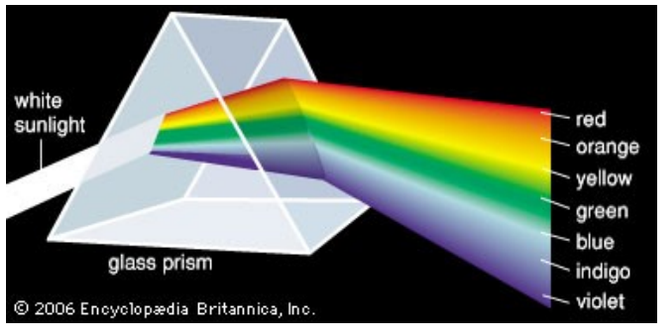
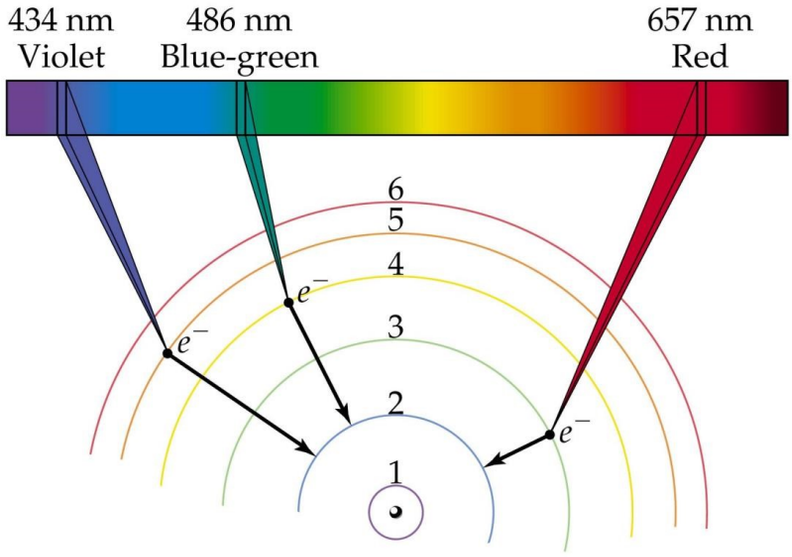
White light and prisms



Sep 29-8:07 AM

Electrons moving up and down



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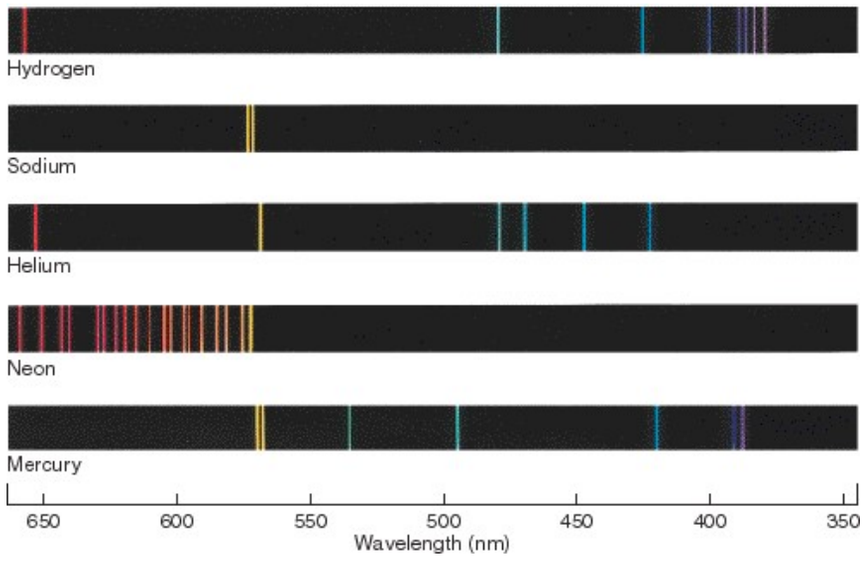
Electron absorption and emission spectrum



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Every element has a unique emission spectrum

Using equipment called a spectrophotometer, scientist can identify elements.

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Planck's Constant

$h = 6.626 \times 10^{-34}$ J(s)

Rydberg Constant

$R_H = 1.097 \times 10^{7}\ m^{-1}$

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Formulas using h and R_H

$$E = h\nu = \frac{hc}{\lambda}$$

$$\frac{1}{\lambda} = R_{\mathrm{H}} \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

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Using the formulas:

1) What is the energy associated with light that has a frequency of 7.04×10^{14} Hz?

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2) What wavelength of light is released when an electron falls from n = 3 to n = 2?

Sep 29-8:01 AM

Heisenberg uncertainty principle.

We can either know where an electron is, or how fast (how much energy it has) at any given moment.

In other words, you cannot simultaneously know both the location and the velocity of a particle

Sep 29-8:02 AM


IT'S A DEAD HEAT
THEY'RE CHECKING THE ELECTRON MICROSCOPE
AND THE WINNER IS
NO FAIR!
NUMBER 3, IN A QUANTUM FINISH
YOU CHANGED THE OUTCOME BY MEASURING IT!!

Sep 29-8:13 AM

Electron Configuration and the Periodic Table

Location, location, location!!

Elements have similar chemical properties because of their vertical location on the periodic table and the configuration of their electrons.

Sep 29-8:13 AM

The desire to be happy.

Noble gases do not react because they are happy, they have what is known as an **octet**. This means that their outer shell of electrons is full. All noble gases have s^2p^6 in their outside layer of electrons. These outside electrons are called **valence electrons**.

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Groups 1A - 7A try to be happy and thus form ions.

ion - atom with a charge

Sep 29-8:24 AM

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