

## LIGHT WORKSHEET, WAVELENGTH, FREQUENCY and ENERGY

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

**You must show all work to receive full credit.**

Useful Information You May Need:

Red	700 - 650 nm
Orange	649 - 580 nm
Yellow	579 - 575 nm
Green	574 - 490 nm
Blue	489 - 455 nm
Indigo	454 - 425 nm
Violet	424 - 400 nm

- \_\_\_\_\_ 1. Which has the greater  $\lambda$  blue or indigo light?
- \_\_\_\_\_ 2. Which has the greater  $\nu$  red or yellow light?
- \_\_\_\_\_ 3. Which has the greater energy, a photon of yellow light or a photon of green light?
- \_\_\_\_\_ 4. Which has the longer wavelength, light with a frequency of  $7.32 \times 10^{14}$  Hz or light with a frequency of  $6.0 \times 10^{14}$  Hz?
- \_\_\_\_\_ 5. Which has higher energy,  $\lambda$  of 674 nm or  $\lambda$  480 nm?
- \_\_\_\_\_ 6. Which has a higher frequency, orange light or indigo light?
- \_\_\_\_\_ 7. A certain red light has a wavelength of 725 nm and another red light has a frequency of  $4.28 \times 10^{14}$  /sec. Which would have higher energy per photon?
- \_\_\_\_\_ 8. Find the color of light whose frequency is  $5.21 \times 10^{14}$  cycles/sec.
- \_\_\_\_\_ 9. What is the frequency of light if its wavelength is  $5.4 \times 10^{-5}$  cm?
- \_\_\_\_\_ 10. Which would have the higher frequency, light of wavelength of 521 nm or light with a wavelength of 605 nm?
- \_\_\_\_\_ 11. Which would have the longer wavelength, light with a frequency of  $4.5 \times 10^{14}$  Hz or light with a frequency of  $6.19 \times 10^{14}$  Hz?