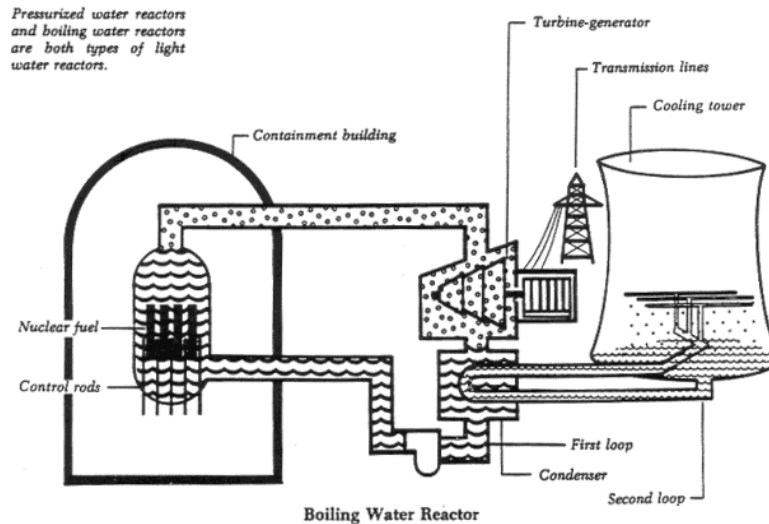


# Nuclear Activity: Creating a human nuclear power plant

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## Objective:

Get the students involved immediately and help them act out how a power plant works to give them an idea of what they are learning about throughout the day and how that impacts their everyday lives.

## Directions:

Describe the end goal – boil water, make steam, spin a turbine, convert mechanical to electrical energy via a generator, send to grid, goes to house – and encourage kids to volunteer as each part of the power plant is introduced. Have each student act out their role as you add them to the line, and then have everyone act out at once upon acquiring all parts of the power plant.

## Parts of a nuclear power plant (12 students total; 8 “steps” to power production)

- Nuclear reaction – need atoms splitting other atoms (3 students – one splits other two)
- This generates heat to boil water (1 student jumping up and down)
- This boiling water makes steam (1 student imitating steam)
- This flows to a turbine and spins a turbine. Recall that we have to reduce the pressure of the steam, so we have a high and low pressure turbine (2 students – one high pressure and one low pressure – spinning arms like a turbine)
- As energy is being removed, some steam condenses into water. This water needs to be removed from the turbine and sent back to the condenser and ultimately fed to the reactor, where the nuclear reaction takes place. (2 students to take water from the high and low pressure turbine stages back to the nuclear reactor)
- This turbine shaft is connected to a generator (1 student acting as a generator – idea: make a wave with arms to show transforming mechanical to electrical energy)
- Once electricity goes from the generator to the switchyards, it is sent to the grid/transmission lines and to houses (1 student to “transport” energy from the generator to the house)
- In your house, you plug your television/lamp/etc. into an outlet. This outlet gets power from the grid (1 student to be a television/lamp/etc.)