

**SNC1D**  
**The Study of the Universe**

**Name:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

Properties of Stars (answer key)

Term	Definition
Luminosity	A measure of the total amount of energy a star radiates per second.
Spectral patterns	The series of dark bands caused by the absorption of the elements in the star.
Solar absorption spectrum	The one for the Sun.
Nebula	A vast cloud of gas and dust, which may be the birthplace of stars and planets.
Nuclear Fusion	The process of energy production in which hydrogen nuclei combine to form helium nuclei. (Occurs at a temperature of about 10,000,000°C)
main sequence stars	The 90% of the stars which appear together along a line on the H-R Diagram.

- 1 The properties of stars are Brightness , Size , Mass and colour
- 2 Spectral patterns can help us to identify a star's chemical composition.
- 3 The Hertzsprung-Russell Diagram show the relationship among star colour, temperature, luminosity and mass.
- 4 Low mass stars (red dwarfs) consume their hydrogen slowly. They live up to 100 billion years. They lose mass and become very faint white dwarf stars.
- 5 Intermediate mass stars: (such as our Sun) consume their hydrogen over about 10 billion years. When the hydrogen is used up, the star expands and the core reaches 100 million degrees C and is called a red giant. This becomes a planetary nebula, then a white dwarf and finally a black dwarf.
- 6 Massive stars consume their hydrogen very rapidly. They end up swelling into a supergiant. A supernova is caused as the core collapses after the silicon in the core transforms into iron, in one day. After the supernova phase, if the core is 1.4 to 3 solar masses, the 10-20 km diameter dense object is a neutron star. If the core is bigger, they form black holes.