

Waves Test Part A: 4/19

Topics:

- Wave Properties
- Electromagnetic Waves
- Light (Eye)

Directions: Students will have 1 to 2 days in class to work on the project. All work needs to be completed individually. Anything not completed in class needs to be completed at home.

ALL PRESENTATIONS SHOULD BE 4-6 MINUTES LONG!!!

1st option: Paper Slide Video OR Powerpoint - 100 Points each

- Covers all 3 topics
- Has at least 10 slides (**20 points**) and 5 pictures (**2 points each**) (can be hand drawn) (**30 points total**)
- Must include a diagram of the eye (**10 points**) AND diagram of the wave (**10 points**)
- Vocabulary to be defined: wave, amplitude, frequency, wavelength, trough, crest, transverse wave, longitudinal wave, line of origin, mechanical wave, electromagnetic wave, vacuum, absorb, reflect, refract, scatter, transparent, translucent, opaque, concave, convex, pupil, retina, lens, cornea (**2 points each-50 total**)

2nd option: 3-D Model of the Human Eye AND a Visible Light Wave

- Model of the eye must have the following parts labeled: iris, cornea, pupil, lens, sclera, orbital muscles, optic nerve, vitreous humor, aqueous humor, retina, (**20 points**)
- Model of the wave must have the following labeled: Transverse wave, crest, trough, amplitude, wave height, wave length, line of origin, volume, medium, pitch (**20 points**)
- Answer the following questions/prompts during presentation: (**10 points each, 60 total**)
 - Explain the process of seeing, from light source to brain.
 - Explain how a change in volume would change how your wave looks.
 - Explain how a change in pitch would change how your wave looks.
 - Would this wave travel through outer space? Why or why not?
 - What is the difference between a human eye and a cow eye? Why is this difference important for animals?
 - Compare and contrast a light wave with a different type of wave. (example: sound wave, ocean wave, seismic, etc.)

3rd option: Complete study guide and take test

****IF PROJECT IS NOT READY TO PRESENT THE DAY OF THE TEST, STUDENTS WILL TAKE THE TEST. NO EXCEPTIONS!****

Waves Test Part B: 5/3

Topics:

- Wave Properties
- Sound (Ear)
- Heat

Directions: Students will have 1 to 2 days in class to work on the project. All work needs to be completed individually. Anything not completed in class needs to be completed at home.

1st option: Tour of Heat Transfer in Your House

- Act like a reporter
- Find and explain 3 examples of each type of heat transfer
- Video uploaded to Google Classroom Assignment

2nd option: Create an instrument (w/ poster to explain the waves produced)

- Play a "song" on their instrument in front of the class.
- Talk about the sound made- high or low pitch [wavelength]? High or low volume [amplitude]?
- Have a poster to explain the sound produced and show what the waves look like

3rd option: 3-D Model of the Ear AND a Sound Wave

- Must have the following parts labeled: Hammer, Stirrup, pinna, ear canal, eardrum, cochlea, auditory nerve
- Must have the following part of a wave labeled: longitudinal wave, compression, rarefaction, wavelength, amplitude

4th option- Complete study guide and take test

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