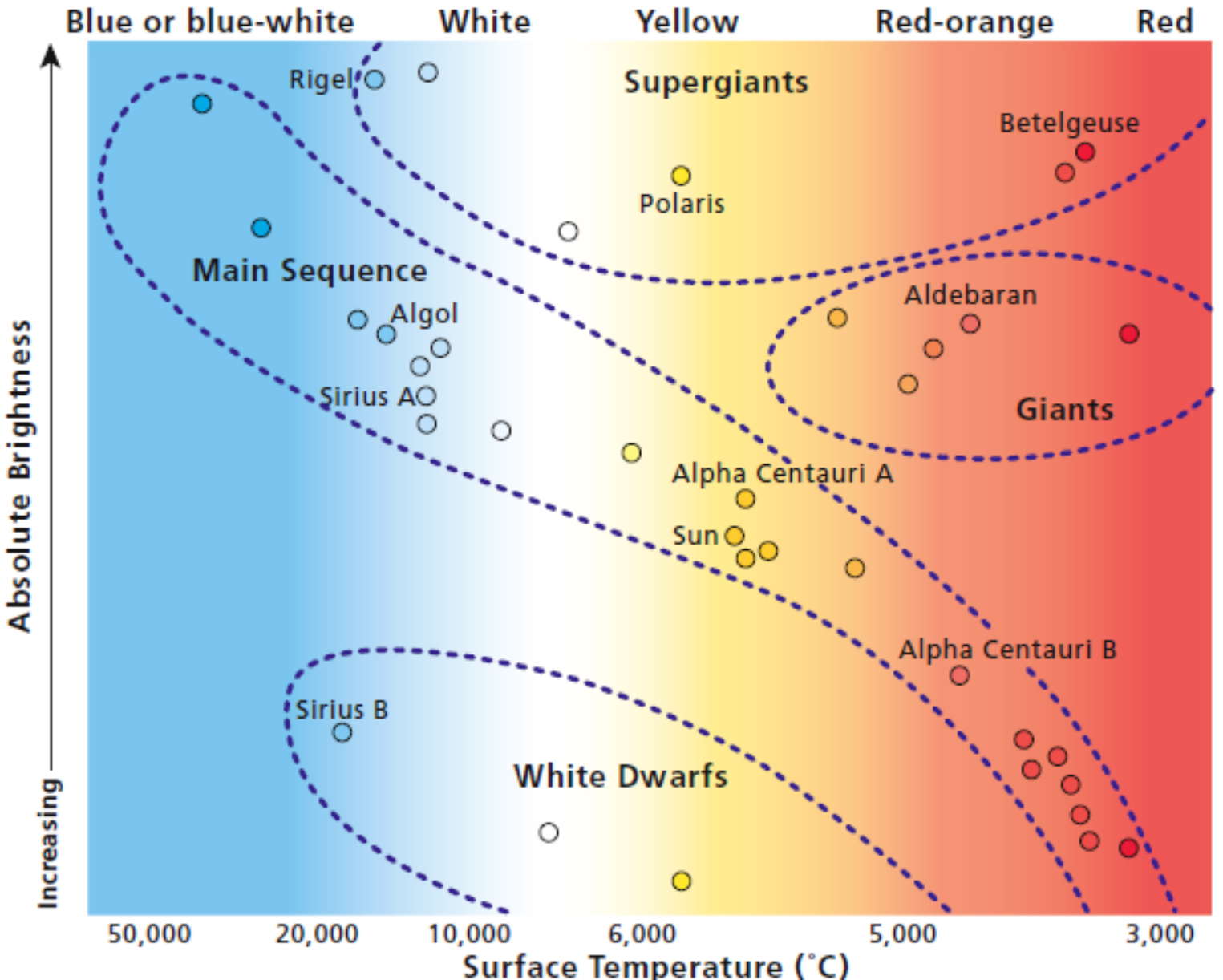
Stars

<u>Objective:</u> To investigate the relationship between star brightness, temperature, and size.

Research

- H-R diagram: a graph showing star's brightness versus star's temperature.

8.158 H-R Diagram



Research

- Groupings on the H-R diagram: are due to how stars change during their lifetimes.
- Main sequence: the hotter they are, the brighter they are.

Research

- White dwarf: small; hot but not bright
- Giants and Supergiants: large; bright but not hot

Research

- Brightness affected by:

1. Distance: closest stars look brightest.
2. Size: large stars look brighter than small ones.
3. Temperature: hotter stars look brighter.

Research

- Smaller the absolute magnitude: the brighter the star. The brightest stars have negative (-) magnitudes.
- Apparent magnitude: brightness as it appears from Earth.

Research

- Constellations: groupings of stars to form a picture.
- Example: Orion (the hunter), Ursa major (big bear), Ursa minor (little bear).

Research

- Light years: distance light travels in a year.
- Absolute magnitude = actual brightness.

Conclusions

1. Resembles actual HR diagram. No dwarfs, fewer stars plotted.
2. Main sequence.
3. Lower right.

Conclusions

4. The hotter it is the brighter it is and the cooler it is the dimmer it is.
5. Size and distance differences.
6. Use the diagram and relate the temperature to the absolute magnitude axis.