Name: _____ Date: _____

Electromagnetic Spectrum Homework

Task 1

Directions: Match each type of electromagnetic wave with its correct description.

____ 1. Long radio waves	A.	Important to medical imaging and airport security
____ 2. Radio waves	B.	The only light that can be seen by the human eye
____ 3. Microwaves	C.	Associated with thermal energy
____ 4. Infrared	D.	Very dangerous, can cause radiation poisoning
____ 5. Visible light	E.	Overexposure can damage skin and eyes
____ 6. Ultraviolet light	F.	Important to radio and TV broadcasting & radar
____ 7. X-Rays	G.	Longest waves with lowest frequency
____ 8. Gamma rays	H.	Important to WiFi, cellphones, GPS, weather forecasting, cooking and air traffic control

Task 2

How does wavelength, frequency and energy vary for electromagnetic waves as you move up or down the electromagnetic spectrum?

_____

_____

_____

_____

Task 3

Draw a diagram that shows the relationship between the eight major types of electromagnetic waves from Task 1.

Name: _____ Date: _____

■ Wave Equation Homework

Task 1

Directions: Answer the following questions.

1. What is the wave equation?

_____

_____

2. In what units do we measure the variables of the wave equation?

_____

_____

3. What is the speed of light in a vacuum or dry air?

_____

_____

Task 2

According to the wave equation, what is the relationship between the wavelength and frequency of an electromagnetic wave?

_____

_____

_____

_____

Task 3

Use the wave equation to determine the wavelength of an electromagnetic wave that has a frequency of 3.00×10^{13} Hz. Then determine the type of the electromagnetic wave.

Use the wave equation to determine the frequency of an electromagnetic wave that has a wavelength of 1.0 centimeter. Then determine the type of the electromagnetic wave.