

The Science of Museums

Educator Resource Package

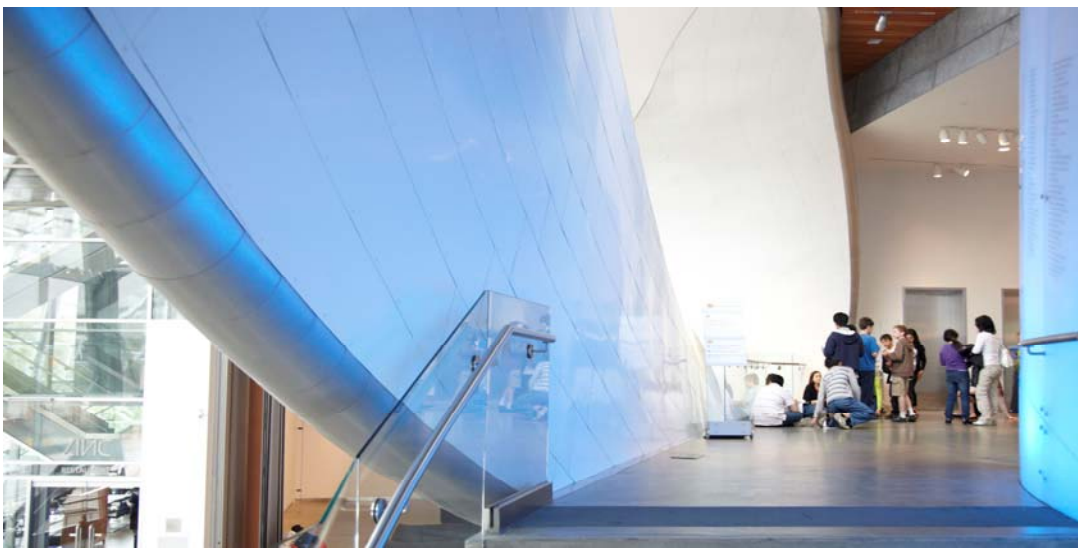
Grade 3-9

Art and science connect in this inquiry-based program. Students investigate the science of art and the art museum through a variety of open-ended exercises. Using an 'investigation log' students draw, label, search, question and hypothesize about environments throughout the Gallery. Students work together to document information, take measurements and learn how art is conserved within an art museum. Close-looking activities and group discussions provide students the opportunity to explore how artists use science and the environment as inspiration in their artwork.

This package will help to prepare your class for their visit and provide in - class activities to further develop connections between art and science that were explored during your visit to the Art Gallery of Alberta.

Big Ideas

- Connecting art and science through inquiry based learning
- Investigate the science of museums including the way buildings are used and how exhibitions are environmentally controlled
- Explore patterns in art work and exhibitions to practice clue gathering and making predictions
- Discover scientific subject matter within artworks and how many artists are inspired to make art about the world around them



Before your visit

Work with your students to explore the connection between art and science. Using the reflection questions below, work with students to brainstorm what they already know and practice looking at art using conceptual mapping to further explore the connection between art and science!

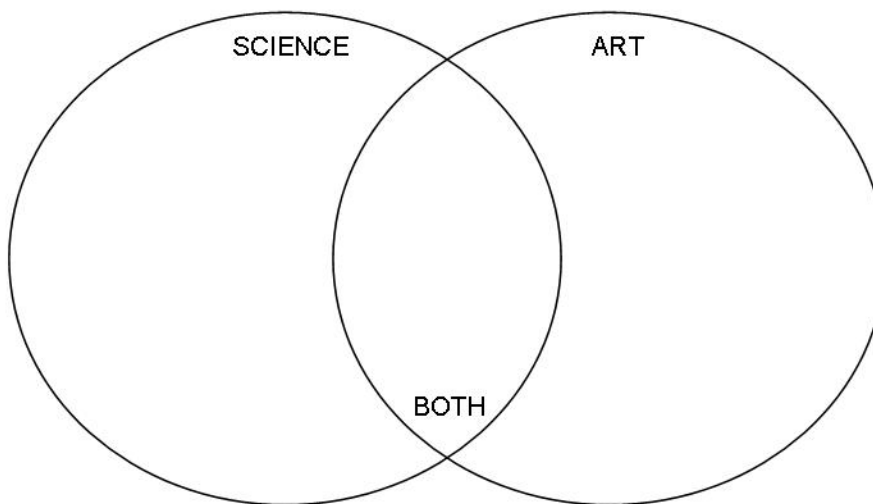
Art as Inquiry

Art, like written text, is a great resource in the classroom to encourage students to practice higher-level thinking skills such as critical-thinking, innovation and evaluation. Using art as inquiry is similar to using text-based resources. Students can learn to become critical thinkers and question what they see by practicing using open-ended questions and meta-cognition strategies; developing skills they will use for the rest of their lives. Unlike a text, however, a visual document is easily accessible to a classroom full of students. Art and visual documents provide a universal grammar: sophisticated, intuitive, and cognitively challenging.

Big Questions: Science and Art?

Brainstorming Activity: Ask your students to brainstorm using a Venn diagram to explore the connection between art and science using the following guiding questions:

- What do artists and scientist have in common?
- How are artists inspired by science when making art? How are scientists inspired by art?
- Why is it important to understand the connection between art and science?



Your Turn: Concept Mapping

Many artists incorporate the world of science in their work. Some artists are interested in scientific ideas, or psychology, while others use science to create their work with light and shadow, colour mixing and experimentation. Explore the way different artists use scientific subject matter in their work. Using images from the internet or in the classroom investigate the role of science in art.

Concept Mapping: Have your students create a concept map using post it notes, or small pieces of paper. Ask them, how do they think the artist was inspired by science?

What you need: Post-it notes, Pencils

1. Choose a work of art on which to focus (connected to your area of study) and pose your question: how has this artist been inspired by the scientific world? (The question can be changed depending on our lesson objectives).
 2. Individually, students record as many ideas as possible (one idea per sticky note) and place these in front of them. Challenge students to come up with as many ideas as possible within a given time frame (i.e. 1 minute).
 3. As a group, begin to share the ideas. Begin to compile the sticky notes and work as a group to organize all of the responses into different themes/categories. These categories will not be established until the ideas have been shared. Students should lead this part as much as possible.
 4. Name the different themes/categories and explore the connections between them using the following questions:
 - Are the categories connected? Why or why not?
 - Are there categories with many ideas? Few ideas? Why do you think that it is?
 - Are there any ideas that you thought of after seeing other people's responses?
 5. Look back at the original artwork and discuss what new meaning/interpretations you bring to the work after completing the Concept Map activity.
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Useful Online Resources

Exploratorium Institute for Inquiry: Library
<http://www.exploratorium.edu/IFI/library/index.html>

The k-12 Lab Wiki: d.school – Institute of Design at Stanford
<https://dschool.stanford.edu/groups/k12/>

Alberta Education Program of Study Connections

Fine Arts

REFLECTION: Students respond to visual imagery throughout the gallery through in-gallery discussions and activities.

- Students will notice and assess commonalities within classes of natural objects or forms and assess the visual qualities of objects.
- Students will interpret artworks by examining their context and less visible characteristics and interpret artworks for their symbolic meaning.

DEPICTION: Students engage in a variety of activities including sketching aiming to develop imagery based on observations of the visual world.

- Students will learn the shapes of things and select appropriate references for depicting images

Science

SKILLS

- Students will investigate the nature of things, demonstrating purposeful action that leads to observations and inferences.
- Students will identify patterns and order in objects and events studied; and, with guidance, record observations, using pictures, words and charts; and make predictions and generalizations based on observations.
- Students will ask questions that lead to exploration and investigation.
- Students will identify one or more possible answers to questions by stating predictions or hypotheses.
- Students will carry out procedures developed by themselves or identified by others working independently or with others to carry out the identified procedures

ATTITUDES

- Students will demonstrate positive attitudes for the study of science and for the application of science in responsible ways.