Curso: Astronomía general

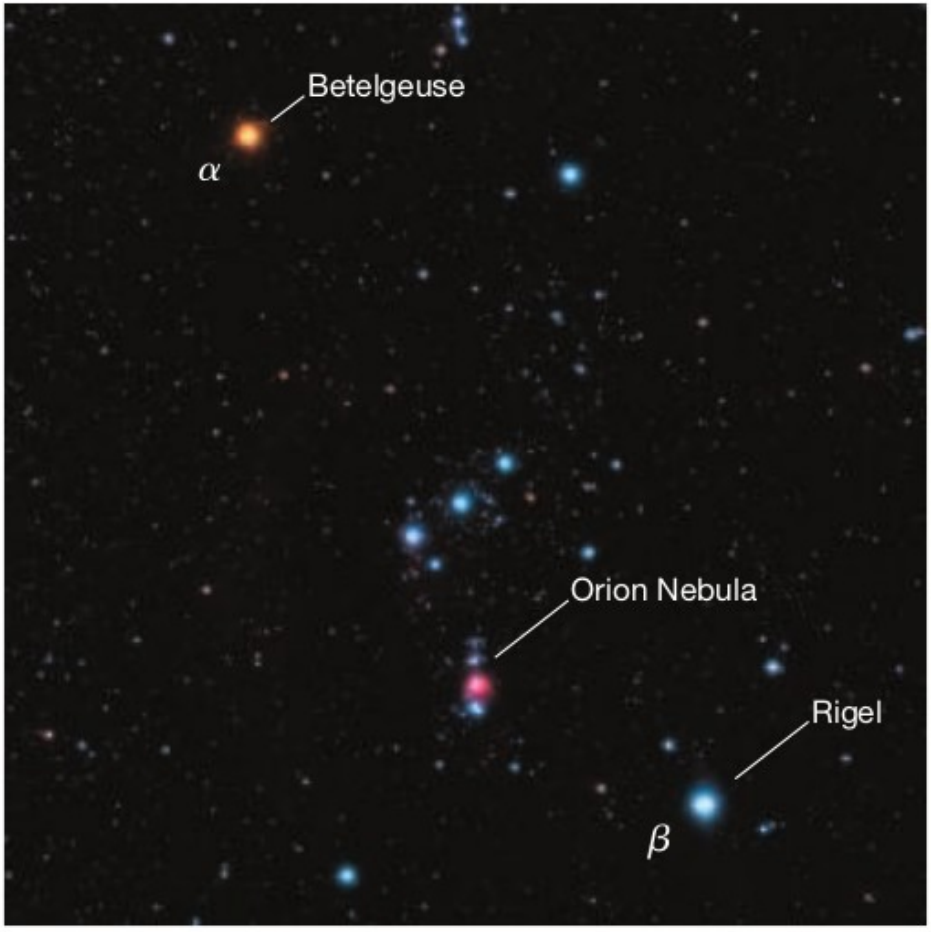
Semestre: 2022-2

Profesor: Christian Sarmiento Cano @socavon_

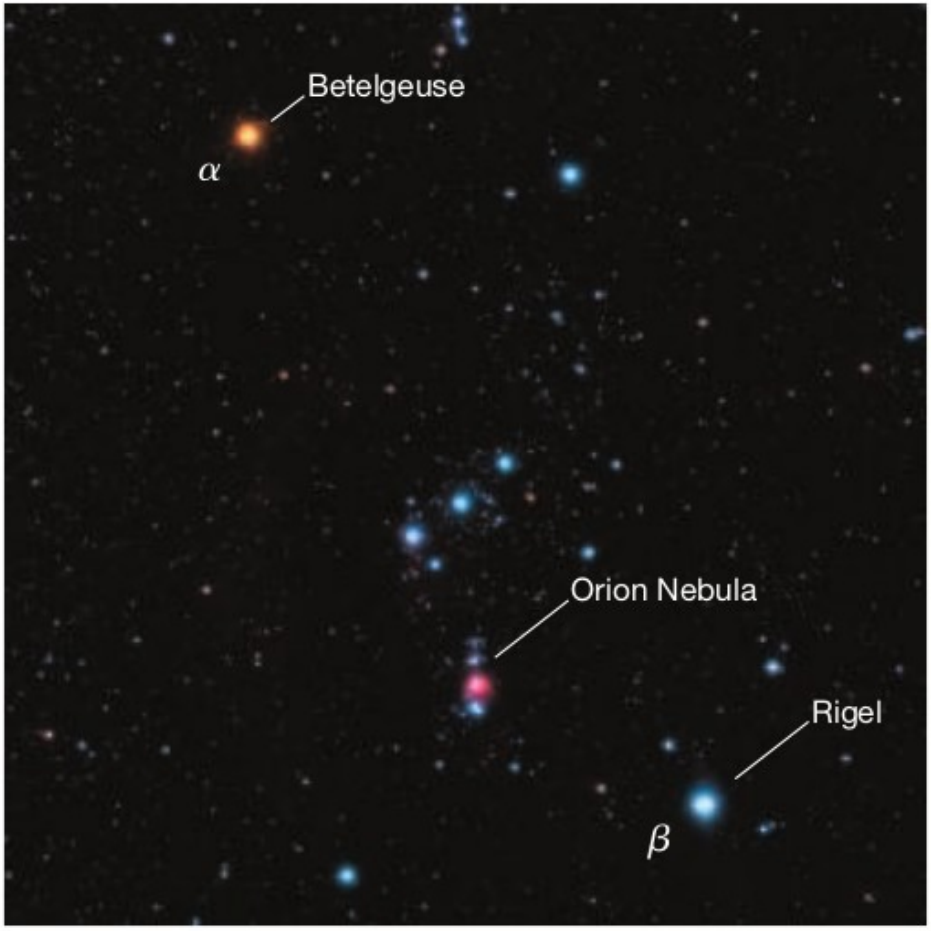
Escuela de Física, Universidad Industrial de Santander

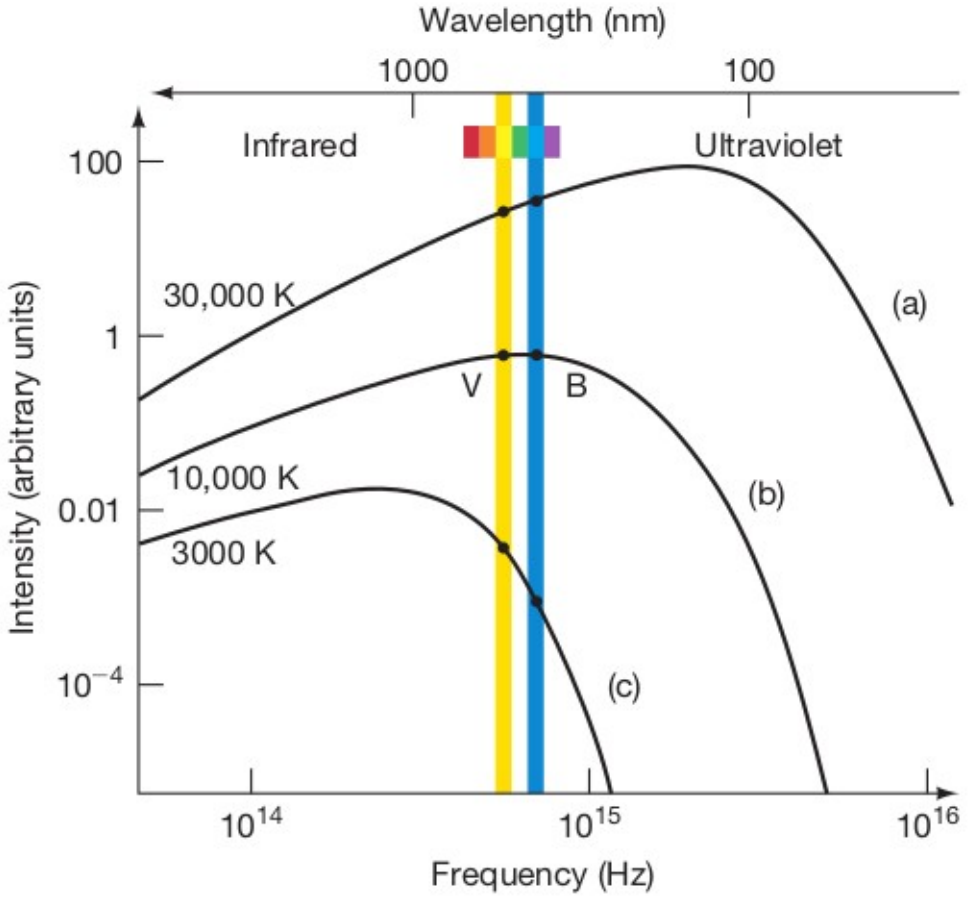
Estrellas

Estrellas

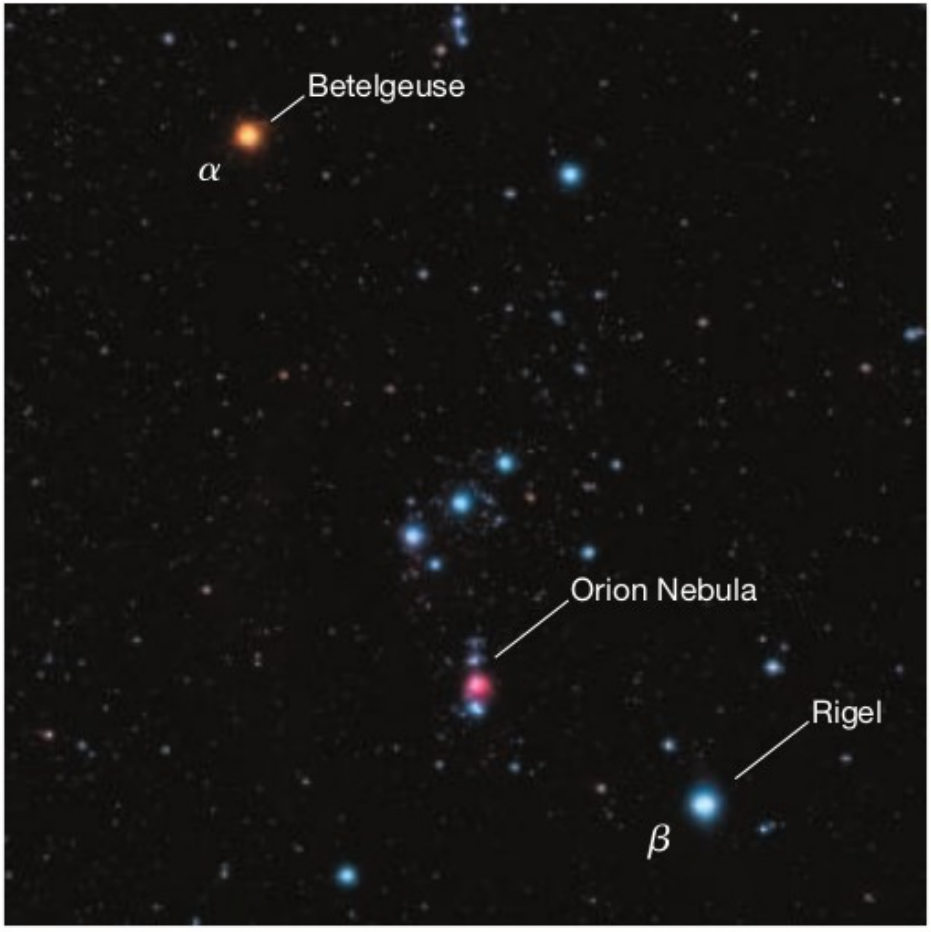


Estrellas


Betelgeuse
α
Orion Nebula
Rigel
β


Wavelength (nm)
1000
100
Infrared
Ultraviolet
100
1
0.01
10^{-4}
Intensity (arbitrary units)
30,000 K
10,000 K
3000 K
V
B
(a)
(b)
(c)
10^{14}
10^{15}
10^{16}
Frequency (Hz)

Estrellas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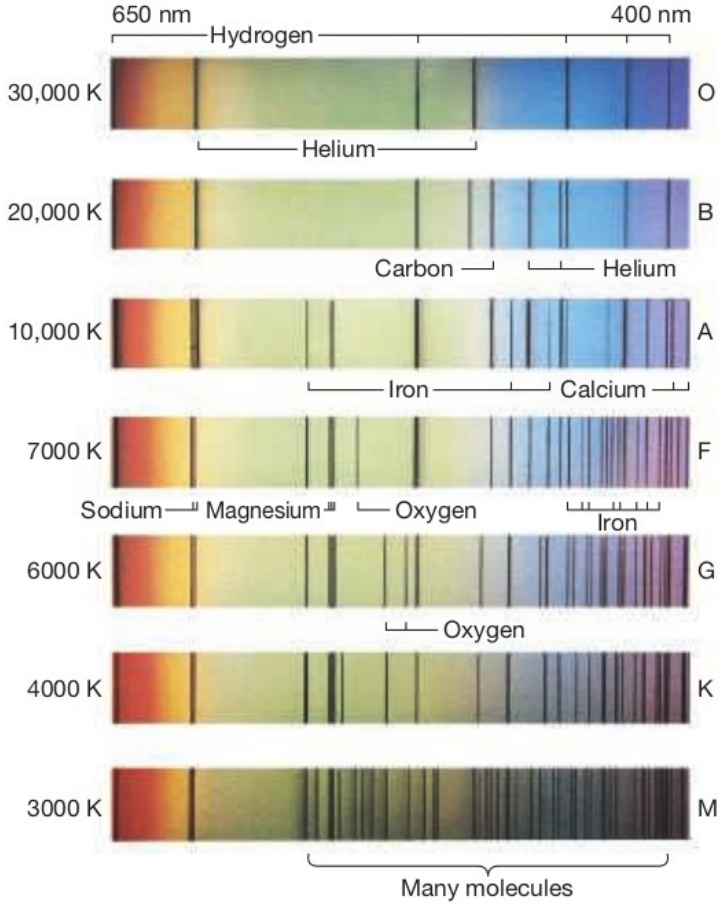

650 nm
400 nm
Hydrogen
30,000 K
O
Helium
20,000 K
B
Carbon
Helium
10,000 K
A
Iron
Calcium
7000 K
F
Sodium
Magnesium
Oxygen
Iron
6000 K
G
Oxygen
4000 K
K
3000 K
M
Many molecules

Clasificación estelar

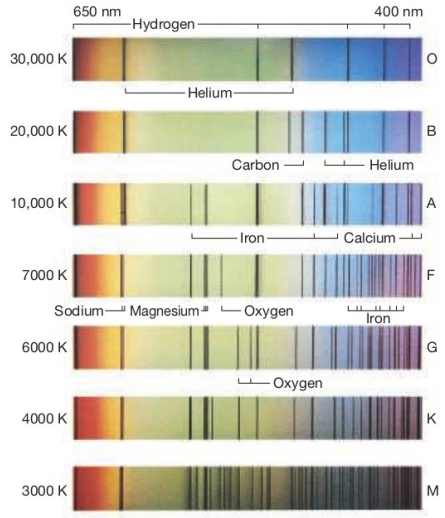
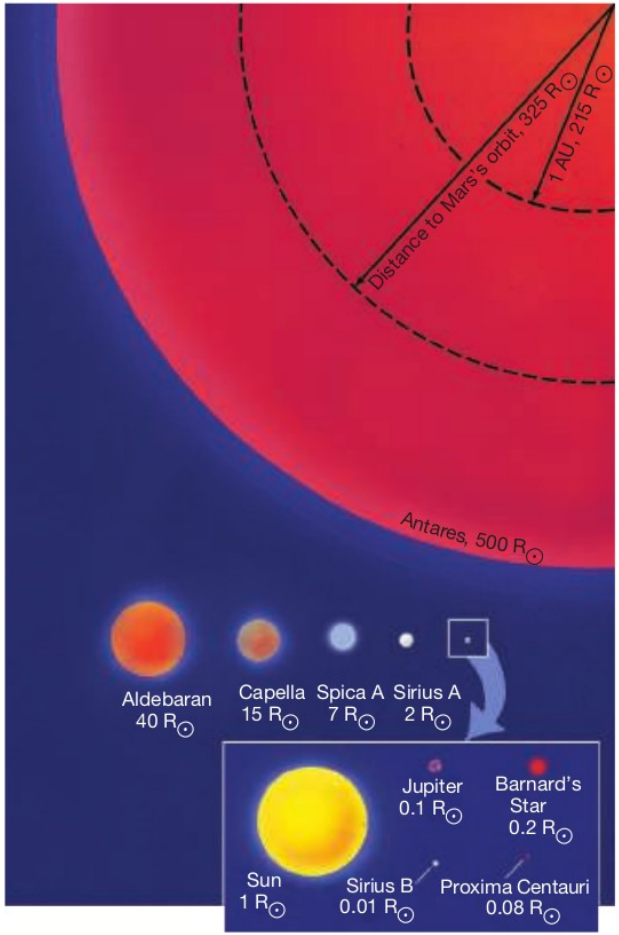
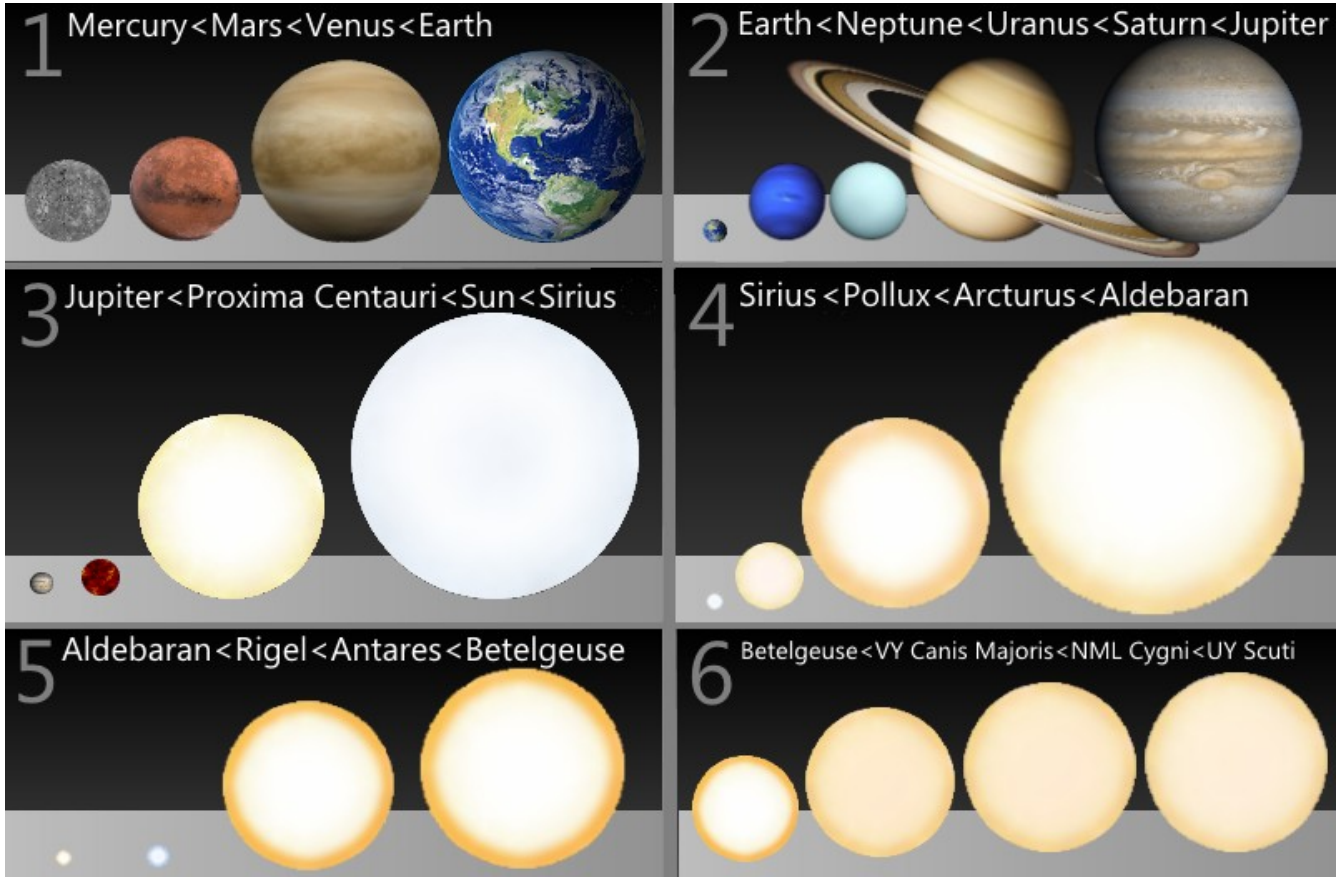


TABLE 10.2 Spectral Classes

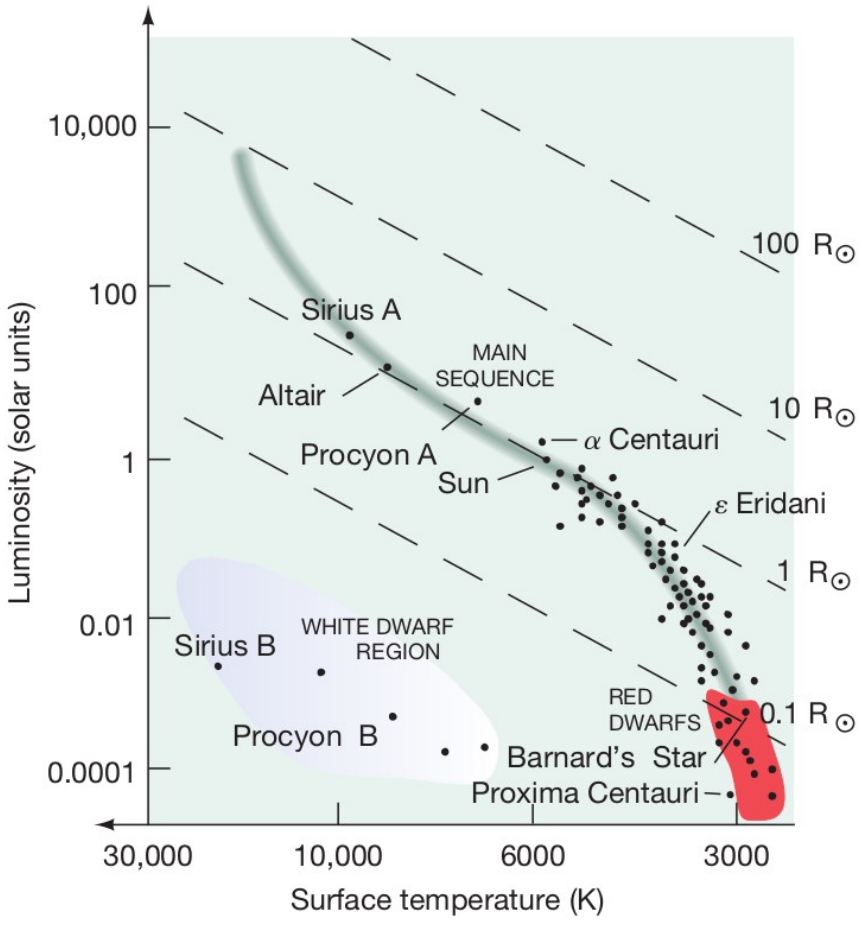
Spectral Class	Temperature (K)	Prominent Absorption Lines	Familiar Examples
O	30,000	Ionized helium strong; multiply ionized heavy elements; hydrogen faint	Mintaka (O9)
B	20,000	Neutral helium moderate; singly ionized heavy elements; hydrogen moderate	Rigel (B8)
A	10,000	Neutral helium very faint; singly ionized heavy elements; hydrogen strong	Vega (A0), Sirius (A1)
F	7000	Singly ionized heavy elements; neutral metals; hydrogen moderate	Canopus (F0)
G	6000	Singly ionized heavy elements; neutral metals; hydrogen relatively faint	Sun (G2), Alpha Centauri (G2)
K	4000	Singly ionized heavy elements; neutral metals strong; hydrogen faint	Arcturus (K2), Aldebaran (K5)
M	3000	Neutral atoms strong; molecules moderate; hydrogen very faint	Betelgeuse (M2)
			Barnard's Star (M5)

Tamaño de las estrellas





Evolución estelar



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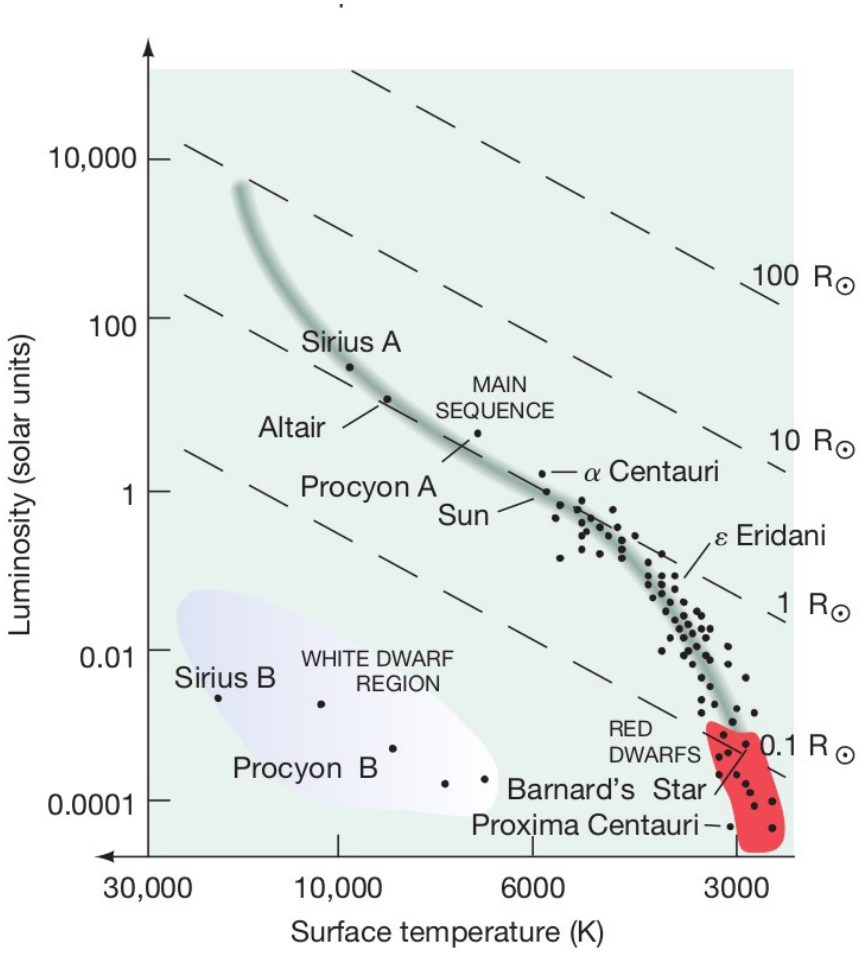
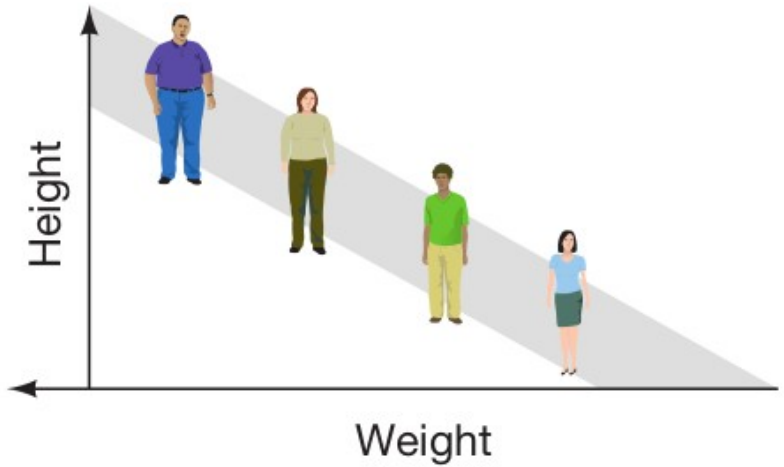
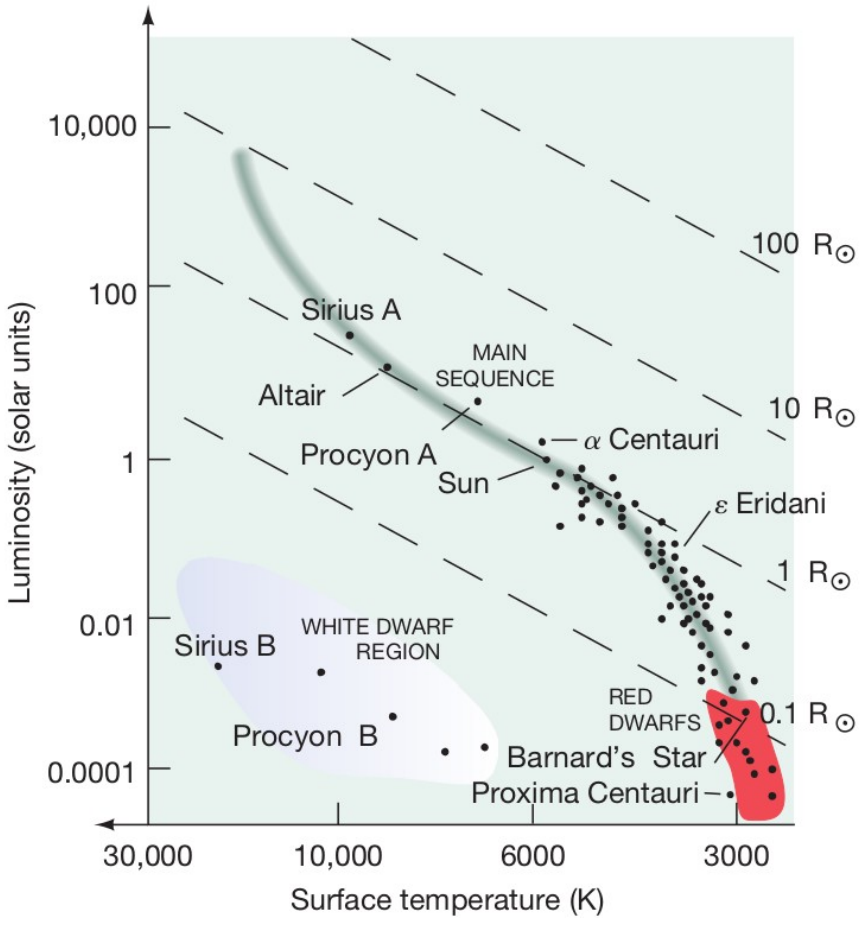
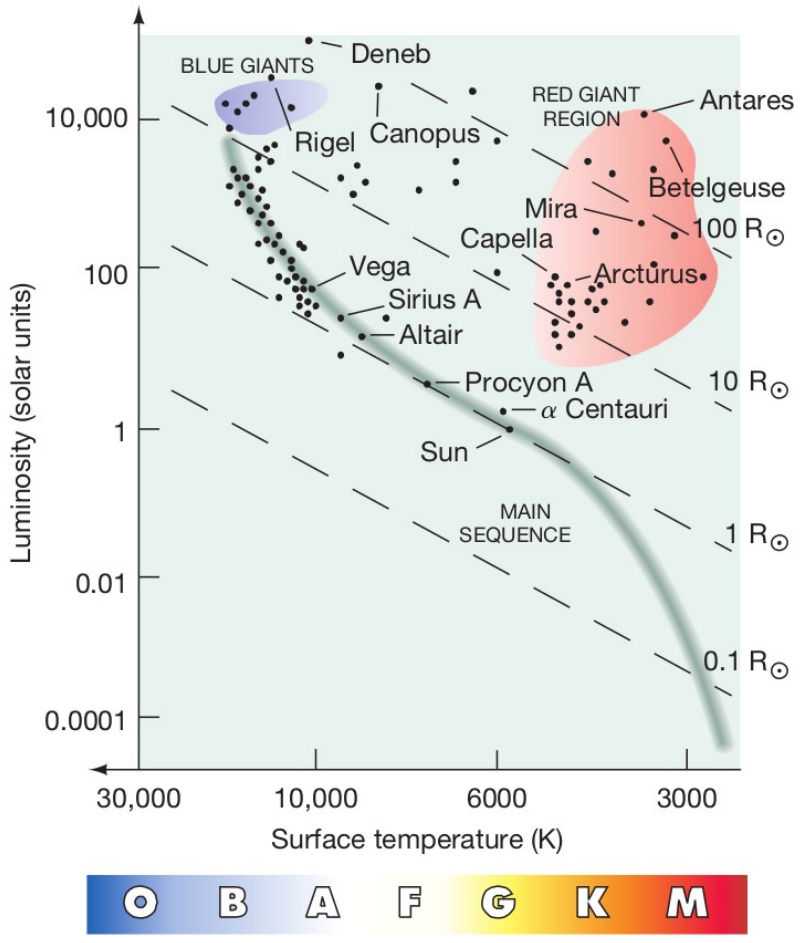


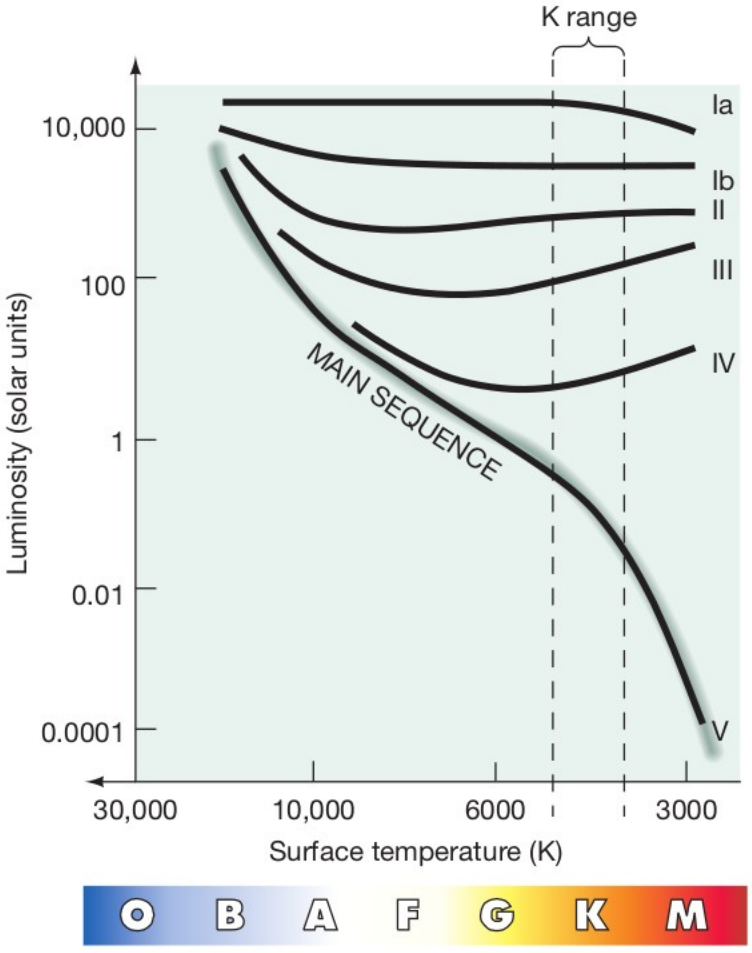


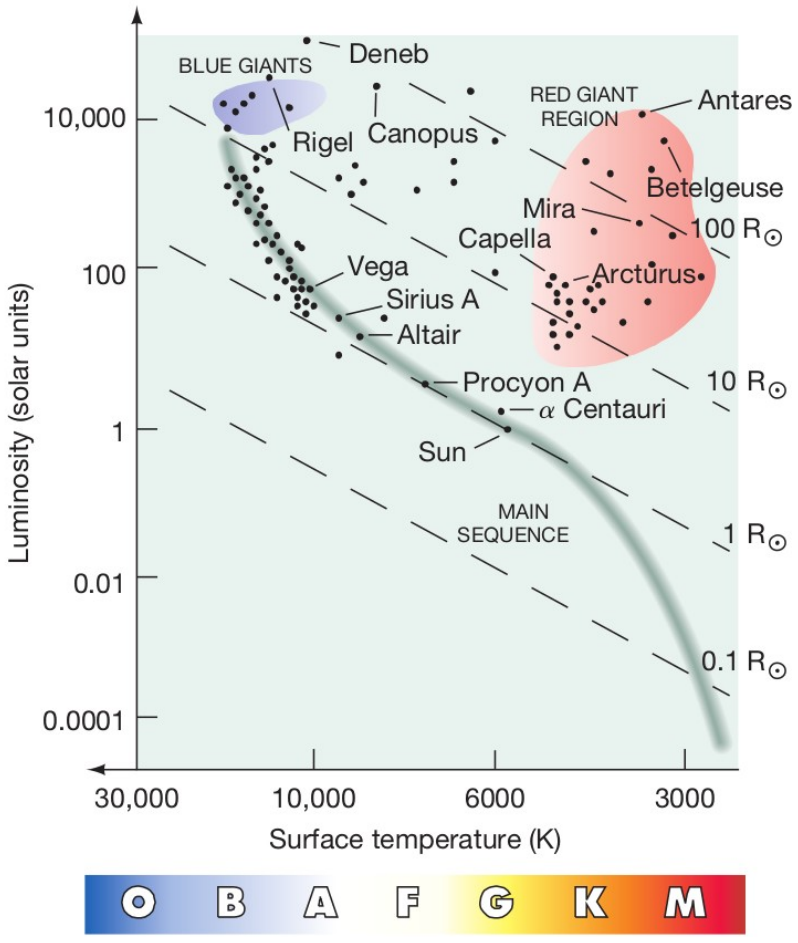
Evolución estelar



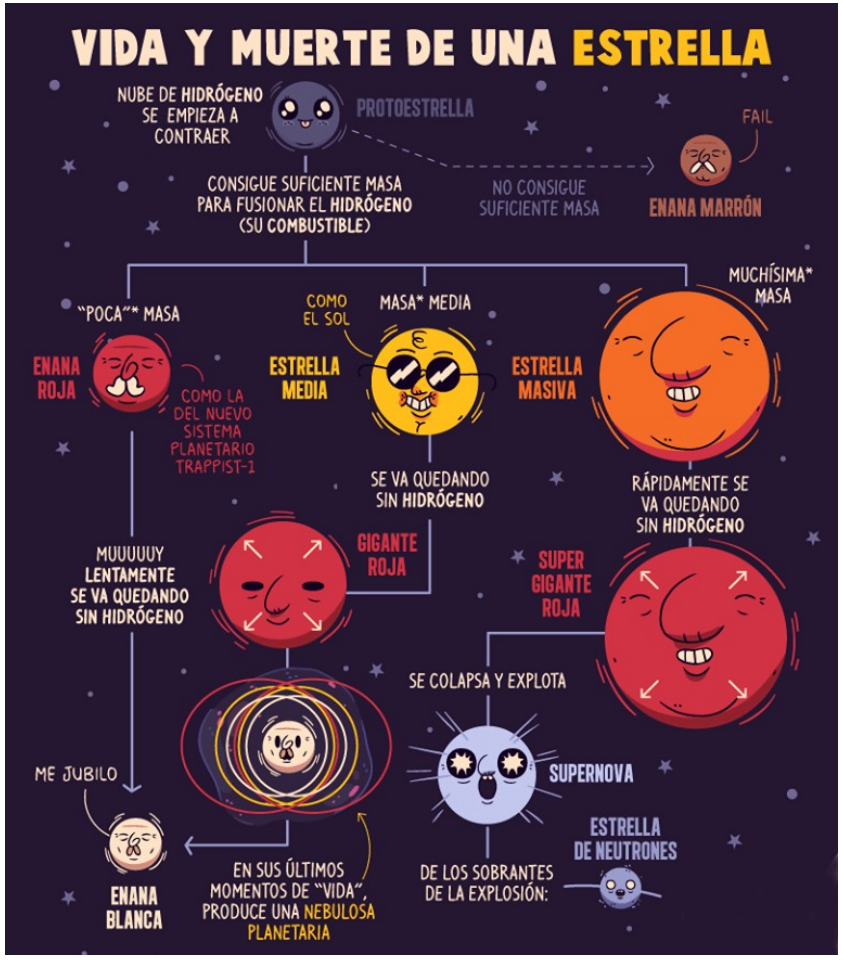


Evolución estelar

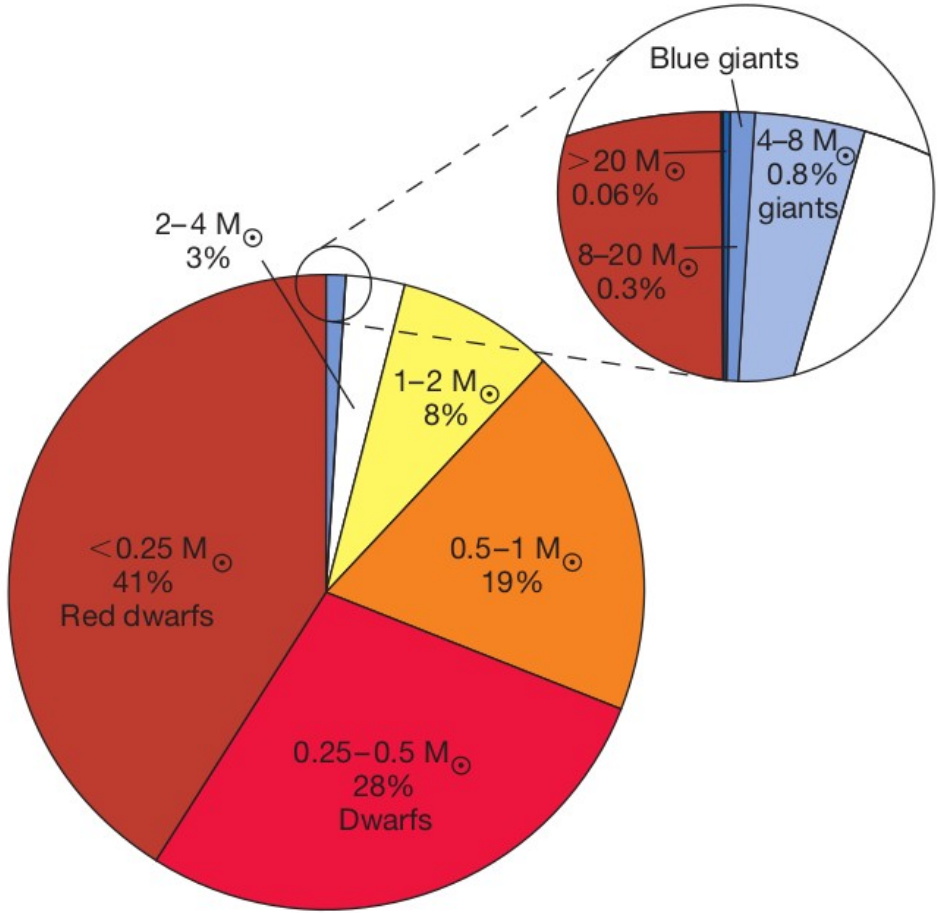




Evolución estelar



Distribución de las estrellas



- Para determinar la temperatura y la composición química de las estrellas es necesario obtener su espectro.
- Las estrellas se clasifican en los siguientes tipos: O, B, A, F, G, K y M.
- Además se clasifican como estrellas gigantes, supergigantes y enanas. Con sus variedades rojas, azules y blancas.
- El diagrama HR relaciona la luminosidad en términos de la temperatura para establecer la evolución de las estrellas. Además muestra como el final usual de las estrellas son las gigantes rojas y azules.