**STEMscopes Virginia-Grade Two**

Overall Rating of Standards

| **Standard** | **Determined Rating** |
| --- | --- |
| 2.1 The student will demonstrate an understanding of the scientific and engineering practices. | This standard was evaluated in the context of the content standards. |
| 2.2 The student will investigate and understand that different types of forces may cause an object’s motion to change. | Adequate |
| 2.3 The student will investigate and understand that matter can exist in different phases. | Adequate |
| 2.4 The student will investigate and understand that plants and animals undergo a series of orderly changes as they grow and develop. | Adequate |
| 2.5 The student will investigate and understand that living things are part of a system. | Adequate |
| 2.6 The student will investigate and understand that there are different types of weather on Earth. | Adequate |
| 2.7 The student will investigate and understand that weather patterns and seasonal changes affect plants, animals, and their surroundings. | Adequate |
| 2.8 The student will investigate and understand that plants are important natural resources. | Adequate |

Overall for Instructional Design and Support

| **Instructional Design and Support** | **Determined Ratings** |
| --- | --- |
| 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 |
| --- | --- |
| 2.1 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 |
| --- | --- | --- | --- |
| 2.2 The student will investigate and understand that different types of forces may cause an object’s motion to change. Key ideas include |  |  |  |
| 1. forces from direct contact can cause an object to move,
 | X |  |  |
| 1. some forces, including gravity and magnetism, can cause objects to move from a distance; and
 | X |  |  |
| 1. forces have applications in our lives.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 2.3 The student will investigate and understand that matter can exist in different phases. Key ideas include |  |  |  |
| 1. matter has mass and takes up space;
 | X |  |  |
| 1. solids, liquids, and gases have different characteristics; and
 | X |  |  |
| 1. heating and cooling can change the phases of matter.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 2.4 The student will investigate and understand that plants and animals undergo a series of orderly changes as they grow and develop. Key ideas include |  |  |  |
| 1. animals have life cycles; and
 | X |  |  |
| 1. plants have life cycles.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 2.5 The student will investigate and understand that living things are part of a system. Key ideas include |  |  |  |
| 1. plants and animals are interdependent with their living and nonliving surroundings;
 | X |  |  |
| 1. an animal’s habitat provides all of its basic needs; and
 | X |  |  |
| 1. habitats change over time due to many influences.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 2.6 The student will investigate and understand that there are different types of weather on Earth. Key ideas include |  |  |  |
| 1. different types of weather have specific characteristics;
 | X |  |  |
| 1. measuring, recording, and interpreting weather data allows for identification of weather patterns; and
 | X |  |  |
| 1. tracking weather allows us to prepare for the weather and storms.
 | X |  |  |

| Standard | Adequate | Limited | No Evidence |
| --- | --- | --- | --- |
| 2.7 The student will investigate and understand that weather patterns and seasonal changes affect plants, animals, and their surroundings. Key ideas include |  |  |  |
| 1. weather and seasonal changes affect the growth and behavior of living things;
 | X |  |  |
| 1. wind and weather can change the land; and
 | X |  |  |
| 1. changes can happen quickly or slowly over time.
 | X |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Standard | Adequate | Limited | No Evidence |
| 2.8 The student will investigate and understand that plants are important natural resources. Key ideas include |  |  |  |
| 1. the availability of plant products affects the development of a geographic area;
 | X |  |  |
| 1. plants provide oxygen, homes, and food for many animals; and
 | X |  |  |
| 1. plants can help reduce the impact of wind and water.
 | 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. |