

Light and Atoms

Problem Solving Guide

1) identify photon emission vs. photon absorption

releasing energy
→ inward arrow
(down)

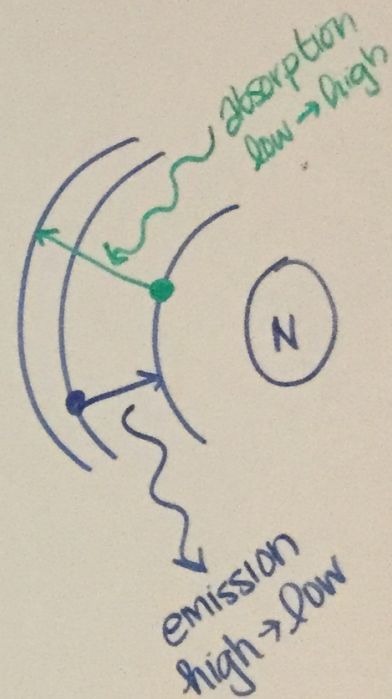
intaking energy
→ outward arrow
(up)

1a) ionization - electron ejected from atom → arrow out from Energy levels.

2) Quantify the amount of Energy.

→ long arrow → high E → short wavelength.
"bluer"

→ short arrow → low E → long wavelength
"redder"



$$E_{\text{photon}} = hf = h \frac{c}{\lambda}$$

Energy of a Photon
is **INVERSELY**
proportional to
wavelength

$$E_{\text{photon}} \propto \frac{1}{\lambda}$$

high $E \rightarrow$ small
wavelength

"bluer" colors

E - Energy

f - frequency

λ - wavelength

h - constant

low $E \rightarrow$ long
wavelength

"redder" colors