

My Life as a Star Activity

Before beginning this activity read the information located at:

Stellar Evolution and Spectral Type, <http://www.astunit.com/tutorials/stellar.htm>

Lives and Deaths of Stars, <http://www.astronomynotes.com/evolutn/chindex.htm>

Stellar Evolution a la Chez Stella,

<http://www.astrosociety.org/education/publications/tnl/49/chezstella2.html>

Some helpful websites include:

Basic Scheme, <http://www.astronomynotes.com/evolutn/s3.htm>

Mass Dependence, <http://www.astronomynotes.com/evolutn/s2.htm#A1.1>

Giant Molecular Cloud, <http://www.astronomynotes.com/evolutn/s3.htm#A1.2.1>

Protostar, <http://www.astronomynotes.com/evolutn/s3.htm#A1.2.2>

T-Tauri Star, <http://www.astronomynotes.com/evolutn/s4.htm>

Main Sequence Stars, <http://www.astronomynotes.com/evolutn/s4.htm#A1.2.4>

Subgiant, Red Giant, Supergiant, <http://www.astronomynotes.com/evolutn/s5.htm>

Core Fusion, <http://www.astronomynotes.com/evolutn/s5.htm#A1.2.6>

Red Giant or Supergiant, <http://www.astronomynotes.com/evolutn/s5.htm#A1.2.7>

Planetary Nebula or Supernova. <http://www.astronomynotes.com/evolutn/s6.htm>

Core Remnant, <http://www.astronomynotes.com/evolutn/s6.htm#A1.2.9>

White Dwarfs, <http://www.astronomynotes.com/evolutn/s11.htm>

Neutron Stars, <http://www.astronomynotes.com/evolutn/s12.htm>

Black Holes, <http://www.astronomynotes.com/evolutn/s13.htm>

Novae and Supernovae Type Ia, <http://www.astronomynotes.com/evolutn/s11.htm#A2.3>

Pulsars, <http://www.astronomynotes.com/evolutn/s12.htm#A2.5>

If you ever wanted to be a star, now you have the opportunity! The rest of the world wants to hear all about your past, so you have decided to write your autobiography in **one to two, double-spaced, typed pages**. Select one of the following:

Object	Original mass in solar masses
white dwarf	< 1.4
neutron star	between 1.4 and 3
black hole	> 3

Tell us about yourself:

1. Briefly summarize your 7 life stages.
2. What was your original mass in solar masses (must be between 0.1 and 100)?
3. Calculate your lifetime using one of the following equations:

if you are less than 10 solar masses

$$\text{lifetime in years} = \frac{1}{(\text{number of solar masses})^3} \times 10^{10}$$

if you are 10 or more solar masses

$$\text{lifetime in years} = \frac{1}{(\text{number of solar masses})^2} \times 10^{10}$$

4. What was your original spectral type? Hint: see the websites.
5. What is in store for you in the future?

You may include pictures and/or information obtained from additional sources, however you **must** include all references used, even those listed by the instructor, and **type** this assignment in order to receive credit!