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| **Strand: Science – Force and Motion** | | |
| **Topic: Newton’s First Law (FM1)** | | |
| **Grade: 7th Grade** | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | |
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|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |
| **Score 3.0** | **The student understands that an object at rest will stay at rest and an object in motion will stay in motion, unless acted on by an outside force.**   1. Forces can be interactions between two objects in direct contact with each other or operating at a distance as in the case of gravity or a magnetic force. 2. Forces between objects in direct contact with each other can be passive, such as a book setting on a table, or active, such as pushes and pulls. 3. If an *object’s speed is increasing*, then *a force must be acting on the object* the entire time its speed is increasing. 4. If a force acts on an object in the direction opposite to the direction of the object’s motion, the object’s speed will decrease and will continue to decrease for as long as that force is greater than any force moving the object forward. 5. If a *force acts on an object in the direction opposite* to the direction of the object’s motion for a long enough time, *the object’s speed will decrease to zero.* 6. If *no forces* (or forces that add to zero) act on a moving object, then *the object will maintain a constant speed*.   **The student exhibits no major errors or omissions.** | |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content. |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * Recognizes or recalls specific terminology, such as:   1. A *force* is a push or pull and is an interaction between objects, not a property of an object or something that resides within an object.   2. Motion is the action or the process of an object moving   3. Unbalanced force   4. Balanced force   5. Newton   6. Friction   7. Inertia   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |
|  | **1.5** | Partial knowledge of the 2.0 content, but major errors or omissions regarding the 3.0 content. |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content, but not the 3.0 content. |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |