

Hertzsprung-Russell Diagrams

Sketch and interpret a simple Hertzsprung-Russell diagram relating stellar luminosity to surface temperature. Relate the Hertzsprung-Russell diagram to the life cycle of stars.

We have seen that astronomers classify stars into groups according to their temperature. Stars with the

Spectral class	Colour	Temperature range / K	Prominent absorption lines	Example star
O	Blue	25 000–50 000	He ⁺ , He, H	10 Lacertae
B	Blue	11 000–25 000	He, H	Rigel, Spica
A	Bluish white	7500–11 000	H (strongest), ionised metals	Sirius, Vega
F	White	6000–7500	Ionised metals	Procyon
G	Yellow-white	5000–6000	Ionised and neutral metals	Sun, Capella
K	Orange	3500–5000	Neutral metals	Aldebaran
M	Red	< 3500	Neutral atoms, TiO	Betelgeuse, Antares

same temperature have the same colour light and also similar chemical composition.