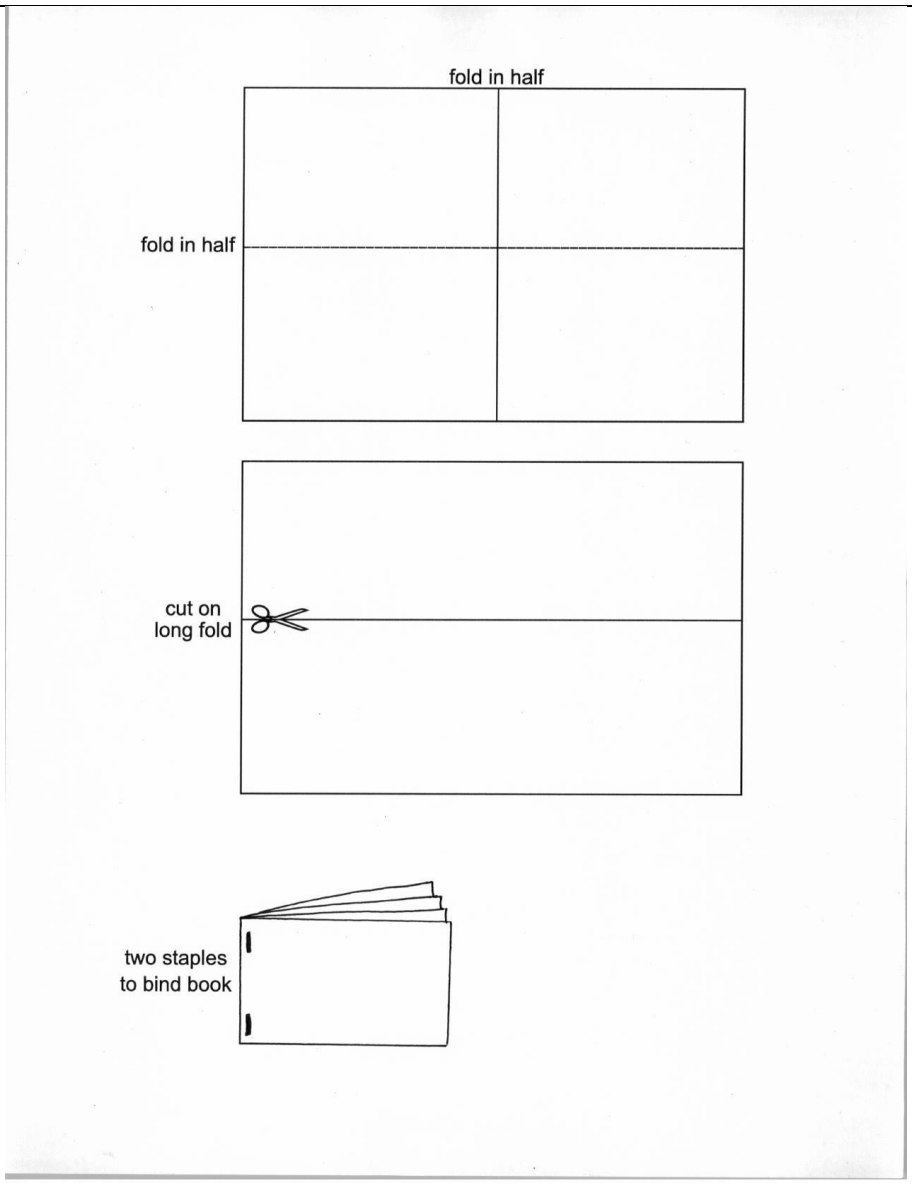
(15 minutes)

- Display or project Image #1 and Image #2 (at the end of this lesson), *Haystacks*, by Claude Monet
- Allow students 1 minute to examine the works of art silently.
- *Ask:*
  - *What is the same about these two paintings?* (haystack, landscape, sky, mountains, etc.)
  - *What is different about these two paintings?* (two stacks vs. one, intense color vs. pale, etc.)
  - *Where is the **light source** for the first work of art?* (low left, outside frame)
  - *In the second?* [mid to upper left, outside frame]
  - *What do the **shadows** tell us about the probable time of day?* (Image #1-Early morning, Image #2-Mid morning)
  - *How do you know?*
- Display or project Image #3 and Image #4 (at the end of this lesson), *Haystacks* by Claude Monet.
- *Ask:*
  - *What do you notice about these **shadow**s compared to the first two?* (different lengths, directions)
  - *Where is the **light source** for Image #3?* (center, directly above the frame)
  - *Where is the **light source** for Image #4?* (mid to upper right outside of the frame)
- *Say:*
  - *These images were created by Claude Monet in the 1880's. Monet created a series of works about Haystacks painted from different points of view and at different times of day. He wanted to show the perception of light and **shadow** during various seasons and types of weather in the fields near his home in Giverny, France.*

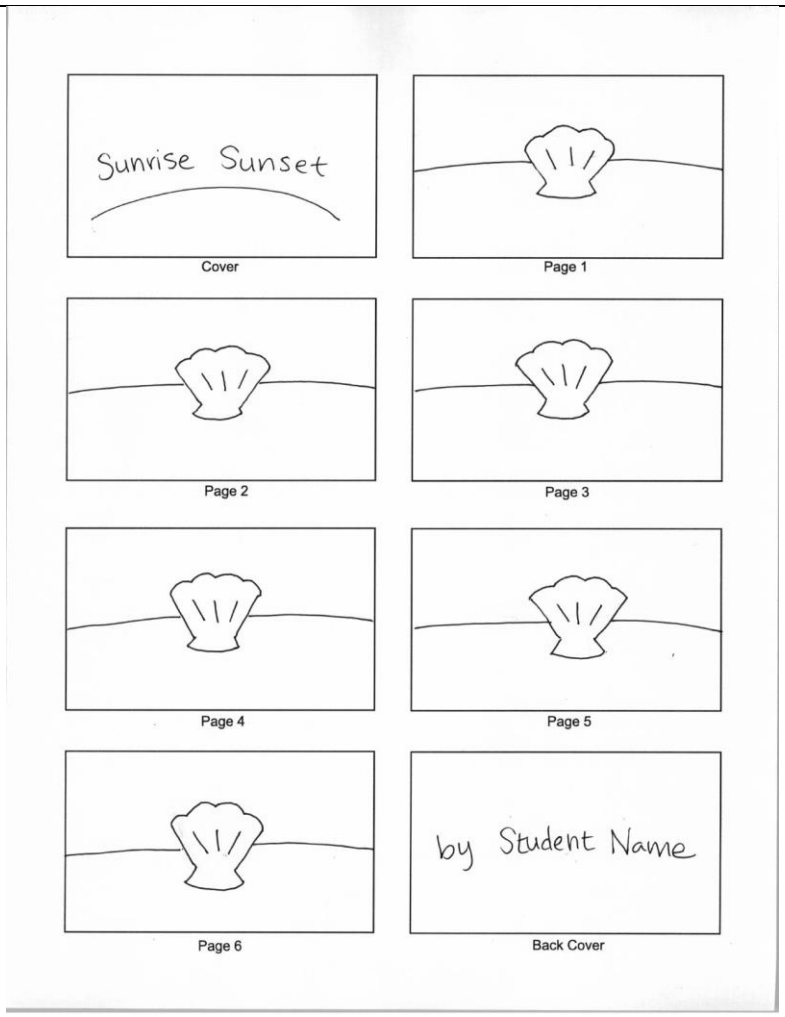
MODELING *(Presentation of new material, demonstration of the process, direct instruction)*

(15 minutes)

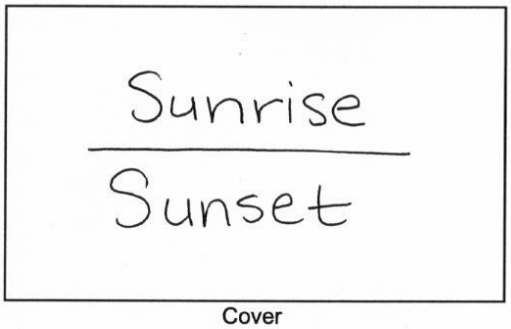
- Distribute one 9" x 12" piece of white construction paper to each student.
- Have students fold the paper in half lengthwise and again to create four quarters.
- Have students cut on the longer of the two folds (12") and then to place one piece inside the other to create a four-page book. (See illustration. Staples can be added to secure)



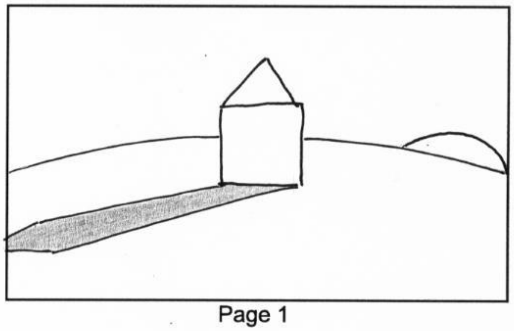
- *Say:*
  - *Let's take what we just learned from Claude Monet and use it to make a book titled <u>Sunrise Sunset</u>.*
  - *Notice how your book has a front and back cover and 6 pages inside.*
  - *We are going to show a simple drawing of a scene in which the **light source** and **shadow** move with the time of day.*
- Instruct each student to write the title of the book *<u>Sunrise Sunset</u>* on the cover page and print "by [student name]" on the back cover.
- Have students draw a **horizon line** going across the middle of each page (6 pages). The **horizon line** separates the earth from the sky.
- Demonstrate and instruct students to draw a single simple object in the middle of each page that overlaps the horizon line. (e.g., house, tree, flower, shell, etc.).
- Explain that it must be something they can draw easily and somewhat quickly because they have to draw it six times in the same place and approximately the same size on each page.
- Instruct students to draw their chosen simple objects on all six pages. (see illustration)



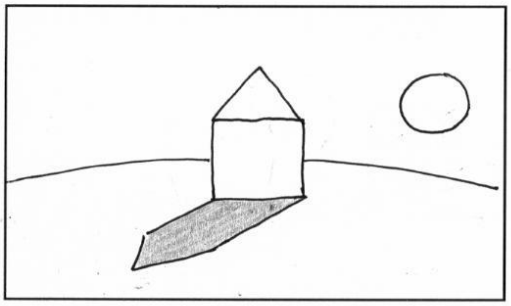
- Say:
  - *Right now all six pages look the same. Next we will start to change the scene on each page starting with the **light source**. Our light source is the sun. On page one, the sun will be rising. In which **cardinal direction** does the sun rise? (East)*
- Have the students draw the sun rising from behind the horizon line in the East (right side) of page one. Continue to draw a circle shape for the sun on each sequential page moving up and across the sky to the West (left side) having students to the same as you continue. On page six there is no sun because it will be nighttime so instruct the students to draw a crescent moon.
- Say:
  - *Turn back to page 1. If the sun is rising in the East over the horizon, where will the **cast shadow** be on the ground? (To the left of the object)*
  - *What shape is the shadow? (The shape of the object)*
  - *When it is early morning, is the shadow short or long? (Long)*
  - *The sun is still low so the **cast shadow** is stretched out very long but it still looks like the (e.g., house, shell, tree, etc.).*
- Demonstrate page by page how to draw the appropriate cast shadow instructing students to do the same each page at a time.
- The shadow is shorter as the sun moves above the object and longer and stretched as the sun moves down toward the horizon line.
- On the final page there is no shadow because it is nighttime and the crescent moon is not bright enough to create a shadow.



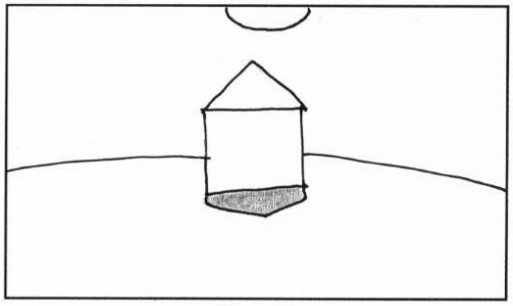
Cover



Page 1



Page 2



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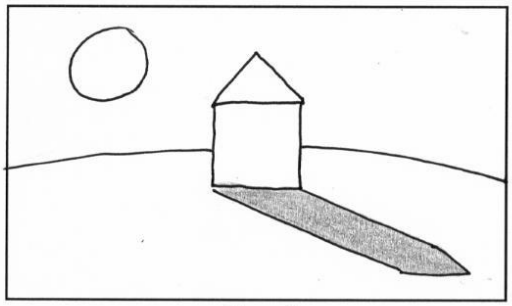

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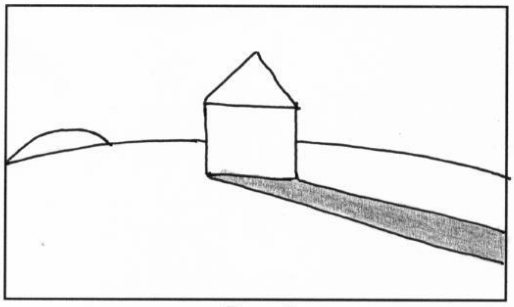

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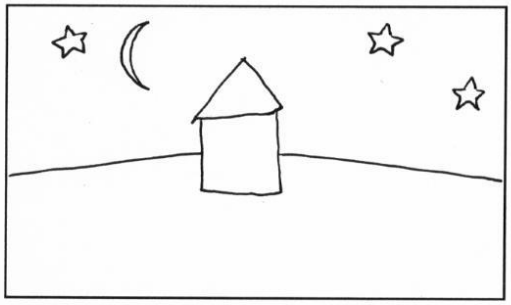

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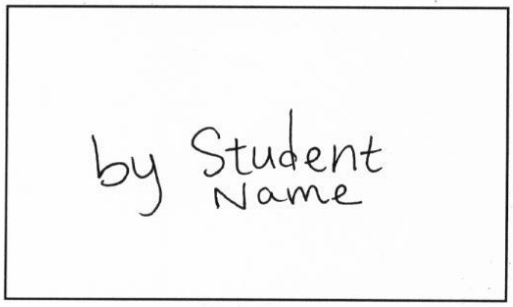
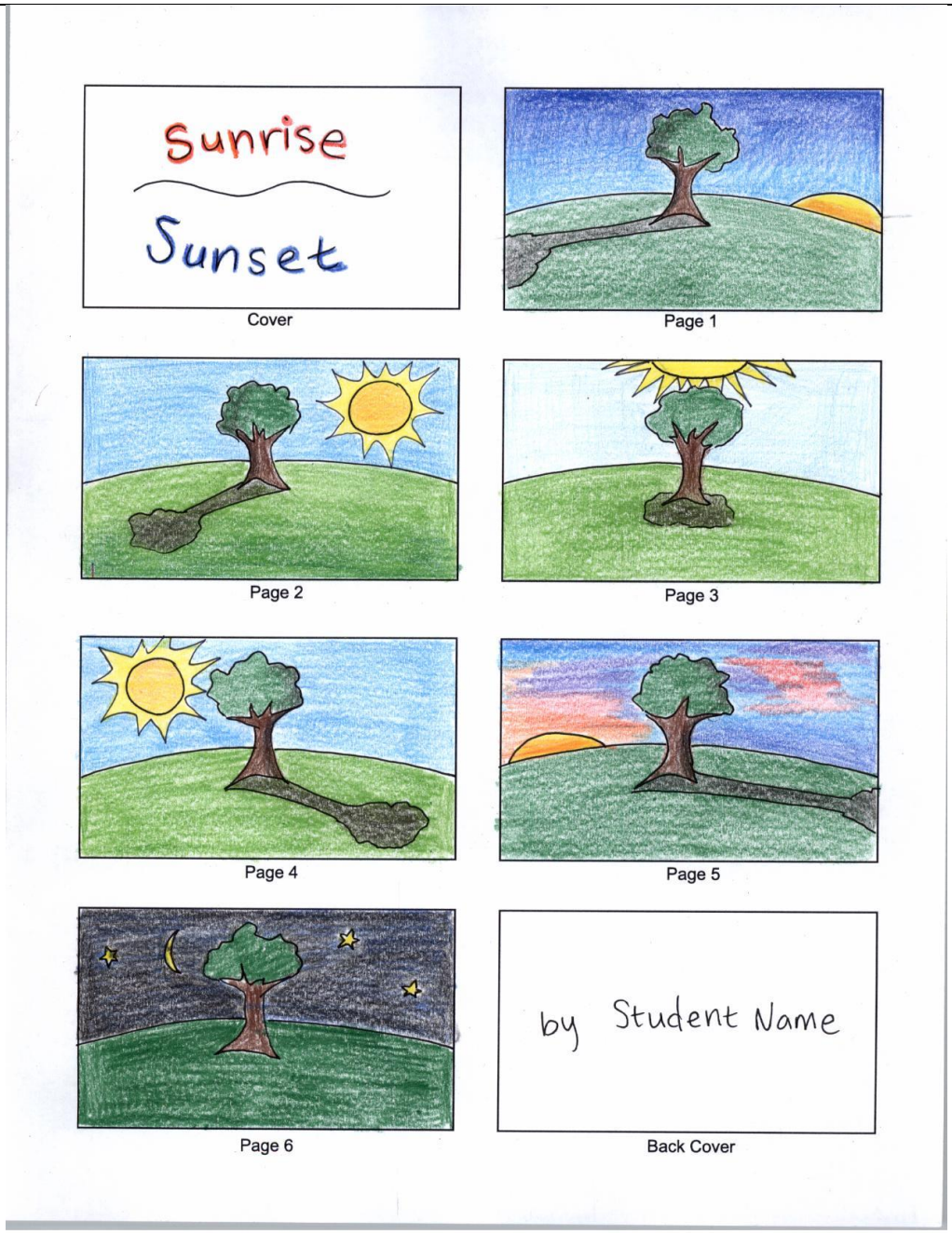


Back Cover

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

- Instruct students to use colored pencils to add color to their drawings. The cast shadows should be evenly shaded in with black colored pencil and the colors in the sky and environment should reflect the time of day represented by the placement of the sun. For example: using darker colors on page 1 and 5 when the sunlight is not as bright and using brighter colors when the sun is lighting up the whole scene from above. On page 5 during the sunset, students may choose to put pink and orange in the sky to represent the variation of colors during sunset. Refer to the "Haystack" paintings to discuss the mood during a specific time of day.
- Refer to the previous lesson Reading Cast Shadows and the students' lighthouse drawings to discuss shading and value.
- In the final book the students should see the sun rise and set while the **shadow** moves and changes length throughout the illustrations.



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

- Science Notebook Prompt: Explain how a shadow is created. Use these three words in your explanation: "light source", "object" and "shadow".

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.)*

- Flipbooks can be created using post-it note packs by using your thumb to quickly flip through the pages for an animated effect. Now that the students have had practice in repetitive drawing with minor changes, try it with the same theme, sun rising and setting.

- Write and produce a Shadow Puppet Show. (See Theatre Lesson on Shadow Puppets)
- Display only the **shadow** in *Real Life is Rubbish 2002* by Tim Noble and Sue Webster (see photograph at the end of this lesson) with the found object **sculpture** covered in an area easily seen by all students. Real Life is Rubbish by Tim Noble and Sue Webster: http://rea-disappearance.wikispaces.com/Real+Life+is+Rubbish
- Shadow Art by Niloy J. Mitra and Mark Pauly: http://graphics.stanford.edu/~niloy/research/shadowArt/shadowArt_sigA_09.html

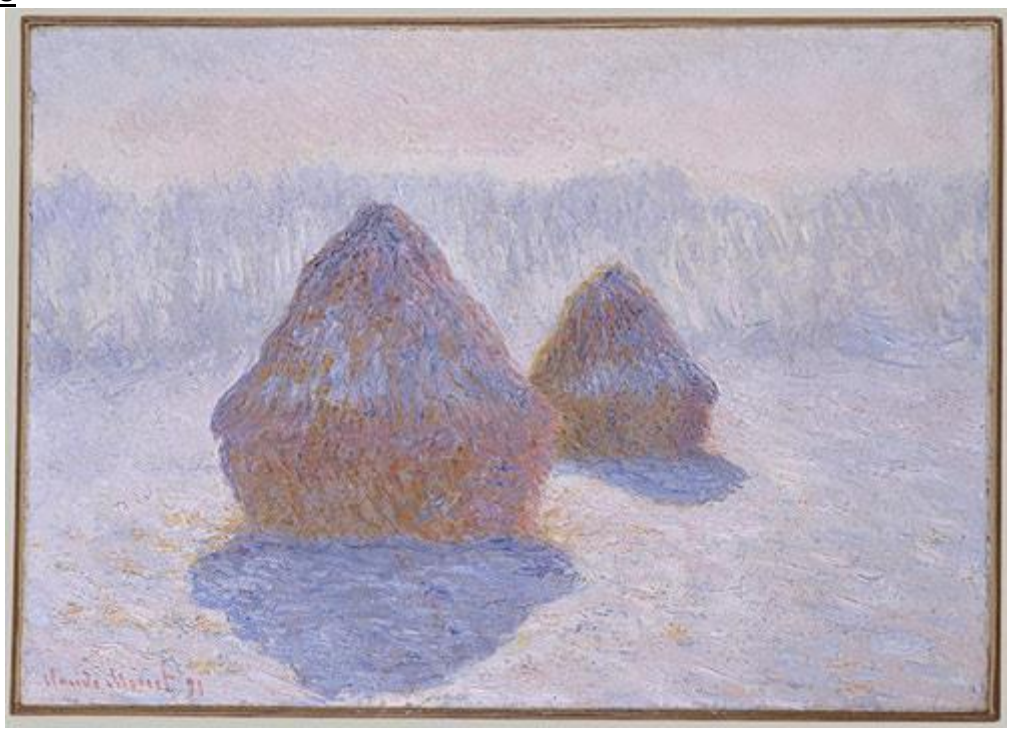
Image #1

http://mondomuralsanddesign.files.wordpress.com/2012/05/monet_haystacks.jpg

Image #2

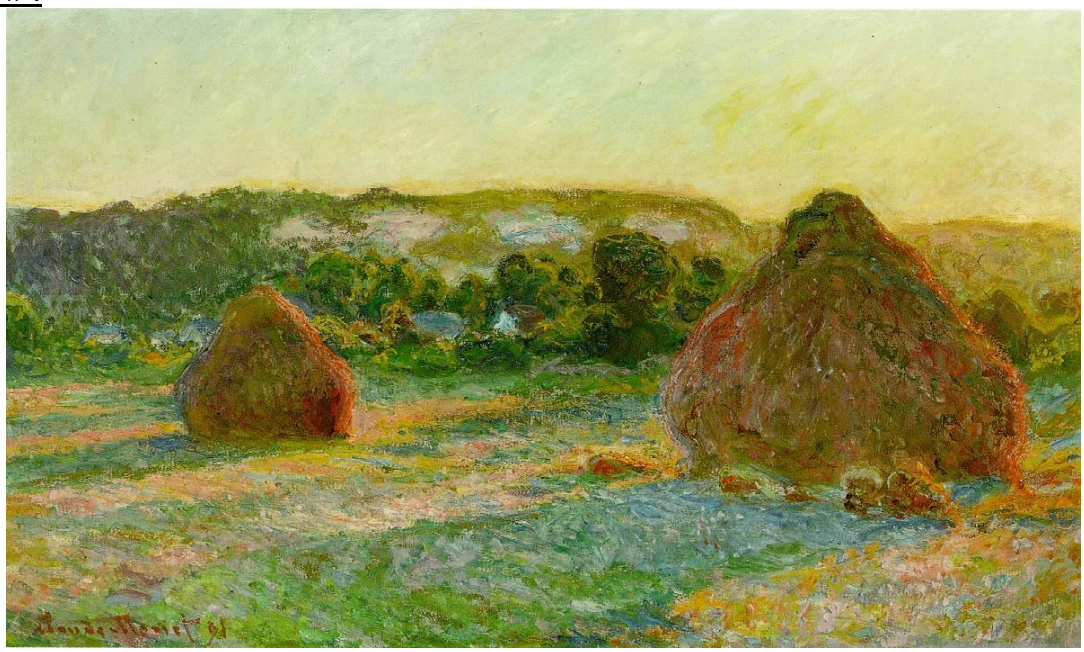
http://www.ibiblio.org/wm/paint/auth/monet/haystacks/matin.jpg

Image #3



http://www.metmuseum.org/toah/images/h2/h2_29.100.109.jpg

Image #4



http://www.ibiblio.org/wm/paint/auth/monet/haystacks/wheatstacks.jpg

ITQ ARTS AND SCIENCE INTEGRATION
GRADE 3
VISUAL ART AND EARTH SCIENCE

Landscape and the Night Sky
Lesson #3

FOSS Kit Grade 3, Earth Science: Sun, Moon and Stars, Investigation 3

CONTENT STANDARDS

Visual Art Grade Three

2.3 Paint or draw a landscape, seascape, or cityscape that shows the illusion of space.

Science Grade Three

ES4a Students know the patterns of stars stay the same, although they appear to move across the sky nightly, and different stars can be seen in different seasons.

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

- What is a landscape?
- How do I create the illusion of space?
- What is a constellation?
- How do I draw Ursa Major?

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

- draw and paint a landscape.
- describe and create foreground, middle ground and background.
- draw a chosen constellation.

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

- **Feedback for Teacher**
  - Informal assessment of student skill by observation
- **Feedback for Student**
  - Informal feedback from teacher
  - Directions and suggestions from conferences throughout the work process

WORDS TO KNOW

Visual Art

- **background:** a part of the picture plane that seems to be farthest from the viewer
- **crayon resist:** a type of artwork created by painting transparent paint or ink over colored wax (crayon)
- **foreground:** part of a two-dimensional artwork that appears to be nearer the viewer or in the front
- **horizon line:** the line where the ground visually meets the sky
- **illusion of space:** the organization of shapes in an artwork to make a flat surface look as if it has depth
- **landscape:** all the visible features of an area of land
- **middle ground:** area of a two-dimensional work of art between foreground and background
- **pattern:** a regularly found arrangement or sequence
- **skyline:** an outline of land and buildings defined against the sky

Earth Science

- **big dipper:** a group of seven bright stars in the shape of a dipper
- **constellation:** a group of stars humans observe in a pattern and have given a name
- **horizon:** the apparent boundary between Earth's surface and the sky

- **night:** the time between sunset and sunrise on Earth when it is dark
- **star:** a huge sphere of hydrogen and helium that radiates heat and light; the sun is a star

MATERIALS

- 12" x 18" white construction paper, one per student
- pencil and eraser, one per student
- box of 16 crayons, one per student
- black tempera paint or ink diluted with water (OR black liquid watercolor paint)
- 3-inch wide sponge paintbrush, one per student
- science notebooks, one per student

RESOURCES

- FOSS Kit Grade 3, Earth Science: "Sun, Moon and Stars", Investigation 3
- Portfolios, Grade Three, "landscapes" (p. viii, 2, 4, 5, 8, 9, 16, 26, 27, 39)
- Internet
  - *Starry Night*, by Vincent Van Gogh
    - http://johnbriner.files.wordpress.com/2011/02/starry-night.jpg
    - http://www.vangoghgallery.com/painting/starryindex.html
  - *Starry Night by the Rhone* by Vincent Van Gogh
    - http://upload.wikimedia.org/wikipedia/commons/9/94/Starry_Night_Over_the_Rhone.jpg
    - http://www.vangoghgallery.com/catalog/Painting/509/Starry-Night-Over-the-Rhone.html
- Instructional Media Center
  2442 Cardinal Lane, San Diego, CA 92123
  To order instructional materials on line: http://destiny.sandi.net

PREPARATION

- Display essential questions.
- Assign homework: Instruct students to go outside and face where the sun goes down from their home. Make a one-quarter turn to their right and face north. Find Ursa Major and remember what position the Big Dipper is in at the time of this lesson.

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

(10 minutes)

- Display ***Starry Night Over the Rhone*** by Vincent Van Gogh in an area easily seen by all students. (end of lesson)
- Ask students to silently examine the work of art visually for 60 seconds.
- *Ask:*
  - *Does anyone know what we call this type of work of art?* (**landscape**-a picture about the land and sky)
  - *What part of this picture is meant to look closest to us, the viewer?* (two people in the lower right corner, the land they are walking on and three boats)
  - *In art we call the area of a painting that is closest to the viewer the **foreground**. Everybody say "**foreground**".* (Write or display the word "foreground".)
  - *What part of this picture is meant to look like it is the farthest away from us, the viewers?* (the sky with stars)
  - *We call the part of the painting that appears to be farthest away the **background**. Everyone say "**foreground**".* (Write or display the word "foreground".)
  - *Can anyone guess what we call the part of the painting that is in the middle?*
  - *We call that part of the painting **middle ground**. Everyone say "**middle ground**".*
  - *What objects do you see in the **middle ground** of this painting?* (water, the town, lights)
  - *Let's take a look at the **stars** in the sky. What do you notice about the **pattern**?* (part of the **constellation** Ursa Major)
  - *Who would like to come up and point out the **Big Dipper**?*

- *What moon phase does this painting show?* (New Moon)
- *What is your evidence?*
- *This **landscape** painting is titled "**Starry Night Over the Rhone**". It was painted by a famous artist named Vincent Van Gogh. He painted it in September of 1888 in Arles, France. The original painting is now hanging at the Musee d'Orsay (mew-SAY door-SAY) in Paris, France.*

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

- Distribute one "Graphed Ursa Major-the **Stars** Worksheet", 12" x 18" sheet of white construction paper and a box of crayons to each student.
  - Have the students place the construction paper in a **landscape** orientation.
- *Say:*
  - *Today, we are going to draw and then paint a **landscape**, a little like the work of art we just saw.*
  - *This **landscape** will have lots of **night** sky in the background.*
  - *Remember how I gave you a task to look at the **night** sky from your home, find north and then find Ursa Major, especially the **Big Dipper**?*
  - *Everybody look at the worksheet that says "Graphed Ursa Major-The **Stars**".*
  - *Turn the sheet until the **pattern** matches what you saw when you looked into the **night** sky and found north. It is easiest to remember which direction the **Big Dipper** was turned.*
  - *Place the worksheet in the position you saw in the sky last **night** above your 12" x 18" white construction paper on your desk*.
- Demonstrate how to arrange the papers on their desk under the document camera. Check to make sure each student has set up each work area properly.
- Have students lightly draw a **horizon line** from the left to the right at least half way down the paper using pencil. (see illustration)

- Demonstrate how and instruct students to draw the 19-**star pattern** seen on the worksheet above the **horizon line** in the orientation they saw when they looked at the sky from their own home. (If students were unable to see the **night** sky because of fog, cloud cover or safety, use ***Starry Night Over the Rhone*** as a visual reference.) Ask students to notice the graphing lines to better understand distance and placement.
- Have students use a yellow crayon to create small, solid circles of crayon to represent each of the 19 **stars**.
  - Place your fingers between the dots on the *Graphed Ursa Major-The **Stars** worksheet.*
  - Observe how many fingers fit between the dots.
  - Draw the chosen two yellow dots on the drawing in approximately the same space, same orientation.
  - Repeat this process with two more stars.
  - Allow students a short time to work on their own to place the rest of the dots.
- *Ask:*
  - *Now, look at the size of the dots in the star **pattern** or **constellation** pattern on your "Graphed Ursa Major-The **Stars**" worksheet. What do you notice?* (4 stars are bigger than the rest)
  - *Why are those dots bigger?* (they represent brighter, larger **stars**)

- *Find the four **stars** on your paper that coincide with the large **stars** on the worksheet.*
- *Use your yellow crayon to make those dots larger than the others.*

- Look closely at the **stars** in the reproduction of ***Starry Night Over the Rhone***.
- Have students use crayon to place small, heavy lines in yellow and white emanating from all the **stars**.
- Use slightly longer lines on the four bright **stars**.
- *Ask:*
  - *Who can remember what we call the part of the picture that is closest to the viewer?* (**foreground)**
- *Say:*
  - *Since we are making **a landscape** we are going to create the **illusion of space**. Some things will look like they are far away; other things will look really close.*
- *Ask:*
  - *What kinds of things would we find in the **foreground** of a **landscape**?* (e.g., a tree)
  - *If a tree is really close to the viewer, how large would it be?* (it could be so close and so big that we can only see the trunk)
  - *Where would we place the tree?* (to either side, not blocking the **stars**)
- Demonstrate how and instruct students to create a large tree **silhouette** using black, brown or both color crayons.
- *Ask:*
  - *Who can remember what we call the part of the picture that is very far away*? (**background**)
  - *We are going to make a **skyline** at and above the **horizon line** we drew earlier. Think about how downtown San Diego looks when we are far away from it. The **skyline** is the line created by the outline of the buildings against the sky.*
    - Demonstrate how and instruct students to draw a **skyline** of buildings above and below the **horizon line.**
- Refer to ***Starry Night Over the Rhone***, noting the **skyline** in the **background**.
- Allow students time to color in the buildings in the distance using heavy crayon.
- It is important that they press hard with their crayons creating a heavy coating of wax in order for the resist to work properly.

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

- *Say:*
  - *You will now have 5 minutes to add objects and land features to the **middle ground** using heavy crayon.*
  - *Remember the objects and land features in the **middle ground** will appear smaller than objects in the **foreground** and larger than the objects and land features in the **background**.*
- Encourage students by suggesting water features like rivers, ponds or bays, land features like hills, valleys or mountains and other objects like fences, boats, flowers, additional trees.
- *Ask:*
  - *Now that we have completed the drawing portion of this work of art, how could we make this work look like it is **night**? (various answers)*
- *Say:*
  - *We are going to do what is called a **crayon resist**. That means we will be adding watery black paint or ink to the entire drawing. But before we do that is there anywhere else you would like to add yellow or white crayon to show light glowing in the dark (e.g., inside windows? Reflecting on water?)*
- Demonstrate how and instruct students to apply watered down tempera paint or ink with a wide brush. The strokes should be from one side to the other, not scrubbed or rubbed on to the paper.
- Place art materials in appropriate areas. Clean up work areas and place works of art in a drying area.

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

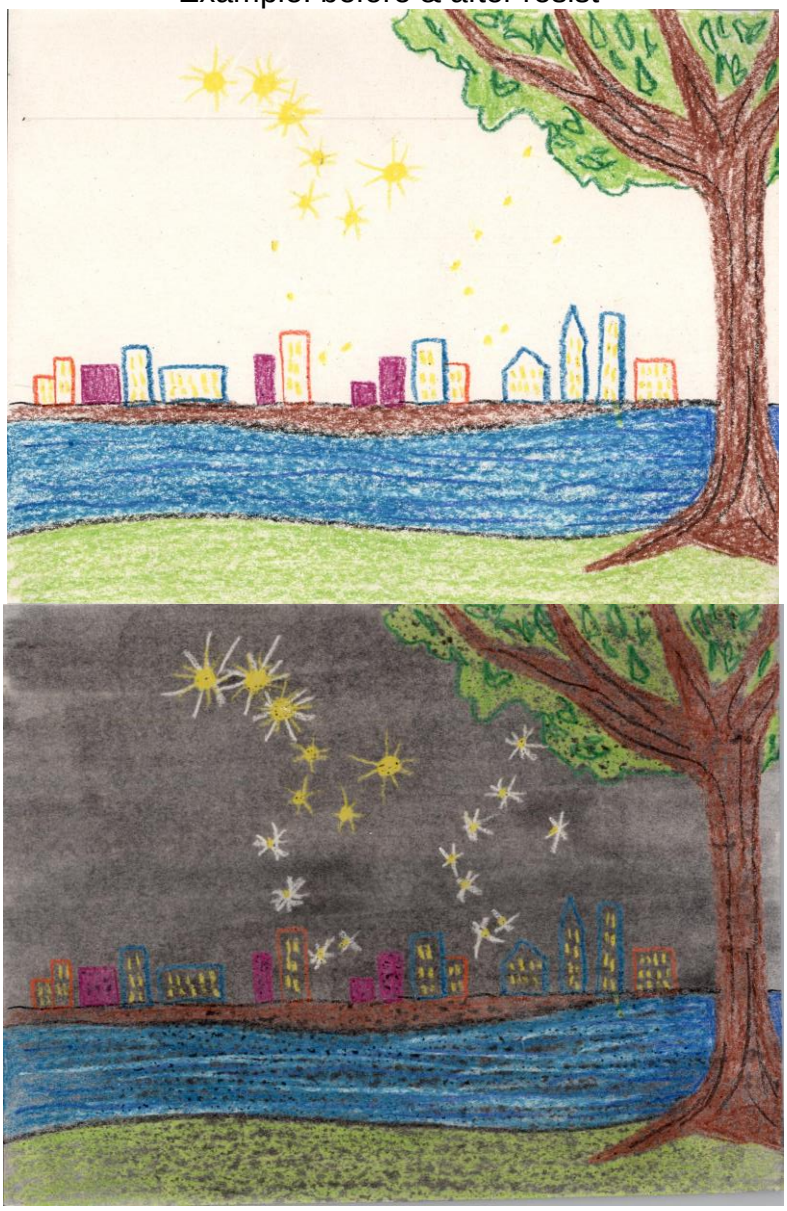
- *Ask:*
  - *What was the name of the **constellation** we just drew for the **crayon resist** painting?* (Ursa Major)
  - *What was the hardest thing about replicating the **constellation pattern** onto your work of art?*
  - *What are the new art words we learned today and what do they mean?* (landscape, foreground, middle ground, background, crayon resist, horizon line, skyline, illusion of space)
- Science Notebook Prompt: How does my **landscape** help me to understand **constellations**?

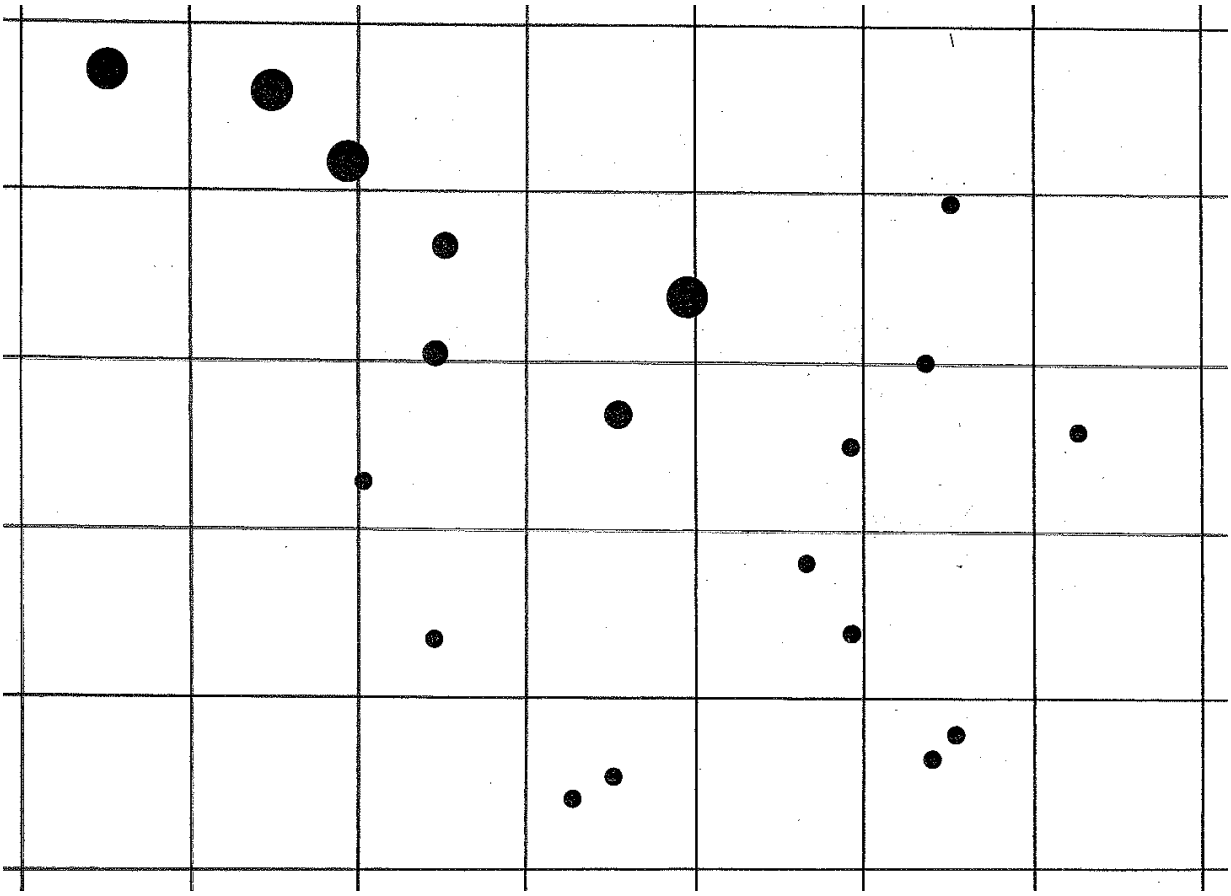
EXTENSION *(Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences.)*

- Make a Star Finder! Go to: http://spaceplace.nasa.gov/starfinder/
- On the NASA website you can click on the current month and download the current night sky. Follow the directions to create a "Star Finder" from printed constellations and simple folding.

Starry Night Over the Rhone by Vincent Van Gogh
http://upload.wikimedia.org/wikipedia/commons/9/94/Starry_Night_Over_the_Rhone.jpg

Example: before & after resist





Ursa Major-The Stars-Graphed from *FOSS Sun, Moon and Stars* Module, page 165.