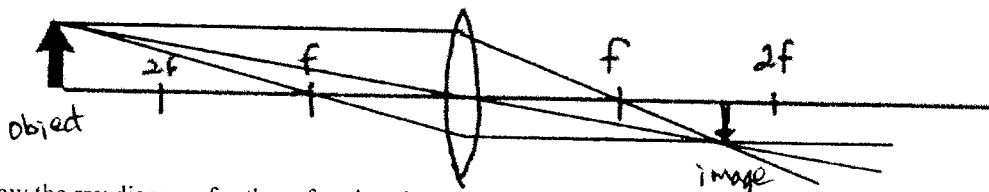


Name Key Period _____ Date _____

Physical Science Light Unit - Review

1. The speed of light is about 1 million times faster than the speed of Sound. It is 300,000,000 m/s
2. All frequencies of Electromagnetic waves are represented by the electromagnetic spectrum.
3. The categories for this spectrum are:
Radio, Infrared, Visible light, ultraviolet, X-Rays, and gamma.
4. The electromagnetic spectrum is organized by having the shortest waves on the right, which also have the Highest/most energy.
5. In the radio waves, we find the smaller categories of Radio, Microwave, and Radar
6. Radio waves are used in communications and include AM, which stands for Amplitude Modulation
7. FM stand for Frequency Modulation.
8. Microwaves are a little shorter than radio waves and are used for communications, cooking, and weather forecasting
9. Radar stands for Radio Detection and Ranging and is used to locate objects and monitor speed.
10. Infrared Light is the category of waves just below Visible light and is also called heat light. It is used in heat lamps, and Infrared cameras also called Night vision cameras.
11. A thermograph is a picture that represents different levels of heat, often shown in different colors for each level.
12. The colors in the visible spectrum are Red orange Yellow Green Blue Indigo Violet
13. The category of light just above visible light is called ultraviolet light. This category has higher energy than visible light and can kill living cells.
14. UV light can be used in a hospital and can treat instruments to kill germs. This is called sterilization
15. UV can also be used to damage skin and using UV lights to do this is called Tanning and is usually considered attractive when done in small amounts. Too much of this can lead to skin cancer.
16. Bees are one form of life that can see UV light and it is often present in Flowers, which attract these.
17. X-Rays have enough energy to pass through many materials, including skin and flesh. Lead can be used to absorb X-Rays.
18. The highest energy of all of the waves in the electromagnetic spectrum are the gamma rays. These can pass through over 10 feet of concrete. These are also used in medicine.
19. The term for anything that gives off its own light is luminous. Examples might include light bulbs, fire, stars, fireflies.
20. If something can only be seen once light strikes it and is reflected, this material is considered to be illuminated. Examples might include the moon, people, a textbook and much more.
21. The light that comes from things that are so hot that they glow is called Incandescent light. A good example is a regular light bulb.
22. Fluorescent light is much cooler than light from a regular bulb. Light of this kind is made when the electrons around the atoms in a gas are excited and go to higher energy levels. When the electrons go back to lower levels, energy is given off and this can cause phosphors in the bulb to give off light. Fluorescent materials can also be found in clothing to make clothes seem brighter. Hunters often use vests and jackets that seem to glow bright orange in daylight.
23. Gases that glow re/orange because they have electrons flowing through them are usually called NEON lights even though many different gasses can be used to make colors other than red/orange.
24. The Ray Model of light states that light travels in Straight lines called Light Rays. This property of light also allows shadows to be formed.
25. The bouncing of light off of objects is called reflection.
26. Regular/Normal reflection can be found in mirrors where the surface is very smooth.
27. Diffuse reflection is what you get when the surface is too rough and the light gets reflected in many different directions. This happens when light strikes paper and explains why we cannot see our reflection in a piece of paper.
28. A flat mirror is also called a plane mirror and is what you find in ordinary wall mirrors.
29. A concave mirror can be used to magnify your image. These are often used for shaving or putting on make-up.
30. A convex mirror can show wide areas and is often used as a security mirror.
31. Refraction is the Bending of light due to changes in its speed through that material. Light is fastest in a vacuum and slower in everything else.
32. The amount that light slows and bends a material is called the index of refraction. The number for a vacuum is 1.00 and it is 1.33 for water, 1.51 for glass, and 2.52 for diamond. The larger the number, the slower light travels through it and the more it can bend.

33. Each wavelength of light bends a different amount and the longer wavelengths bend less than shorter wavelengths. Red bends the least and violet bends the most in the visible spectrum.
34. Breaking white light into its different colors can be done with a triangular piece of glass called a prism. This is called the visible spectrum.
35. A convex lens is the same type of lens in a magnifying glass.
36. The three steps for drawing a ray diagram using a lens are: (be able to draw this using these rules on the test)
- Draw a horz line from object to the lens, then through f on the other side
 - Draw a line from the object through f, then horz out the other side
 - Straight line from object through center of lens and keep on going
37. A material is said to be transparent if light and images can easily pass through. Examples might be clear glass, air, water, plastic.
38. If only light can pass through, but not images, then this material is said to be translucent. Examples might be paper, frosted glass, wax paper.
39. A material that does not let any light at all through it is said to be opaque. Examples could be metal, wood, rock, etc.
40. white is the color that reflects all light. It is also slower to get hot in sunlight.
41. Black is the color that absorbs all light and gets hot quickly in the sun. It also is faster to cool off when the sun goes down.
42. The Primary Colors of Light are Red, Blue, and Green.
43. When light colors of Green and Blue are mixed, you get cyan.
Red and Green make yellow.
Red and Blue make magenta.
44. Cyan, Magenta and Yellow are the secondary colors of light.
45. Cyan, Magenta and Yellow are also the Primary Colors of Pigment and if you add black are the colors that you buy for your inkjet printer.
46. When color pictures are printed at a print shop, they use what is called 4 color printing and the inks are Cyan, Magenta, Yellow and Black.
47. When we see a pigment, it is actually absorbing some of the light striking it and reflecting some of it. The light that we see is the light that is being reflected.
48. Light waves can travel vertically, horizontally, or at any angle in between. A special filter that only allows light that is aligned to its tiny slits to pass through is called a Polarizing filter. We can use glasses made of this material to cut out glare from a road or a lake.
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49. A convex lens is thicker in the middle than on the edges.
50. The Law of Reflection states that the angle of reflection equals the angle of incidence.
51. What color of light does a red object reflect? red
52. What are cone cells in the eye sensitive to? color
53. Microwaves are a type of Radio wave. (one of the parts of the E-M Spectrum).
54. The point where light rays are refracted to when using a lens is called the Focal Point.
55. If green light shines on red fruit, what color does the fruit appear to be? Black
56. Draw a ray diagram using the three rules. Draw the image of the arrow in the correct place.



57. Draw the ray diagram for the refraction through the block of glass. Include the normal and projected rays.

