Name: _____ Period: _____ Date: _____

Stars and Light Review Study Guide
Astronomy

Vocabulary:

1. Emission –
2. Absorption –
3. Transmission –
4. Reflection –
5. Spectrum –
6. Electromagnetic Wave –
7. Photon –
8. Wavelength –
9. Frequency –
10. Speed –
11. Electromagnetic Spectrum –
12. Spectroscopy –
13. Continuous Spectrum –
14. Emission – Line Spectrum –
15. Absorption – Line Spectrum –

16. Temperature –

Review:

1. What are the four ways light interacts with matter?

2. What type of light are we able to see and what color do we see it in? (When all wavelengths are combined…)

3. How is absorption different from transmission?

4. How is scattering different from transmission?

5. Give an example for each of the ways light interacts with matter.

6. Describe white light.

7. When we see a certain color, what is actually happening with that light for us to perceive it the way we do?

8. Light (electromagnetic _____) is a form of what?

9. Light can be detected in two ways. A wave is one. What's the other? Explain how there's two forms.

10. Describe all three of the wave properties and also draw a diagram to show each.

11. What is the speed of light?

12. What is the range of visible light on the EM spectrum? Units included!

13. Looking at the spectrum, what type of light has the highest frequency? The lowest? (Include measurements!)

14. Looking at the spectrum, how do temperature and frequency relate to the wavelength of light?

15. List out, from largest wavelength to smallest, the types of electromagnetic radiation.

16. Who is Sir William Herschel and what did he do?

17. Who is J. Ritter and what did he do?

18. Who is Maxwell and what did he do in comparison to Hertz and Jansky?

19. Who is Roentgen and what did he do?

20. Which type of light has the least amount of experimental data? Why would this be?

21. Astronomers use light to determine what three properties of celestial objects?

22. What does spectroscopy assume in regards to each atom or molecule of a substance?

23. What do spectra look like?

24. What is the difference between a continuous spectrum and an emission-line one?

25. What is the difference between an emission-line spectrum and an absorption-line spectrum?

26. In clouds of gas, what are atoms consistently doing? What does this cause?

27. Explain what happens when photons excite electrons to higher energy levels.

28. What happens when elements release photons of certain wavelengths?

29. Thanks to spec, what is the composition of the Sun?

30. What is Wein's law? What do the colors blue and red have to do with this law? Explain.

31. Explain how the Doppler shift in sound is different from the Doppler shift in light.