



Vocabulary: Photoelectric Effect



Vocabulary

- **Electron volt** – a unit of energy that is equal to the energy of an electron that is accelerated by a potential difference of 1 volt.
 - Electron volts are also used to describe the energy of *photons*.
- **Frequency** – the number of times something happens in a given period of time.
 - The frequency of a wave, measured in *hertz* (Hz), is equal to the number of wave crests that pass a point each second.
 - The frequency of a light wave is equal to the speed of light (*c*) divided by its *wavelength* (λ):

$$f = \frac{c}{\lambda}$$

- **Photoelectric effect** – the emission of electrons from the surface of a material when struck by electromagnetic radiation.
- **Photon** – the smallest possible amount of light; a *quantum* of light.
 - A photon can behave as a discrete particle or as a wave.
 - Photons are distinguished by their wavelengths. The shorter the wavelength, the greater the energy a photon carries.
- **Photon flux** – the number of photons that pass by in a given unit of time.
 - The brighter a light source is, the greater its photon flux.
 - The Greek letter gamma (γ) is used for photons, and photon flux is given in terms of γ/s (or, in the case of the Gizmo, γ/ms or photons per millisecond).
- **Voltage** – a measure of the strength of an electrical field.
 - Voltage is measured in *volts* (V).
 - In equations, the symbol for voltage is *V*.
- **Wavelength** – the distance between consecutive crests or troughs of a wave.
 - Different forms of electromagnetic radiation are distinguished by their wavelength.
 - Visible light has wavelengths between 380 and 730 nanometers (nm).
- **Work function** – the minimum energy required to remove an electron from a solid.
 - The work function should not be confused with the *ionization energy* of an atom. Ionization energy refers to the energy required to remove an electron from a single atom in a gas.

