

Notes for Energy from the Sun

- Sun

- Provides warmth, light, and energy in the form of food.
- Temperatures in the Sun are so hot that matter mostly exists as plasma, or charged particles, instead of atoms.

- Nuclear Fusion

- High temperatures in the Sun and other stars cause the charged particles to move at extremely fast speed, colliding into each other, and sticking together to form atoms.
- Hydrogen atoms, the smallest atoms, are the first atoms formed, then helium atoms. Hydrogen and Helium make up most of the Sun.
- Most of the elements on the periodic table are formed through fusion reactions inside of stars.
- Besides forming atoms, fusion reactions also release large amounts of energy. ($E = mc^2$)

- **Nuclear Fission**

- **During fission reactions, large atoms collide and split into smaller atoms, while releasing large amounts of energy.**
- **Nuclear bombs and nuclear power plants use fission reactions.**

- **Radiant Energy**

- **The energy produced through nuclear fusion is called radiant energy and travels in the form of electromagnetic waves.**
- **Electromagnetic waves consist of alternating magnetic and electrical fields and do not need any atoms so they can travel through the vacuum of space.**