

Figure 7.3 The Talent Aptitude Learning Progressions: STEM Aptitudes (Student Version)

STEM Talent Aptitudes	Emerging	Progressing	Advancing
1. Engagement in STEM Exhibits high interest in science, technology, engineering, or mathematics content; is enthusiastic, observant, and involved in STEM activities; is self-motivated to pursue STEM knowledge and skills.	I have some interest in science, technology, engineering, and mathematics (STEM) topics, and I am sometimes engaged by the activities.	I am interested in science, technology, engineering, and mathematics (STEM) topics and motivated to complete the activities.	I am very interested and engaged in science, technology, engineering, and mathematics (STEM) topics. I am self-motivated to engage in STEM activities.
2. Investigation Uses a systematic approach to explore natural phenomenon; collects, examines, analyzes, and summarizes data; offers logical explanations; interprets and communicates findings.	I follow the procedures that are provided to explore and find answers to questions, collect data, and summarize findings.	I explore and search out answers to questions. I select appropriate strategies to collect and display data and summarize findings.	I propose questions and search out answers, developing a system to accurately collect, display, analyze, and interpret findings.
3. Problem Solving Identifies and frames problems; analyzes causes and effects to generate solutions; selects appropriate strategies and technologies; develops a plan of action; tests and verifies.	I solve problems using the strategies and tools that are provided for me to use.	I solve problems selecting from the strategies and tools I have learned, and I test my solutions for accuracy.	I identify new problems to solve and select appropriate strategies and tools to find solutions that I test and verify.
4. Spatial Reasoning Visualizes and interprets images; understands and remembers relationships among three-dimensional objects; mentally manipulates objects to solve problems.	I recognize and remember images and three-dimensional objects.	I visualize, remember, and understand relationships among three-dimensional objects.	I understand the relationships among three-dimensional objects and mentally manipulate them to solve problems.
5. Mathematical Reasoning Perceives patterns and relationships; quickly and accurately applies mathematical knowledge to solve problems; selects appropriate strategies; analyzes and evaluates results; proposes alternate solutions.	I see how the patterns in numbers or shapes follow rules when these are modeled for me. I follow the strategy provided to solve mathematical problems.	I see the rules in patterns of numbers or shapes, which I apply to select strategies to accurately solve mathematical problems.	I find new patterns in numbers or shapes, propose rules, and use multiple strategies to accurately solve mathematical problems.