

CURRICULUM CONNECTIONS:

MATH

HIGH MUSEUM OF ART PERMANENT COLLECTION SPOTLIGHT ON

PHYSIC GARDEN BY MOLLY HATCH

Use *Physic Garden* by Molly Hatch to further your students' understanding of coordinate planes, multiplication, circles, and ratios.

A CLOSER LOOK AND SUGGESTED DISCUSSION QUESTIONS

Physic Garden is a two-story, hand-painted "plate painting" installed in the Margareta Taylor Lobby of the Museum's Wieland Pavilion. The plate painting comprises 456 dinner plates featuring an original design inspired by two ca. 1755 Chelsea Factory plates from the High's Frances and Emory Cocke Collection of English Ceramics (below).



Plates, ca. 1755, porcelain, Chelsea Factory (London, 1745–1769), Frances and Emory Cocke Collection, 1988.31.1–2.

Molly Hatch (American, born 1978) *Physic Garden*, 2013–2014, earthenware and glaze. Acquisition supported with funds from The Fraser-Parker Foundation, 2013.671.1–456.

COORDINATE PLANES AND ORDERED PAIRS

Show students the image of the upside-down plates and explain that it was taken during the installation of Hatch's artwork. Ask students to consider what the numbers and letters on the back of the plates might indicate.

- How might the artist have used a coordinate plane or a graph to organize this work of art?
- Using ordered pairs, have students identify sections of *Physic Garden* that can also be seen on the original porcelain plates. Which four ordered pairs represent a section with a butterfly? Fruit? Leaf?
- Watch a video of the installation [here](#).
- Ask students to describe the process. What preparation went into hanging the plates? How would this process or the final result have been different if the artist hadn't assigned each plate a letter and number?



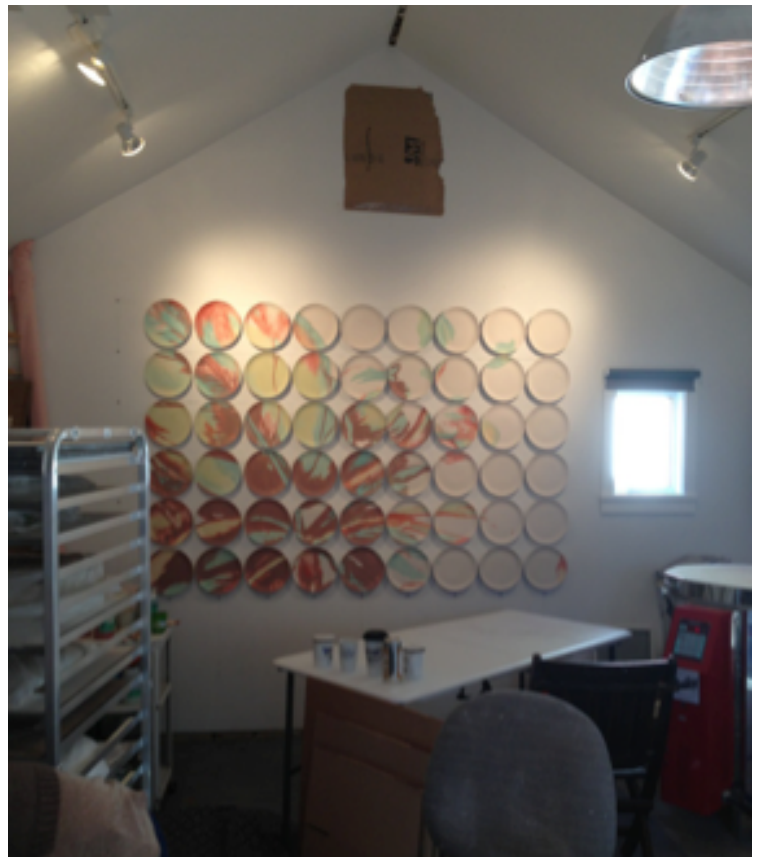
ADDITIONAL MATH EXPLORATION

- Ask students to determine how many plates are on the wall without counting each plate.
- Each plate is 9.5 inches in diameter. What is the circumference? What is the radius? What is the surface area?
- Knowing that the diameter of each plate is 9.5 inches, how wide is the installation? How tall? What is the area of the installation?
- Imagine each plate had a 20-inch diameter. What would the dimensions of the installation be?

Molly Hatch worked on this installation in a much smaller studio space (to the right). How did she have to use math and creative problem solving to prepare the plates to be installed at the High Museum of Art?

VISUAL ARTS

- How is Molly Hatch's installation similar to or different from the original Chelsea Factory plates?
- What stands out to you about this work of art?
- Why do you think the artist chose to use round plates?
- Have students create collaborative installations. Students can create small, individual, round drawings and combine them to create an installation.
- If you have access to a button maker, have each student create a button that can be pinned onto fabric or into a foam board.



STANDARDS

MGSEK.CC.4—Understand the relationship between numbers and quantities.

MGSEK.G.1—Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.

MGSEK.G.3—Identify shapes as two-dimensional or three-dimensional.

MGSE3.OA.1—Interpret products of whole numbers.

MGSE3.MD.5—Recognize area as an attribute of plane figures and understand concepts of area measurement.

MGSE3.MD.7—relate area to the operations of multiplication and addition.

MGSE4.OA.1—Understand that a multiplicative comparison is a situation in which one quantity is multiplied by a specified number to get another quantity.

MGSE4.NF.4—Apply and extend previous understandings of multiplication to multiply a fraction by a whole number by using a visual such as a number line or area model.

MGSE.5.G.1—Use a pair of perpendicular number lines, called axes, to define a coordinating system.

MGSE.5.G.2—Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.

MGSE.6.RP.3a—Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

MM2G—Students will understand the properties of circles.



Molly Hatch-inspired buttons created by the 2015–2016 High Museum of Art Teen Team