

# BAM | BOISE ART MUSEUM

## PRE-VISIT ART PACK & CURRICULUM GUIDE GLASS + METAL

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Ann Gardner: *Air Water Earth* (installation detail), 2017,  
Winston Wächter Fine Art, Seattle, WA.  
Courtesy of Jessica Shea.

Students will learn about the ways artists Ann Gardner and Margaret Jacobs transform glass and metal into sculptures that tell stories. In the studios, students will create a three-dimensional work of art.

### RELATES TO

- **Science** (PS1-2)
- **History** (6-9GWH.5.1.2)
- **Tools**
- **Identity** (VA:Re8.1K-IIIa; VA:Cn11.1.K-IIIa)
- **Storytelling** (SL.K-12.1; SL.K-12.2)

### TOUR OBJECTIVES

#### Students will...

- Observe and describe characteristics of sculptural artworks.
- Apply vocabulary and concepts to artworks.
- Investigate artistic processes, specifically glass blowing and metalworking.
- Compare and contrast artworks by the same artist, as well as by different artists.
- Discuss artist's individual life experiences and how their artwork tells a narrative and/or shares a message.
- Discuss connections between the artworks and science, history, identity, and storytelling.
- Create a three-dimensional work of art in the studios inspired by the exhibitions .

*The Boise Art Museum's education philosophy encourages the examination and discussion of the visual arts through a holistic approach to art education. Programs support the development of critical thinking skills, visual analysis, exploration and understanding of art techniques as well as the investigation of cultural contexts, art as a form of communication, and multidisciplinary connections. In its touring program, BAM uses arts-based, student-centered, guided-discovery techniques and inquiry strategies that encourage teaching directly from the object and encompass aspects of many education philosophies.*

# TOUR CHECKLIST FOR TEACHERS

Please follow the checklist below in preparation for your tour

## BEFORE YOUR TOUR

- ☐ PREVIEW THE EXHIBITION with the *Free Teacher Preview Pass* included with your confirmation letter.

## WITH YOUR STUDENTS:

- ☐ DO THE PRE-VISIT ART TALK and review the VOCABULARY words with your students
- ☐ SHARE THE MUSEUM MANNERS with your students.
- ☐ MAKE LARGE NAMETAGS for students with their first names only.

## WITH YOUR CHAPERONS:

- ☐ DESIGNATE YOUR ADULT CHAPERONS. A maximum of **four chaperons are admitted with the group for free.** Chaperons have specific responsibilities and are admitted with the students free of charge. Additional adults pay regular admission and are considered regular visitors in the Museum. (The teacher is counted as one of the four chaperons.)
- ☐ ASK CHAPERONS not to bring infants, younger children, or other siblings.
- ☐ REVIEW THE CHAPERON GUIDELINES with your designated chaperons.
- ☐ PRINT THE CHAPERON PASSES and HAVE YOUR PAYMENT PREPARED for any additional adults. Checks can be made payable to the Boise Art Museum or BAM. We are unable to make change, so please have the exact amount prepared if you are paying with cash. (Often teachers split the admission among all adults to cover the cost. Schools or individuals may pay for the additional adults.) ***General admission is \$6; admission for seniors (62+) \$4, and full-time college students is \$3.***

**A NOTE TO HELP WITH CHAPERON SELECTION:** All students will receive *Free Return Tickets* at the end of the visit. These tickets allow the student and one guest to return and visit the Museum for free at a later date. Parents who indicate that they would like to be chaperons after you have designated the maximum limit of four (4) should be encouraged to return with their students, at a later date, using the *Free Return Ticket*.

## WHEN YOU ARRIVE

- ☐ ARRIVE AT THE REAR EDUCATION ENTRANCE facing Julia Davis Park and the Rose Garden. Do not enter through the front of the museum. Arrive no more than 5 minutes before your scheduled time, as your docents can only let you into the Museum at your indicated tour time. Do not ring the delivery buzzer.
- ☐ DIVIDE YOUR CLASS INTO TWO GROUPS (of approximately 15 students) for their tour.
- ☐ IDENTIFY YOUR CHAPERONS for the docent and MAKE THE PAYMENT for additional adults
- ☐ LEAVE LARGE FIRST AID KITS AND BAGS at the Education Entrance. First aid kits and bags must be smaller than 11" X 15" and must be worn on the front of your body. BAM has multiple first aid kits on site.
- ☐ REMEMBER: The Museum has no indoor or outdoor lunch facilities. Tour groups may bring their lunches and enjoy Julia Davis Park or visit the restaurants at BODO or nearby Boise State University.

## AFTER YOUR TOUR

- ☐ COMPLETE THE EVALUATION CARD that you receive from your tour guides. Your constructive criticism helps us continue to tailor our programs to suit your needs.
- ☐ DO THE MAKE IT! ACTIVITY or use related ideas listed in CURRICULAR CONNECTIONS to connect the tour to your classroom curricula.

# GLASS + METAL

## MUSEUM MANNERS FOR STUDENTS

*Please share and discuss these MUSEUM MANNERS with your students.*

*Remembering to follow these manners on your tour at the Boise Art Museum will help keep the artwork safe and make sure everyone has a positive experience on the tour.*

- **Food, drink, and gum** are not allowed in the Museum galleries.
- **Give the artwork and the walls at least 12 inches of space.**
- **Sit on the floor** during group discussions so everyone can see.
- **Use indoor behavior;** running and jumping should be limited to the outdoors.
- **Leave pens, markers and other writing/art materials at school,** in your backpack, or on the bus.
- **Pay attention so you can be a tour guide.** At the end of the tour, your docent will give your teacher *Free Return Tickets* for each student. These tickets allow you and one guest to return and visit the Museum for free. When you return, you can take your guest on a tour sharing what you learned.
- **Have fun** and enjoy your visit to the Boise Art Museum!

## CHAPERON GUIDELINES

*Please share and discuss this information with your chaperons.*

*Agreeing to be a chaperon for Boise Art Museum's School Tour Program means that you understand the following policies and agree to participate when asked by the docent.*

- **Chaperons should not bring infants, younger children, or siblings** with them on the tour.
- **Keep students with the group and encourage students to stay at least 12" away from the artwork and walls.**
- **Make sure students sit (rather than lay) on the floor and keep their hands and feet to themselves .**
- **Help students to pay attention and participate** by engaging with the group and the tour.
- **Encourage student participation.** If you feel you have a relevant response to the docent's questions, please share as long as your comment complements the students' ideas.
- The docent may call on you to **help during the studio project.** Please pay attention to the instructions and help all students with the process.
- **Additional adults pay regular admission** and are considered independent visitors apart from the school tour. Additional adults are not required to participate in chaperon responsibilities.
- **Cameras, large purses, backpacks, coats and umbrellas should be left on the bus** or stored by the back exit until the end of the visit.
- **Turn your cell phone off.** The use of cell phones is not permitted in the Museum during tours.

# CHAPERON PASSES

BAM offers FREE admission to four (4) adult chaperons with every pre-scheduled tour group. Additional adults must pay regular admission and are considered independent visitors to the Museum. **PLEASE PRINT THIS PAGE BEFORE ARRIVING AT BAM FOR YOUR TOUR.** Designate your four chaperons and have your payment prepared. When you arrive at BAM, please identify your four designated chaperons for the docents. Chaperons must agree to help supervise groups, follow the Museum Manners, and participate in the tour activities when asked.

## TOUR CHAPERON 1

(TEACHER)

Welcome to the Boise Art Museum! BAM provides FREE admission to 4 adult chaperons with a student group.

THANK YOU for helping to make BAM's School Tour Program safe and enjoyable for everyone by doing the following:

- Accompany groups at all times while they are touring the Museum;
- Help the docent keep students with the group and at least 12" away from the artwork and walls;
- Assist the students and continue to supervise while in the studios.

*Please do not bring infants, siblings or younger children with you as this diverts your attention from the group.*

*This chaperon pass is only valid during a pre-scheduled school tour.*

*Duplicates are not accepted.*

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## TOUR CHAPERON 2

(TEACHER)

Welcome to the Boise Art Museum! BAM provides FREE admission to 4 adult chaperons with a student group.

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## TOUR CHAPERON 3

(TEACHER)

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## TOUR CHAPERON 4

(TEACHER)

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BAM | BOISE ART MUSEUM

# GLASS + METAL

## ABOUT THE EXHIBITIONS

### Ann Gardner: The Shape of Air

Ann Gardner interprets the physical world through sculpture, utilizing the intrinsic properties of her materials to represent natural phenomena. Her blown-glass vessels are inspired by the relationship between air and water, and shaped by the natural interplay of breath and molten glass. The transparent, ethereal forms create layering effects, forming unexpected shapes with each vantage point. Gardner's organic, visually dynamic installation expresses the movement and fluctuation of bubbles as they interact with liquid and light.



*Ann Gardner: Air Water Earth* (installation detail), 2017, Winston Wächter Fine Art, Seattle, WA.  
Courtesy of Jessica Shea.

Ann Gardner began working with glass during a 1985 residency at the Pilchuck Glass School in Stanwood, Washington. She has since received many grants and awards, including fellowships from the National Endowment of the Arts, a Louis Comfort Tiffany Award in 1993, and the 2011 Rakow Commission from The Corning Museum of Glass. Gardner's artwork can be found in the collections of such institutions as the Smithsonian American Art Museum, the American Craft Museum, and the Seattle Art Museum.

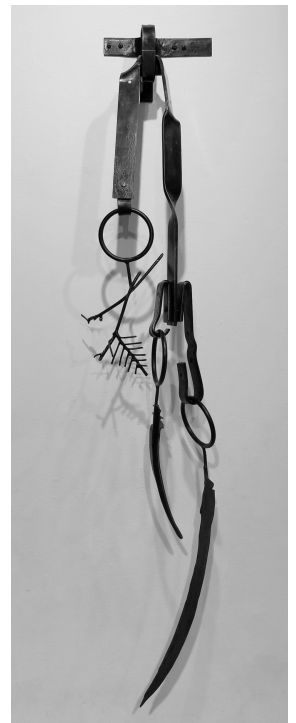
*Organized by the Boise Art Museum*

### Margaret Jacobs: Steel Medicine

Margaret Jacobs celebrates Indigenous culture with a bold, powerful aesthetic. Her steel sculptures depict medicinal plants alongside tools associated with early twentieth-century Mohawk Ironworkers. In this unique coupling, Jacobs explores the tension and harmony between forces of nature and forces of man, addressing ideas such as natural cycles of decay and growth. Drawing on her metalsmithing techniques as a jeweler, Jacobs uses stark lines, organic forms, and intricate links of steel to emphasize the resilience and fragility of nature. Her *Steel Medicine* and *Survival Medicine* series are on view, as well as new artwork created especially for this exhibition at the Boise Art Museum.

Margaret Jacobs grew up in New York and is an enrolled member of the St. Regis Mohawk Tribe. She has received numerous awards, including the Perspectives on Design award at Dartmouth, a Native American Fellowship through the Harpo Foundation, and the 2019 Artist in Business Leadership Award through the First Peoples Fund.

*Organized by the Boise Art Museum*



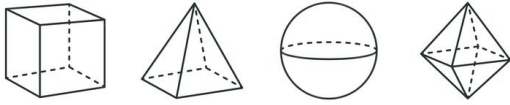
Margaret Jacobs  
(Mohawk, born 1986)  
*Steel Medicine*, 2018  
steel  
Dimensions variable  
Courtesy of the artist

# GLASS + METAL

## VOCABULARY

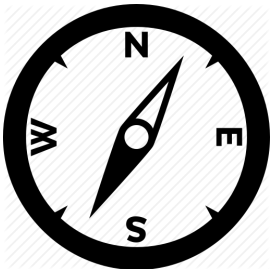
### Three-dimensional

Having height, width and depth.



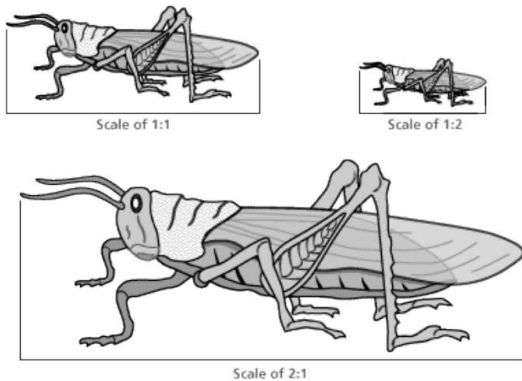
### Orientation

Position or positioning; alignment with surroundings and alignment of parts or details.



### Scale

The size relationship between an object and its surroundings.



### Glass

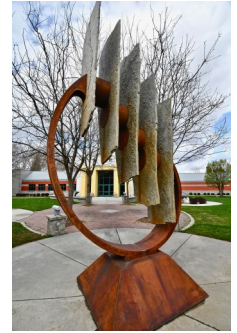
Glass is made from liquid sand. Glass is formed by heating ordinary sand until it melts and turns into a liquid. Sand melts at a very high temperature — 1700°C (3090°F). When this liquid sand, or molten glass, cools, it is completely transformed into glass.



### Sculpture

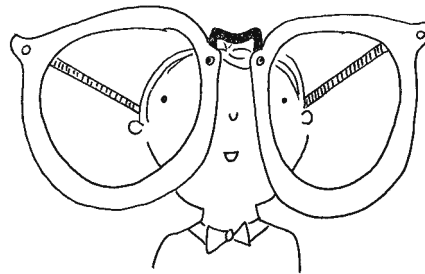
Three-dimensional art made by one of four basic processes: carving, modelling, casting, constructing.

Mark Stasz, Graceful Passage, 1988, quartzite and steel, Boise Art Museum Permanent Collection, BAM Collectors Forum Purchase, 1998.



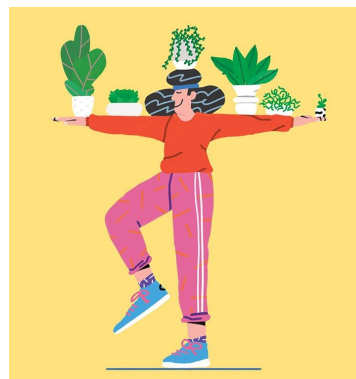
### Proportion

The size relationship between an object and its smaller parts, or details.



### Balance

Physical stability. Also describes compositional viewpoint — the placement of details to create a visually pleasing artwork.



Sebastian Curi

### Metal

A solid material that is typically hard, shiny, malleable, fusible, and ductile, with good electrical and thermal conductivity (e.g., iron, gold, silver, copper, and aluminum, and alloys — combined metal materials — such as brass and steel).





# GLASS + METAL

Please view the two reproductions (Pre-Tour Images) with your class and lead a discussion using the following questions as guidelines. There are no “right” answers. The questions are meant to guide the group discussion. Students will revisit and discuss the original works at BAM. The vocabulary in this packet will aid discussion.

Research and experience have shown that students feel more comfortable when they can connect with something familiar once they arrive at the Museum. The students are excited to find “their” works of art while they are at BAM. They enjoy sharing their insights from the classroom discussion with the docent and making valuable comparisons between the textbook-like reproductions and the original works of art.

- What do these forms remind you of?  
(soap, soda, swimming, jellyfish, balloons, etc.)

The artist’s name is Ann Gardner and these artworks are glass sculptures.

- What do you use commonly that is made from glass?  
(drinking glass, magnifying glass, windows, etc.)

Let’s look closely at the **orientation** of the sculptures.

Orientation means the positioning or alignment of an artwork with its surroundings, or between its smaller parts and details.

- How are the sculptures oriented in the room?
- How are the sculptures oriented to one another?
- If you could change something about the orientation of the sculptures, what would you change?

These sculptures are hung in different ways each time they are displayed in a new place.

When we visit BAM, we will talk about how they are hung, how they were made, and what makes a sculpture.



Ann Gardner: *Air Water Earth* (installation detail), 2017, Winston Wächter Fine Art, Seattle, WA. Courtesy of Jessica Shea.

This artwork is also a sculpture.

- How is this sculpture different from Ann Gardner’s glass sculptures?
- How is this sculpture similar to Ann Gardner’s glass sculptures?
- How is this sculpture oriented?

Some of the objects included in this sculpture might be familiar to you.

- What objects do you notice that are from nature?
- What objects do you notice that are things created by people?

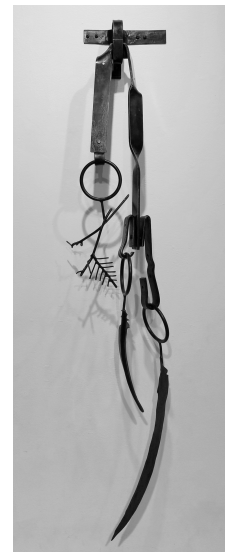
This sculpture is one of many on display at BAM by artist Margaret Jacobs.

She creates several metal objects that together make a sculpture.

These objects tell us about her identity — her family, her community, and her culture.

- Do you have an object that is special to you?

When we visit BAM, we will look closely at more sculptures by Ann Gardner and Margaret Jacobs. We will talk more about what makes a sculpture, and do activities to learn more about these artworks.



Margaret Jacobs  
(Mohawk, born 1986)  
*Steel Medicine*, 2018  
steel  
Dimensions variable  
Courtesy of the artist

The two images may also be accessed through our website, [www.boiseartmuseum.org](http://www.boiseartmuseum.org)  
<http://www.boiseartmuseum.org/school-programs/artpacks/>

## GLASS + METAL



*Ann Gardner: Air Water Earth* (installation detail), 2017, Winston Wächter Fine Art, Seattle, WA.  
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# GLASS + METAL

## CURRICULAR CONNECTIONS

### Pre-school-1<sup>st</sup> Grade

#### SOCIAL STUDIES/HISTORY

**Glass + Metal:** Brainstorm ways people use glass and metal. These materials can be found in so many places and for so many different uses! Create a log of glass and metal materials in your classroom. Why choose glass as a material? Why choose metal? What can each materials offer? Discuss why certain objects might be better suited to either glass or metal.

#### LANGUAGE ARTS

**Word Play:** Offer students a touchable sample of glass or metal. Brainstorm words to describe how the sample feels to the touch. Organize and categorize these words to practice parts of speech and writing concepts.

**Object Stories:** Prompt each student to select a special object from home or the classroom. Each student will share and present their object to the group. What is this object? Where did it come from? How was it made? Why is it special? How is it kept or used? Extend this exercise with group or individual writing.

#### MATH/SCIENCE/TECHNOLOGY

**Native Plants:** Observe and research native plants in your school's neighborhood. What types of plants grow near you? What are the features of the local landscape? What do these plants need to grow? How can these plants be used by animals? By humans?

**Bubbles:** Investigate the science of bubbles. What is a bubble? How does a bubble form? Why do bubbles form? How can you make a bubble? Try making and comparing bubbles with different materials—dish soap, hand soap, milk, juice, water, paint, clay, and more!

#### ARTS

**Recycled bubble prints:** Make textured prints using recycled bubble wrap. Using a brush or roller, apply acrylic paint to the raised side of bubble wrap. Stamp the painted side gently to the paper and rub lightly. Lift the bubble wrap to reveal. Add layers to build texture, and experiment with different colors and sizes of bubble wrap.

**Local Sculptures:** What sculptures are near your school? Near your student's homes? Take a walking tour of local sculptures and explore public art. Extend this exploration by designing a sculpture for your classroom or school campus.

#### LITERATURE

*13 Sculptures Children Should Know*, Angela Wenzel, ISBN-10: 3791370103.

*Anna at the Art Museum*, Hazel Hutchins and Gail Herbert, ISBN-10: 9781773210438.

*Bowwow Powwow*, Brenda J Child (Red Lake Ojibwe), ISBN-10: A1681340771.

*Bubble Trouble*, Margaret Mahy, ISBN-10: 0547994834.

*Elena's Serenade*, Campbell Geeslin, ISBN-10: 0689849087.

*Look! Look! Look! at Sculpture*, Nancy Elizabeth Wallace, ISBN-10: A0761461329.

*Mr. Hoopeyloops and His Amazing Glass*, Andi Cann, ISBN-10: 0999124404.

*The Game of Sculpture (Tullet Game Series)*, Hervé Tullet, ISBN-10: A0714864897.

*The Line*, Paula Bossio, ISBN-10: 189478684X.

*Up in the Garden and Down in the Dirt*, Kate Messner, ISBN-10: 1452161364.

*We Are the Gardeners*, Joanna Gaines, ISBN-10: 1400314224.

*Wild Berries*, Julie Fleet, ISBN-10: 1897476892.

# GLASS + METAL

## CURRICULAR CONNECTIONS.

### 2<sup>nd</sup>-5<sup>th</sup> Grade

#### SOCIAL STUDIES/HISTORY

**Indigenous Peoples:** Margaret Jacobs is an active member of the St. Regis Mohawk community and her heritage inspires her artwork. What indigenous communities are present in your local area? Is your school near or on indigenous land? Learn more about the indigenous heritages in your local context.

**Innovation of Glass:** Research the innovation of glass. How and when was glass discovered? How has the discovery of glass changed how humans live? In what ways do we use and rely on glass?

#### LANGUAGE ARTS

**The Shape of Air:** Ann Gardner's exhibition at BAM is titled, *The Shape of Air*. Use this title as a creative writing prompt for students—what is the shape of air?

**Object Stories:** Use personal objects as self-reflective writing prompts. Each student will select a special object from home or the classroom. Ask students to free write about their object's story, considering the following questions: What is this object? Where did it come from? How was it made? Why is it special? How is it kept or used? What does this object show about you?

#### MATH/SCIENCE/TECHNOLOGY

**Invention of Glass:** Investigate the invention of glass. What tools were necessary? What challenges were overcome? What was glass initially used for? How has the process of making glass changed over time?

**What are Metals?:** We use metals everyday, but what are metals? Where do metals come from? How are metals changed to make everyday objects? Uncover more about metals using research skills.

**Proportion + Scale:** Learn about proportion and scale through art. What is proportion? What is scale? How are these qualities different? How do artists determine proportion and scale? Try altering the proportion and scale of objects in your classroom.

#### ARTS

**Contemporary Glass:** Look at examples of contemporary glass artworks. Observe the many different ways in which artists create with glass. Check out artwork by: Dale Chihuly, Lino Tagliapietra, Stanislav Libenský, Harvey Littleton, Dante Marioni, Martin Blank, Karen LaMonte, Judith Schaechter.

**Where are Metal Arts:** Explore your classroom, school, and neighborhood—where are metal arts? What can you find in your local community? Is there a metal arts studio nearby? Are there public or private sculptures? Discuss how your community would be different with fewer metal artworks, or with more.

#### LITERATURE

*Hiawatha and the Peacemaker*, Robbie Roberston, ISBN-10:9781419712203.

*Keepers of Life: Discovering Plants through Native American Stories and Earth Activities for Children (Keepers of the Earth)*, Michael J. Caduto, ISBN-10: 1555913873.

*Pip! The Baby Monster and How He Was Made at the Museum of Glass*, George Shannon, ISBN: 978-0-295-98938-9  
*Kids Design Glass*, Benjamin Cobb, ISBN-10: 0295989378.

*Simone Visits the Museum*, Kelsi Bracmort, ISBN-10: 0999568507.

# GLASS + METAL

## CURRICULAR CONNECTIONS

### 6<sup>th</sup>-8<sup>th</sup> Grade

#### SOCIAL STUDIES/HISTORY

**Origins of Glass:** Archeological samples of glass date over 4,000 years old! Learn more about the ancient history of glass and the different cultures in which glass was created and used. Resources include: The Corning Museum of Glass, <https://www.cmog.org/article/origins-glassmaking>; The Art Alliance for Contemporary Glass, <https://contempglass.org/2012-celebration/info/a-brief-history-of-glass>.

**Mining:** What is happening in Idaho regarding mining for natural resources, specifically minerals and metals? How are these resources extracted and processed? What is the economic, social, or cultural need for these resources? What different opinions exist regarding mining for minerals and metals in Idaho? Nationally? Ask students to research primary and secondary sources to craft a well-rounded understanding of the role and implications of mining minerals and metals in Idaho.

**Mohawk Ironworkers:** Learn more about the history of Mohawk Ironworkers, one source of Margaret Jacob's Inspiration, through this short film, *Sky Walking*, by New York Public Radio, WYNC, <https://www.wnyc.org/story/192807-sky-walking-raising-steel-mohawk-ironworker-keeps-tradition-alive/>.

#### LANGUAGE ARTS

**Art Critique:** Practice critiquing art! Using guidelines from The Kennedy Center ArtsEdge, ask students to select one of the exhibitions viewed at BAM— Anne Gardner, *The Shape of Air* or Margaret Jacobs, *Steel Medicine*— and write a critique. (<https://artsedge.kennedy-center.org/educators/how-to/tipsheets/student-critique/>).

#### SCIENCE/MATH/TECHNOLOGY

**Chemistry of Glass:** How is glass formed by humans? What does this process look like on a chemical level? What makes glass chemically unique? What are the properties of glass? How and where is glass forming naturally in the environment?

**Chemistry of Metal:** How is metal formed by humans? What does this process look like on a chemical level? What makes metals unique? What are the properties of metals? How and where are metals naturally in the environment? In the human body?

**Tech Components:** In what ways are glass and metal being used to create technological materials? What types of glass and metal are used? How are these materials processed? What other materials are used in these processes? How, if at all, are glass and metal being recycled or reclaimed from broken, outdated, or discarded technology?

#### ARTS

**Glass Forms:** Use resources from Khan Academy and The Paul J. Getty Museum to learn more about the variety of techniques and processes artists use to create glasswork: Glassmaking— history and techniques, <https://www.khanacademy.org/partner-content/getty-museum/antiquities/ancient-glassmaking/a/glassmaking-history-and-techniques>.

**Visual and Auditory:** Composer Edie Hill is creating new music inspired by Judith Schaechter's glass artworks. Look at the artwork, listen to the music, and read more about the project. New Music America USA, <https://www.newmusicusa.org/projects/glass-works-new-music-inspired-by-the-stained-glass-artistry-of-judith-schaechter/>.

#### LITERATURE

Native American Young Adult Fiction, Los Angeles Public Library, <https://www.lapl.org/teens/books/native-american-young-adult-fiction-you-need-read>.

# GLASS + METAL

## CURRICULAR CONNECTIONS

### 9<sup>th</sup>-12<sup>th</sup> Grade

#### SOCIAL STUDIES/HISTORY

**Mohawk Ironworkers:** Learn more about the history of Mohawk Ironworkers, one source of Margaret Jacob's inspiration, through the Mushkeg Media documentary, *Mohawk Ironworkers*, <http://www.mohawkironworkers.com/>.

**Gathering Medicine:** Watch episodes from *Tending the Wild*, a documentary series by Public Media Group of Southern California about indigenous people's knowledge of the Californian natural environment. Learn about native plants and indigenous medicinal practices with the episode, *Gathering Medicine*, <https://www.kcet.org/shows/tending-the-wild/episodes/gathering-medicine>, and the use of native plants in basketry tradition with *Weaving Community*, <https://www.kcet.org/shows/tending-the-wild/episodes/weaving-community-how-native-peoples-are-rediscovering-their>.

**Public Radio:** Listen to an interview with Margaret Jacobs by North Country Public Radio and learn more about her artistic practice and community involvement— *Artist Margaret Jacobs shows her metal at Remington Museum in Ogdensburg* (July 28, 2018) <https://www.northcountrypublicradio.org/news/story/36632/20180718/artist-margaret-jacobs-shows-her-metal-at-remington-museum-in-ogdensburg>.

#### LANGUAGE ARTS

**Historical Object Narratives:** Margaret Jacob's exhibition *Steel Medicine* tells a narrative about Mohawk history and culture. For an analytical writing exercise, challenge students to identify 3-5 historically accurate objects that provide a snap shot of a specific historical moment. Students will ground their writing with these objects, describing them and referencing them throughout to support an overarching thesis statement.

**Five Senses:** Ask students to select an object—it can be personally meaningful object, or an everyday object. Using sensory sentence starters, like those found at CreativeWriting.Com (<http://www.creativewriting-prompts.com/sentence-starters.html>), students will draft sentences describing their object with all five senses. With this exercise, students will practice close looking and creative written description.

#### SCIENCE/MATH/TECHNOLOGY

**Biomedical Botanicals:** The US National Library of Medicine and National Institutes of Health offers teaching resources about medicinal plants and ethnobotany. *Online Teaching Resources about Medicinal Plants and Ethnobotany*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5132387/>.

**Spider Silk:** How else are naturally occurring materials being utilized by scientists? Discover the amazing properties of spider silk with this article and short video from the American Association for the Advancement of Science — *Spider silk is five times stronger than steel*, <https://www.sciencemag.org/news/2018/11/spider-silk-five-times-stronger-steel-now-scientists-know-why>. Continue your investigation with these resources — *Scientists breed goats that produce spider silk*, Phys.Org, <https://phys.org/news/2010-05-scientists-goats-spider-silk.html>; Spidey Tek on Innovation Nation with Mo Rocca, <https://www.spideytek.com/>.

**Properties of Glass:** Experiment with sugar glass to better understand the properties of glass itself. University of Lehigh student Sean Kelly's slides offer background information, step-by-step instructions, and additional resources, [https://www.lehigh.edu/imi/scied/docs\\_students/Kelly\\_ReuPresentation.pdf](https://www.lehigh.edu/imi/scied/docs_students/Kelly_ReuPresentation.pdf). Try another experiment from Invisible Glass, Steam Experiments, <http://steamexperiments.com/experiment/invisible-glass/>.

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# GLASS + METAL

## CURRICULAR CONNECTIONS

### 9<sup>th</sup>-12<sup>th</sup> Grade

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#### ARTS

**Mohawk Made:** Learn about traditional basket weaving and Mohawk culture through the artwork of Sheila Ransom, Debbie Cook-Jacobs, and Nanci Ransom, the women behind Mohawk Made (<http://www.mohawkmade.com/>).

**Six Nations Indian Museum:** Explore Haudenosaunee culture through art. The Six Nations Indian Museum highlights the contemporary artwork of Dave and John Fadden, as well as historical objects and artifacts (<http://www.sixnationsindianmuseum.com/our-mission/>).

**Glass:** Investigate glass art with the Museum of Glass, located in Tacoma, WA — <https://www.museumofglass.org/>.

#### LITERATURE

**Braiding Sweetgrass:** Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants by Robin Wall Kimmerer (Potawatomi Citizen Band), ISBN-10: 1571313567.

**Heart Berries** by Terese Mailhot (Seabird Island Band), ISBN-10: 9781619023345.

**Native American DNA: Tribal Belonging and the False Promise of Genetic Science** by Kim Tallbear (Sisseton Wahpeton Oyate), ISBN-10: 0816665869.

**Onigamiising: Seasons of an Ojibwe Year** by Linda LeGarde Grover (Bois Forte Band of Ojibwe), ISBN-10: 1517903440.

**Power: A Novel** by Linda Hogan (Chickasaw), ISBN-10: 0393319687.

**The Manitous: The Spiritual World of the Ojibway** by Basil Johnston (Ojibway), ISBN-10: 0873514114.

**There, There: A Novel** by Tommy Orange (Cheyenne, Arapaho), ISBN-10: 0525436146.

**The River Is in Us: Fighting Toxics in a Mohawk Community**, Elizabeth Hoover, ISBN-10:A1517903033.

**The Round House: A Novel** by Louise Erdrich (Turtle Mountain Band Chippewa), ISBN-10: 9780062065254.

**Two Old Women** by Velma Wallis (Gwich'in Athabaskan), ISBN-10: 0062244981.

**Whereas** by Layli Long Soldier (Oglala Lakota), ISBN-10: 1555977677.

**Why Indigenous Literatures Matter** by Daniel Heath Justice (Cherokee Nation), ISBN-10: 1771121769.

**Why Storms are Named After People and Bullets Remain Nameless** by Tanaya Winder (Duckwater Shoshone, Pyramid Lake Paiute & So), ISBN-10: 1977979262.

#### Indigenous Authors

Barney Bush	Janet Campbell Hale	N. Scott Momaday	Wendy Rose
Charles Eastman	John Joseph Mathews	Nila northSun	Winona LaDuke
David Treuer	Joy Harjo	Paula Gunn Allen	
Diane Glancy	Lee Maracle	Richard Wagamese	
Duane Niatum	Leslie Marmon Silko	Sherman Alexie	
Gerald Vizenor	Louise Erdrich	Simon J. Ortiz	
James Welch	Marilyn Dumont	Vine Deloria Jr.	

# GLASS + METAL

*To extend the museum experience and connect the tour to your curriculum, consider using or adapting this lesson plan. Can be adapted for all ages .*

## Going 3D: Clay + Paper

### Introduction

Artists use any materials to create 3D sculptures. Below you will find three simple media that enable students to experiment with the concepts of sculptural art.

### Clay

Clay offers students a unique sensory experience and is an excellent materials for working in three dimensions. Some clays can also be painted to add additional details or designs.

#### Materials

- air dry or modelling clay  
(Recommended: Crayola Modeling Clay + Air-Dry Clay)
- protective surface for table tops: butcher paper, linoleum tile, paper plates, or canvas
- smoothing tools
- cutting tools

#### Instructions

Considering balance, scale, proportion, orientation, and articulation, students will shape clay into an abstract three dimensional artwork. Students can sculpt by adding material, or by removing material. Encourage students to think about how the sculpture would move if it were animated, and to consider alternative ways to manipulate the clay.



### Paper

Paper is accessible and simple to manage. Students will practice fine motor skills and explore design concepts.

#### Materials

- construction paper (all colors or limited color palette )
- glue sticks
- scissors
- rulers
- tagboard, cardboard, or heavy cardstock base

#### Instructions

Students will cut, fold, and glue paper in a variety of ways to create a multilayered three dimensional artwork. Encourage students to try many ways of altering and attaching paper to their base. See the guide to the right for ideas on how to manipulate the paper. For younger students, consider pre-cutting the paper into long strips that can more easily be manipulated.

