

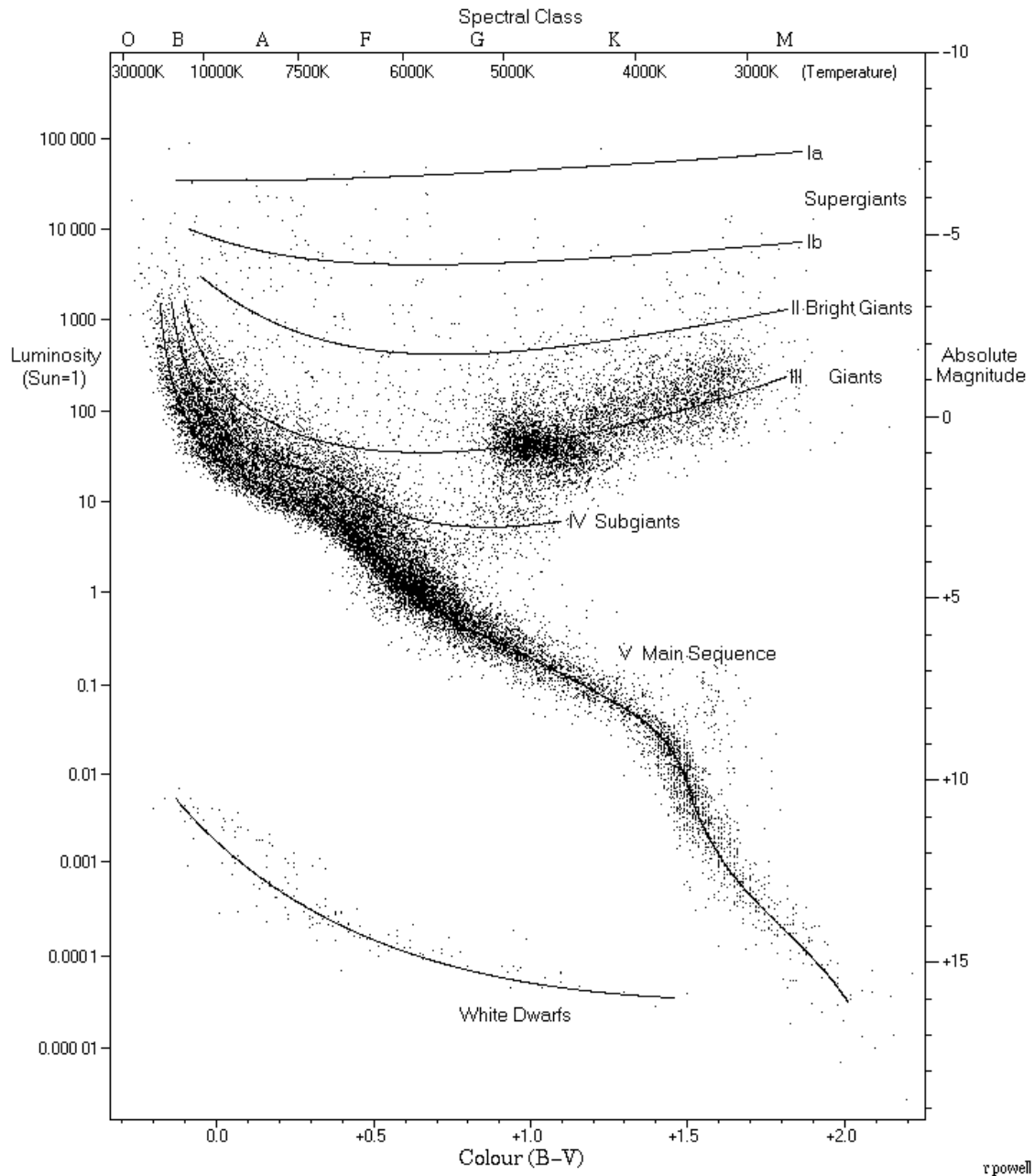
Hertzsprung Russell Diagrams

Stars differ in size, surface temperature, brightness, and colour. But these properties are not independent; there is a relationship between them. For example, hotter stars are generally brighter and bluer.

In 1910 Hertzsprung and Russell produced a graph of these properties. They called their graph the Hertzsprung-Russell diagram (HR diagram). They put brightness on the vertical axis and temperature on the horizontal axis, and then placed a dot for each star, according to its brightness and its temperature. They did this for as many stars as they could find information on.

When they had thousands of stars on their HR diagram they were surprised by what they saw. The dots were all bunched up into diagonal groups! And they realized that each of these bunches corresponded to a different type of star. The biggest group was the main sequence stars; so this is where the dot for our sun goes. It's diagonal because hotter stars are usually brighter.

Note: some HR diagrams don't just have temperature on the horizontal axis; they also have colour and spectral class. And they don't even write brightness on the vertical axis; they call it absolute magnitude and luminosity! But they all mean the same thing really.



HR Diagram for 23,000 stars. <http://answers.org/free/universe/hr.html>

Questions

1. Order the *types of stars* from most common to least common.
2. The sun has a temperature of 5700K and an absolute magnitude of 4.8. Plot its location on the HR diagram. Would you call our sun normal or abnormal?
3. Draw a trajectory on the HR diagram to show the sun's evolution in the future.
4. Research information on the properties of the main types of stars.