# Grade 2 Science Instructional Materials Scoring Rubric

**Textbook Commission Meeting-Workshop Agenda Item 3**

**Introduction:**

The following Instructional Materials Scoring Rubric for Science is designed to score materials in the following categories:

- Instructional Focus
- Attending to Multiple Dimensions of Science Instruction
- Accessibility Features
- Alignment of Content

**Scoring:**

Each section is to be scored using a 0, 1, or 2. Unless otherwise noted, use the following scoring guideline.

- 0: The metric is not present within the material.
- 1: The metric is present within the material. The intent and/or frequency component of the metric is not fully met.
- 2: A rating of 2 indicates the metric is present and all aspects of the metric are fully met.

# Grade 2 Science Instructional Materials Scoring Rubric

| Instructional Focus | | | | | |
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| **Indicator** | **2** | **1** | **0** | **Score** | **Evidence** |
| *Central Phenomenon* | All units have a central phenomenon or design challenge that **develops throughout every lesson** of the unit. | All units include one or more **smaller phenomenon or design challenge(s) and/or not all lessons connect to the phenomenon** or design challenge. | Unit has **no phenomenon, or only a "hook"** to capture student interest at the beginning of the unit. | | |
| *Activity Purpose* | All hands-on activities serve to **uncover** scientific ideas aligned with grade level standards. | Hands-on activities **reinforce** scientific ideas aligned with grade-level standards. | Material contains hands-on activities **do not serve** to grade-level scientific ideas | | |
| *Use of SEPs* | In every unit, the **primary use** of the SEPs ties directly to explaining the central phenomenon or solving the design challenge. | SEPs are present in all units, but **loosely or not connected to central phenomenon**. | Some units **do not provide students opportunities** to use the SEPs. | | |
| *Student Engagement* | Materials give students opportunities to:<br>• expressly connect the DCI content from each lesson to relevant crosscutting concepts.<br>• practice with the SEP that is relevant to that day's lesson. | **One of the given features** is present. | **Neither of the given features** are present. | | |
| *Concepts before vocabulary.* | In **all instances**, materials provide experiences (e.g., investigations, data | In **some instances**, materials develop conceptual meaning first. | Materials **pre-teach vocabulary.** | | |

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| | analysis, discussions) where students develop conceptual meaning of a scientific idea before introducing technical vocabulary. | | | | |
| *Connections across component ideas.* | All units include **activities** where students communicate their understanding of connections between science ideas from *two or more component ideas* within the grade (e.g., LS1.A and LS2.C, ESS2.A and PS1.A). | Some units include **standalone questions** in place of activities, where students communicate their understanding of connections between component ideas. | Materials **describe** connections for students, or connections are absent. | | |
| *Connections across disciplines.* | All units include activities where students communicate their understanding of connections between science ideas from *two or more disciplines* within the grade (E.g., LS and PS). | Some units include **standalone questions** in place of activities, where students communicate their understanding of connections between component ideas.> | Materials **describe** connections for students, or connections are absent. | | |
| *Review opportunities* | Materials provide opportunities for students to transfer new learning to **analogous phenomenon** in a review at the end of every unit. | End of unit review assesses learning of the **central phenomenon for the unit** only. | End of unit review is **not anchored to a phenomenon**. | | |
| | | | **Total** | | |

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| Attending to Multiple Dimensions of Science Learning | | | | | |
|---|---|---|---|---|---|
| **Indicator** | **2** | **1** | **0** | **Score** | **Evidence** |
| *Distribution of SEPs* | Materials identify one or more focal science and engineering practices (SEPs) for every unit(s) with a **balanced** distribution of all SEPs as a focal SEP throughout the units. | One or more SEPs is **disproportionately** featured as the focal SEP. | Materials **do not include** a focal SEP for one or more units. | | |
| *Support for a focal SEP* | Every unit contains a focal SEP is featured in **student-facing materials and teacher materials** including instructional strategies for the particular unit and focal SEP. | Relevant **support strategies are absent** from teacher materials. | **No** student facing or teacher facing supports for the SEPs. | | |
| *Connections across to crosscutting concepts.* | In every unit, students make connections between the crosscutting concepts (CCCs) and **both** the SEPs and disciplinary core ideas (DCIs). | In every unit students make connection between the CCCs and **either** the SEPs or DCIs. | Materials **describe connections with CCCs** or do not specifically address CCCs. | | |
| *Developing crosscutting concepts* | In every unit, the materials lead students to **make connections between the CCCs in that unit and appearances of the CCCs in other units**. | Students make connections between CCCs and **content not addressed in other units.** | Materials **provide examples** of other instances of the CCCs or CCCs absent. | | |
| | | | Total | | |

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| Accessibility Features | | | | |
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| **Digital Materials** | **0** | **1** | **2** | **Evidence** |
| All lessons within the materials are available in digital form and include a printable option. | | | | |
| In every lesson, materials include recommended supports, accommodations, and modifications for Students with Disabilities and English Language Learners that will support their regular and active participation in accessing on grade level material (e.g., modifying vocabulary words within word problems, sentence starters, etc.). | | | | |
| | | | Total | |

| Alignment of Content | | | | |
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| **Conceptual Understanding: The materials support the intentional development of students' conceptual understanding of key science ideas, practice, and concepts.** | **0** | **1** | **2** | **Evidence** |
| **2.PS2.1** Analyze the push or the pull that occurs when object collide or are connected. | | | | |
| **2.PS2.2** Plan and carry out an investigation to demonstrate how pushing and/or pulling an object affects the motion of the object within a system. | | | | |
| **2.PS3.1** Demonstrate how a stronger push or pull makes things go faster and how faster speeds during a collision can cause a bigger change in the shape of the colliding objects. | | | | |
| **2.PS3.2** Make observations and conduct experiments to provide evidence that friction produces heat and reduces or increases the motion of an object. | | | | |
| **2.PS4.1** Plan and conduct investigations to demonstrate the cause and effect relationship between vibrating materials and sound. | | | | |
| **2.PS4.2** Use tools and materials to design and build a device to understand that light and sound travel in waves and can send signals over a distance. | | | | |

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| **2.PS4.3** Obtain information to describe how devices communicate over a distance using light or sound. | | | | |
| **2.LS1.1** Use evidence and observations to explain that many animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. | | | | |
| **2.LS1.2** Obtain and communicate information to classify animals (i.e., vertebrates: mammals, birds, amphibians, reptiles, fish; and invertebrates: insects) based on their physical characteristics. | | | | |
| **2.LS1.3** Identify ways in which some animals, both parents and offspring, participate in behaviors that help the offspring survive. | | | | |
| **2.LS2.1** Develop and use models to compare how animals depend on their surroundings and other living things to meet their needs in the places they live. | | | | |
| **2.LS2.2** Predict what happens to animals when the environment changes (temperature, cutting down trees, wildfires, pollution, salinity, drought, land preservation). | | | | |
| **2.ESS1.1** Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly while others occur slowly over time. | | | | |
| **2.ESS2.1** Compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land. | | | | |
| **2.ESS2.2** Observe and analyze how blowing wind and flowing water can move Earth materials (soils, rocks) from one place to another, changing the shape of a landform and affecting the habitats of living things. | | | | |
| **2.ESS2.3** Develop and compare simple maps of different land areas to observe the shapes and kinds of land (rock, soil, sand) and water (river, stream, lake, pond). | | | | |
| **2.ESS2.4** Use information obtained from reliable sources to explain that water is found in the ocean, river, streams, lakes, and ponds, and may be solid or liquid. | | | | |
| **2.ETS1.1** Apply and engineering design approach to identify and solve practical problems. | | | | |
| **2.ETS1.2** Recognize that to solve a problem, one may need to break the problem into parts, address each part, and then bring the parts back together. | | | | |
| **2.ETS1.3** Compare and contrast solutions to a design problem by using evidence to point out strengths and weaknesses of the design. | | | | |
| **2.ETS2.1** Use appropriate tools to make observations, record data, and refine design ideas. | | | | |

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| **2.ETS2.2** Predict and explain how human life and the natural world would be different without current technologies. | | | | |
| **Total** | | | | |