

An aerial photograph of a nuclear power plant. Two large, white, conical cooling towers are the central focus, situated on a grassy area. To the left, a river flows through the landscape. The background shows a dense forest. The top of the image has a solid teal gradient.

Nuclear Energy

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Uranium to Nuclear energy

Nuclear Energy is a non-renewable resource that comes from uranium. Uranium can be found in specialised mines that search for it. The nucleus of an atom is packed with tiny particles of protons (+ positive charge); neutrons (have no charge) and electrons (- negative charge) The electrons move around the nucleus. The background picture behind is a picture of uranium. Uranium was discovered in the year of 1789 and has an atomic number of 92. It also has 92 protons and 92 electrons of which 6 are valence (relating to electrons involved for chemical bond) electrons.



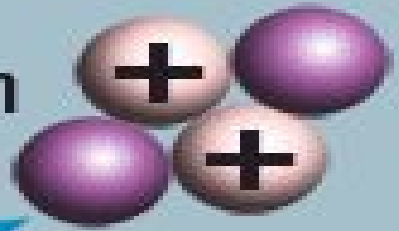
Saskatchewan uranium
mine Canada.





Deuterium

Helium



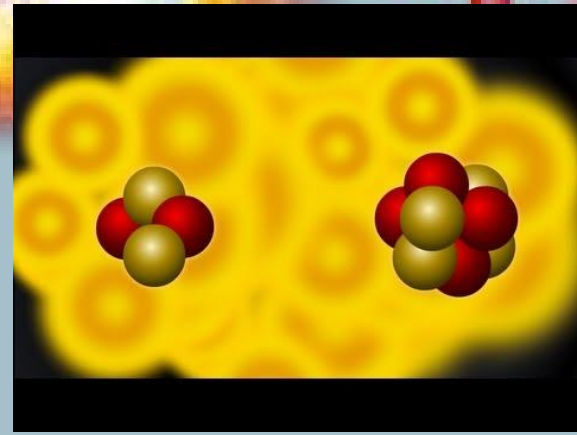
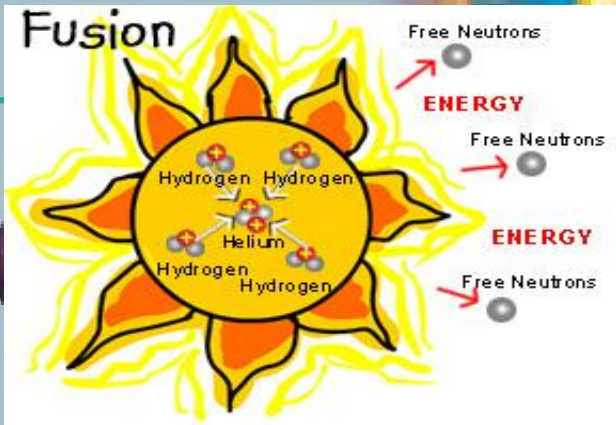
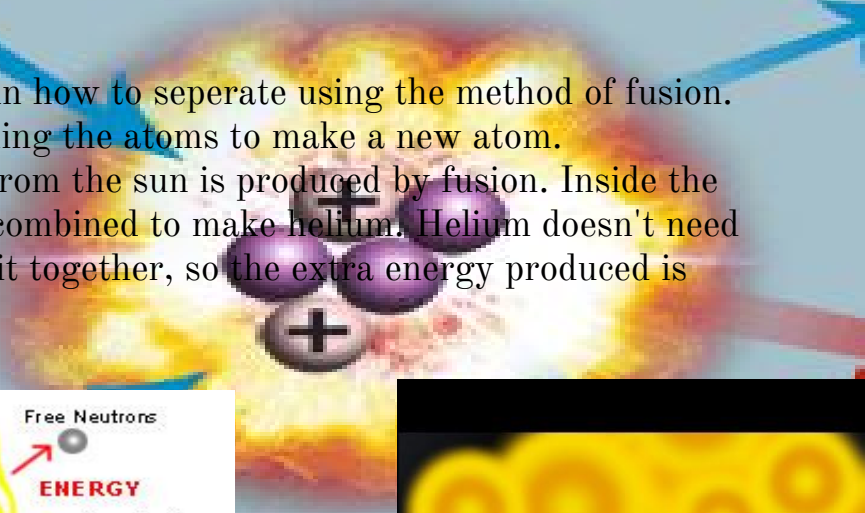
There are two ways to separate the energy inside the atom.

- Fusion
- Fission

In this slide we will explain how to separate using the method of fusion.

Fusion is a way of combining the atoms to make a new atom.

For example, the energy from the sun is produced by fusion. Inside the sun, hydrogen atoms are combined to make helium. Helium doesn't need that much energy to hold it together, so the extra energy produced is released as heat and light.



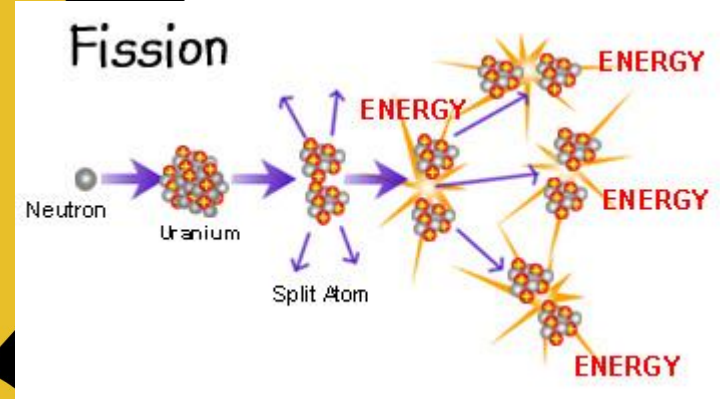
Neutron



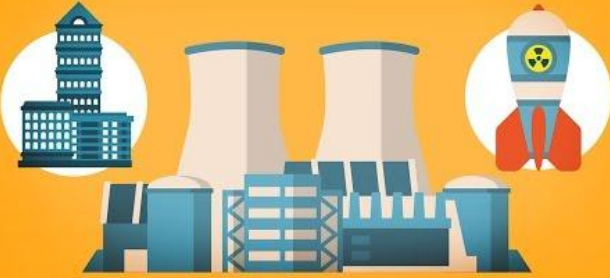
Nuclear Fission

Fission is the term for splitting an atom into two smaller atoms. The two smaller atoms don't need as much energy to hold them together as the larger atom, so the extra energy is released as heat and radiation.

Nuclear power plants use the heat released from fission to make electricity. By splitting uranium atoms into two smaller atoms, the extra energy is released as heat. Uranium is a mineral rock, a very dense metal found in the ground, and it is non-renewable. Non-renewable means we cannot make more of the substance currently. Currently, it is a cheap and plentiful fuel source.



NUCLEAR ENERGY



Nuclear Energy is produced when the atoms that make up enriched uranium are split. Uranium is mined from the ground, just like coal or copper or silver ore. The uranium is then formed into pellets that are put in tubes inside a nuclear reactor.

The pellets are bombarded with neutrons, which cause the uranium atoms to split. This is called nuclear fission. Nuclear fission creates enormous amounts of heat, which is used to turn water into steam. The steam is used to turn turbine blades, the blades spin the plant's generator, and the generator makes electricity.

