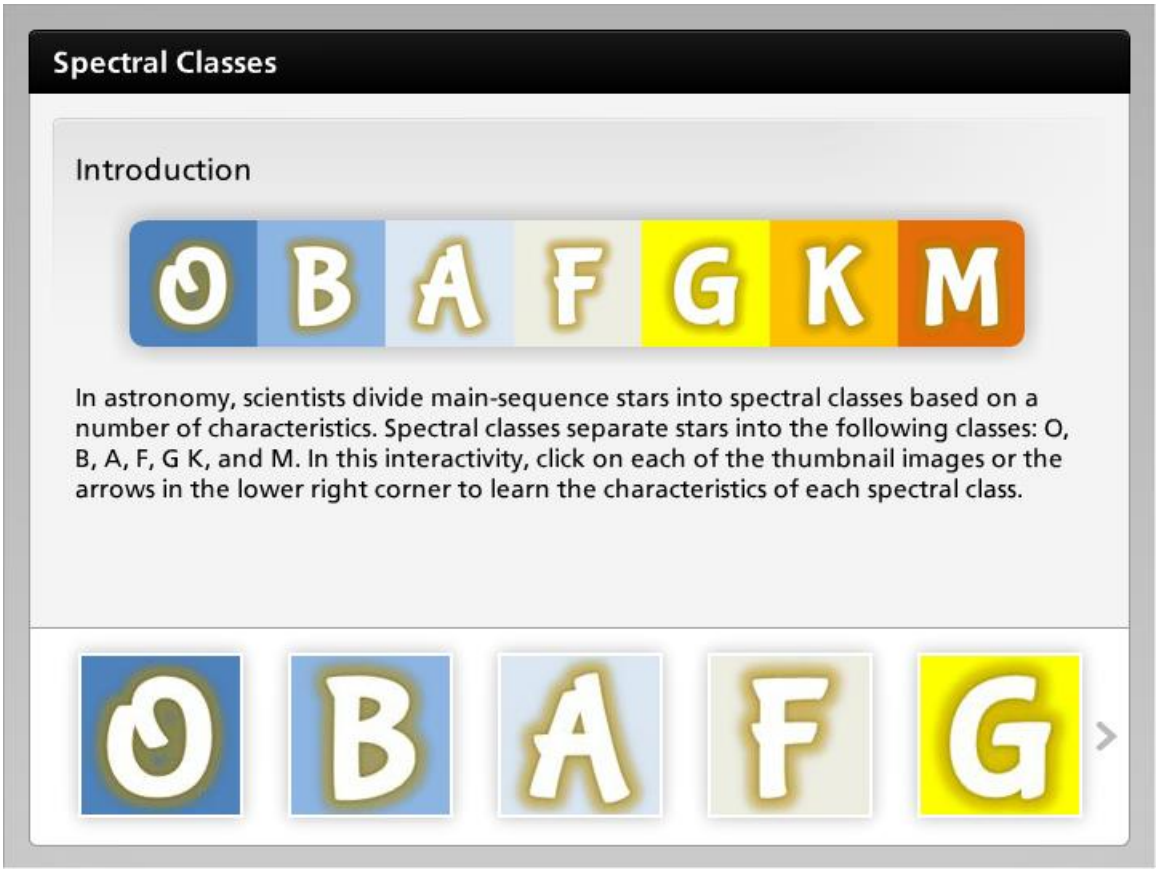
Module 7: Stars
Topic 1 Content: Spectral Classes Notes

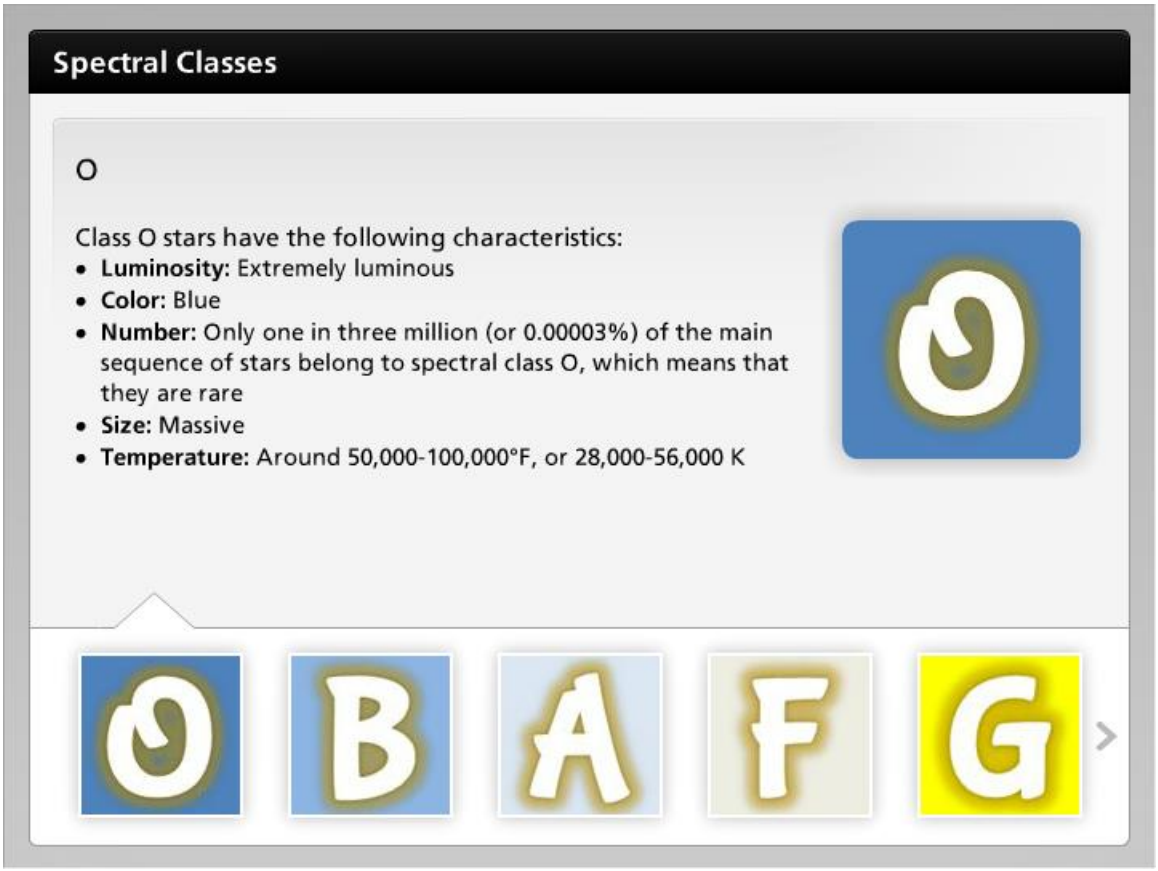
Introduction



In astronomy, scientists divide main-sequence stars into spectral classes based on a number of characteristics. Spectral classes separate stars into the following classes: O, B, A, F, G K, and M. In this interactivity, click on each of the thumbnail images or the arrows in the lower right corner to learn the characteristics of each spectral class.

Module 7: Stars
Topic 1 Content: Spectral Classes Notes

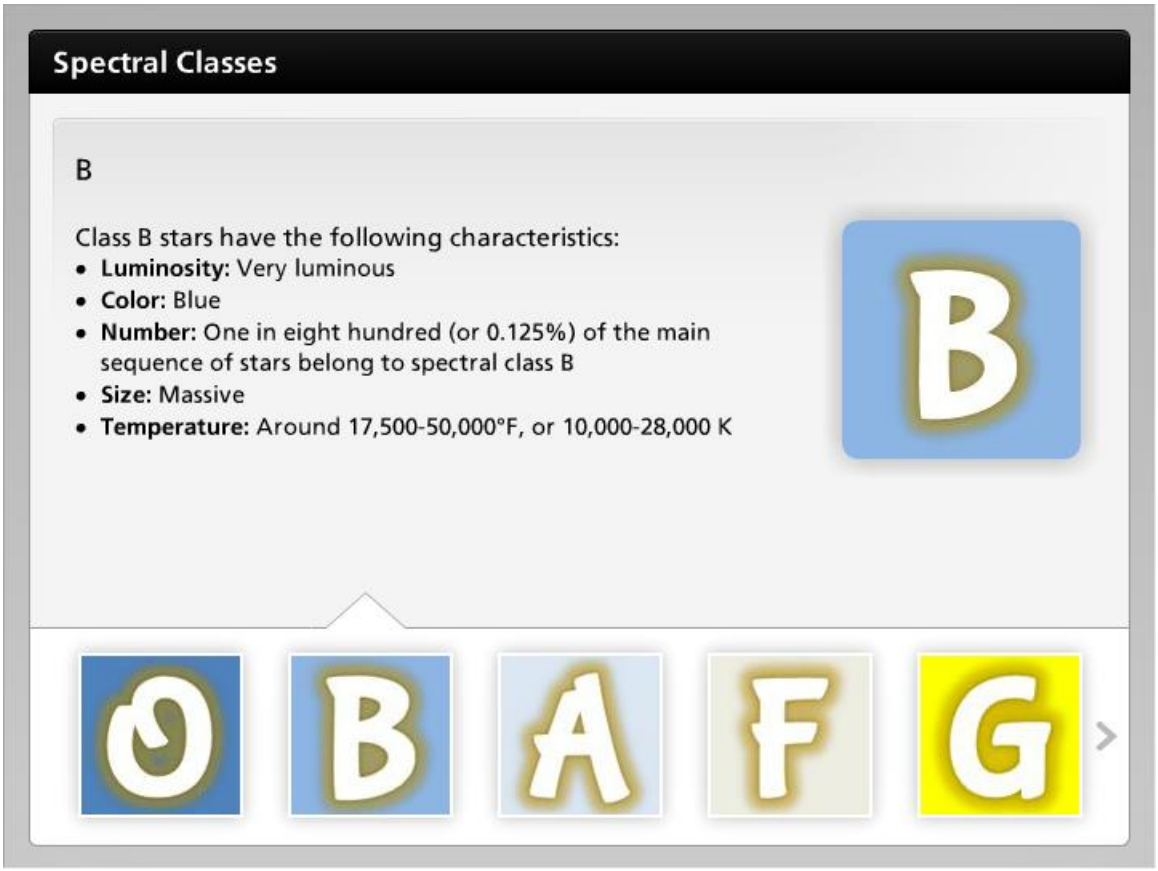
O



Class O stars have the following characteristics:

- **Luminosity:** Extremely luminous
- **Color:** Blue
- **Number:** Only one in three million (or 0.00003%) of the main sequence of stars belong to spectral class O, which means that they are rare
- **Size:** Massive
- **Temperature:** Around 50,000-100,000°F, or 28,000-56,000 K

B

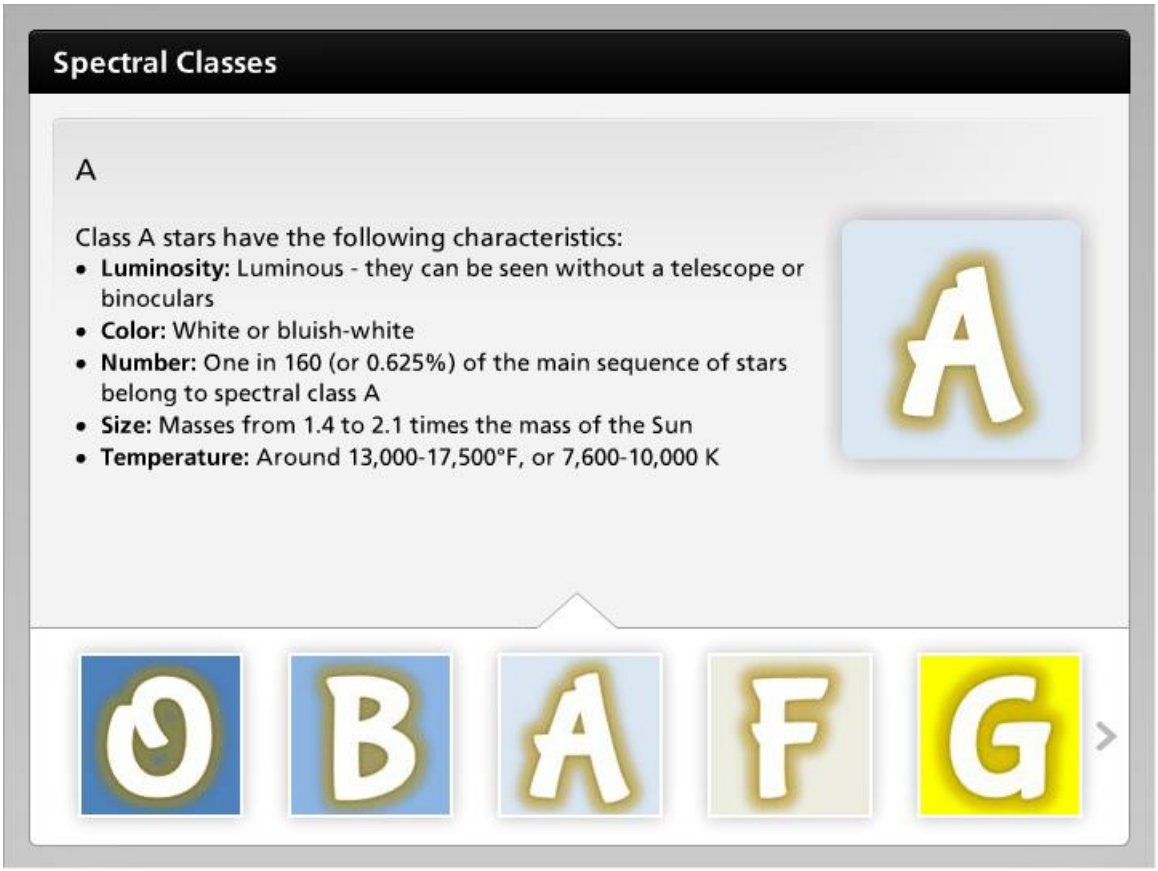


Class B stars have the following characteristics:

- **Luminosity:** Very luminous
- **Color:** Blue
- **Number:** One in eight hundred (or 0.125%) of the main sequence of stars belong to spectral class B
- **Size:** Massive
- **Temperature:** Around 17,500-50,000°F, or 10,000-28,000 K

Module 7: Stars
Topic 1 Content: Spectral Classes Notes

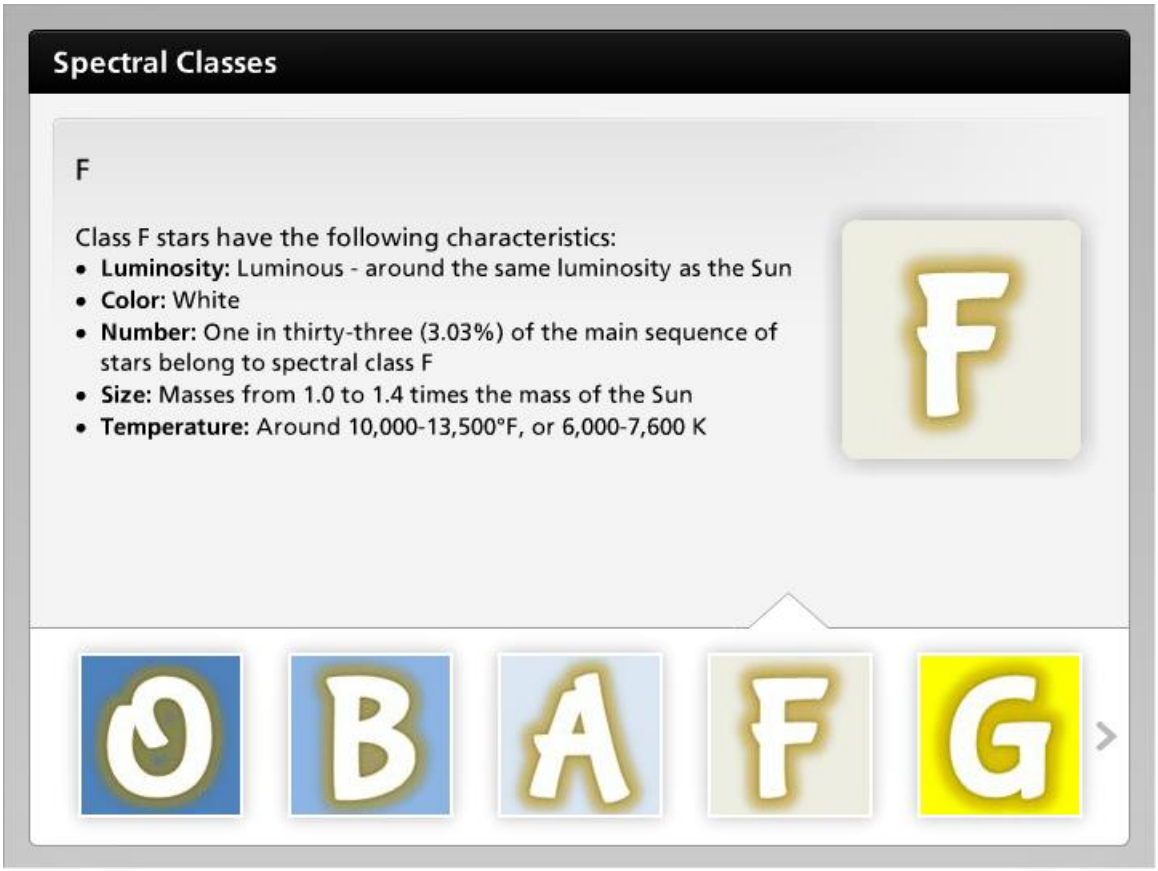
A



Class A stars have the following characteristics:

- **Luminosity:** Luminous - they can be seen without a telescope or binoculars
- **Color:** White or bluish-white
- **Number:** One in 160 (or 0.625%) of the main sequence of stars belong to spectral class A
- **Size:** Masses from 1.4 to 2.1 times the mass of the Sun
- **Temperature:** Around 13,000-17,500°F, or 7,600-10,000 K

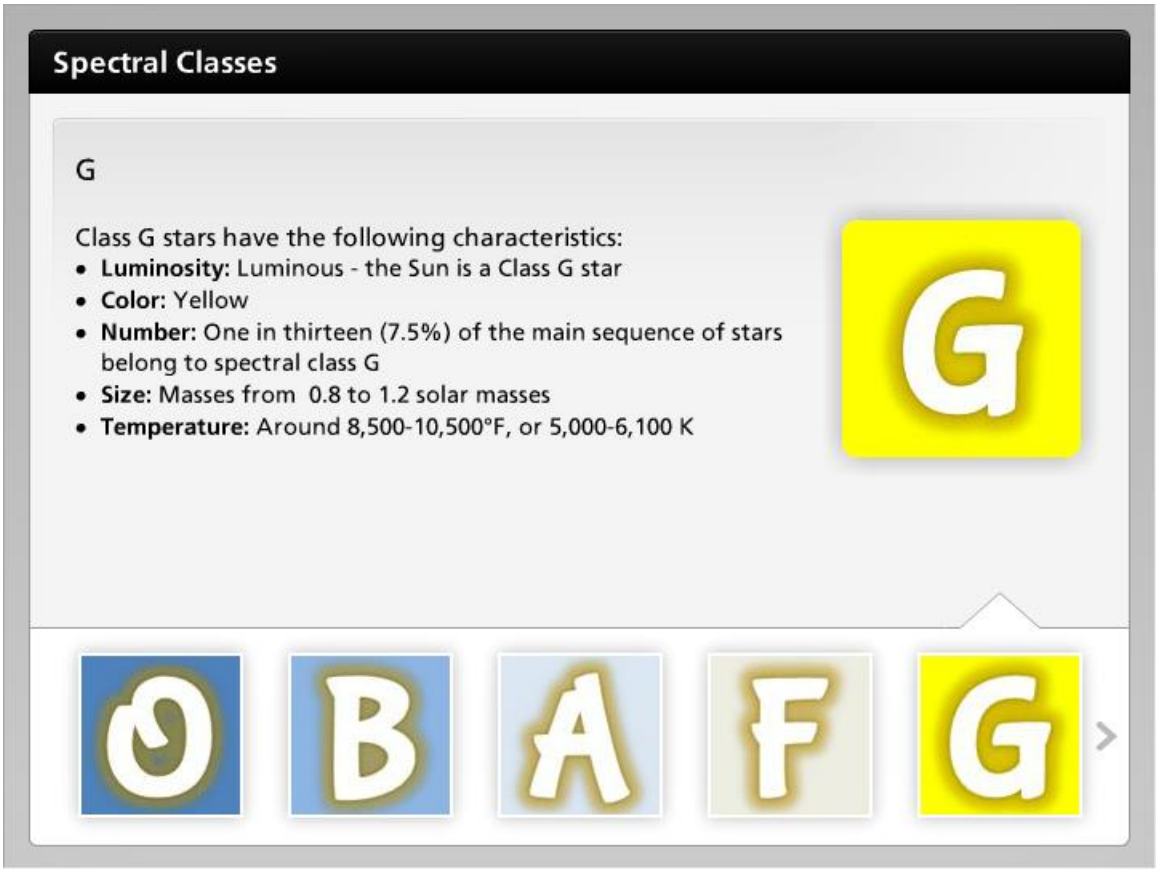
F



Class F stars have the following characteristics:

- **Luminosity:** Luminous - around the same luminosity as the Sun
- **Color:** White
- **Number:** One in thirty-three (3.03%) of the main sequence of stars belong to spectral class F
- **Size:** Masses from 1.0 to 1.4 times the mass of the Sun
- **Temperature:** Around 10,000-13,500°F, or 6,000-7,600 K

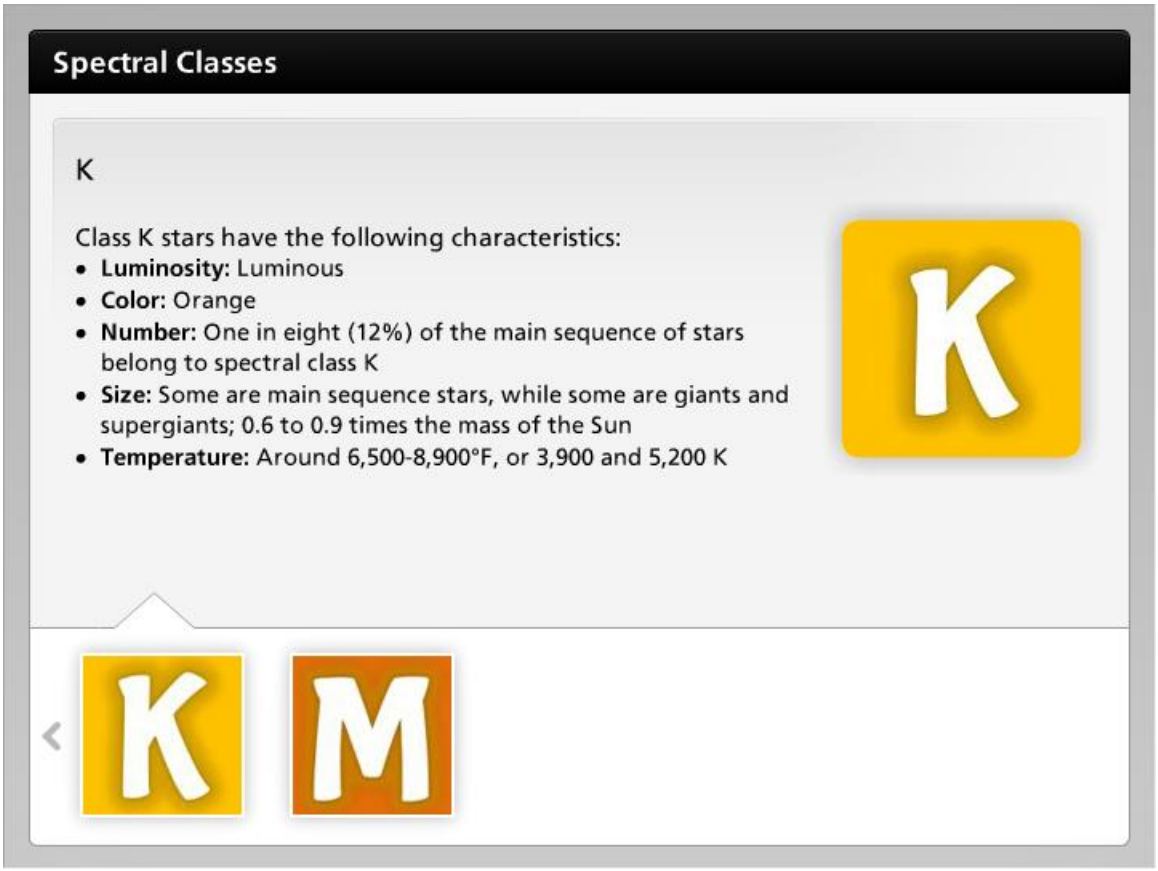
G



Class G stars have the following characteristics:

- **Luminosity:** Luminous - the Sun is a Class G star
- **Color:** Yellow
- **Number:** One in thirteen (7.5%) of the main sequence of stars belong to spectral class G
- **Size:** Masses from 0.8 to 1.2 solar masses
- **Temperature:** Around 8,500-10,500°F, or 5,000-6,100 K

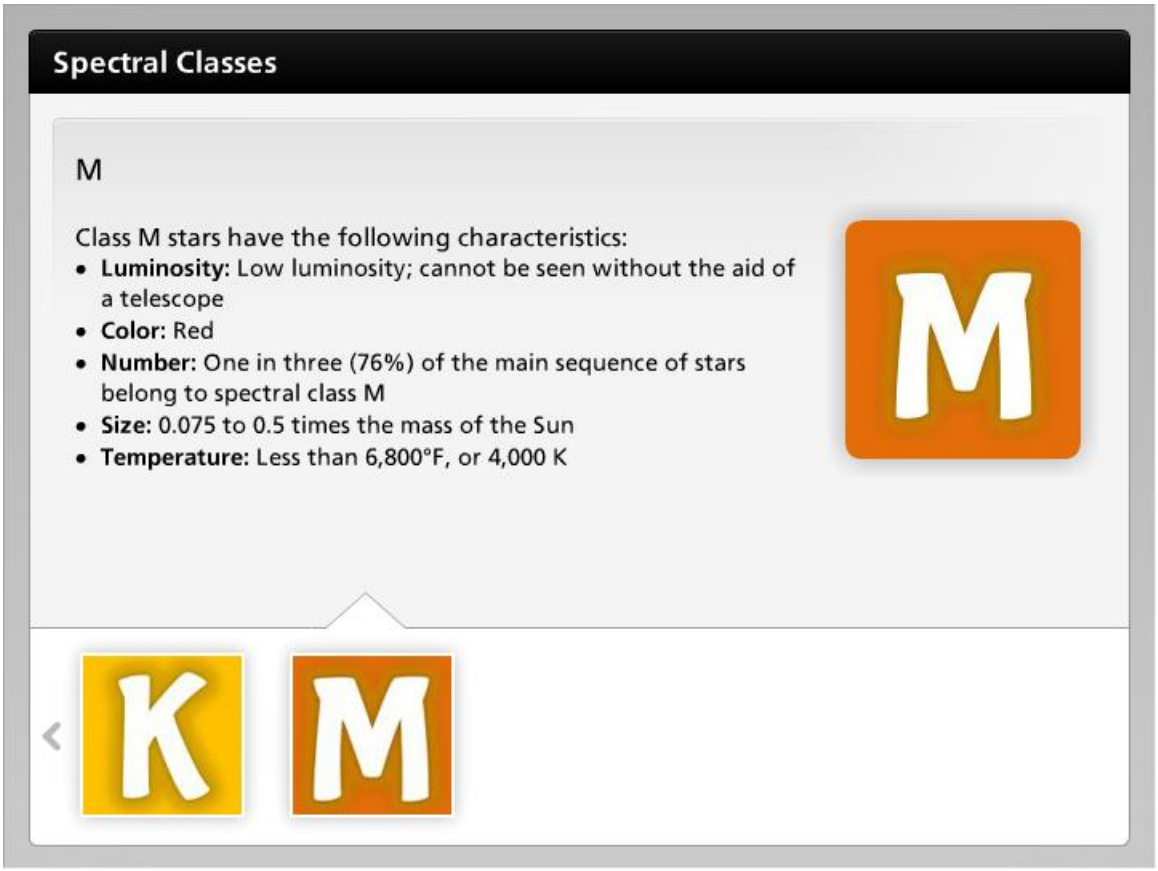
K



Class K stars have the following characteristics:

- **Luminosity:** Luminous
- **Color:** Orange
- **Number:** One in eight (12%) of the main sequence of stars belong to spectral class K
- **Size:** Some are main sequence stars, while some are giants and supergiants; 0.6 to 0.9 times the mass of the Sun
- **Temperature:** Around 6,500-8,900°F, or 3,900 and 5,200 K

M



Class M stars have the following characteristics:

- **Luminosity:** Low luminosity; cannot be seen without the aid of a telescope
- **Color:** Red
- **Number:** One in three (76%) of the main sequence of stars belong to spectral class M
- **Size:** 0.075 to 0.5 times the mass of the Sun
- **Temperature:** Less than 6,800°F, or 4,000 K