



|  |   |  |  |  |
|--|---|--|--|--|
| <b>Skills and Traits of Scientific Inquiry</b>   | <b>B1a-c</b>                                | <ul style="list-style-type: none"> <li>a. Identify questions, concepts, and testable hypotheses that guide scientific investigations.</li> <li>b. Design and safely conduct methodical scientific investigations, including controlled experiments. Use statistics to analyze and interpret results.</li> <li>c. Use a variety of tools and technologies to improve investigations and communications.</li> </ul>  |  |  |
| <b>Understandings of Inquiry</b><br><br><b>Understandings About Science and Technology</b><br><br><b>Science, Technology and Society</b> | <b>C1</b><br><br><b>C2</b><br><br><b>C3</b> | <ul style="list-style-type: none"> <li>a. Describe how hypotheses as well as past and present knowledge guide and influence scientific investigations.</li> <li>b. Describe how scientists defend their evidence and explanations using logical arguments and verifiable results.</li> </ul> <p>Describe how science and technology are pursued for different purposes and have different impacts on humans.</p> <p>Describe how natural ecosystems provide processes that affect humans, how humans are changing some of these processes, and the possible impacts on humans.</p> <p>Describe humans' vulnerability to natural and human-induced hazards, assess potential dangers and risks, and describe short and long term changes that result in hazards for individuals and</p> |  |  |

|   |                     |   |  |  |
|---|---------------------|---|--|--|
| <p><b>History and Nature of Science</b></p> | <p><b>C4</b></p>    | <p>society.</p> <p>Provide examples of criteria that distinguish scientific explanations from pseudoscientific ones.</p>  |  |  |
| <p><b>Universe and Solar System</b></p>     | <p><b>D1b,c</b></p> | <p>Explain the role of gravity in forming and maintaining planets, stars, and the solar system.</p> <p>Outline the age, origin and process of formation of the universe as currently understood by science.</p>   |  |  |
| <p><b>Earth</b></p>                         | <p><b>D2</b></p>    | <p>Explain how solar radiation, ocean currents, and atmospheric conditions influence the habitability of life on Earth.</p> <p>Describe factors that influence plate tectonics and how it shapes and alters Earth's systems.</p> <p>Explain how plate tectonics influence the geochemical cycles and the formation of the Earth's surface.</p>  |  |  |
| <p><b>Matter and Energy</b></p>             | <p><b>D3</b></p>    | <p>Describe how light is emitted and absorbed by atoms changing energy levels, the results of which can be used to identify a substance.</p> <p>Describe factors that affect the rate of chemical reactions.</p> <p>Explain why in energy transformations the total amount of energy remains the same but heat is usually produced and spreads out causing a loss of useful energy.</p> |  |  |

|                   |           |  |  |  |
|-------------------|-----------|--|--|--|
| <b>Ecosystems</b> | <b>E2</b> | Describe how energy and the chemical elements that make up molecules are transformed in ecosystems, and how they obey basic conservation laws, and explain the crucial role of photosynthesis. |  |  |
|-------------------|-----------|--|--|--|