Tuesday, March 5, 2019

"Think and wonder, wonder and think" -Dr. Seuss

Pick up: computer

Today you will:

- Fundamental Forces Lesson 8.3-ISN pg 135
- Work on anything you need to complete
  - Life Cycle of Stars (you have a handout)
  - HR Diagram, Webquest, Graph, Constellation Project

HOMEWORK:

Study what we've done so far

Make sure all work is in by Mon, 3/11 for DIA

The Four Fundamental Forces

The following information is from http://physicsforidiots.com/physics/particles-and-forces/#Gravity

Four Fundamental Forces (#5)

Force	Strength	Range
Strong Force – Holds protons together	1	Nuclear distance
Electromagnetic Force – holds atoms to each other	10^-2	Great distance
Weak force – causes radioactive decay	10^-13	Nuclear distance
Gravitational force - Attraction of bodies to one another	10^-38	Greatest distance

Strong Force

- Holds protons and neutrons together in the atom.

  Inside a nucleus you have protons and neutrons. Due to the electromagnetic force however all of the protons in the nucleus are pushing each other apart trying to break free (same charges repel), the thing that holds them together is the Strong Nuclear force.

- Strength: Strongest force
- Range: Smallest range
- Without strong force, atoms would fall apart

Electromagnetism

Electromagnetism can be both attractive and repulsive. If the charges are the same, the objects repel. Opposite charges attract. This hold atoms to each other for chemical bond.

- Range: Second longest. It's a long ranged force, however the mix of positive and negative charge cancel each other so it's hardly ever felt on large scale, unlike gravity.
- Strength: Second strongest
- Without this force: Without electromagnetism, we would not have chemical bonds and even worse, all matter would be one singularity without a repulsive force.

Weak Force

- The weak nuclear force is responsible for all three types of radioactive decay.
- Radioactive decay is when an unstable atom changes its nucleus to become stable. Energy is released during this process.
- Range: 2nd shortest range
- Strength: 3rd strongest
- Without weak force, we would have no sun.

Gravity

- Gravity is the attraction of bodies toward one another.
- Strength: Weakest

  Gravity is the weakest of all the forces, which seems odd at first. It holds planets together and holds them in their orbits. You can easily overcome gravity just by jumping, that's how weak it is.
- Range: Longest

  It is also the longest ranged force mainly because it is always attractive. Gravity is felt by anything with mass. If it has mass, gravity can act on it.
- Without Gravity: We would not have a solar system!

  No sun, no planets….

The Four Fundamental Forces of Nature

Electro-magnetism

Weak Interaction

Strong Interaction

Gravitation