

Science, Technology, Engineering, Mathematics (STEM) Aptitude Observation Scale

Student's Name _____ Grade: _____

Person Completing: _____ Date: _____

Directions: This rating scale is designed to obtain estimates of a student's observed aptitudes in the areas of **science, technology, engineering, and mathematics (STEM)**. Please read each statement carefully and check the degree to which you have observed the behaviors. Consider the *frequency, intensity, and complexity* of the behavior in determining the **degree to which it is evident**.

1—Not Evident 2—Sometimes Evident 3—Evident 4—Clearly Evident

| General Aptitudes | 1 | 2 | 3 | 4 |
|--|---|---|---|---|
| 1. Curiosity: Seeks new ideas; asks thoughtful, searching questions; is inquisitive; observes, explores, and investigates keenly and alertly in any environment. | | | | |
| 2. Logical Reasoning: Draws conclusions from facts or premises; observes patterns and infers rules; hypothesizes and tests; uses a systematic process to make sound judgments and form sensible arguments. | | | | |
| 3. Creativity: Has unusual or clever ideas; enjoys brainstorming, imagining, or divergent thinking; is inventive; discovers unusual connections; initiates new projects. | | | | |
| 4. Insight: Is keenly observant and aware; is intuitive; perceives new patterns and relationships; readily grasps concepts and applies them to new situations. | | | | |
| 5. Persistence: Focuses time and energy on a topic of interest; looks for more than one way to accomplish a task; continues in spite of difficulty; strives to improve and refine; tests and verifies; may resist closure. | | | | |
| 6. Metacognition: Understands own thought processes; self-selects appropriate problem-solving strategies; plans; self-monitors, reflects, assesses, and corrects; learns from mistakes. | | | | |
| 7. Leadership: Motivates others to achieve a goal; initiates ideas and listens to concerns of others; influences others to adopt and participate in a plan of action; organizes others to implement a plan. | | | | |
| STEM-Specific Aptitudes | 1 | 2 | 3 | 4 |
| 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. | | | | |
| 2. Investigation: Uses a systematic approach to explore natural phenomenon; collects, examines, analyzes, and summarizes data; offers logical explanations; interprets and communicates 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. | | | | |
| 4. Spatial Reasoning: Visualizes and interprets images; understands and remembers relationships among objects; can construct and manipulate mental models. | | | | |
| 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. | | | | |