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| **Strand: (MS-PS4) Waves and Their Applications in Technologies for Information Transfer** |
| **Topic: (MS-PS4-2) Develop and use a model to describe that waves are reflected, absorbed or transmitted through various materials** |
| **Grade: 6** |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | **Sample Activities** |
| * Develop a company brochure including the benefits and restrictions of products offered using the reflection and refraction of light including lenses and mirrors
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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 compare the refraction of visible light through different materials (transparent and translucent)
* Can predict how different surfaces and lenses affect the behavior of light waves and the resulting image

**The student exhibits no major errors or omissions.** | * Predict/test the outcome of light refraction on various objects in an activity setting
* Create a chart of rules that states how light will behave when reflected and refracted by different surfaces and lenses
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|  | **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:
	+ transparent, translucent, concave, convex
* performs basic processes, such as:
	+ identifies sources of light and describes evidence that it moves in a straight line

**However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | * Identify vocabulary words based on pictures provided showing types of lenses and the effects of transparency, etc…
* Identify various pictures as sources of light (or not) and label a picture showing where light rays will go based on the origin of that light
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|  | **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.** |