APPENDIX B
COGNITIVE SKILL DESCRIPTIONS

Cognitive Skill Descriptions for Science and Technology/Engineering MCAS

Only one cognitive skill will be designated for a common item, although several skills may apply to a single item. The lists below are general examples, but they are not a complete list. Depending upon how the item is written, these descriptions may not always apply.

Cognitive Skill	Description
Remembering	• **Identify or <u>define a basic concept</u> or term with little or no context** • Recall facts with little or no context *Does the item require recalling or remembering facts or definitions?*
Understanding	• **Describe, explain, or identify <u>typical classroom examples</u> for a science or tech/eng concept** • Recognize and differentiate representations and descriptions of familiar models *Does the item require the recognition or a description of a familiar concept?*
Applying	• **Describe, explain, or identify a science or tech/eng concept presented in <u>a novel situation</u>** • Draw conclusions by comparing and contrasting information in novel situations • Draw conclusions by interpreting information/data (including simple graphs and tables) or make predictions based on data • Solve quantitative problems where an equation must be rearranged to solve the problem • Describe or explain multiple processes or system components in a novel situation *Does the item require drawing conclusions based on novel information or solving complex problems?*
Analyzing	• **<u>Critically examine</u> and interpret data** or maps to draw conclusions based on given information (Note: An item with a graph/diagram/table/map is not necessarily analyzing—it depends on how the information needs to be interpreted.) *Does the item require critical examination of information to make conclusions?*
Creating	• **<u>Generate</u> an explanation or conclusion by combining <u>two or more science or technology/engineering concepts</u> in a novel situation** • **<u>Construct</u> models, graphs, charts, drawings, or diagrams <u>and generate explanations</u>** or conclusions based on the information • Propose solutions to scientific or engineering problems based on given criteria/constraints *Does the item require the synthesis of different concepts or skills to generate a solution?*

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