

The Electromagnetic Spectrum: What's the Use?

Geology 1P

Mr. Traeger

Name: _____

Period: ____

Date: _____

Purpose

The purpose of this assignment is to investigate telescopes and remote sensing platforms that use each part of the electromagnetic spectrum.

Materials

▪ Computer	▪ Computer/Internet	▪ Mr. Traeger's Internet Investigations Page
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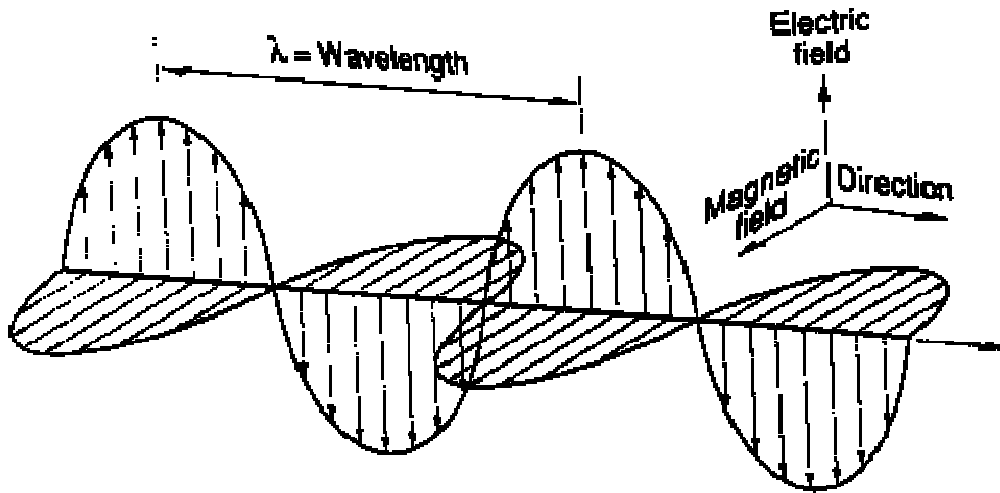
Part 1: Visible Light

- Go to Mr. Traeger's Internet Investigation Website. There, you will find links to complete this assignment. Fill in the following chart to investigate more in to how the electromagnetic spectrum is used to study different aspects of astronomy and remote sensing. The Tour of the Electromagnetic Spectrum Page from NASA's Mission: Science will be quite helpful. <http://missionscience.nasa.gov/ems/index.html>

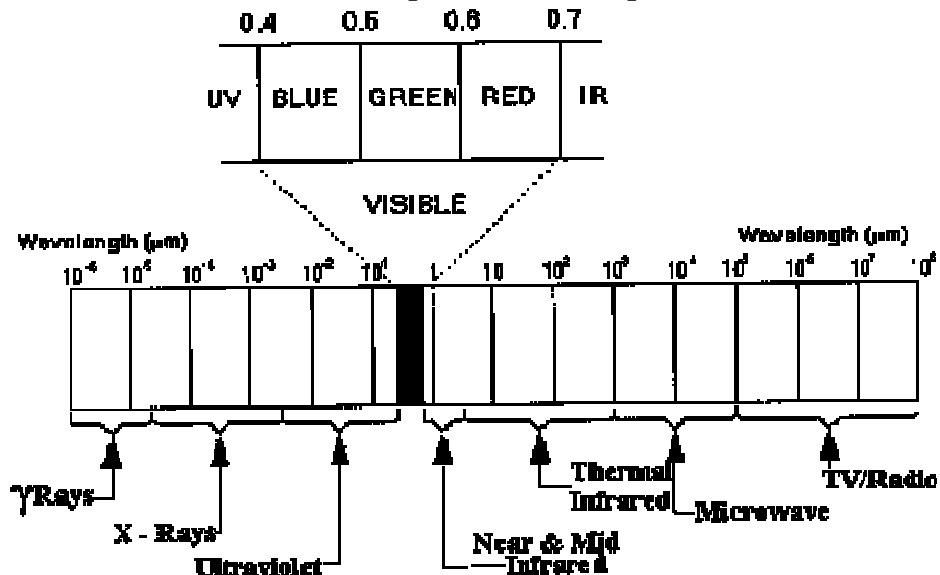
Part of Electromagnetic Spectrum	Name of Object or Mission	What is it that is being sensed? Planet, star, nebula, galaxy etc.	What wavelength(s) of light were used to image this object?	Why was this type of light used to image this object?
Radio				
Microwave				
Infrared				
Reflected Near Infrared				
Visible				
Ultraviolet				
X-ray				
Gamma Ray				

The Electromagnetic Spectrum (Information Obtained from <http://www.geo.mtu.edu/rs/back/spectrum/>)

The electromagnetic spectrum is a continuum of all electromagnetic waves arranged according to frequency and wavelength. The sun, earth, and other bodies radiate electromagnetic energy of varying wavelengths. Electromagnetic energy passes through space at the speed of light in the form of sinusoidal waves. The wavelength is the distance from wave crest to wave crest (see figure below).



Light is a particular type of electromagnetic radiation that can be seen and sensed by the human eye, but this energy exists at a wide range of wavelengths. The micron is the basic unit for measuring the wavelength of electromagnetic waves. The spectrum of waves is divided into sections based on wavelength. The shortest waves are gamma rays, which have wavelengths of 10e-6 microns or less. The longest waves are radio waves, which have wavelengths of many kilometers. The range of visible consists of the narrow portion of the spectrum, from 0.4 microns



(blue) to 0.7 microns (red).