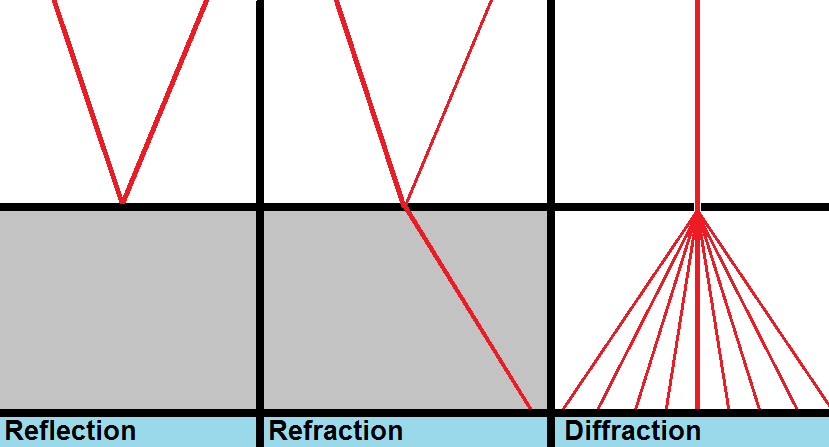
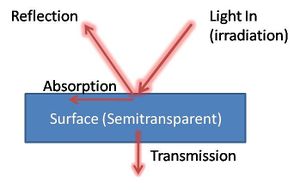
**Light Notes**

|  |  |
| --- | --- |
| Travels | Light travels in a straight line from the source. |
| Light Behavior | Reflection: When light hits a surface and **bounces back**  Retraction: **bending** of light due to a change in speed  Transmits: When light **passes through** a material  Absorbs: When light **strikes** an object  \*\* Remember ALL objects reflect SOME light\*\* |
| Types of Materials | Transparent: A type of material that transmits light without scattering it.  Ex. Clear Window  Translucent: A type of material that transmits light as it passes through.  Ex. Frosted Glass    Opaque: A type of material that reflects or absorbs all of the light that strikes it.  Ex. Text Book, Birthday Cake |
| Reflection | When light **hits a surface** and **bounces back.**  Regular Reflection: Reflection that occurs when parallel rays of light hit a **smooth**  surface and all **reflect** at the **same angle**. Also known as  specular reflection.  Diffuse Reflection: Reflection that occurs when parallel rays of light hit an  **uneven (bumpy)** surface and all **reflect** at **different angles**.        [This Photo](https://physics.stackexchange.com/questions/72368/why-are-most-metals-gray-silver) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/) |
| Law of Reflection | States the angle of incidence equals the angle of reflection.    [This Photo](http://physics.stackexchange.com/questions/37731/refraction-reflection-and-what-is-total-reflection) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/) |
| Refraction | The bending of light waves due to a change in speed.  It bends because the light wave has to slow down when entering a new medium.  Doesn’t happen all the time when entering.  Example: Light going from air to glass of water.   |  |  | | --- | --- | | [This Photo](https://en.wikipedia.org/wiki/Refractive_index) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/) | [This Photo](http://physics.stackexchange.com/questions/37731/refraction-reflection-and-what-is-total-reflection) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/) | |
| Why we see… | Rays of light reflect, or bounce off, objects and enter our eyes. This reflection of light is what enables us to see everything around us.  [This Photo](http://cellularscale.blogspot.com/2012/05/dendrites-of-direction.html) by Unknown Author is licensed under [CC BY-SA-NC](https://creativecommons.org/licenses/by-nc-sa/3.0/) |
| Other important information | \*Light must enter our eyes in order for us to see objects.  \*Materials can reflect or transmit light that shines on them and many do both.  \*All materials reflect some light.  \*Different materials reflect and/or transmit different amounts of light.  \*When light transmits through a material, less light comes out the other side, but how much less depends on the material.  \*When light reflects off of a material, less light bounces back, but how much less depends on the material.  \*When light shines on bumpy surfaces at the micro scale, it scatters in all directions.  \*When light shines on smooth surfaces at the micro scale, it reflects in a certain direction. |
| Color | Opaque objects: The color of an opaque object depends on the wavelengths of lights that the object reflects. **The color of an opaque object is the color it reflects.**  [This Photo](http://doodledsgn.blogspot.com/2010/07/are-black-white-colours.html) by Unknown Author is licensed under [CC BY-NC-ND](https://creativecommons.org/licenses/by-nc-nd/3.0/)  The color white **reflects** ALL colors of light.  The color black **absorbs** ALL colors of light. |
| Other terms | Diffraction: When a wave moves around a barrier or through an opening in a  barrier, it bends and spreads out  Interference: is the interaction between waves that meet  Constructive Interference: when waves combine to form a wave with larger  amplitude than the individual waves  Destructive Interference: When waves combine to form a wave with a smaller  amplitude than the original waves |
| Variables | Independent: The variable we are testing or changing each time we do it  Dependent: The variable we are collecting data with. (Measure)  Control: The variables that stay the same. |

Models:



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