NUCLEAR ENERGY: OUR FAUSTIAN BARGAIN?

A. **Isotopes:** Forms on an element that have different atomic weights due to different numbers of neutrons in their nucleus

- Some isotopes are stable – $^{12}$C is the lighter, non-radioactive form of carbon
- Some isotopes are unstable – $^{14}$C is the heavier, radioactive form of carbon

B. **Half-life:** The time it takes for 50% of an isotope to spontaneously disintegrate

C. **Chain Reaction:** A multiple fission event

D. **The Nuclear Cycle**
   1. Mining radioactive material
   2. Processing uranium
   3. Concentrating $^{235}$U
   4. Generating energy in nuclear power plants
   5. Disposal of radioactive waste
   6. Decommissioning nuclear power plants

E. **Problems with Safety**

F. **Pollution Problems**
   1. Thermal pollution
   2. Radiation

G. **Social Issues Associated with Nuclear Power**
   1. Terrorism, sabotage and proliferation of nuclear weapons
   2. Human error

H. **The Future of Nuclear Energy**