

## Common Misconceptions About Light

### Examples of Students Claims from Round Robin Journaling

- Only shiny objects that I can see myself in reflect light.
- Only metals and water reflect light.
- Everything reflects light but only if it is in the Sun.
- Light reflects off things if the angle is correct.
- The hotter an object can get the more light it can reflect.

### General Misconceptions About Light

- Different wavelengths of light have different energy and therefore different speeds.
- A radio wavelength is a sound wave not part of the electromagnetic spectrum.
- Black does not reflect any light and/or white does not absorb any light.
- Only shiny materials reflect light.
- Water does not reflect or absorb light but light can go through it.
- The distance that light travels depends on the amount of energy that light has.
- When a lens is moved an image will become bigger or smaller but will always remain sharp.
- The stronger the source of light the bigger the shadow and the bigger the source of light the smaller the shadow.
- Shiny objects reflect more light than dull objects.
- Light always passes straight through transparent objects (without changing direction).
- An observer can see more of himself by backing up.
- The size of the image depends on the diameter of the lens.
- Light needs air to travel.
- The distance light travels depends on day or night.
- Objects that reflect are sources of light (e.g., the Moon).
- Sunlight is hot (has energy) but visual light is not.
- Our eyes produce light so we can see things.
- Moving position when looking at a mirror image will change the amount of the image that can be seen or the position of the image in the mirror.
- Shadows are always black
- A shadow is a reflection from the Sun.

Aspect of the Argument	Point Value		Comments/section
	0	1	
<b>The claim</b>			
a. The claim is sufficient	No	Yes	
b. The claim is accurate	No	Yes	
<b>The evidence</b>			
c. Includes data	No	Yes	
d. Includes an analysis of the data	No	Yes	
e. Includes an interpretation of the analysis	No	Yes	
<b>The justification of the evidence</b>			
f. Explains why the evidence is important or why it is relevant	No	Yes	
g. Links the evidence to an important concept or principle	No	Yes	
<b>Language of science</b>			
h. Appropriate use of scientific terms	No	Yes	
i. Used phrases that are consistent with the nature of science	No	Yes	
<b>Mechanics</b>			
j. The order and arrangement of the sentences enhances the development of the main idea (organization)	No	Yes	
k. The author used complete sentences, proper subject verb agreement, and kept the tense constant (grammar)	No	Yes	
l. The author used appropriate spelling, punctuation, and capitalization (conventions)	No	Yes	
		<b>/12</b>	<b>Total Score</b>