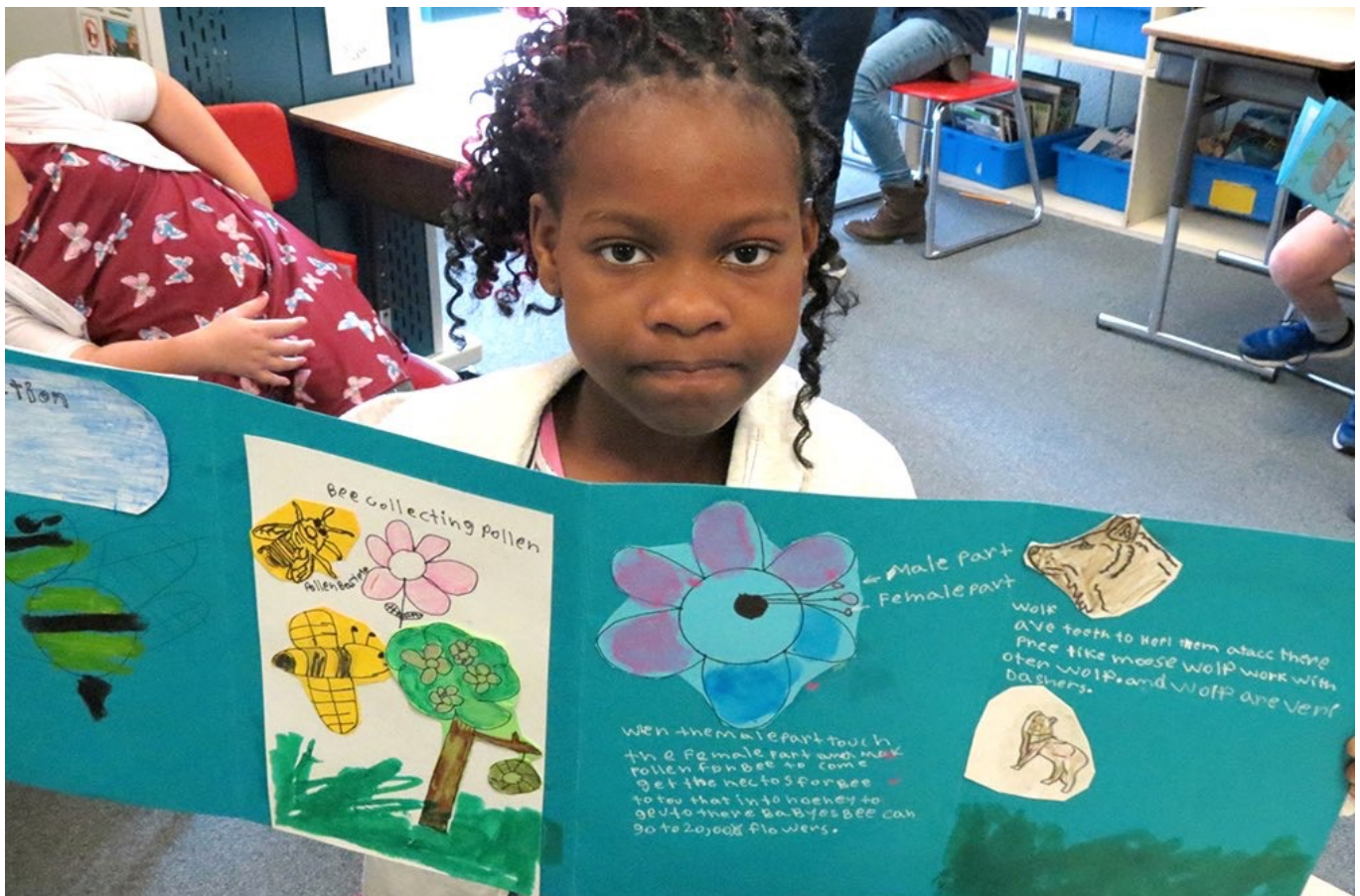


gr 4

Bookmaking: Pollination and Black Bear Symbiosis



gr 4

Bookmaking: Pollination and Black Bear Symbiosis



sidexside

UNIT OVERVIEW

Students will study phenomena in science as it relates to the life cycle of plants and animals, their adaptations, survival skills, and pollination. Through writing, scientific drawing, and illustration, students will depict the symbiotic relationship among Maine black bears, blueberry bushes, and bumblebees in a handmade book.

BIG IDEA

We can represent our knowledge in science and literacy through illustrating, close observation, writing, and sequencing information.

LEARNING GOALS

Students will understand:

- Pollination and the anatomy of flowers and bees.
- How to create observational (scientific) drawings to help illustrate knowledge.
- How adaptations of the black bear help them survive.
- How bumblebees, blueberry bushes, and black bears have a symbiotic relationship.
- How science and art are interdisciplinary.
- How an informational book can be used to share knowledge and teach others.
- How to present research and teach others using a book as a reference.

GRADE LEVEL: Fourth Grade

ART FORM: Bookmaking and Illustration

INTEGRATED SUBJECTS: Science and Literacy

Project Kick-off:

The project will begin with a visiting expert from a wildlife center or an ecologist who will present a slideshow on pollination and pollinators. Timeframe: 1 hour

Lesson 1: Introduction

The teaching artist will give examples, define mixed media, and demonstrate materials: 2 hours

Lesson 2: Black Bear Adaptations and Blueberry Bush

Using the science model notebooks as a resource, students will illustrate the adaptations, body parts, habitats, food sources, survival skills, prey, and predators of the Maine black bear and its symbiotic relationship with the blueberry bush and bumblebee in the wild: 2 hours

Lesson 3: Title, Cover, and About the Author Page

Students will create the title of the book and create a cover image: 2 hours

Celebration of Learning

Students will teach their peers and community using their books as a visual aid and providing an interactive gallery walk or presentation: 45 min–1 hour



Criteria for the book

Pollination:

- What is it? Why is it important?
- Who are pollinators?
- Different kinds of pollination

Parts of the flower:

- Scientific drawing of a flower, labeled with parts

Bumblebees:

- Species
- Body parts
- Jobs

Adaptations of Maine black bear:

- Body parts (adaptations) that help them survive
- Habitat
- Food sources
- Survival skills (hibernation, etc.)
- Symbiotic relationship with blueberry bush and bumblebee, life cycle of blueberry bush

About the Author:

- Thinking like a scientist and an artist

SEL LESSON CONNECTIONS

Side x Side's model of arts integration authentically aligns with Social Emotional Learning benchmarks through three primary developmental areas: self-management, self-expression, and relationship skills. During this arts-integrated unit, students have a range of opportunities to notice and learn about themselves in new ways. Many project components involve communication and collaboration, developing a broader sense of social awareness and forging deeper relationships. Students gain valuable flexible and varied skills when approaching a core subject in a creative way. We strive to incorporate communication and community building skills in everything we do. We use group reflection or wrap-ups at the end of each lesson to cement learning and foster continued curiosity.

Most classrooms have students with varying learning styles. This unit includes opportunities to strengthen fine motor skills, follow multi-step directions, practice new and core vocabulary terms, and work collaboratively with peers. Please note, the lesson plan can be adapted in multiple ways and tips for differentiating the lesson are given throughout.

LESSON 1: Introduction

MATERIALS

Per student:

- pre-folded accordion books in a variety of colors

To share:

- watercolor paper
- heavyweight oak tag
- graph paper
- ledger paper
- time cards
- double-sided colored card stock
- watercolor pencils (in containers organized and labeled by color)
- small watercolor paintbrushes
- water cups
- paper towels
- drawing pencils
- erasers
- pencil sharpeners
- paint samples
- fine-tip Sharpies
- white gel pens (.08)
- double-sided sticky tape
- glue sticks
- drawing reference sheet: bees and hexagons
- manila envelopes
- string
- sticky Post It notes

VOCABULARY

mixed media, accordion book form, components, watercolor pencils, color mixing, blending, layering, scientific drawing, diagram, layout, design

LEARNING GOALS

Students will understand:

- How to create scientific drawings of bumblebees and flowers with labels.
- How to utilize mixed media materials.
- How to use design and layout to create a book.

Timeframe: 2 hours

The teaching artist will give examples, define mixed media, and demonstrate materials.

Set Up:

Supplies Buffet: Set up one large table with drawing pencils, erasers, pencil sharpeners, watercolor pencils, various papers cut to size, double-sided sticky tape, and glue sticks. Drawing references can be laid out in organized piles on the floor or on another table for students to use and then bring back.

Watercolor Station: Set up a separate small table (a space that can accommodate 5–6 students) as a watercolor station. The watercolor station should include brushes, water cups, and paper towels. When a student wants to watercolor a component, have them take the watercolor pencils they are using with them (or have colored in the paper first) and the item to watercolor, to the station. By creating a watercolor station, students are less likely to spill water at their desks and potentially ruin their own or a classmate's work. It also keeps students engaged and thoughtful about what components they want to watercolor. Also, by using watercolor pencils, students have the choice of using them as colored pencils or watercolor pencils. Gel pens and fine-tip Sharpies are handed out on an individual basis.

INSTRUCTIONS

Step 1: Getting Started

Explain what mixed media means: using different art materials to create the book. Elaborate how it's not just drawing, painting, or collage. It's a mix of all those things and also entails using non-traditional materials for art making (graph paper, ledger paper, paint samples, etc.).

Teaching Tip:

Give each student a notebook to use for their science models and lines of inquiry, and to record their research.

SEL SKILL: SELF-MANAGEMENT

Self-management is the ability to regulate one's emotions, thoughts, and behaviors effectively in different situations. Making mixed media art requires careful listening, body control, and impulse management. Students can link content and self-expression through self-selection and creative use of materials.

Teaching Tip:

Students will be creating their cover design last. To alleviate confusion of where students should begin putting information into their books, use a sticky note marked "cover" and place it on the book cover.



Teaching Tips: techniques for students who are feeling stuck

- Turn paper upside down to focus on shapes.
- Cover up some of the paper so there is less information to process.

Step 2: Materials and Design

Have each student choose the color of their pre-folded accordion book and give them a manila envelope to hold all their materials. Using examples, discuss different options for materials along with layout and design strategies to help with the flow of information. Students may use their manila envelope to plan out their ideas before they begin to gather supplies.

Step 3: Demonstration of Materials

Use a document camera to project visuals of bumblebees and flowers on a white board so all students can see. Ask students to take a few moments to use observation skills to look closely and then tell you what they notice about bumblebees as compared to other native bees. Then, using exemplars to generate ideas, show students:

- Methods for drawing bumblebees and flowers using drawing reference materials as a guide.
- How to add labels to drawings and diagrams.
- How to use watercolor pencils to blend, create texture, and use water to paint.
- How to utilize cut paper for collage.
- How to draw a hexagon using graph paper as a guide.
- How to create a paper envelope.
- How to create a pocket.

Step 4: Drawing, Illustrating, and Creating Components

Have students check in with you to share their ideas, plans, and the materials they want to use to create each component before they select from the supply buffet. Students should use pencil to begin working on drawings and illustrations of flowers and bumblebees, and also begin creating mixed media components for their books. They may use fine-tip Sharpies to go over pencil lines when they are finished. White gel pens can be used for text or drawings in the books.

Step 5: Adding Color

Give students a choice of how they want to use the watercolor pencils: with water, or simply as colored pencils. Either format will allow the watercolor pencils to be layered and blended, but with varied results.

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Bookmaking: Pollination and Black Bear Symbiosis

LESSON 2: Black Bear Adaptations and Blueberry Bush

MATERIALS

To share:

- watercolor paper cut into 3" circles
- drawing reference sheets (black bears, claws, face, ears, etc.)
- watercolor paper cut into squares and rectangles
- heavyweight oak tag cut to size
- graph paper
- ledger paper
- paint samples
- time cards
- double-sided colored card stock cut to size
- watercolor pencils
- small watercolor paintbrushes
- water cups
- paper towels
- drawing pencils
- erasers
- pencil sharpeners
- fine-tip Sharpies
- white gel pens (.08)
- double-sided sticky tape
- string
- glue sticks

VOCABULARY

observational drawing, negative space, scale, proportion, texture, line

LEARNING GOALS:

Students will understand:

- How to draw black bears and specific adaptations.
- How to draw or illustrate habitats.
- How to illustrate the symbiotic relationship between bears and blueberries.
- How to use layout and design to display information in a book.

Timeframe: 2 hours

Students will illustrate the adaptations, body parts, habitats, food sources, survival skills, prey, and predators of the Maine black bear and its symbiotic relationship with the blueberry bush and bumblebee in the wild.

INSTRUCTIONS

Set Up:

Supplies Buffet: Set up one large table with drawing pencils, erasers, pencil sharpeners, watercolor pencils, various papers cut to size, double-sided sticky tape, and glue sticks. Drawing references can be laid out in organized piles on the floor or on another table for students to use and then bring back.

Watercolor Station: Set up a separate small table (a space that can accommodate 5–6 students) as a watercolor station. The watercolor station should include brushes, water cups, and paper towels. When a student wants to watercolor a component, have them take the watercolor pencils they are using with them (or have colored in the paper first) and the item to watercolor, to the station. By creating a watercolor station, students are less likely to spill water at their desks and potentially ruin their own or a classmate's work. It also keeps students engaged and thoughtful about what components they want to watercolor. Also, by using watercolor pencils, students have the choice of using them as colored pencils or watercolor pencils. Gel pens and fine-tip Sharpies are handed out on an individual basis.

Step 1: Drawing Black Bears

Use a document camera to project visuals of black bears and blueberry bushes on a white board so all students can see. Ask students to take a few moments to use observation skills to look closely and then tell you what they notice about black bears. Then, using exemplars to generate ideas, show students:

- How to create a zoom in of an adaptation.
- How to draw animal body parts, using reference imagery as a guide.
- How to illustrate the life cycle of a blueberry bush and flower.
- How to label the drawings.
- How to illustrate habitats.
- How to design a layout to help the flow of information in the book.

SEL SKILL: SELF-AWARENESS

Self-awareness is the ability to accurately recognize one's emotions and thoughts and their influence on behavior. Bookmaking requires planning, organizing, and understanding one's strengths. Setting goals while blending content with drawing and design builds content knowledge and self-confidence.

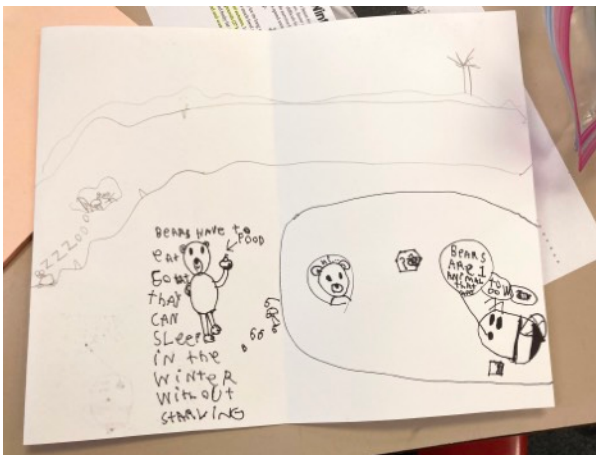
Teaching Tip: Have students use their manila envelopes to sketch out ideas for the layout and design of their books.

Step 2: Continue Drawing and Illustration

Have students continue to work on drawings, illustrations, and mixed media informational art components for their books, focusing on the adaptations, habitats, and food sources of black bears and their symbiotic relationship with bumblebees and the blueberry bush. Once students have their plan for their book layout, they can move to gathering the necessary materials. Have them use pencil first before going over pencil lines with fine-tip Sharpie. White gel pens can be used to add text to the book or as part of the artwork.

Step 3: Adding Color

Give students a choice of how they want to use the watercolor pencils: with water, or simply as colored pencils. Either format will allow the watercolor pencils to be layered and blended, but with varied results. Encourage students to use different lines and marks to create textures for the different flora and fauna they are drawing.



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LESSON 3: Title, Cover, and About the Author Page

MATERIALS

Per student:

- optional black/white photo of each student, printed and cut to size
- About the Author writing pieces

To share:

- heavyweight oak tag, cut to size for book title
- watercolor paper cut into 3" circles, squares, and rectangles
- drawing reference sheets
- graph paper
- ledger paper
- paint samples
- time cards
- double-sided colored card stock, cut to size
- watercolor pencils
- small watercolor paintbrushes
- water cups
- paper towels
- drawing pencils
- erasers
- pencil sharpeners
- fine-tip Sharpies
- white gel pens (.08)
- double-sided sticky tape
- string
- glue sticks

VOCABULARY

font, lettering, contrast, graphic, color scheme, imagery

LEARNING GOALS:

Students will understand:

- How to create a title for a book.
- How to create different fonts.
- How to create imagery for the cover of a book.
- How to create an "About the Author" page.

Timeframe: 2 hours

Students will create the title of the book and create a cover image. The purpose in waiting to create the title and cover of the book is to allow students time to work on both sections of the book and then create a title that depicts both parts. Students are encouraged to think about what kind of information should go on the cover to engage the reader, while keeping in mind this is an informational book they will be sharing with their peers and school community.

INSTRUCTIONS

Step 1: Getting Started

Use a document camera to demonstrate different ways to create a title on the title paper so all students can see. Start with pencil so it is easy to erase if needed. As a group, brainstorm ideas for imagery students can create for the cover. Use informational books as examples and discuss the cover imagery and how it works with the book content.

Teaching Tip:

Students can reference their word clouds for book title and cover art ideas.

Step 2: Creating the Title

On a piece of scrap paper, have students experiment with font size and type to find one that they like. Have them use pencil to create a title. They may outline it with a fine-tip Sharpie or white gel pen, and then add color. The title should pop off the page and grab the viewer's attention.

Step 3: Creating Cover Imagery

After the title has been created, have the students move on to creating the cover imagery. They may create new pieces or use any extra components that are left over to create the image. Encourage students to use the skills they have honed during this project to create the cover.

**SEL SKILL:
RELATIONSHIP SKILLS**

Relationship skills are the ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. This includes communicating clearly, listening actively, cooperating, resisting inappropriate social pressure, negotiating conflict constructively, and seeking and offering help when needed. Drawing, design, and bookmaking during classroom instruction provide opportunities to see a variety of expressions about similar content, broadening empathy and building relationships.

Step 4: About the Author

Have students glue their About the Author page into their books. Then have them create a written piece for the page using “think like a scientist and an artist” prompts. (What excited them about science and the art making process? What investigating questions did they enjoy? How did they use art as a teaching tool for others?) A small black and white photo of each student should accompany their writing.

Teaching Tip:

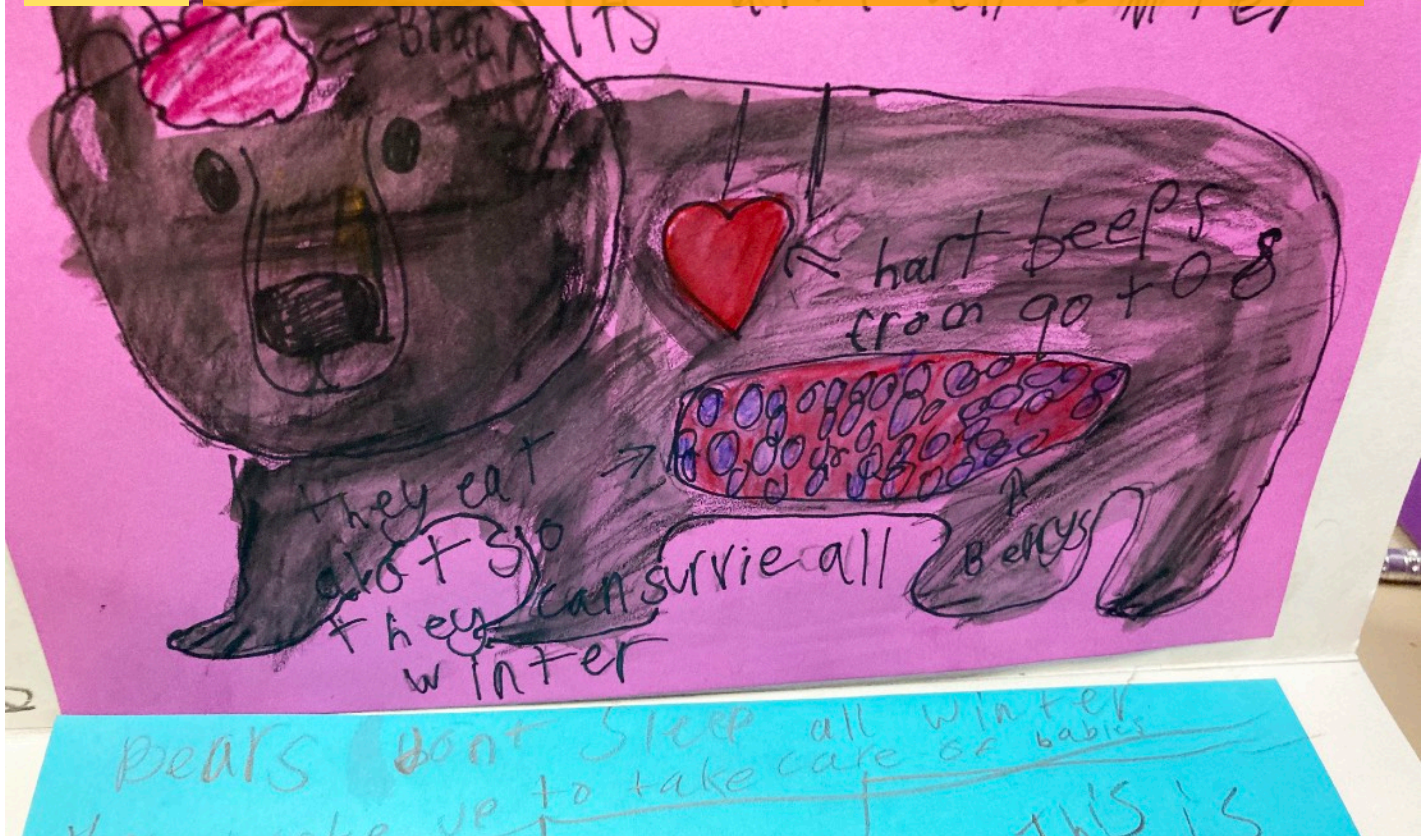
When students are finished, have them peer review, help others, or help collect and clean up supplies.

Step 5: Wrap Up

Use the last 10–15 minutes of the session to conduct a reflection discussion. Spend time going over the project and all that was accomplished. Ask students for feedback in the form of “rose, thorn, bud” or a similar format. (Ask what their favorite and most challenging parts of the project were and have them to tell you something they learned during the process.)

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Bookmaking: Pollination and Black Bear Symbiosis



CELEBRATION OF LEARNING

Timeframe: 45 min–1 hour

Students will teach their peers and community about pollination and black bear symbiosis using their books as a visual aid.

Students will have an opportunity to celebrate their work and share their books with teachers, parents, school community, and peers. This event is an important component of the unit that gives students an opportunity to reflect on their success, share their knowledge, and receive positive feedback on their hard work. Teaching artists and classroom teachers design this component to meet the needs of the students and school community.

Host a Gallery Walk

Set up books in a common space/area for a gallery walk. Invite other grades, classes, school administration, families, and community partners. Before the gallery walk begins, take time to reflect on the program with students and teachers. This can be through a round of “rose, bud, thorn.” Remind students of all that they have accomplished (review art and classroom content). Ask students to spend time looking closely at each other's work (using their observation skills), noticing the different approaches used to create book components. Students can use the “sticky note critique” method to give and receive constructive positive feedback on their peer's work.

COMMON CORE STATE STANDARDS corestandards.org

Reading Standards for Informational Text:
CCSS.ELA-literacy.RI.4.1– 4.10

Writing:
CCSS.ELA-Literacy.W.4.1–4.10

Speaking and Listening:
CCSS.ELA-Literacy.SL.4.1–10

Vocab Acquisition:
CCSS.ELA-Literacy.L.4.1–10

Math, measurement and Data:
CCSS.MATH.CONTENT.4MD.A.1–4

21st CENTURY STUDENT OUTCOMES p21.org

21st Century Interdisciplinary Themes:
Environmental Literacy
Global Awareness

Learning and Innovation Skills:
Creativity and Innovation
Critical Thinking and Problem Solving
Communication and Collaboration

Information, Media and Technology Skills:
Information Literacy

Life And Career Skills:
Social and Cross-Cultural Skills
Leadership and Responsibility
Flexibility and Adaptability

NEXT GENERATION SCIENCE STANDARDS

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

NATIONAL CORE ART STANDARDS nationalcoreartsstandards.org

CREATING

Anchor Standard 1: Generate and conceptualize artistic ideas and work.
VA: Cr4.1.4a

Anchor Standard 2: Organize and develop artistic ideas and work. VA: Cr4.1.4a

Anchor Standard 3: Refine and complete artistic work. VA: Cr4.1.4a

PERFORMING / PRESENTING / PRODUCING

Anchor Standard 4: Select, analyze, and interpret artistic work for presentation.
VA:Pr5.1.4a

Anchor Standard 6: Convey meaning through the presentation of artistic work. VA:Pr6.1.4a

Anchor Standard 7: Perceive and analyze artistic work. VA:Re.7.1.4a

Anchor Standard 8: Interpret intent and meaning in artistic work. VA:Re8.1.4a

CONNECTING

Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art. VA:Cn10.1.4a

CASEL SOCIAL EMOTIONAL LEARNING SKILLS

SEL is an integral part of education and human development. SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions. casel.org

- Self-Management
- Self-Awareness
- Relationship Skills
- Responsible Decision-Making