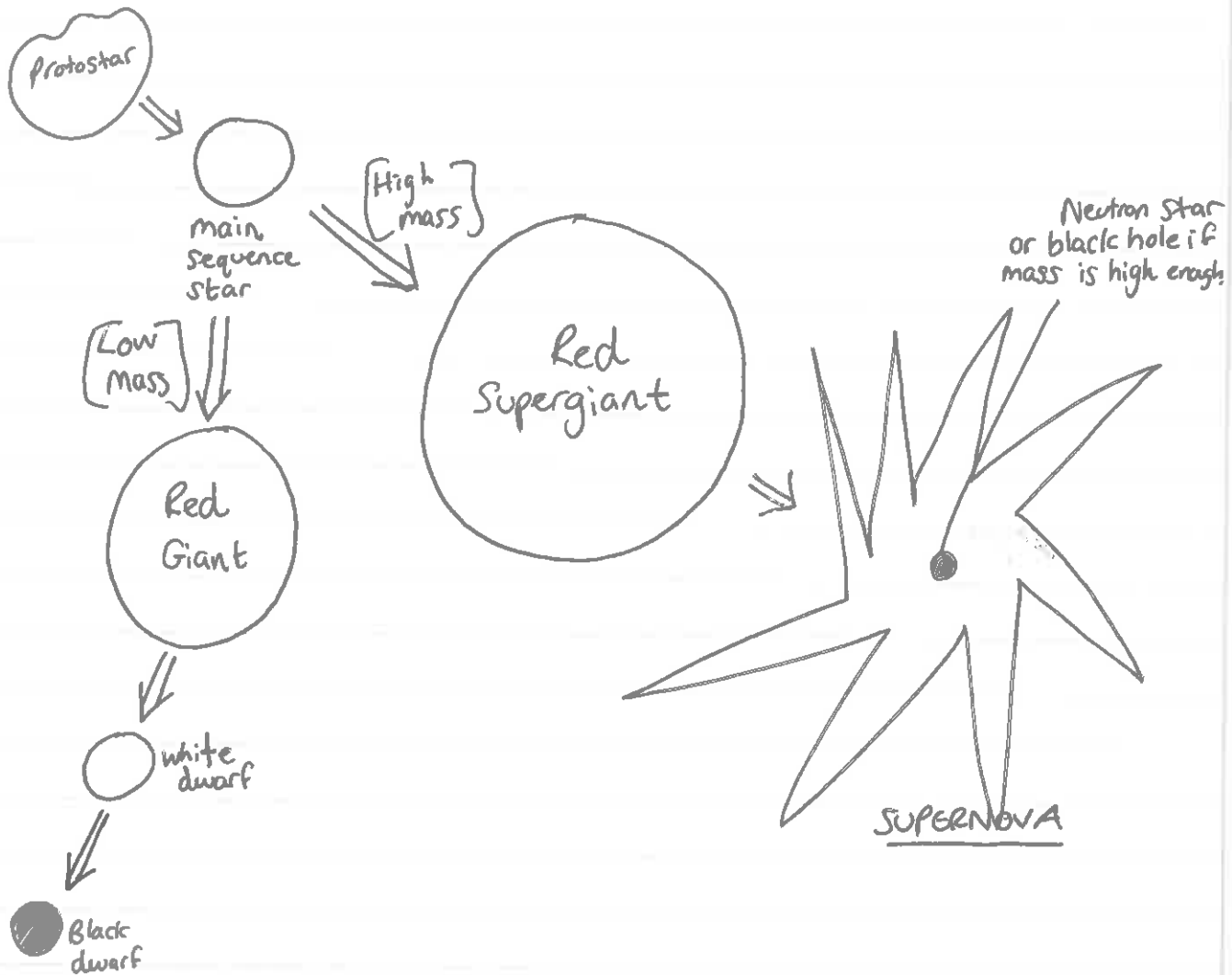


Life Cycle of a Star



Birth of star:

- clouds of gas and dust are pulled together by their own gravitational attraction, eventually forming a protostar.
- As it becomes denser, it gets hotter. If it becomes hot enough, the nuclei of hydrogen atoms fuse together, and energy is released by fusion - eventually a star is born. If object too small could become planets.

Main sequence stars:

- stars radiate energy because of hydrogen fusion in the core. This is the main sequence of the star. It maintains this output for millions of years until the fuel runs out.

End of star:

- * Stars about the size of our sun or smaller will swell out, cool down and become red giants. At this stage helium and other light elements can fuse together to form heavier elements. Once this runs out, fusion stops and the star collapses in on itself which causes it to heat up turning first yellow, then white, it becomes a white dwarf. Eventually even this hot dense star cools down and becomes a black dwarf.

- * stars bigger than the sun swell to become red supergiants and then explode into a supernova. After the core turns into a neutron star and if massive enough can form a black hole.