LIFECYCLE OF AVERAGE SIZE 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 GIANT
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 Giant”.

A white dwarf can have a mass of up to 1.4 solar masses (also called Chandrasekhar limit). Stars with mass less than 8-10 solar masses can be treated as average size stars. Our sun is an average size main sequence star which will form a white dwarf in the end after about 5 billion years.

Stage 5: Planetary Nebula
It is what forms when a star sheds off its outer layers in space during its collapse.

Stage 6: White Dwarf
It is what forms at the center of the planetary nebula when the core of the star collapses.

Sources: SpacePlace.NASA.GOV
Hubblesite.ORG
NASA.GOV
THEVERGE.COM