Photon Math Name _____

$$E = hf \qquad \lambda f = c$$

When applying one of these two equations, which category of units do you want to use?

Planck's constant = 6.626×10^{-34} Joule-Sections
Speed of light = 3.0×10^{8} meters / second

1 electron-volt = 1.6×10^{-19} Joules

Metric Units

Text	**Symbol**	**Multiplier**
Exa	E	10^{18}
Peta	P	10^{15}
Tera	T	10^{12}
Giga	G	10^{9}
Mega	M	10^{6}
Kilo	K	10^{3}
Centi	c	10^{-2}
Milli	m	10^{-3}
Micro	μ	10^{-6}
Nano	n	10^{-9}

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Type of Wave	Non-SI Units			SI Units		
	Wavelength	**Frequency**	**Energy**	**Wavelength (meters)**	**Frequency (hertz)**	**Energy (Joules)**
Orange light	630 nanometers	terahertz	electron-volts			
Low Microwave	centimeters	500 megahertz	micro-Electron-volts			
High frequency microwave	millimeters	80 gigahertz	micro-Electron-volts			
Shortest wavelength ultraviolet	10 nanometers	petahertz	electron-volts			
Gamma Ray	picometers	exahertz	200 kilo-electron-volts			
Violet light	420 nanometers	terahertz	electron-volts			
Mid infrared	micrometers	terahertz	124 mili-electron volts			
Your favorite FM radio station	meters	Between 87.5 and 108.0 MegaHertz	nano-electron volts			

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Answers:

Type of Wave	**Non-SI Units**			**SI Units**		
	Wavelength	**Frequency**	**Energy**	**Wavelength (meters)**	**Frequency (hertz)**	**Energy (Joules)**
Orange light	630 nanometers	terahertz	electron-volts	6.30×10^{-7}	4.76×10^{14}	
Low Microwave	centimeters	500 megahertz	micro-Electron-volts		5.00×10^{8}	
High frequency microwave	millimeters	80 gigahertz	micro-Electron-volts		8.0×10^{10}	
Shortest wavelength ultraviolet	10.0 nanometers	petahertz	electron-volts	1.00×10^{-8}		
Gamma Ray	picometers	exahertz	200 kilo-electron-volts			3.20×10^{14}
Violet light	420 nanometers	terahertz	electron-volts	4.20×10^{7} m		
Mid infrared	micrometers	terahertz	124 mili-electron volts			1.99×10^{-20}
Your favorite FM radio		Between 87.5 and 108.0	nano-electron		9.85×10^{7}	

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station		meters	MegaHertz	volts				