The Life Cycle of a Star **Mark Scheme**

Explain the life cycle of a star about the same size as the Sun.

Level 3: All stages of the life cycle are named and correctly sequenced. The transition between most of the stages is explained.	5-6
Level 2: Most stages of the life cycle are named and correctly sequenced. There is a simple description for most of the stages.	3-4
Level 1: Relevant statements are made. Two marks can be awarded for two correct statements.	1-2
No relevant content.	0
Indicative Content **nebula** • formed from dust/gases • gravity pulls them together • so, the cloud gets hotter and denser **protostar** • the particles cause friction when they brush past each other • increasing the thermal energy store • starts to emit light **main sequence star** • hydrogen nuclei have enough energy • to fuse/for nuclear fusion to start • energy/heat/temperature causes the star to expand • expansion forces are equal to gravitational forces • stable **red giant** • larger nuclei fuse to form heavier elements • causes an increase in thermal energy (in the core) • rapid expansion • as it expands it cools (and glows red) **white dwarf** • no more fusion • collapses inwards/contracts/shrinks • bright and hot • because energy is condensed into a small area	

black dwarf • energy/radiation is emitted to the surroundings • gets dimmer/fades and cools • eventually stops emitting radiation/energy	