

## Energies in Electron Volts

Room temperature thermal energy of a molecule.....	0.04	eV
Visible light photons.....	1.5-3.5	eV
Energy for the dissociation of an NaCl molecule into Na <sup>+</sup> and Cl <sup>-</sup> ions:.....	4.2	eV
Ionization energy of atomic hydrogen .....	13.6	eV
Approximate energy of an electron striking a color television screen.....	20,000	eV
High energy diagnostic medical x-ray photons.....	200,000	eV (=0.2 MeV)
Typical energies from nuclear decay:		
(1) gamma.....	0-3	MeV
(2) beta.....	0-3	MeV
(3) alpha.....	2-10	MeV
Cosmic ray energies .....	1	MeV - 1000 TeV

Electron Volt 1234 RULE

eV = electron across 1volt

Photon\_ev = 1234\_eV/wavelength\_nm

### The Electron Volt (eV) and the Rule of 1234

<p>The kinetic energy of an electron accelerated across a potential difference of one volt is one <i>electronvolt</i> (eV).</p>	<p>The energy E in electronvolts (eV) of a photon is related to its wavelength l in nanometers (nm) through the following relationship:</p>
<p>The eV is not a unit of charge, or a unit of voltage; it is a unit of <i>energy</i>.</p>	<div style="text-align: center;"> <math display="block">E = (1234 \text{ eV}\cdot\text{nm}) / l</math> </div> <p>This equation is important not because of any essential physics underlying it, but because it is a time-saver.</p>