**STEMscopes Virginia-Grade Three**

Overall Rating of Standards

| **Standard** | **Determined Rating** |
| --- | --- |
| 3.1 The student will demonstrate an understanding of the scientific and engineering practices. | This standard was evaluated in the context of the content standards. |
| 3.2 The student will investigate and understand that the direction and size of force affects the motion of an object. | Adequate |
| 3.3 The student will investigate and understand how materials interact with water. | Adequate |
| 3.4 The student will investigate and understand that adaptations allow organisms to satisfy life needs and respond to the environment. | Adequate |
| 3.5 The student will investigate and understand that aquatic and terrestrial ecosystems support a diversity of organisms. | Adequate |
| 3.6 The student will investigate and understand that soil is important in ecosystems. | Adequate |
| 3.7 The student will investigate and understand that there is a water cycle and water is important to life on Earth. | Adequate |
| 3.8 The student will investigate and understand that natural events and humans influence ecosystems. | Adequate |

Overall Rating of Instructional Design and Support

| **Instructional Design and Support** | **Determined Rating** |
| --- | --- |
| Materials emphasize the use of effective instructional practices and learning theory. | Adequate |
| The science content is significant and accurate. | Adequate |
| Materials present content in an accurate, unbiased manner. | Adequate |

Review of Standards with Curriculum Framework

| Standard | Expectation |
| --- | --- |
| 3.1 The student will demonstrate an understanding of the scientific and engineering practices by:1. asking questions and defining problems
2. planning and carrying out investigations
3. interpreting, analyzing, and evaluating data
4. constructing and critiquing conclusions and explanations
5. developing and using models
6. obtaining, evaluating, and communicating information.
 | The expectation of the 2018 *Science Standards of Learning* is that the scientific and engineering practices are embedded into the instruction of content standards.  The rating for an individual standard includes the evaluation of standard 1 as it pertained to that standard.  For specific grade level/course expectations for standard 1, see the Standards of Learning and the Curriculum Framework.  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.2 The student will investigate and understand that the direction and size of force affects the motion of an object. Key ideas include |  |  |  |
| 1. multiple forces may act on an object;
 | X |  |  |
| 1. the net force on an object determines how an object moves;
 | X |  |  |
| 1. simple machines increase or change the direction of a force; and
 | X |  |  |
| 1. simple and compound machines have many applications.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.3 The student will investigate and understand how materials interact with water. Key ideas include |  |  |  |
| 1. solids and liquids mix with water in different ways; and
 | X |  |  |
| 1. many solids dissolve more easily in hot water than in cold water.
 |  | X |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.4 The student will investigate and understand that adaptations allow organisms to satisfy life needs and respond to the environment. Key ideas include |  |  |  |
| 1. populations may adapt over time;
 | X |  |  |
| 1. adaptations may be behavioral or physical; and
 | X |  |  |
| 1. fossils provide evidence about the types of organisms that lived long ago as well as the nature of their environments.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.5 The student will investigate and understand that aquatic and terrestrial ecosystems support a diversity of organisms. Key ideas include |  |  |  |
| 1. ecosystems are made of living and nonliving components of the environment; and
 | X |  |  |
| 1. relationships exist among organisms in an ecosystem.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.6 The student will investigate and understand that soil is important in ecosystems. Key ideas include |  |  |  |
| 1. soil, with its different components, is important to organisms; and
 | X |  |  |
| 1. soil provides support and nutrients necessary for plant growth.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.7 The student will investigate and understand that there is a water cycle and water is important to life on Earth. Key ideas include |  |  |  |
| 1. there are many reservoirs of water on Earth;
 | X |  |  |
| 1. the energy from the sun drives the water cycle; and
 | X |  |  |
| 1. the water cycle involves specific processes.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 3.8 The student will investigate and understand that natural events and humans influence ecosystems. Key ideas include |  |  |  |
| 1. human activity affects the quality of air, water, and habitats;
 | X |  |  |
| 1. water is limited and needs to be conserved;
 | X |  |  |
| 1. fire, flood, disease, and erosion affect ecosystems; and
 | X |  |  |
| 1. soil is a natural resource and should be conserved.
 | X |  |  |

Rubric for Instructional Design and Support

| **Adequate** | **Limited** | **No Evidence** |
| --- | --- | --- |
| 1. Materials emphasize the use of effective instructional practices and learning theory.
 |
| * 1. Students are guided through critical thinking and problem-solving approaches.
 |
| Materials consistently include content promoting use of critical thinking and problem-solving approaches. | Materials inconsistently include content promoting use of critical thinking and problem-solving approaches. | Materials do not include content promoting use of critical thinking and problem-solving approaches. |
| * 1. Concepts are introduced through concrete experiences that incorporate the scientific and engineering practices.
 |
| Materials consistently promote the introduction of concepts through concrete experiences. | Materials inconsistently promote the introduction of concepts through concrete experiences. | Materials do not promote the introduction of concepts through concrete experiences. |
| * 1. Multiple opportunities are provided for students to develop and apply concepts through scientific and engineering practices.
 |
| Materials consistently provide development and application of concepts through appropriate technologies. | Materials inconsistently provide development and application of concepts through appropriate technologies. | Materials do not provide development and application of concepts through appropriate technologies. |
| * 1. Students use a variety of representations (graphical, numerical, symbolic, verbal, and physical) to connect science concepts.
 |
| Materials provide consistent use of a variety of representations of science content and concepts.  | Materials provide inconsistent use of a variety of representations of science content and concepts. | Materials do not provide use of a variety of representations of science content and concepts. |
| 1. The science content is significant and accurate.
 |
| * 1. Materials are presented in an organized, logical manner which represents the current thinking on how students learn science.
 |
| Materials consistently support the balanced use of conceptual and procedural approaches. | Materials inconsistently support the balanced use of conceptual and procedural approaches. | Materials do not support a balanced use of conceptual and procedural approaches. |
| * 1. Materials are organized appropriately within and among units of study.
 |
| Materials are consistently organized within and among units of study.  | Materials are inconsistently organized within and among units of study. | Materials are inappropriately organized within and among units of study. |
| * 1. Format design includes titles, subheadings, and appropriate cross-referencing for ease of use.
 |
| Materials consistently use formatting that is user-friendly. | Materials inconsistently use formatting that is user-friendly. | Materials do not use formatting that is user-friendly. |
| * 1. Writing style, length of sentences, vocabulary, graphics, and illustrations are appropriate.
 |
| Materials consistently include writing and visuals that are appropriate for the grade level. | Materials inconsistently include writing and visuals that are appropriate for the grade level. | Materials do not include writing and visuals that are appropriate for the grade level. |
| * 1. Level of abstraction is appropriate, and practical/real-life examples, including careers, are provided.
 |
| Materials consistently provide the appropriate level of abstraction and appropriate practical/real-life examples.  | Materials inconsistently provide the appropriate level of abstraction and appropriate practical/real-life examples. | Materials do not provide the appropriate level of abstraction and appropriate practical/real-life examples. |
| * 1. Sufficient applications are provided to promote depth of application.
 |
| Materials consistently provide sufficient applications to promote depth of application and are appropriate for the grade level. | Materials inconsistently provide sufficient applications to promote depth of application and are appropriate for the grade level. | Materials do not provide sufficient applications to promote depth of application and are not appropriate for the grade level. |
| 1. Materials present content in an accurate, unbiased manner.
 |
| Materials consistently present content in an accurate, unbiased manner. | Materials inconsistently present content in an accurate, unbiased manner. | Materials do not present content in an accurate, unbiased manner. |