**Part 1:** Actively read the article below. Underline at least 1 thing per paragraph and write 3 questions or thoughts on the side of the page. (6 points) **Your eyes are good at physics**

(1) So far, we have learned that color is a form of visible light. The limited spectrum of visible light belongs to the big family of electromagnetic radiation spectrum. **Electromagnetic waves** are waves that are capable of traveling through a vacuum and just like other every kind of electromagnetic radiation; visible colors also have waves, frequencies and electromagnetic energy. Our eyes can see a very small region of the electromagnetic spectrum (between 400 -700 nanometers of wavelength- corresponding to color range violet through red) and we are unable to see radiation with wavelengths outside this area.

*(2) Complementary Color pairs:*

We usually do not see colors in isolation. When two colors are side by side, they interact with each other and affect our perception. This is called *simultaneous contrast.* It is most obvious and intense when the two colors are complementary colors, which are pairs of colors that are diametrically opposite on a color wheel (refer to Herring’s color wheel in the previous page): red and green, and blue and yellow are complementary color pairs. Also, in terms of complementary colors of light; red and cyan; green and magenta; and blue and yellow are complementary pairs. Artists, especially *Impressionists,* have used the juxtaposing effect of complementary colors for a long time (*see Van Gogh’s Starry Night*). Do you think they were aware of the neurophysiological terms of complementary colors?

*(3) Absorption, Transmission, Reflection, Emission: How our eyes perceive colors!*

Now look at your red t-shirt and under white (full-spectrum) lighting, the sun pretty much *emits* (generates)light at nearly all wavelengths (full-spectrum) in the visible spectrum. Some of the lights emitted by the sun will hit the t-shirt and it will absorb a part of this light. *Absorption* is a process by which the energy from light is captured by a form of matter. Which wavelengths of light do you think will be best absorbed by the red t-shirt? Since red and cyan light are complementary pairs; your red t-shirt will best absorb cyan light. What happens to the other part of the emitted light if only *some* of it is absorbed? The red t-shirt will *reflect* another part of the emitted light. *Reflection* refers to the process by which the light contacts and is redirected by some form of matter. Red wavelengths of the emitted light will be best *reflected* by the red t-shirt. From the t-shirt to our eyes, the reflected light is *transmitted* through the air. *Transmission* refers to the transit of light through a clear medium. The reflected red light is then transmitted through the air and activates the “red” cone cells in your retina and creates the perception that the t-shirt is red.

Part 2: Use information from the article to complete the chart below.

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| Vocabulary | Picture/Example | Definition |
| 1 ) Absorption | Is a process by which the energy form light is captured by a form matter |
| 2) Emission |  |  |
| 3) Reflection |  |  |
| 4) Transmission |  | Refers to the trave of light through a clear medium |

Part 3: Identify keywords- Choose 3 more important terms from the article. List them below and write your own definition for each of them.