

## Key features of a nuclear reactor

The diagram below is a schematic of the major features in a Magnox nuclear power station. The three key components are; fuel rods (containing uranium), control rods and moderators.

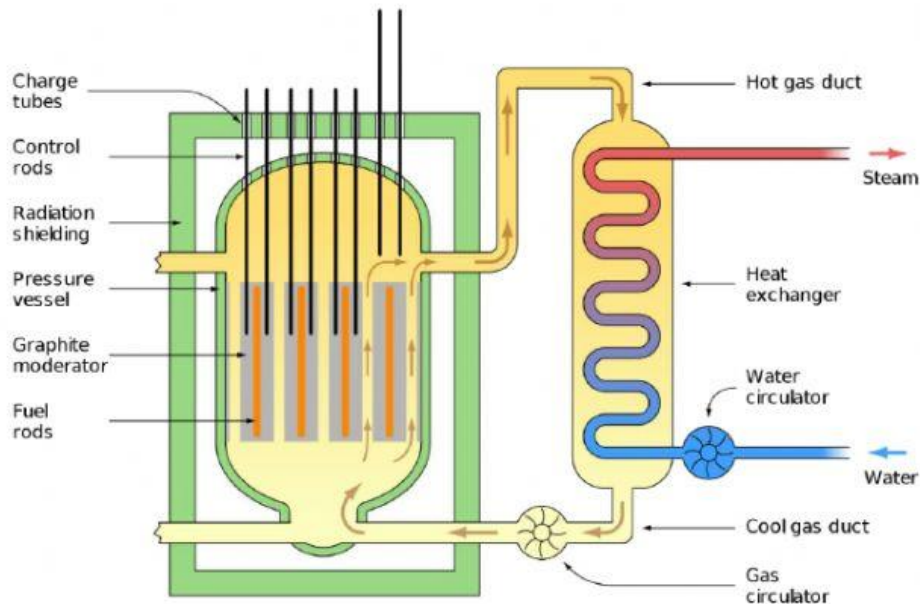


Image source: [https://en.wikipedia.org/wiki/Magnox#/media/File:Magnox\\_reactor\\_schematic.svg](https://en.wikipedia.org/wiki/Magnox#/media/File:Magnox_reactor_schematic.svg)

Within the nuclear core there is a process that could escalate and produce increasing temperatures.

This is called a .

To prevent the above effect from happening, the number of free neutrons from each fission event is

reduced to . This is done using the .

The neutrons that are left after some have been removed are moving too fast to be absorbed so the reactor would not work unless we could slow-down the neutrons so that they can be captured by other uranium nuclei. This is done using the .

Final task: Write a short explanation of how an appropriate rate of reaction is maintained in the core of a nuclear power station. The information contained in the sentences above should help you.

Write your answer separately and email it directly to your teacher for feedback.