Tuesday, November 6, 2018

Your Learning Goal:

After students explore stars by creating a class HR Diagram, they will identify and understand the life cycle and characteristics of stars.

Table of Contents: Star Bright- 17 R

Catalyst (17 L):

Name 3 specific things in your life that would change if there were no more sun.

Homework:

Atomic Basics

DUE Thursday/Friday

Agenda:

1. Catalyst
2. HR Diagram
3. LEAF

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8R

11/06/18

Catalyst:

Name 3 specific things in your life that would change if there were no more sun.

17L

11/06/18

Star Bright

17R

STORY TIME

HR Diagram

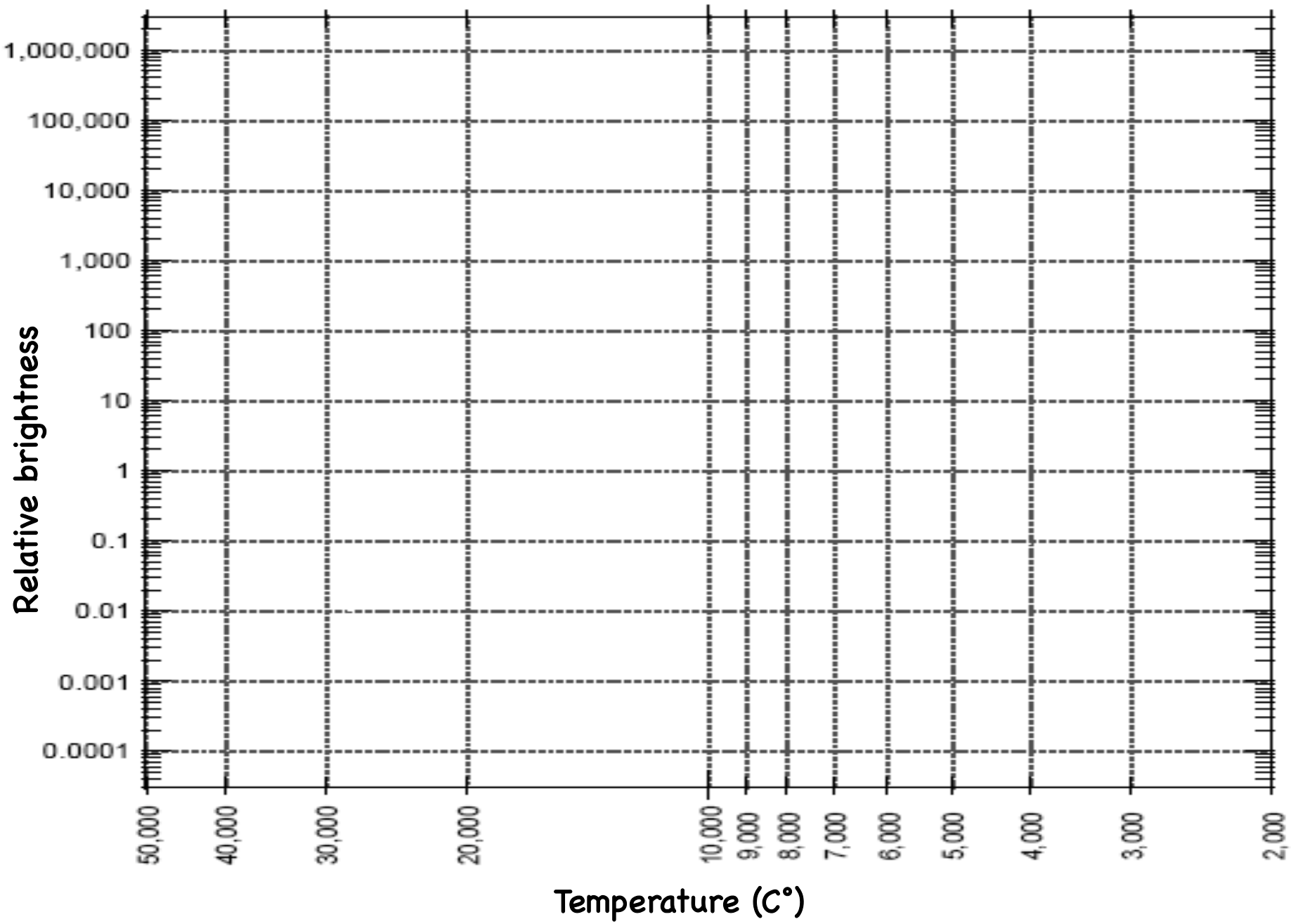
- Relative brightness (luminosity) = how much light an object gives off (compared to the sun)
  - 1 = luminosity of the sun
  - >1 = brighter than the sun
  - <1 = dimmer than the sun
- Temperature = the degree of hotness or coldness
  - Units: Celsius (°C), Fahrenheit (°F), and Kelvin (K)

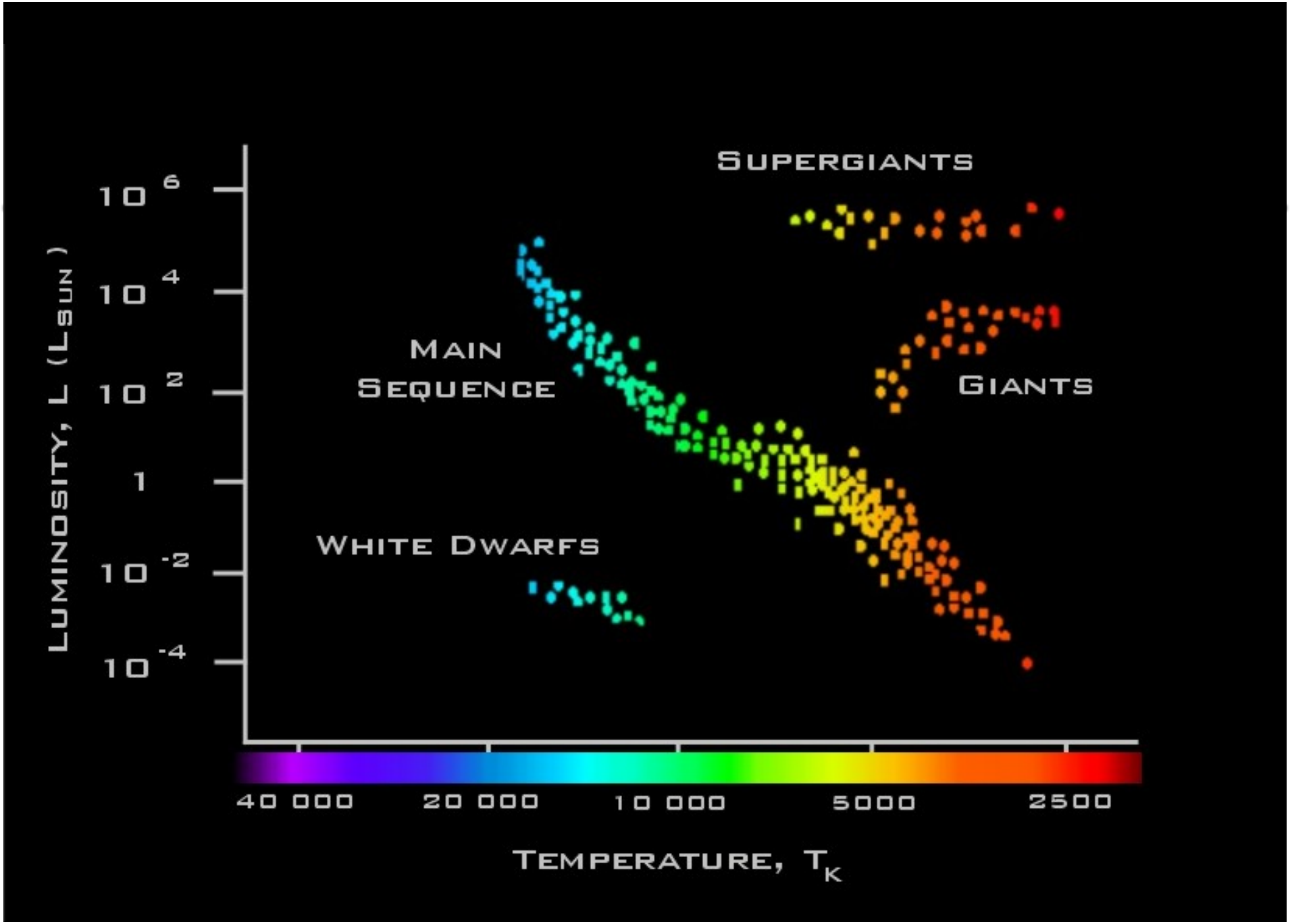
17R

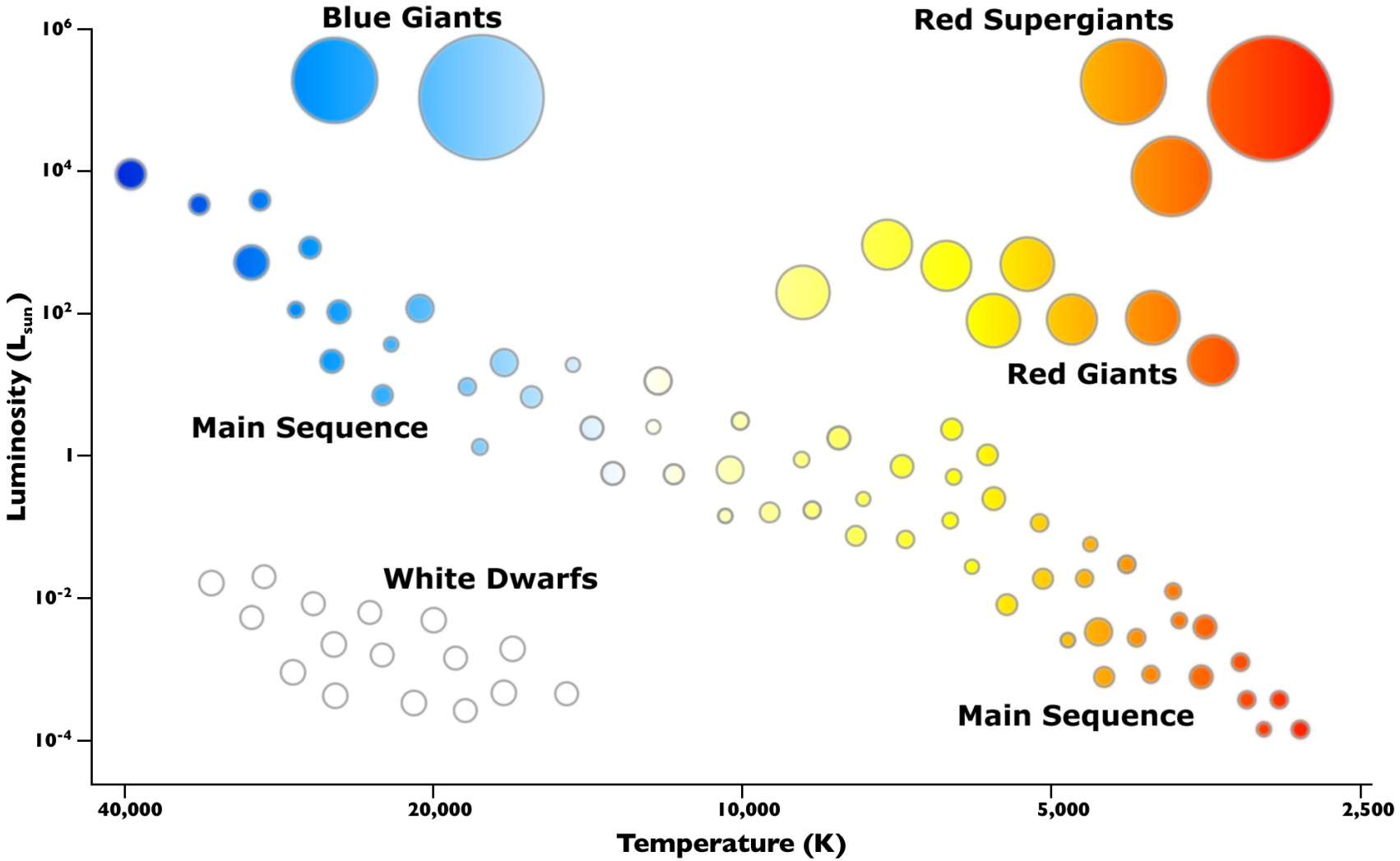
Star Day!

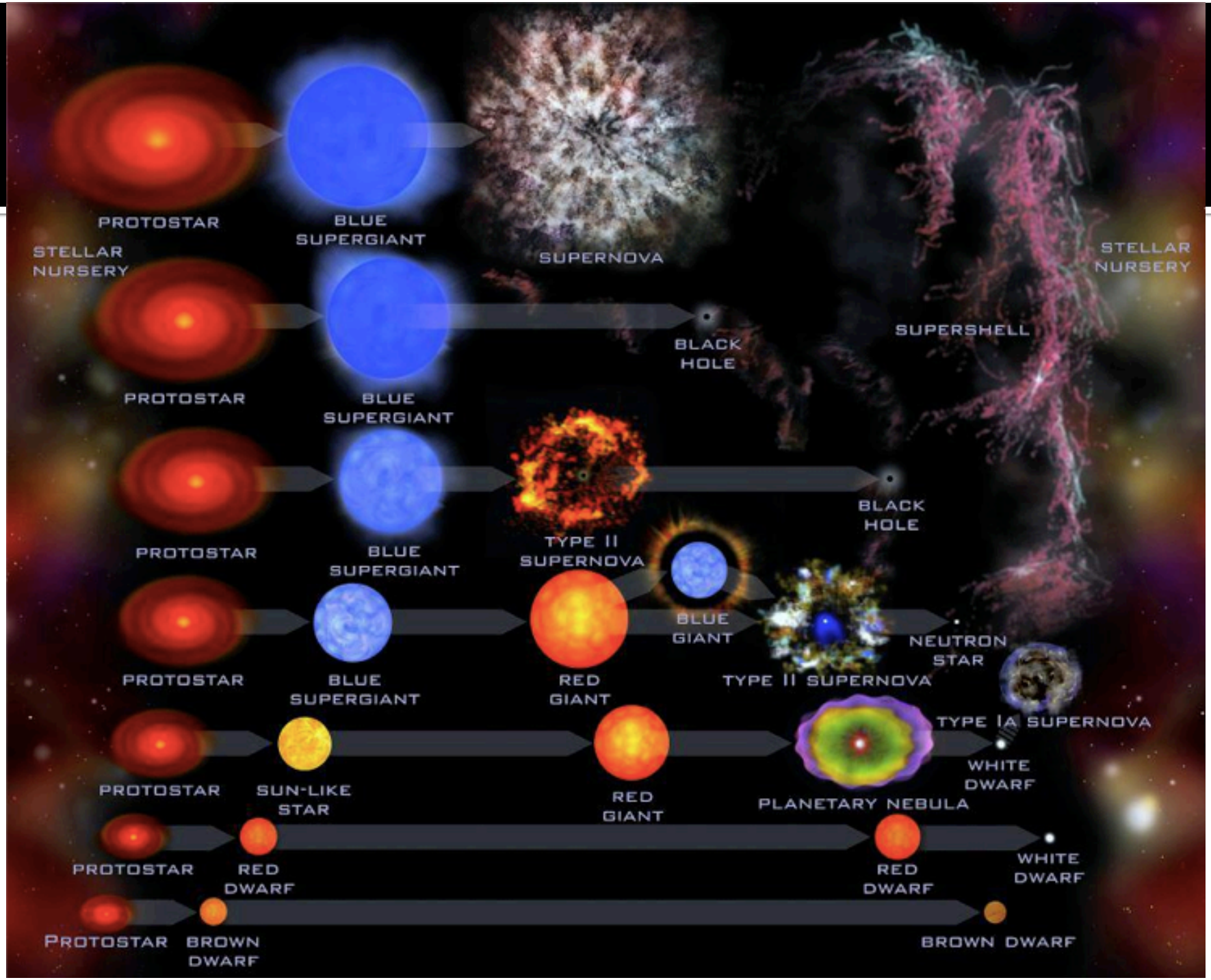
- Using the "Star Chart," plot your stars on your graph paper by *drawing* and *labeling* a dot. (Each person does 4 or 5 stars.)
- Find and color your star the appropriate color on the Start Paper.
- Cut out your star.
- When you are finished, glue your star on the graph paper. (The center of your star will be where the dot is.)

Relative Brightness vs. Temperature Graph




Supergiants
Main Sequence
Giants
White Dwarfs
Luminosity, L (L$_{sun}$)
10 6
10 4
10 2
1
10 -2
10 -4
40 000
20 000
10 000
5000
2500
Temperature, T$_K$


Blue Giants
Red Supergiants
Red Giants
Main Sequence
White Dwarfs
Main Sequence
Luminosity (L_{sun})
10^6
10^4
10^2
1
10^{-2}
10^{-4}
40,000
20,000
10,000
5,000
2,500
Temperature (K)


STELLAR NURSERY
PROTOSTAR
BLUE SUPERGIANT
SUPERNOVA
STELLAR NURSERY
BLACK HOLE
SUPERSHELL
PROTOSTAR
BLUE SUPERGIANT
BLACK HOLE
PROTOSTAR
BLUE SUPERGIANT
TYPE II SUPERNOVA
BLUE GIANT
NEUTRON STAR
PROTOSTAR
BLUE SUPERGIANT
RED GIANT
TYPE II SUPERNOVA
TYPE Ia SUPERNOVA
PROTOSTAR
SUN-LIKE STAR
RED GIANT
PLANETARY NEBULA
WHITE DWARF
PROTOSTAR
RED DWARF
RED DWARF
WHITE DWARF
PROTOSTAR
BROWN DWARF
BROWN DWARF

Reflection

Explain what type of star our Sun is compared to other stars.

relative brightness = 1
temperature = 5,800°C

Use the *evidence* from the HR Diagram to *support* your answer.

17 L

11/06/18

Catalyst:

Name 3 specific things in your life that would change if there were no more sun.

Reflection:

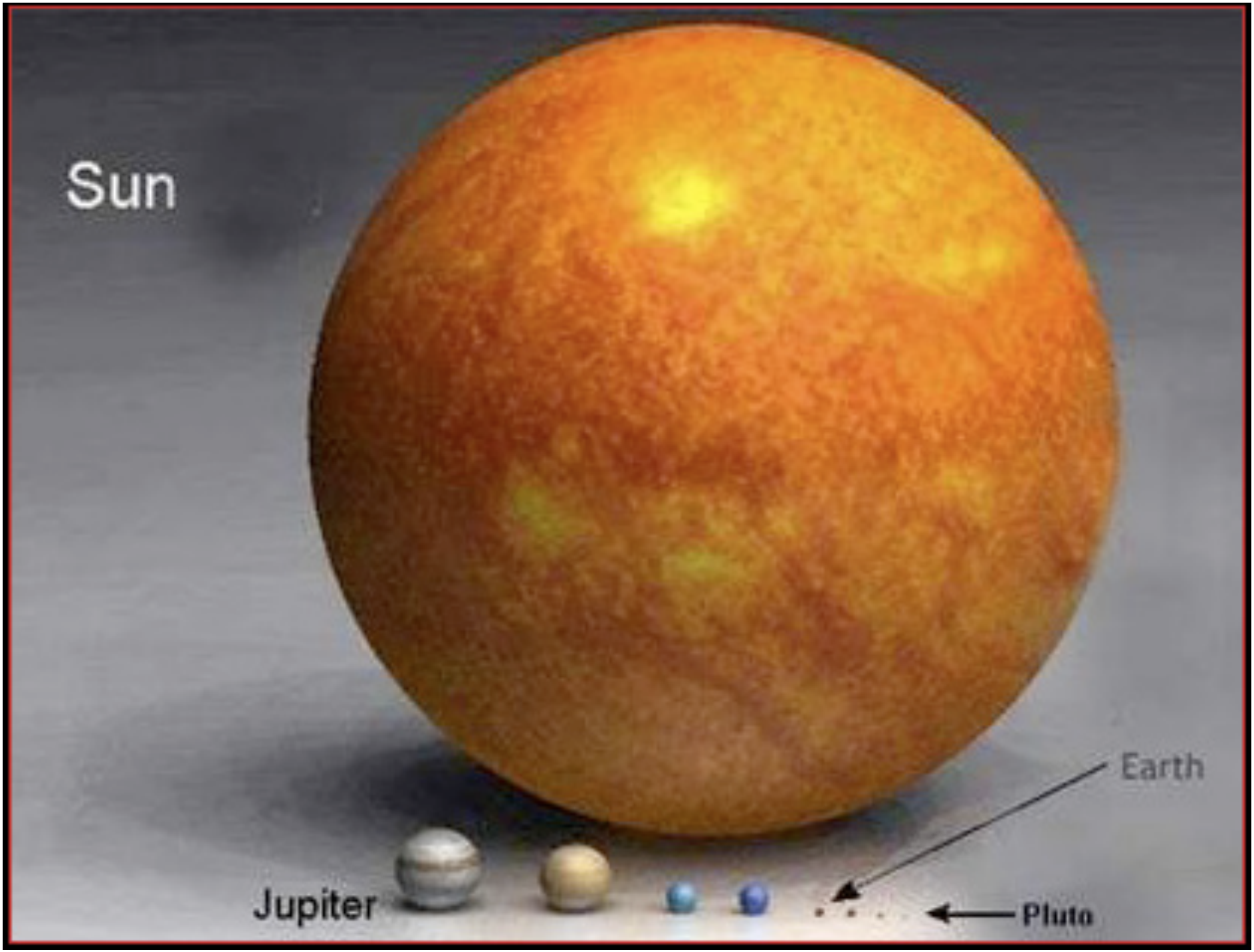
Explain what type of star is our Sun. (Use the *evidence* from the HR Diagram to *support* your answer.)

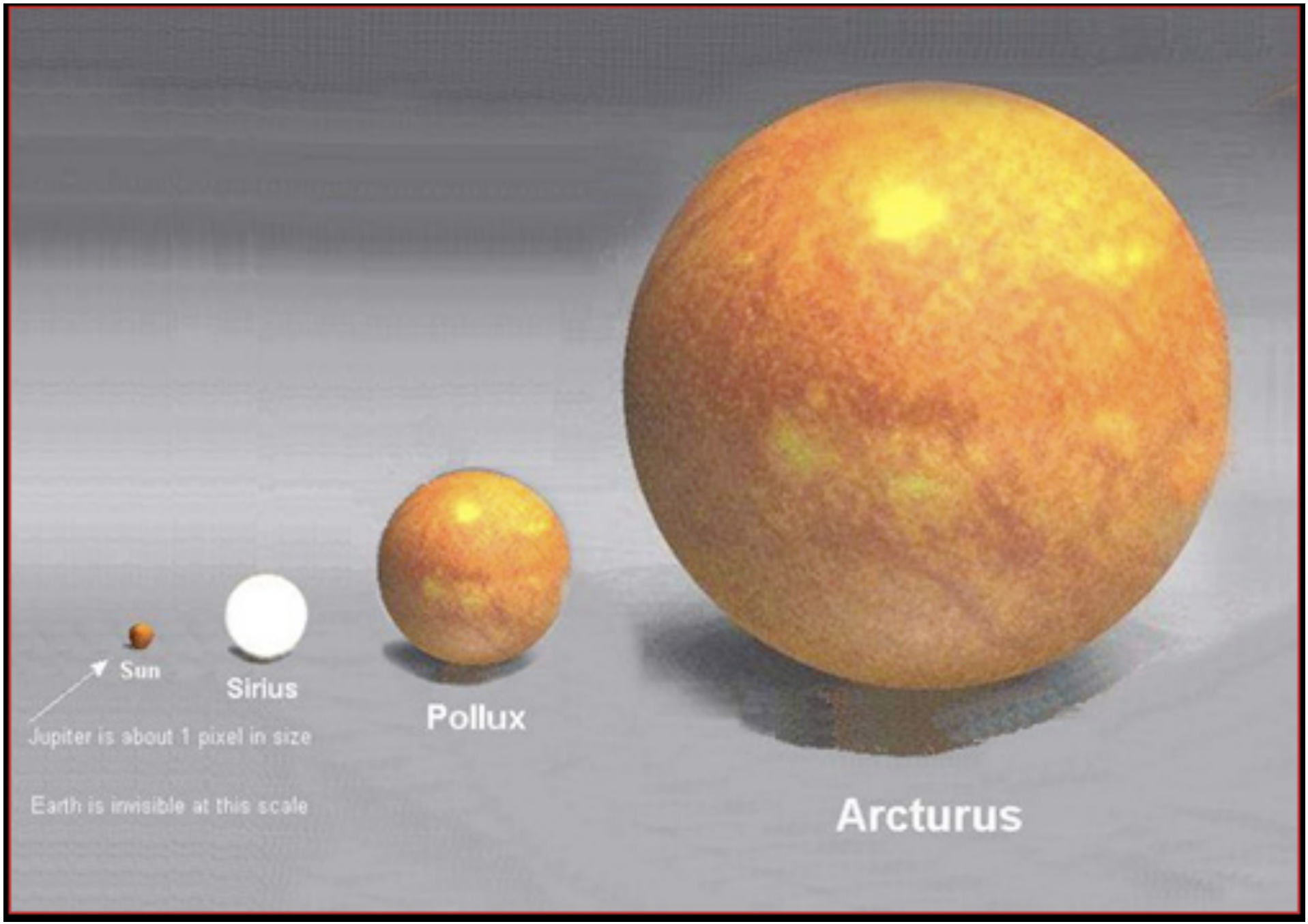
17L

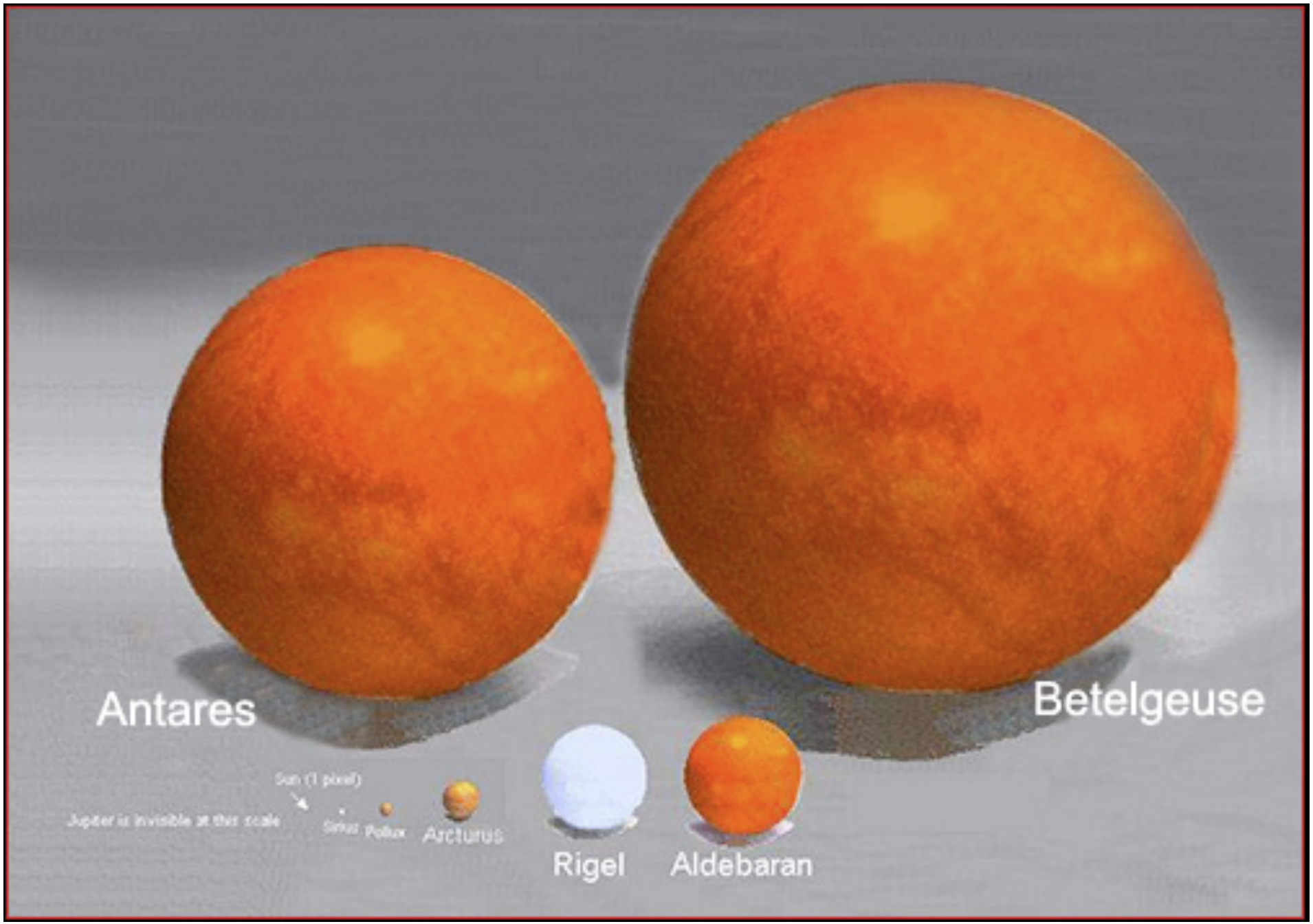
11/06/18

Star Bright

17R


Sun
Earth
Jupiter
Pluto


Sun
Sirius
Pollux
Arcturus
Jupiter is about 1 pixel in size
Earth is invisible at this scale


Antares
Betelgeuse
Sun (1 pixel)
Jupiter is invisible at this scale
Sirius
Pollux
Arcturus
Rigel
Aldebaran