

## **IGCSE Physics (9-1) Specification 7(c)**

### **(c) Fission and fusion**

#### **Students should:**

- 7.17** know that nuclear reactions, including fission, fusion and radioactive decay, can be a source of energy
- 7.18** understand how a nucleus of U-235 can be split (the process of fission) by collision with a neutron, and that this process releases energy as kinetic energy of the fission products
- 7.19** know that the fission of U-235 produces two radioactive daughter nuclei and a small number of neutrons
- 7.20** describe how a chain reaction can be set up if the neutrons produced by one fission strike other U-235 nuclei
- 7.21** describe the role played by the control rods and moderator in the fission process
- 7.22** understand the role of shielding around a nuclear reactor
- 7.23** explain the difference between nuclear fusion and nuclear fission
- 7.24** describe nuclear fusion as the creation of larger nuclei resulting in a loss of mass from smaller nuclei, accompanied by a release of energy
- 7.25** know that fusion is the energy source for stars
- 7.26** explain why nuclear fusion does not happen at low temperatures and pressures, due to electrostatic repulsion of protons