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| **Strand: (MS-PS2) Motion and Stability: Forces and Interactions** | | | |
| **Topic: (MS-PS2-1) Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects** | | | |
| **Grade: 6** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Activities** |
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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:**   * Can describe and apply Newton’s Third Law of Motion to a real life situation   **The student exhibits no major errors or omissions.** | | * Construct different types of models to represent different systems and their interactions * Apply scientific ideas or principals to design an object, tool, process or system |
|  | **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:   + input, output, energy, motion, matter, force, momentum, Newton’s Third Law of Motion, mass, velocity * performs basic processes, such as:   + describing Newton’s Third Law of Motion   + calculating momentum of an object given its mass and velocity   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | * Find the momentum of an object given its mass and velocity * Compare momentum between two objects (which has more and which is less) * Create a diagram to illustrate the transfer and conservation of momentum when a moving object collides with a stationary object |
|  | **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.** | |