

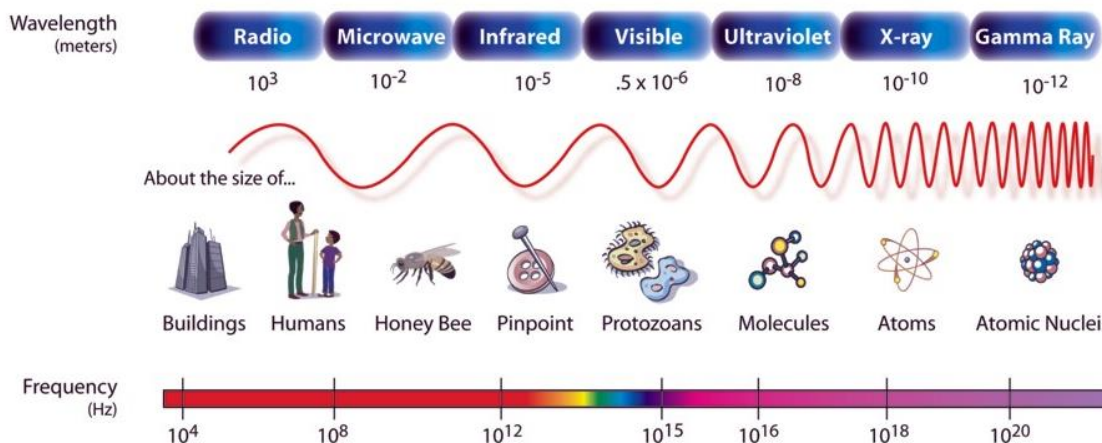
ATOMIC THEORY AND ISOTOPES

X-Rays

- Discovered in 1895 by German physicist _____
 - Observed that certain materials emitted an unknown kind of energy when he bombarded them with _____ → rays darkened _____ plates just like visible light did
- French physicist Henry Becquerel found that a rock containing _____ salts emitted these X-rays naturally (did not have to bombard them with electrons)
- Chemists Marie and Pierre Curie were able to isolate the minerals emitting the X-rays → found it to be from the _____ atoms in the rock sample
 - Called this process _____

Radioactivity

- The release of _____ and _____ of energy from a substance as a result of changes in the _____ of atoms
- Radiation → the high-energy particles and rays of energy
- Occurs all around us as _____
- The _____ spectrum covers all of the different types of energy rays (pg. 287 in text)
- Note that, regardless of the type of radiation (microwave, gamma rays, etc), the amount of energy contained in one wavelength is _____ → because gamma rays hit an object more _____, it imparts more _____ to that object



Isotopes

- Note that according to the statement in the bottom left corner of the Periodic Table, some elements have more than one _____
- Where does the change in masses come from?
 - All of the mass in an atom is located in the _____
 - Atomic number has to stay the _____ or you change the element
 - The only thing that can change is the number of _____
- Isotope → atoms of the same _____ with different _____
_____ (different number of _____) → this can make some nuclei _____
- Example: Carbon

- Occurs naturally in 3 forms: $^{12}_6\text{C}$, $^{13}_6\text{C}$, $^{14}_6\text{C}$ ← called standard _____ or _____

Isotope	# Protons	# Electrons	# Neutrons
$^{12}_6\text{C}$			
$^{13}_6\text{C}$			
$^{14}_6\text{C}$			

- Carbon 12 ($^{12}_6\text{C}$) and Carbon 13 ($^{13}_6\text{C}$) are the _____ isotopes →
Carbon 14 ($^{14}_6\text{C}$) is the _____ form
- Radiation is the result of _____ nuclei of some atoms giving off
_____ as they become a more _____ nuclei

Homework Isotopes Worksheet (BC Science 10 SWB pg. 123)
Isotopes Worksheet (BC Science BLM 2-43)