1. Give an example of resonance. In your example, who or what supplies the energy? (Example: A parent pushing a child on a swing is a resonant system. The parent is supplying the energy.)

2. In physics we make the distinction between perception and objective measurement. For waves, we have defined measurements that can be made on a wave which include frequency, speed, wavelength, amplitude, intensity, and polarization.
   (a) The perceived color of light corresponds to which objective properties in the above list (there may be more than one)?
   (b) The brightness of light corresponds to which of objective property of a wave (there may be more than one)?

3. In “The Rime of the Ancient Mariner” Coleridge writes:

   The harbour-bay was clear as glass,
   So smoothly it was strewn!
   And on the bay the moonlight lay,
   And the shadow of the moon.

   (a) Under what conditions does the shadow of the moon touch the earth?
   (b) Is there any moonlight visible under these conditions? Why?

4. Here is a problem that happens all the time. You find yourself stranded on a sunny desert island with only a standard flashlight (not one of the LED flashlights!), but no batteries. How could you use a part of the flashlight to ignite a small dry leaf and thus start a fire? Remember that a standard flashlight has a bulb surrounded by a “luminaire” mirror to help focus the light.

5. A shaving or makeup mirror is a large concave mirror. In terms of its focal length, $f$, what is the range of distances from the mirror at which you can put your face and get an enlarged image in the mirror?