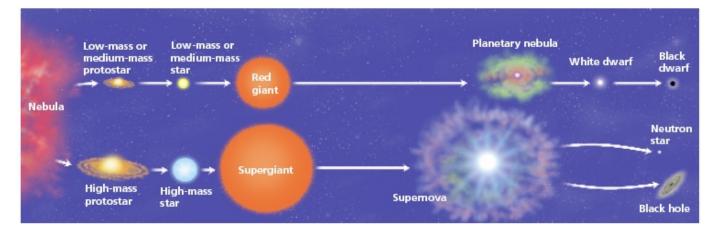
Life Cycle of a Star - Worksheet

A STAR IS BORN – STAGES COMMON TO ALL STARS

All stars start as a **nebula**. **A nebula** is a large cloud of gas and dust. Gravity can pull some of the gas and dust in a nebula together. The contracting cloud is then called a **protostar**. A protostar is the earliest stage of a star's life. **A star is born when the gas and dust from a nebula become so hot that nuclear fusion starts**. Once a star has "turned on" it is known as **a main sequence star**. When a main sequence star begins to run out of hydrogen fuel, the star becomes a **red giant** or a **red super giant**.



THE DEATH OF A LOW OR MEDIUM MASS STAR

After a low or medium mass or star has become a red giant the outer parts grow bigger and drift into space, forming a cloud of gas called a **planetary nebula**. The blue-white hot core of the star that is left behind cools and becomes a **white dwarf**. The white dwarf eventually runs out of fuel and dies as a **black dwarf**.

THE DEATH OF A HIGH MASS STAR

A dying red super giant star can suddenly explode. The explosion is called a **supernova**. After the star explodes, some of the materials from the star are left behind. This material may form a neutron star. **Neutron stars** are the remains of high-mass stars. The most massive stars become **black holes** when they die. After a large mass star explodes, a large amount of mass may remain. The gravity of the mass is so strong that gas is pulled inward, pulling more gas into a smaller and smaller space. Eventually, the gravity becomes so strong that nothing can escape, not even light.

Question Sheet

Just like living things and humans, stars have a life cycle, which consists of birth, growth, development, middle age, old age, and death. The life cycle of a star spans over billions of years.

Section One - Sequencing

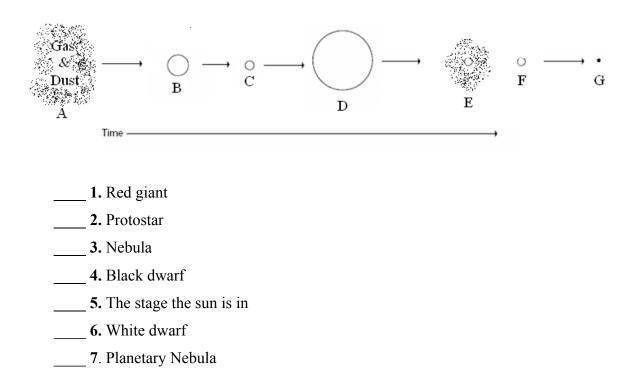
The stages below are not in the right order. Number the stages in the correct order.

 The star begins to run out of fuel and expands into a red giant or red super giant .
 Stars start out as diffused clouds of gas and dust drifting through space. A single one of these clouds is called a nebula
 What happens next depends on the mass of the star.
 Heat and pressure build in the core of the protostar until nuclear fusion takes place.
 The force of gravity pulls a nebula together forming clumps called protostars .
 Hydrogen atoms are fused together generating an enormous amount of energy igniting the star causing it to shine.

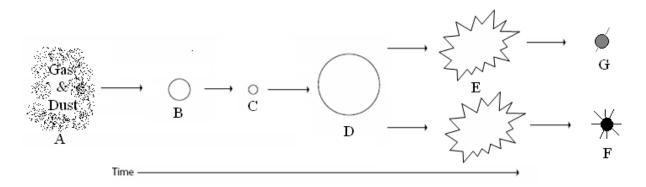
Section Two - Vocabulary

Match the word on the left with the definition on the right.

black dwarf	e. star left at the core of a planetary nebula
white dwarf	g. a red super giant star explodes
nebula	c. what a medium-mass star becomes at the end of its life
protostar	b. a large cloud of gas or dust in space
supernova	a. exerts such a strong gravitational pull that no light escapes
neutron star	d. the earliest stage of a star 's life
black hole	f. the remains of a high mass star

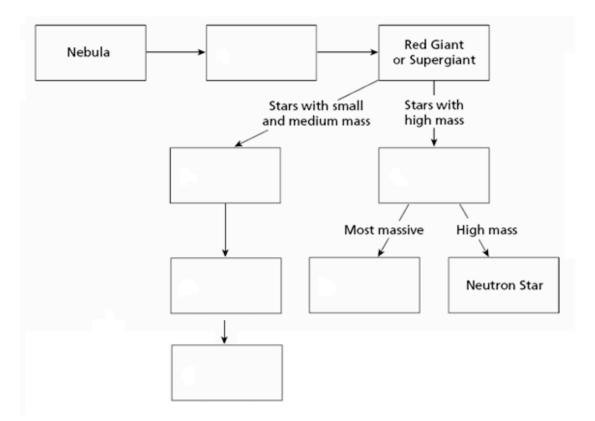


Section Four - Understanding Main Ideas - High Mass Star

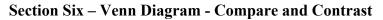


- 1. Black Hole
- **2**. Supernova
- **3**. Protostar
- 4. Gravity causes this to condense into a protostar
- _____ **5**. Main sequence star
- **6**. When a star begins to run out of fuel and grows larger
- 7. Neutron star

Section Three – Understanding Main Ideas - Low Mass Star



Section Five – Graphic Organizer – Putting it all Together



Venn Diagram - Life Cycle of a Star

