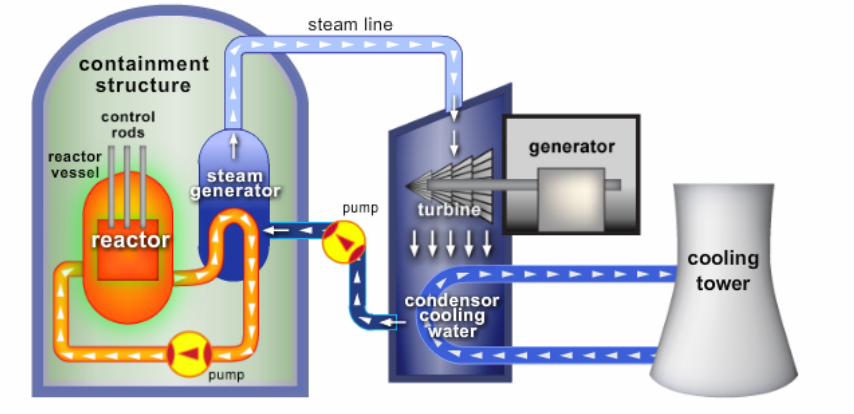
Interactive: Nuclear Reactor

Diagram of the parts of a nuclear reactor



Label	Description
Reactor	The reactor core is where the nuclear fuel is kept and where the nuclear fission chain reaction takes place. The fuel assemblies are in this part of the reactor. They are sometimes called fuel rods.
Pump	The pump moves water into and out of the reactor core. Water is heated to produce steam. Water is also used as a moderator, or substance to which the neutrons are exposed to slow them down and keep the reaction moving at a safe pace.
Control Rods	Control rods keep the chain reaction under control. They are placed in between nuclear fuel rods to slow down the reaction and keep an explosion from happening. They can be added or taken away to make the chain reaction go slower or faster.
Containment Structure	The containment structure is also called shielding. It is made of steel and concrete, about two meters thick, and it prevents the escape of radiation into the environment. Radiation is a byproduct of the nuclear chain reaction and is harmful to people and wildlife.
Steam generator	The steam generator is where water is heated to boiling to produce steam. This is not a component of all nuclear reactors; in some reactors, water is heated to boiling in the reactor core, and the steam is then pumped away directly to the turbine. However, nearly 2/3 of all nuclear reactors do use a steam generator.
Turbine	The turbine is a machine that spins when exposed to the heat energy in the steam. This is where heat energy is converted to mechanical energy.
Generator	The generator converts the mechanical energy of the turbine to electrical energy.
Condenser cooling water	Cooling water carries away excess heat from the reactor.
Cooling tower	The cooling tower transfers waste heat from the reactor to the atmosphere.