**Light and Shadow Study Guide**

* How can you tell if an object is transparent, translucent or opaque? Which types of objects create shadows and why?
* How does the shadow change when I move an object closer or further away from a light source?
* How do shadows change throughout the day? Why do they change? Draw a diagram showing sun position and shadow.
* What is the difference between light sources that emit light, reflect light and are luminescent? What are examples of each?
* How do light rays travel? Draw a diagram.
* How do light rays allow us to see objects? Draw a diagram.
* What is a hypothesis? What kind of detail should you include?
* How do light rays travel when they bounce off a mirror? Draw a diagram.
* Is the moon a light source? Explain.
* Why is the sun an essential light source? Explain.
* Vocabulary:
  + Light
  + Shadow
  + Emit
  + Reflect
  + Luminescent
  + Opaque
  + Transparent
  + Translucent
  + Refraction
  + Prism
  + Lens
  + Concave Lens
  + Convex Lens

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| 4- Excellent | Demonstrates a very strong understanding of concepts. Answers all questions fully. Explains thinking thoroughly, using scientific vocabulary. Diagrams are clear and easy to understand, and support answers. |
| 3- Good | Demonstrates a good understanding of concepts. May have missed some parts of questions, but mostly thorough answers. Explains with good detail and often uses scientific vocabulary. Diagrams are mainly easy to understand. |
| 2- Satisfactory | Demonstrates a satisfactory understanding of concepts. Several answers are not answered to completion. Answers are basic, and usually lack detail. Sometimes includes diagrams, which are sometimes hard to understand. |
| 1- Below grade level expectations | Shows very little understanding of concepts. Answers are lacking in detail and contain many errors. Little to no diagrams. |