**FPS – Unit 5 Review – Chapter 17-18**

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| ***Conceptual Understanding*** |
| 1. Define a wave. 2. What is a medium? Give several specific examples. 3. What are three types of mechanical waves? 4. How are the two main types different? 5. Draw and label the parts of a wave. 6. Describe the relationship between energy, frequency, and wavelength. 7. What is the frequency of a wave? 8. What is the period of a wave? 9. What is the speed of a wave? 10. How can we find the speed of a wave? 11. What happens to sound as you increase the amplitude? 12. What happens to sound as you increase the frequency? 13. What happens to light as you increase the amplitude? 14. What happens to light as you increase the frequency? 15. Describe the Doppler Effect in a scenario using sound waves. 16. Describe the Doppler Effect in a scenario using light waves. 17. Draw and label the law of reflection and refraction. 18. Why do we lose hearing of higher pitches first? 19. What are the parts of the electromagnetic spectrum? 20. What, in order of largest to smallest wavelength, is the spectrum of visible light? |

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| ***Applying Concepts*** |
| 1. WHY do we see celestial bodies that are moving away from us as redder? Use the Doppler Effect to explain your answer. Be specific and use terms like *frequency, wavelength,* observer*,* and *sound source*. 2. Explain WHY colors like violet and indigo have a higher energy than red light. |

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| ***Mathematical Problems*** |
| 1. If a wave has a wavelength of 1.2 m and a frequency of 0.9 Hz, what is its speed? 2. If a wave has a wavelength of 0.99m and a speed of 62 m/s, what is its frequency? 3. If a LIGHT wave travels at the speed of light at a frequency of 1,114,000 Hz, what is its wavelength? 4. Calculate the frequency of a radio wave with a wavelength 1500 m. 5. Calculate the frequency of a sound wave of speed 1500 m/s and wavelength 6 km. 6. Calculate the period of a wave that has speed 5 m/s and wavelength 20 m 7. Calculate the speed of a wave that has period 0.04 seconds and wavelength 20 m 8. Calculate the speed of a wave that has period 0.2 seconds and wavelength 10 m |