Ages: 8 and 9 years old

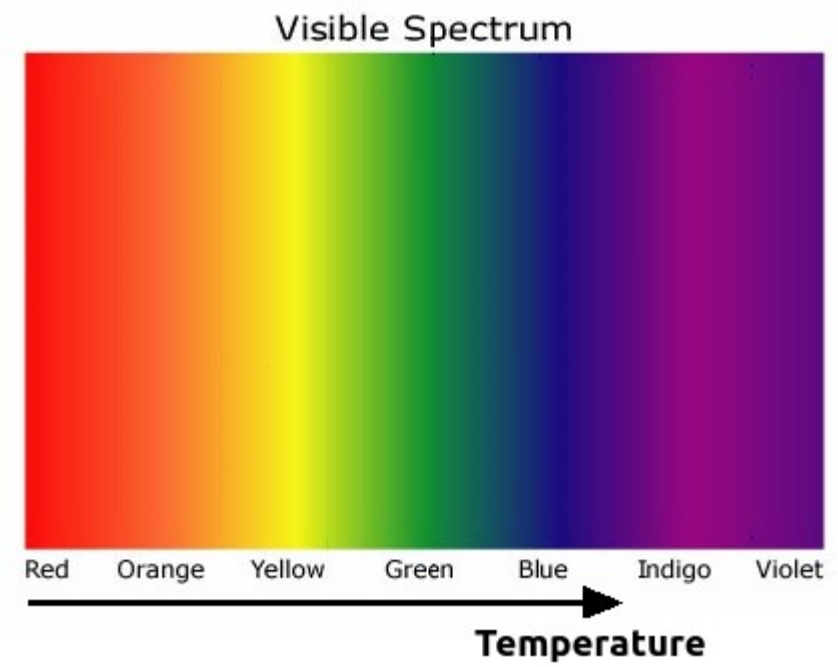
SCIENTIFIC CASE:

Study of star's temperature through color

Context

The Sun is a star just like any other. We see stars as shiny dots because they are very far away from us. From Earth, what can we find out about stars? At first glance, we can see that stars' colour is one of their properties.

The hotter a star's surface is, the bluer it will be.

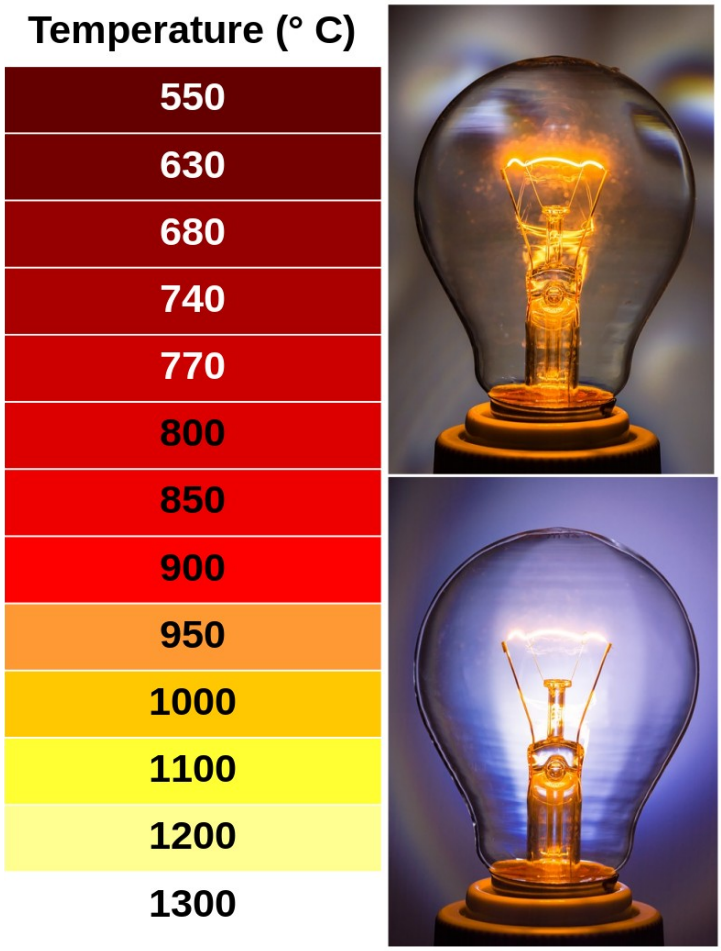


Credit: https://sohowww.nascom.nasa.gov/classroom/spectroscope.html

Because we can't touch stars, we must look for something that is as similar to one as possible, here on Earth. Something that can be really hot, like a light bulb.

We can observe filament light bulbs that get so hot that they emit light in a variety of colours. Depending on its temperature, we'll see a different colour [1].

Similarly, we can relate the light bulbs' temperatures with the stars' temperatures.



Color and temperature relation for a light bulb
Credit: https://en.wikipedia.org/wiki/Incandescence . https://pixabay.com/

1
The spectrum emitted by a blackbody radiator at temperatures of incandescent bulbs does not match the sensitivity characteristics of the human eye; the light emitted does not appear white, and most is not in the range of wavelengths at which the eye is most sensitive. Tungsten filaments radiate mostly infrared radiation at temperatures where they remain solid – below 3,695 K (3,422 °C). https://en.wikipedia.org/wiki/Incandescent_light_bulb

More educational resources:

http://cesar-programme.cab.inta-csic.es/sun.php?Section=Now
https://sohowww.nascom.nasa.gov/classroom/

Project CESAR:
http://www.cosmos.esa.int/web/cesar

ESA Kids:
http://www.esa.int/esaKIDSes