Overview

One goal of science education is to help students understand the nature of scientific knowledge. This matrix presents eight major themes and grade level understandings about the nature of science. Four themes extend the scientific and engineering practices and four themes extend the crosscutting concepts. These eight themes are presented in the left column. The matrix describes learning outcomes for the themes at grade bands for K-2, 3-5, middle school, and high school. Appropriate learning outcomes are expressed in selected performance expectations and presented in the foundation boxes throughout the standards.

<table>
<thead>
<tr>
<th>Understandings about the Nature of Science</th>
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<tbody>
<tr>
<td><strong>Categories</strong></td>
</tr>
<tr>
<td>Scientific Investigations Use a Variety of Methods</td>
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<tr>
<td>Scientific Knowledge is Based on Empirical Evidence</td>
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<td>Scientific Knowledge is Open to Revision in Light of New Evidence</td>
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<tr>
<td>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</td>
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<tr>
<td><strong>Categories</strong></td>
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<tr>
<td>Science is a Way of Knowing</td>
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<tr>
<td>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</td>
</tr>
<tr>
<td>Science is a Human Endeavor</td>
</tr>
<tr>
<td>Science Addresses Questions About the Natural and Material World.</td>
</tr>
</tbody>
</table>

- Nature of Science understandings most closely associated with Practices
- Nature of Science understandings most closely associated with Crosscutting Concepts