

# Honolulu Museum of Art

## Science Through Art SAMA Standards

This tour aims to encourage student curiosity about the science of light, color and vision, and to explore how artists have utilized this science in their work.

If you have additional content-related questions, please contact Curriculum Specialist Justin Davies by emailing [jdavies@honolulumuseum.org](mailto:jdavies@honolulumuseum.org).

| Grade | Standard  |
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| 3     | <p><b>Fine Arts</b><br/>FA.3.1.2 Use a variety of art and technology media to create an original work of art</p> <p><b>NGSS</b><br/>Science and Engineering Practices:<br/>1. Asking questions<br/>3. Planning and carrying out investigations<br/>6. Constructing explanations<br/>7. Engaging in argument from evidence</p> <p>Crosscutting Concepts:<br/>Scale, Proportion and Quantity<br/>"the way in which things work may change with scale"</p> <p>Core Ideas:<br/>LS1.D: Information Processing<br/>Different sense receptors are specialized for particular kinds of information, which may then be processed and integrated by an animal's brain</p> <p>PS4.B: Electromagnetic Radiation<br/>An object can be seen when light reflected from its surface enters the eyes; the color people see depends on the color of the available light sources as well as the properties of the surface.</p> <p><b>Common Core ELA</b><br/>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> |
| 4     | <p><b>Fine Arts</b><br/>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><b>NGSS</b><br/>Science and Engineering Practices:<br/>1. Asking questions</p>  |

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| 5 | <p><b>Fine Arts</b><br/> FA.5.1.1 Use the principles of art and design, including unity and harmony, in works of art</p> <p><b>NGSS</b><br/> Science and Engineering Practices:<br/> 1. Asking questions<br/> 3. Planning and carrying out investigations<br/> 6. Constructing explanations<br/> 7. Engaging in argument from evidence</p> <p>Crosscutting Concepts:<br/> Scale, Proportion and Quantity<br/> "the way in which things work may change with scale"</p> <p>Core Ideas:<br/> LS1.D: Information Processing<br/> Different sense receptors are specialized for particular kinds of information, which may then be processed and integrated by an animal's brain</p> <p>PS4.B: Electromagnetic Radiation<br/> An object can be seen when light reflected from its surface enters the eyes; the color people see depends on the color of the available light sources as well as the properties of the surface.</p> <p><b>Common Core ELA</b><br/> 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>  |

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| 6 | <p><b>Fine Arts</b><br/>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><b>NGSS</b><br/>Science and Engineering Practices:<br/>1. Asking questions<br/>3. Planning and carrying out investigations<br/>6. Constructing explanations<br/>7. Engaging in argument from evidence</p> <p>Core Ideas:<br/>LS1.D: Information Processing<br/>Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain</p> <p>PS4.B: Electromagnetic Radiation<br/>When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light</p> <p><b>Common Core ELA</b><br/>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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| 9 | <p><b>Fine Arts</b><br/> FA.9-12.1.1 Create original works of art using a variety of visual arts materials, techniques, and processes</p> <p>FA.9-12.1.4 Evaluate the effectiveness of the use of elements and principles of art and design in works of art</p> <p><b>NGSS</b><br/> Science and Engineering Practices:<br/> 1. Asking questions<br/> 3. Planning and carrying out investigations<br/> 6. Constructing explanations<br/> 7. Engaging in argument from evidence</p>  |

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