**Waves, Sound & Light, Electricity & Magnetism Test Study Guide**

**Vocabulary:** Create your own definitions for the terms below.

* Mechanical wave
* Electromagnetic wave
* Doppler effect
* Circuit
* Resistor
* Permanent magnet
* Magnetic field
* Electromagnet

**Study Questions** Answer the following questions to the best of your abilities.

1. Describe two differences between transverse and compressional (longitudinal) waves.
2. Draw and label the following on a transverse & compressional wave (longitudinal): crest, trough, amplitude, rarefaction, compression, wavelength.
3. How are mechanical waves different from electromagnetic waves? Give two differences.
4. List the waves of the electromagnetic spectrum from longest wavelength to shortest. What is the relationship between frequency, wavelength and energy?
5. Answer each question below and define your answer.

A picture containing diagram

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1. How are pitch and frequency related?
2. Explain what happens to sound waves during the Doppler effect.
3. Create and solve TWO word problems using the wave speed formula. (v = f \* λ)
4. Why do sound waves travel the fastest through warm and solid materials while light waves travel the fastest through empty space?
5. How does electricity flow through a circuit?
6. What are the units used for the following: current, charge, resistance and voltage?
7. Create and solve TWO word problems using Ohm’s Law (I = V/R)
8. What is an advantage of using a parallel circuit as opposed to a series circuit?
9. How do atoms create magnetic properties in some objects?
10. What creates Earth’s magnetic field?
11. How is the right-hand rule used to find the North pole of a magnetic object?
12. Review your Series Circuits and Parallel Circuits Worksheets and be able to complete similar questions on the test.

**More review**:

Look over class notes and practice handouts covering these topics.

Review Edgenuity lessons 10.18, 10.21, 12.7. 10.14, 3.4 and 10.15 for more study material.

How do Magnets Work?

<https://www.youtube.com/watch?v=hFAOXdXZ5TM>

Magnetism Review

<https://www.youtube.com/watch?v=s94suB5uLWw>

Right Hand Rule

<https://www.youtube.com/watch?v=LAnRTNwrFMo>