

Honolulu Museum of Art

Math Through Art SAMA Standards

The Math Through Art tour encourages students to look at the world, and art, through a mathematical lens. Students will explore ratios and proportion in the human figure; they will discover how artists use geometry to make a two-dimensional image appear to be three-dimensional; and, through the art project, will investigate how repetition of simple shapes can lead to complex and beautiful patterns. The main goals of the tour are to cultivate a curiosity and sense of wonder about the mathematical nature of their world; and to foster an appreciation for the mathematical underpinnings of art.

If you have additional content-related questions, please contact Curriculum Specialist Justin Davies by emailing jdavies@honolulumuseum.org.

Grade	Standard
2	<p>Fine Arts FA.2.1.1 Use the element of space and the principles of repetition and variety, with a variety of art media.</p> <p>Common Core Math Measure and estimate lengths in standard units. Reason with shapes and their attributes.</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words. K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
3	<p>Fine Arts FA.3.1.1 Use the elements and principles of art and design, including, value (i.e., tints and shades, analogous colors), line, rhythm, movement, proportion, and balance FA.3.1.2 Use a variety of art and technology media to create an original work of art FA.3.1.3 Use observational skills in creating an original work of art FA.3.1.4 Use visual arts vocabulary to discuss and compare works of art</p> <p>Common Core Math Develop understanding of fractions as numbers. Reason with shapes and their attributes.</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p>

	K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
4	<p>Fine Arts FA.4.1.1 Use the elements and principles of art and design, such as emphasis, proportion, complementary colors, positive and negative space, and depth, to communicate an idea or mood</p> <p>FA.4.1.4 Explain how art reflects life, culture, attitudes, and beliefs of the artist</p> <p>Common Core Math Generate and analyze patterns</p> <p>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <p>Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p>K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
5	<p>Fine Arts FA.5.1.1 Use the principles of art and design, including unity and harmony, in works of art</p> <p>FA.5.1.2 Analyze, using evidence, the element of space (perspective, overlapping, foreground, background) and how it is developed in works of art</p> <p>FA.5.1.4 Explain how an original artwork demonstrates a concept or idea from another discipline</p> <p>FA.5.1.5 Analyze works of art from selected historical periods</p> <p>Common Core Math Analyze patterns and relationships</p> <p>Graph points on the coordinate plane to solve real-world and mathematical problems</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p>K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
6	<p>Fine Arts FA.6-8.1.2 Apply selected elements and principles of art and design to communicate a particular message or opinion in an original work of art</p>

	<p>FA.6-8.1.4 Apply different qualities and characteristics of art materials, techniques, and processes to convey effectively different experiences, ideas, and opinions</p> <p>FA.6-8.1.8 Analyze, using evidence, how cultural factors have affected works of art now and in the past</p> <p>Common Core Math Understand ratio concepts and use ratio reasoning to solve problems.</p> <p>Develop understanding of statistical variability.</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p>K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
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	<p>Common Core Math Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p>K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
9	<p>Fine Arts FA.9-12.1.1 Create original works of art using a variety of visual arts materials, techniques, and processes</p> <p>FA.9-12.1.2 Demonstrate how the composition of a work of art is affected by the use of elements or principles of art and design</p> <p>FA.9-12.1.3 Analyze, using evidence, the relationship between themes explored in the visual arts and those explored in other content areas</p> <p>FA.9-12.1.4 Evaluate the effectiveness of the use of elements and principles of art and design in works of art</p> <p>FA.9-12.1.6 Evaluate the function of artwork in different cultures, careers, and historical periods</p> <p>Common Core Math Experiment with transformations in the plane</p> <p>Make geometric constructions</p> <p>Make inferences and justify conclusions from sample surveys, experiments, and observational studies</p> <p>Common Core ELA K-12.R.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p>K-12.SL.1 Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p>
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