LIFECYCLE OF LARGE STARS

STAGE 1: NEBULA
There are numerous gigantic clouds of dust and gas (mostly hydrogen) spread across freezing cold interstellar space. They are called "Nebulae".

STAGE 2: PROTOSTAR
The cloud of dust and gas gathers together due to gravity by virtue of its mass. At the center of this cloud forms, what is known as a "Protostar".

STAGE 3: MAIN SEQUENCE STAR
A main sequence star is a gigantic sphere in space, fusing hydrogen into helium inside its core and using this energy released in the fusion reaction to counteract its own gravity (which is trying to crush it).

STAGE 4: RED SUPERGIANT
Due to energy released in the fusion reaction taking place at the layers just above the core, the outermost layers of the star expand and the star becomes what is known as a "Red Supergiant".
LIFE CYCLE OF LARGE STARS CONTINUED

STAGE 5: SUPERNova
A supernova is an explosion in which a star explodes and expels its outer layers leaving a core behind to collapse in on itself.

STAGE 6 A: NEUTRON STAR
A neutron star is a core of a star after the supernova which can have a mass up to 2.17 solar masses. They are very dense as the whole mass of the star is compressed to the size of a city.

STAGE 6 B: BLACK HOLE
If the mass of the progenitor star is more than 10-29 solar masses its core collapses into itself and forms what is known as a "Black hole" after the supernova explosion.

SOURCES:
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