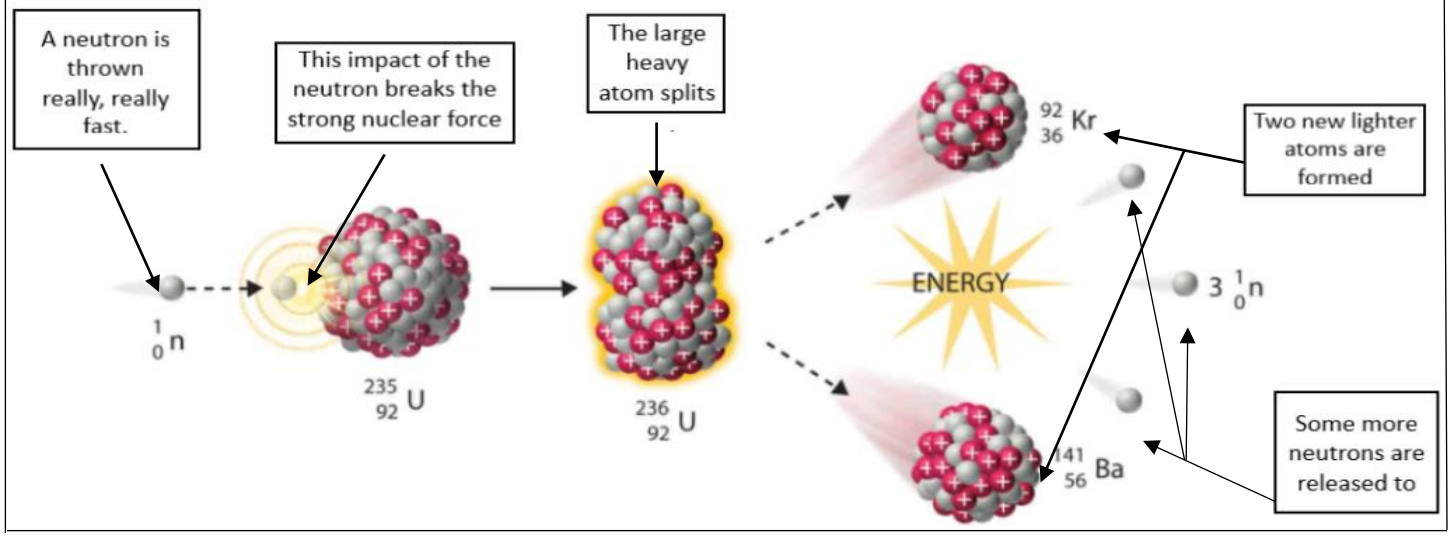
Learning Target 3 Notes

➔ **Nuclear Fission** is the splitting of atomic nuclei.

- ✓ **Offical Definition:** Nuclear Fission is a nuclear reaction in which some heavy, unstable nuclei is split (usually on impact with another particle). This breaks and releases the very strong nuclear force (Releasing a tremendous amount of energy. Think Atomic Bomb!!!

- ✓ **Coach Hyde Definition:** A neutron is thrown at a large unstable atom fast enough that it breaks it up into smaller atoms and some free neutrons.



➔ **Current Uses of Nuclear Fusion**

- ✓ Atomic Bombs
- ✓ Nuclear Power Plants
- ✓ Nuclear Powered Submarines
- ✓ Nuclear Powered Air Craft Carriers

NUCLEAR FISSION USE AS POWER SOURCE	
Pros (the Good)	**Cons (the Bad)**
Produces a lot of energy with just a little piece of fuel.	Toxic waste is radioactive for like 240,000 years.
Cheaper Than Other Sources	Expensive to Store Nuclear Waste
NO Air Pollution or Emissions	Terrorists Targets
Low Risk of Accidents	An Accident would be a Nuclear Meltdown

➔ **Nuclear Fusion** is the combining of atomic nuclei

- ✓ Two Nuclei are slammed together at very high extreme temperature and pressure. This breaks the strong nuclear force and makes a new larger atom.
- ✓ This is how all known elements were made that we have discovered (all of 'em on the periodic table).

Nuclear Fusion if used for Nuclear Power	
Pros (Good)	**Cons (Bad)**
ZERO POLLUTION	*We don't know how to do it yet*
No Nuclear Waste	*There is literally nothing bad to say about it*
No Radiation	
No Harmful impact to the environment	

Nuclear Fusion Takes Place in Extremely High Temperatures and Pressures like ... you would find in the SUN!!