

Visual Literacy, Science and the Arts
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ART: Adventurous Reflective Thinking!

Inspiration:

Albert Einstein, Scientist- “It is the supreme art of the teacher to awaken joy in creative expression and knowledge”

Pablo Picasso, Artist- “Every child is an artist. The problem is how to remain an artist when he grows up.”

Elliot Eisner, Art Critic, Researcher- “The limits of our cognition are not defined by the limits of our language.”

Aristotle, Philosopher- “There is nothing in the intellect which was not first in the senses”

Arts integration:

An approach to teaching that incorporates the arts as a primary pathway to learning. The goal of arts integration is to increase knowledge of a general subject area while concurrently fostering a greater understanding and appreciation of the arts.

Visual Literacy:

“The ability to interpret, use, appreciate and create images and videos using both conventional and modern media in ways that advance understanding, thinking, decision making, communication and learning”

distance-ed.math.tamu.edu/techttools/valgebra/resources/definitions.html

Habits of Mind:

Characteristics of intelligent behavior nurtured through experiences with the arts (Costa)

- Persistence
- Decreasing impulsivity
- Listening to others with understanding
- Flexibility in thinking
- Taking risks
- Using all of the senses
- Creative thinking
- Wonderment/ curiosity
- Metaphorical thinking

The Arts are emotionally engaging and emotion drives learning!

Research

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Science Education

Good science education encourages observation and wonderment about how things work. Provide opportunities for science inquiry.

Art Education

Good art education encourages observation, wonderment, imagination and creative and flexible thinking. Provide opportunities for art looking, art making and art appreciation.

Arts/ Science Integration and Effective Communication

What is art? What is science? What is visual (media) literacy? What role does technology play? How do these areas overlap? How do artists express their ideas? How do scientists share their information? How do students present information? What skills do children need for effective multimedia communication?

Refrain from encouraging students to be spectators- pay attention, watch carefully, listen carefully... and engage children to see, think and wonder, to pose their own questions, engage in inquiry, think metaphorically and have ownership of their learning.

Develop students' skills in analyzing, interpreting and creating images, using available technologies and deciding which are appropriate and effective for specific messages and audiences

Classroom Example: Topic, Exploring The Rainforest

Introduction to Unit: Picture Book: *The Great Kapok Tree* by Lynne Cherry

Picture Walk and Read Aloud

Engage class in a Sketch to Stretch and Write-

1. divide paper to make 4 squares
2. first square create a quick sketch of something you remember from the story.
3. second square record two colors that remind you of this story
4. third square record three words that remind you of this story
5. fourth square create a symbol to represent a theme in this story
6. share with a buddy

Class discussion:

Does reading this book make you more curious about life in the rainforest?

What did this book teach you about the rainforest?

What is the main idea communicated through the images?

How are the illustrations arranged to create a message?

What do you notice about the placement of the man and the animals?

Do you think the artist made this choice to communicate something? What?

How could the images be changed to impact an older audience?

Teacher Reflection:

How do the images in this book impact students' thoughts and feelings? (emotions)

How do students benefit from reflecting on these images and the choices made by the artist who produced them?

What choices can students make when presenting information to impact their audience?

What opportunities do students have to explore and refine visual communication skills?

**Effective Multimedia Communication: Analyzing and Presenting Information
Sunshine State Standards**

Reading and Language Arts: Communication
Listening and Speaking, Media Literacy and Technology

Kindergarten:

LA.K.5.2.5 communicate effectively when relating experiences and retelling stories heard

LA.K.5.2.6 use complete sentences when speaking

LA.K.6.3.1 recognize print and nonprint media

LA.K.6.3.2 state the main idea after viewing print media

LA.K.6.4.1 use technology (e.g. drawing tools, writing tools) resources to support learning

First Grade:

LA.1.5.2.5 communicate effectively when relating experiences and retelling stories heard

LA.1.5.2.6 participate courteously in conversation, such as asking clarifying questions, taking turns, staying on topic, making eye contact, and facing the speaker

LA.1.6.3.1 recognize that nonprint media affect thoughts and feelings (e.g. graphics, music, digital video)

LA.1.6.3.2 identify types of mass communication (e.g. film, newspapers, radio, digital technology)

LA.1.6.4.1 use technology (e.g. drawing tools, writing tools, digital cameras) resources to present thoughts, ideas, and stories

Second Grade:

LA.2.5.2.1 interpret information presented and seek clarification when needed

LA.2.5.2.2 begin to use language appropriate for different occasions, audiences and topics

LA.2.6.3.1 recognize that nonprint media affect thoughts and feelings (e.g. graphics, music, digital video)

LA.2.6.3.2 identify types of mass communication (e.g. film, newspapers, radio, digital technology)

LA.2.6.4.1 use appropriate available technologies to enhance communication and achieve a purpose (e.g. video, presentations)

LA.2.6.4.2 use digital resources (e.g. writing tools, digital cameras, drawing tools) to present and publish thoughts, ideas and stories

Third Grade:

LA.3.5.2.1 recall, interpret and summarize information presented orally

LA.3.5.2.2 plan, organize and give an oral presentation and use appropriate voice, eye and body movements for the topic, audience and occasion

LA.3.6.3.1 determine main content and supporting details, including distinguishing fact from opinion, in a print media message

LA.3.6.3.2 identify and explain different production elements used in media messages (e.g. color, sound effects, animation) and use the elements appropriately in a multimedia production

LA.3.6.4.1 use appropriate available technologies to enhance communication and achieve a purpose (e.g. video, presentations, websites)

LA.3.6.4.2 use digital tools (e.g. word processing, multimedia authoring, web tools, graphic organizers) to present and publish in a variety of formats

Fourth Grade:

LA.4.5.2.2 plan, organize and give an oral presentation and use appropriate voice, eye and body movements for the topic, audience and occasion

LA.4.5.2.4 asks questions of speakers using appropriate tone and eye contact

LA.4.6.3.1 examine how ideas are presented in a variety of print and nonprint media and recognize differences between logical reasoning and propaganda

LA.4.6.3.2 recognize and identify production elements (e.g. graphics, sound effects, music) used to create media messages and create media messages for a specific purpose

LA.4.6.4.1 use appropriate available technologies to enhance communication and achieve a purpose (e.g. video, presentations, websites)

LA.4.6.4.2 determine and use appropriate digital tools (e.g. word processing, multimedia authoring, web tools, graphic organizers) for publishing and presenting a topic

Fifth Grade:

LA.5.5.2.1 listen and speak to gain and share information for a variety of purposes, including personal interviews, dramatic and poetic recitations and formal presentations

LA.5.5.2.2 make formal oral presentations for a variety of purposes and occasions, demonstrating appropriate language choices, body language, eye contact and use of gestures, the use of supporting graphics (charts, illustrations, images, props and Available technology.

LA.5.6.3.1 examine how ideas are presented in a variety of print and nonprint media and recognize differences between logical reasoning and propaganda

LA.5.6.3.2 use a variety of reliable media sources to gather information effectively and to transmit information to specific audiences

LA.5.6.4.1 use appropriate available technologies to enhance communication and achieve a purpose (e.g. video, presentations, websites)

LA.5.6.4.2 determine and use appropriate digital tools (e.g. word processing, multimedia authoring, web tools, graphic organizers) for publishing and presenting a topic

Developing a Generative Science Unit that incorporates the Arts & Visual Literacy

1. Choose your generative topic
2. Choose essential understandings that you want students to acquire by the end of the unit
3. Choose science, visual art and language arts communication standards including listening and speaking, media literacy and technology
4. Choose performances of understanding (what students will be able to do) and provide opportunities for students to share what they have learned using appropriate available nonprint media and technologies to enhance their presentations
5. Select key resources for the unit
6. Provide demonstrations, guided practice and independent practice for students to develop targeted skills and knowledge of concepts
7. Provide opportunities for students to pursue their own pertinent questions engaged in scientific inquiry
8. Document process of thinking and learning through photographs, reflections and anecdotal records
9. Celebrate culmination of unit and the value of student thinking and learning by creating a class museum that is open to visitors to observe both process and product of your generative unit- encourage new questions to further investigation
10. Begin unit with a good hook!

Example: **Sarasota Ocean Literacy Project**: Used process of art-making including digital tools as a vehicle for “deep learning” experiences and included publicly sharing the results to help increase public awareness about ocean literacy and conservation

Unit- Big Idea #17 Interdependence: Our Ocean, Our Impact, Our Choices

Students were presented with the problem about ocean’s current health crisis and the urgency of the situation

Students were invited to be part of the solution first by learning about ocean science using art-making, including digital tools

Students were challenged to create new ocean science messages and slogans to build awareness and inform/influence others

Students learned to “convert their reactions to and ideas about this new information into visual concepts”

Students effectively presented their newly acquired knowledge including text, visual images and technology- communicate, persuade, inform

Curiosity Provoking Questions for Elementary Students
Begin with images, pose questions

1. In what ways is a dragonfly like a helicopter?
2. How is your raincoat like a leaf?
3. How is a mirror like water?
4. In what ways are fish and bird alike?
5. Is an eggshell like a skin?

Impact of Visual Images

- Amount of fresh water in the world
- Images of Katrina
- Holocaust Museum in Washington, DC- shoes

What is said through artwork that cannot be said through words?

How can visual images inform us about complex scientific issues or big ideas?

After looking at a piece of artwork, turn away and without looking draw the objects or shapes you remember most clearly. Why do you think you remembered what you did?

How do color and composition affect a piece of artwork? A presentation?

How would learning basic drawing skills help a student to communicate more effectively? An ELL student?

Encourage students to create visual representations of information including flow charts, diagrams, concept maps and timelines to show important aspects of a topic or process so you can assess if students understand the relationship among the different parts.

Teach contour line drawing to encourage students to carefully observe and draw what they see. These experiences build observation skills, which are critical to scientific investigations.

Science process skills are also developed through experiences in the arts:

Classifying- using our senses to group objects by observable properties

Inferring- explaining observations and looking beyond the observable

Measuring- choosing a correct tool and measuring properly

Estimating- how much or how many without counting

Predicting- forecasting

Communicating- Describing objects or events visually and/or in writing

Encouraging Appropriate Family Responses to Student Inquiries

1. Ask open-ended questions that engage children such as: What do you think? How can we find out?
2. Encourage children to articulate what they are doing as they investigate.
3. Give children thinking time before asking for a response.
4. Encourage use of science process skills, classifying & making predictions
5. Model curiosity and how to locate information
6. Ask child to explain how they arrived at a conclusion or answer.

Web resource for arts-science integration lessons: <http://artsedge.kennedy-center.org>