Honolulu Museum of Art

Math Through Art

Student Tour Booklet

Numbers

What is a number?

How many ways can you write one number? Write them in the box below.

Do you have a favorite number? Are there numbers that define you?

Write your favorite number or numbers in the space below (such as your phone number, birthday, grade, classroom number, age, shoe size, etc.)

Are numbers art?

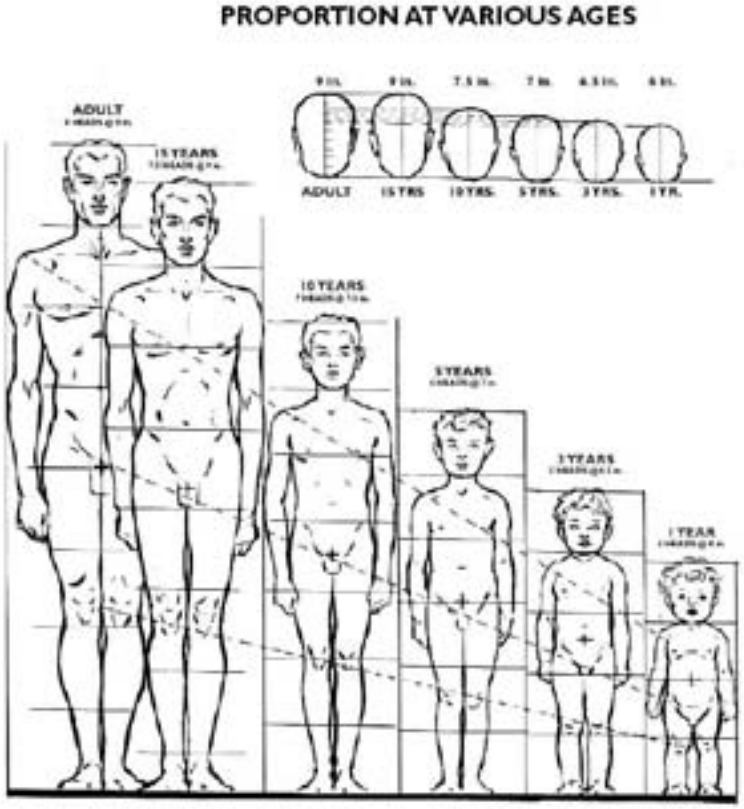
Create a work of art using one or several of your personal numbers in the space below.

Give it style! Don’t draw it like you usually write the numbers.

Human Proportion

Does the human body follow a specific ratio between the head and body as seen in the diagram below?

Measure the head of your teacher and a fellow student. Using the head as the unit of measure, determine how many heads tall the student is.



My teacher's head is _____ inches tall.

My teacher's body is _____ heads tall.

My friend's head is _____ inches tall.

My friend's body is _____ heads tall.

How do these proportions compare to those used by the ancient Egyptians?

Compare the proportions of your teacher and friend to the standard proportions of the Egyptians.

What ratio did the Egyptians use?

Measure the head size of a work of art found in a reproduction.

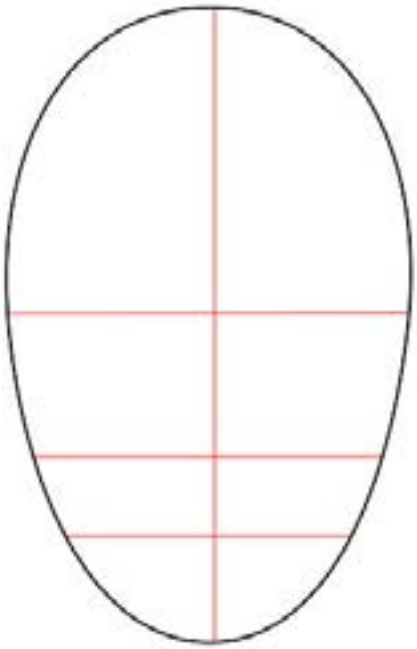
Calculate the height of the person based on the proportion of their head to their body.

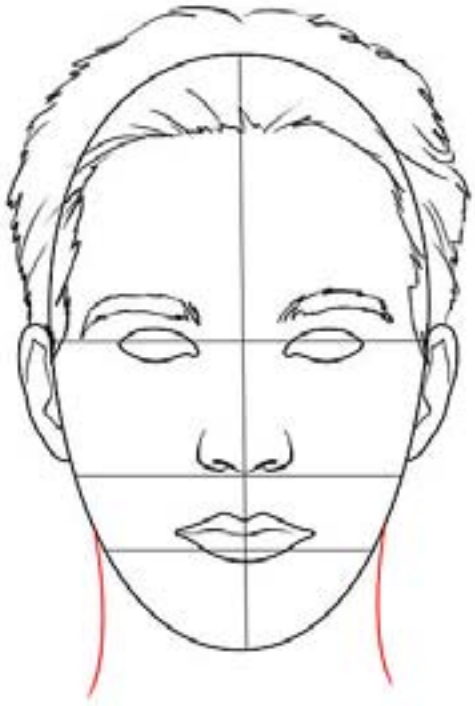
Lady Meux

Nathaniel Allen

Lady Meux"s head is _____ inches tall. As an adult, she would be _____ inches tall.

Nathaniel's head is ___ inches tall, so he would be ___ inches tall.





Draw a portrait in the open space to the right.

- Start with an egg-shape. Make it large enough to nearly fill the page.
- Divide the egg-shape in half vertically from top to bottom.
- Divide your an egg-shape in half horizontally from side to side.
- Divide the bottom half of the egg-shape in half again from side to side.
- Divide the bottom half in half again from side to side.
- The eyes will be placed along the top horizontal line with an eye-sized space in between.
- The bottom of the nose will be on the the second horizontal line.
- The mouth is centerd along the bottom horizontal line.
- *How do the ears line up with the eyes and nose?*

One-point Perspective

Artists have long used several techniques to create a sense of depth on a flat surface. Examine the print on the right.

How do you know what is closer and what is farther away? How does the artist create a feeling of depth?

Leonard Coccorante*, Harbor with Roman Ruins*

You will see overlapping objects, diminishing size of similar objects, one-point perspective and atmospheric perspective. In one-point perspective, all lines of the architectural features converge on one spot – the **focal point** or **vanishing point**.

Find the **focal point** on this print. Draw the lines that connect the architectural features so that they all meet in one place.

One-point Perspective in Real Life

You can observe one-point perspective in the museum building.

Although you know that the beams and columns in the courtyard are the same size as you look from across the courtyard, when you stand at one end of the hallway, notice how they diminish in size as they get farther from you. Finally, if you draw lines that connect the architectural features, these lines lead to the focal point.

In the photograph of the museum courtyard on the right, draw in the lines that lead to the focal point or vanishing point.

Walkway by the Central Courtyard at the Honolulu Museum of Art

In the box below, draw a part of the Honolulu Museum of Art to show how artists show depth. Try to include objects or architectural details that overlap, diminish in size, and have one-point perspective. In your drawing, include parallel lines and lines that all converge at the **focal** or **vanishing point**.

Geometric Patterns

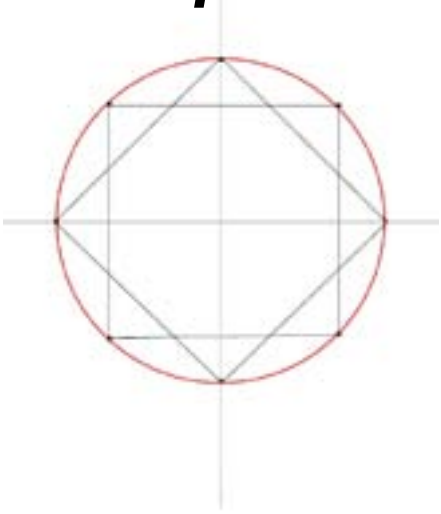
The basis of Islamic art is the ***circle***, a shape with no end that is infinite. Patterns are created using many circles and lines. They often fit together as ***tessalations,*** *(without space between),* to completely cover walls, textiles, trays, doors, and many other functional objects.

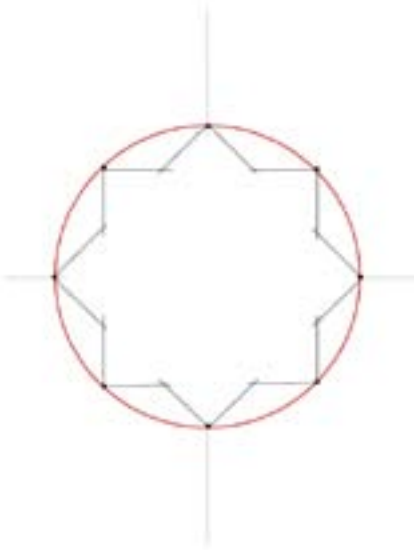
Explore the creation of patterns that are made with circles throughout the gallery and in the booklet pages that follow.

What shapes do you see that make up the patterns?

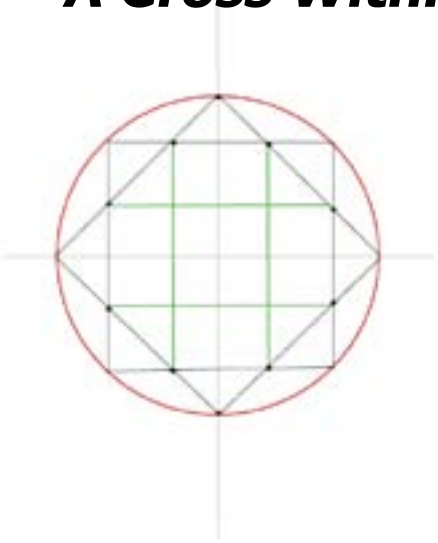
Draw the shapes you find in the gallery in the space below.

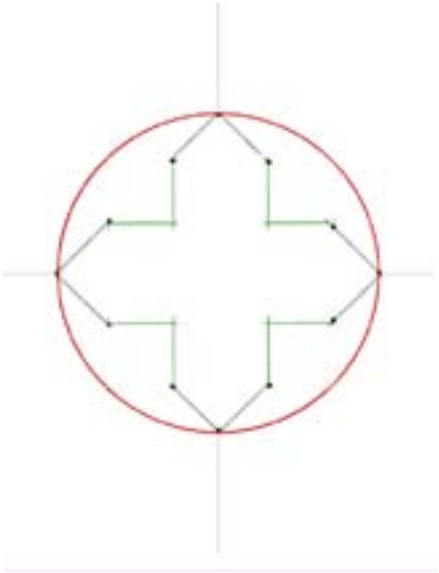
The 8-pointed Star Within a Circle



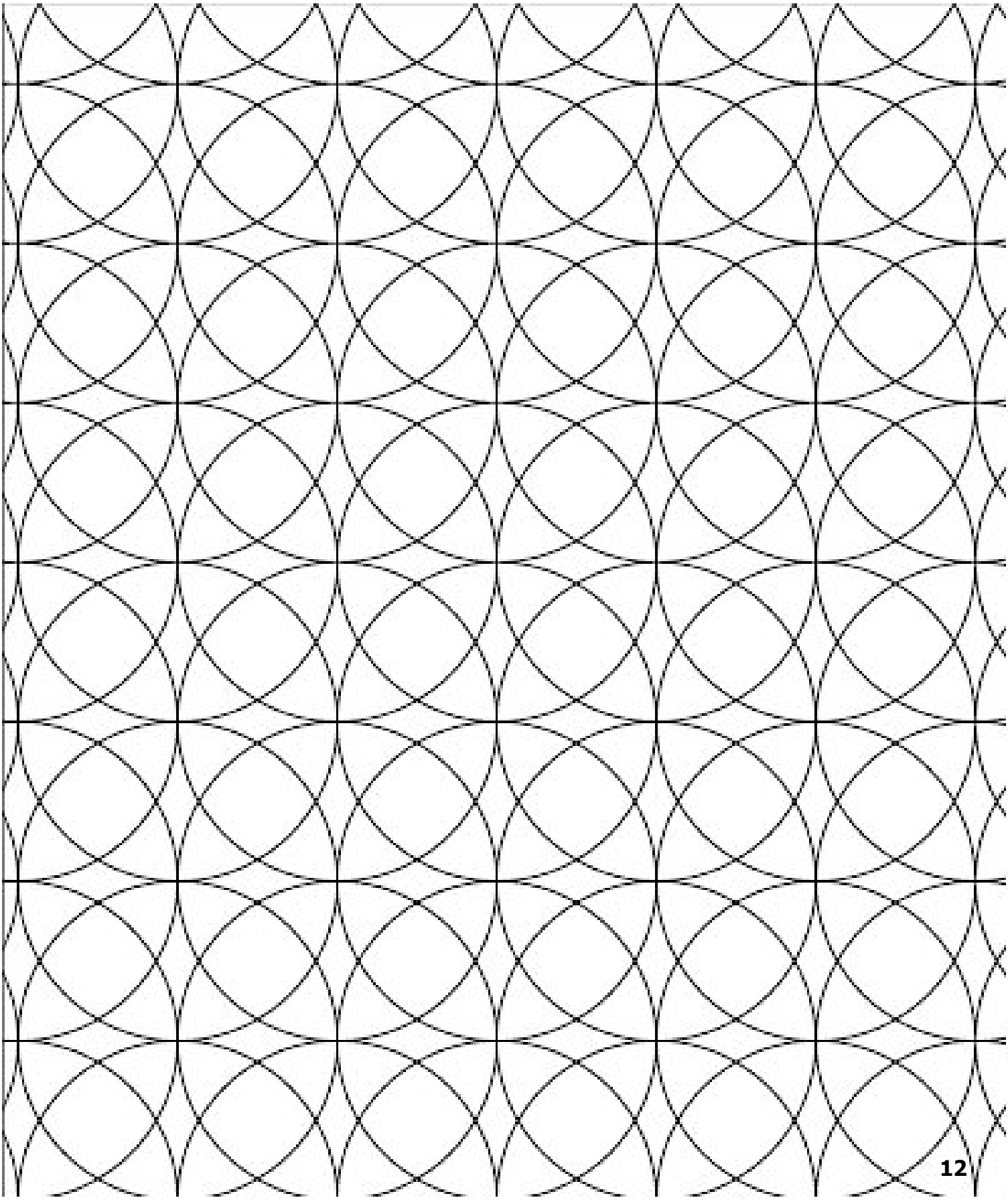


A Cross Within a Circle



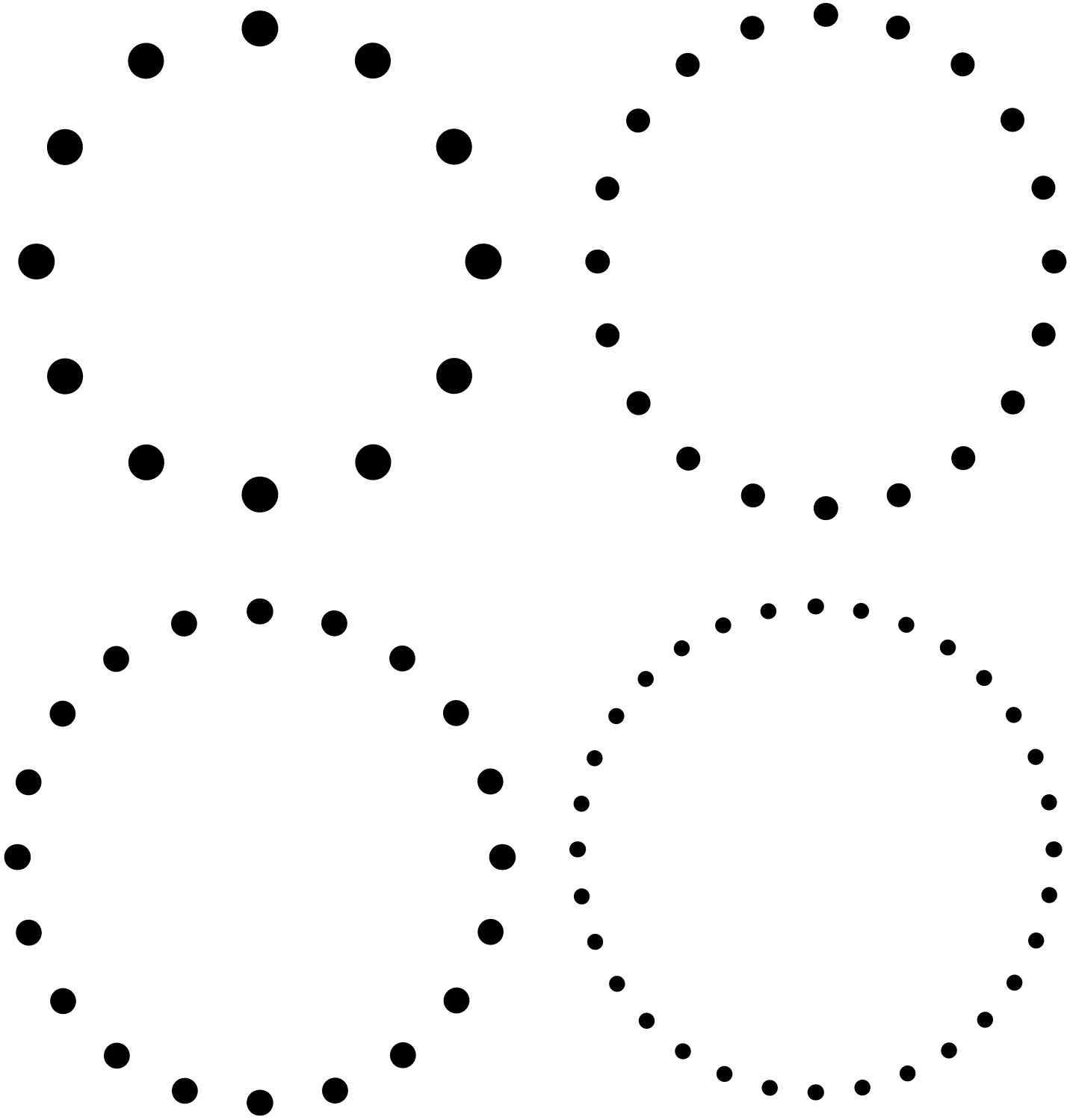


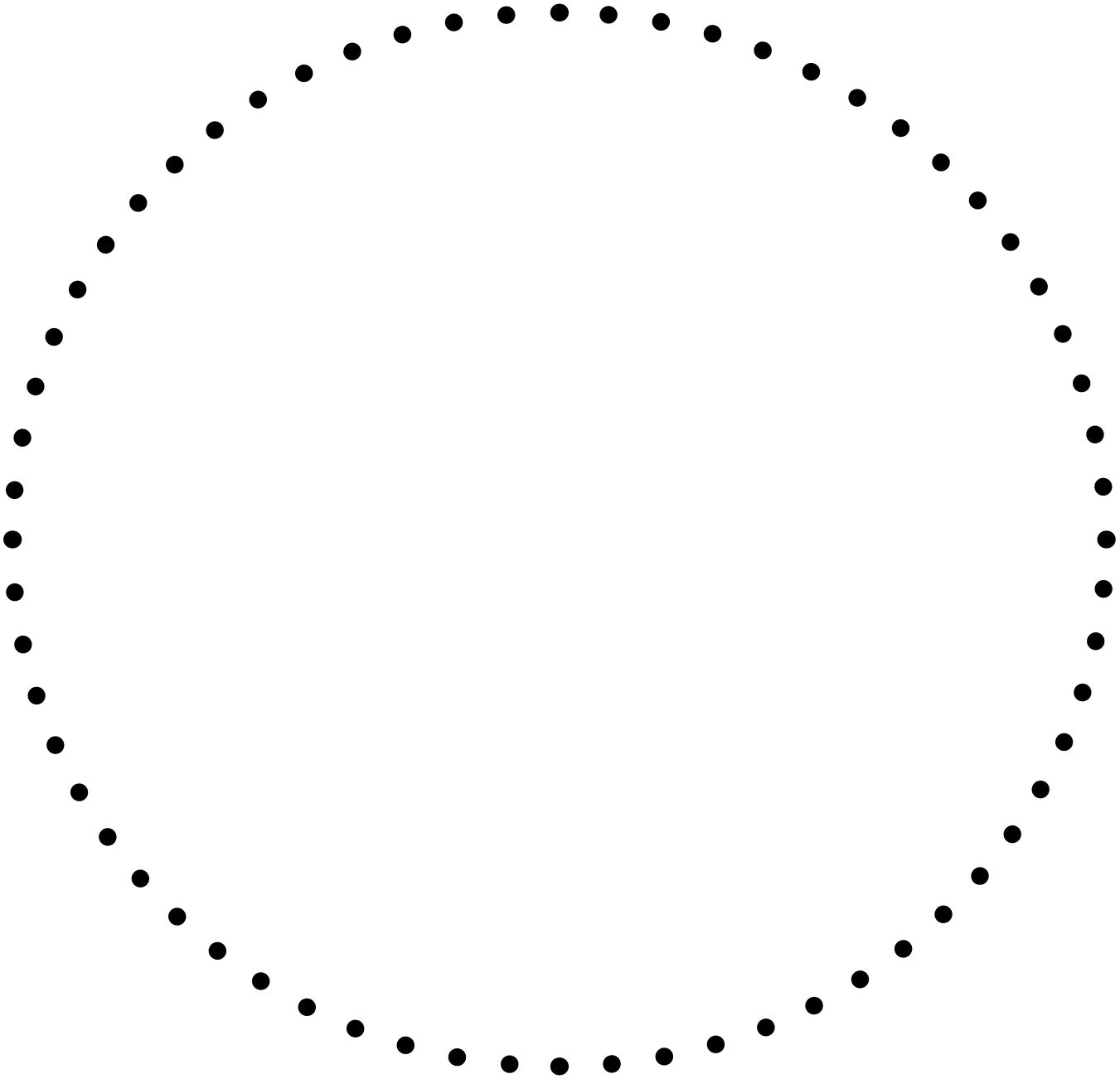
Look for patterns in the grid below.
Mark the patterns with your pencil and then color them to stand out.



Spirograph

Remember the designs made with your classmates standing in a circle holding a rope? You can make similar designs in this booklet. In the first circle on the left, start with your pencil tip on any one dot of the circle. Going clockwise, count by 5's connecting every 5th dot. Keep going until you have completed the circle, then go around again and again. Try counting by different numbers in the other circles. Enjoy your patterns. *How does counting by different numbers change the design?*





Name _____

Teacher _____

School _____

Date _____

Find out these museum facts.

How many galleries are at the Honolulu Museum of Art?

How many square feet are at the Honolulu Museum of Art?

How many works of art are on view at the Honolulu Museum of Art?

How many works of art are owned by the Honolulu Museum of Art?

What is the oldest work of art on view?

What is the newest work of art on view?

What is the ideal humidity of an art museum?

How high are paintings hung?

How many visitors come to the Honolulu Museum of Art each year?

How many people work at the Honolulu Museum of Art?

How many volunteers work at the museum?

Honolulu Museum of Art