

**APPENDIX B**  
**UPDATED SCIENCE ACADEMIC RATING SCALE**

*Note: The kindergarten items are shown first, followed by items for Grades 1 and 2.*

**SCIENCE (KINDERGARTEN ITEMS)**

THIS CHILD ...	CIRCLE ONE FOR EACH ITEM					
	Not Yet	Beginning	In Progress	Intermediate	Proficient	Not Applicable Or Skill Not Yet Taught
K_1. <b>Uses his/her senses to explore and observe</b> – for example, observes and notes the habits of classroom pets, identifies environmental sounds, or describes the differences in clay before and after water is added.	1	2	3	4	5	N/A
K_2. <b>Forms explanations based on observations and explorations</b> – for example, describes or draws the conditions (water, soil, sun) that help a plant grow, or explains that a block will slide more quickly down a steeper slope.	1	2	3	4	5	N/A
K_3. <b>Classifies and compares living and non-living things in different ways</b> – for example, classifies objects according to "things that are alive and not alive," or "things that fly and things that crawl," or "plants and animals."	1	2	3	4	5	N/A
K_4. <b>Makes logical predictions when pursuing scientific investigations</b> – for example, observes and identifies patterns in nature and predicts what happens next (e.g., if told the sky became dark and cloudy, predicts that it will rain; or predicts if a new object will float or sink)	1	2	3	4	5	N/A
K_5. <b>Communicates scientific information</b> – for example, records or describes the properties of common objects verbally or through drawings or graphs	1	2	3	4	5	N/A
K_6. <b>Demonstrates understanding of physical science concepts</b> – for example, makes observations that different materials have different properties and that objects are made of different types of materials, compares the relative sizes and characteristics of objects, or describes and explains the different way things move.	1	2	3	4	5	N/A
K_7. <b>Demonstrates understanding of life science concepts</b> – for example, recognizes the five senses and the related body parts, identifies major structures and functions of parts of plants and animals, or describes the similarities and differences in the appearance and behavior of plants and animals	1	2	3	4	5	N/A
K_8. <b>Demonstrates understanding of earth and space science concepts</b> – for example, identifies that changes in weather occur from day to day and season to season; describes properties of rocks, soil, and water; or identifies that the sun gives light and heat to Earth.	1	2	3	4	5	N/A

**SCIENCE (FIRST GRADE ITEMS)**

THIS CHILD ...	CIRCLE ONE FOR EACH ITEM					Not Applicable Or Skill Not Yet Taught
	Not Yet	Beginning	In Progress	Intermediate	Proficient	
F_1. <b>Uses his/her senses to explore and observe</b> – for example, moves objects and describes how a push or pull can change the way an object is moving; observes that some living things closely resemble their parents; observes and describes properties of rocks, soil, and water; or uses tools (such as hand lenses, thermometers, rulers) to gather information about objects around them.....	1	2	3	4	5	N/A
F_2. <b>Forms explanations based on observations and explorations</b> – for example, explains the best growing conditions for a plant after investigating with light and water, or concludes that earthworms come out of the soil because it's raining after paying attention to the sidewalks on a rainy day	1	2	3	4	5	N/A
F_3. <b>Classifies and compares living and non-living things in different ways</b> – for example, classifies vegetables that grow above or below the ground, classifies different sounds as either low pitch or high pitch, or measures objects and classifies them by size or weight	1	2	3	4	5	N/A
F_4. <b>Makes logical predictions when pursuing scientific investigations</b> – for example, predicts whether or not objects are magnetic based on the materials they are made of	1	2	3	4	5	N/A
F_5. <b>Communicates scientific information</b> – for example, records data from measurement tools (e.g., clocks, thermometers, etc.) or constructs bar graphs	1	2	3	4	5	N/A
F_6. <b>Demonstrates understanding of physical science concepts</b> – for example, identifies the three states of matter, identifies that heat causes change and compares objects according to temperature, or compares the way different objects move (e.g., in straight line, by vibration, in a circle)	1	2	3	4	5	N/A
F_7. <b>Demonstrates understanding of life science concepts</b> – for example, understands that living organisms inhabit various environments and have various external features to help them satisfy their needs, differentiates between those living things that closely resemble their parents (e.g., chick) and those living things that do not (e.g., tadpole), or recognizes that all plants and animals have basic life needs (e.g., air, water, food, etc.).	1	2	3	4	5	N/A
F_8. <b>Demonstrates understanding of earth and space science concepts</b> – for example, describes how weather affects people's daily activities, describes how land and water store heat from the sun and then warm the air over the land and water, explains that shadows are caused when sunlight is blocked by objects, or identifies	1	2	3	4	5	N/A

natural resources..						
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**SCIENCE (SECOND GRADE ITEMS)**

THIS CHILD ...	CIRCLE ONE FOR EACH ITEM					Not Applicable Or Skill Not Yet Taught
	Not Yet	Beginning	In Progress	Intermediate	Proficient	
S_1. <b>Uses his/her senses to explore and observe</b> – for example, compares and classifies objects according to two or more physical attributes (e.g., a basketball is round and has a rough texture, a feather is soft and is 7 centimeters long), or uses observations through the senses to predict an outcome of a simple investigation such as that a marble will roll with a greater speed if a ramp is raised 2 cm.....	1	2	3	4	5	N/A
S_2. <b>Forms explanations based on observations and explorations</b> – for example, explains why one boat floats and another does not, concludes that a candle stays lit longer under a larger jar because there is more oxygen available, or explains how many layers of clothing provide insulation against heat loss	1	2	3	4	5	N/A
S_3. <b>Classifies and compares living and non-living things in different ways</b> – for example, compares living things based on life cycle; classifies or compares objects by size or substance; or describes differences in how the environment affects living things (e.g., migration of birds as the availability of food becomes less when autumn changes to winter) versus how it affects non-living things (e.g., erosion of rocks, evaporation of water).	1	2	3	4	5	N/A
S_4. <b>Makes logical predictions when pursuing scientific investigations</b> – for example, predicts the outcome of a simple investigation and compares the result with prediction, such as predicting if a plant will grow best in direct sunlight or in shade	1	2	3	4	5	N/A
S_5. <b>Communicates scientific information</b> – for example, records data gathered using simple equipment in simple investigations (e.g., changes in weather conditions), summarizes data using charts or graphs, or uses correct units of measurement when recording or summarizing data	1	2	3	4	5	N/A
S_6. <b>Demonstrates understanding of physical science concepts</b> – for example, describes the effects of electrically charged materials and magnets, or explains that sound is made by vibrating objects and describes its pitch and loudness...	1	2	3	4	5	N/A
S_7. <b>Demonstrates understanding of life science concepts</b> – for example, explains that the sequential stages of life cycles are different for different animals, describes how living organisms depend on each other and their environments for survival, identifies differences between living and nonliving objects, or describes how the environment influences some characteristics of living organisms.	1	2	3	4	5	N/A
S_8. <b>Demonstrates understanding of earth</b>	1	2	3	4	5	N/A

<p><b>and space science concepts</b> – for example, describes the effects of weathering and erosion, the relationship between the Sun and the Earth, the use of tools to measure weather conditions, or the processes involved with soil formation...</p>						
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