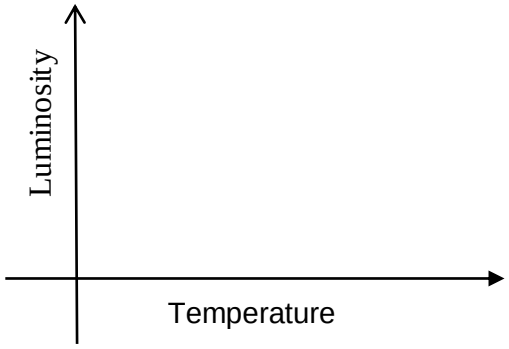
Worksheet_1: Stellar Evolution

1) A star forms out of
   a) a black hole.
   b) a white dwarf.
   c) a planetary nebula.
   d) a cloud of gas and dust.

2) During most of their lives, stars in the main sequence produce energy by
   a) chemical reactions of Hydrogen into Helium.
   b) nuclear reactions of Hydrogen into Helium.
   c) gravitational collapse.
   d) slowly expanding in size.

3) Sketch qualitatively the H-R diagram (Luminosity vs. Temperature). Explain the relationship.



4) What is the single most important characteristic in determining the course of a star's evolution?
   a. Density
   b. Surface temperature
   c. Mass
   d. Luminosity

5) Why are the solar systems with smaller mass stars (like our sun) better candidates for finding life?

6) What are the forces within and outside a star that keep it stable during it's time in the main sequence? Use a diagram to help with your answer.

7) What is a black hole? Explain why we can't see it.

8) What happens when you cross the Event Horizon of a black hole?

9) What is meant when scientists say that we are made of "star stuff"? Explain.

10) List the end of life stages of a typical:

Sun-like star

Massive star (12 solar masses)