

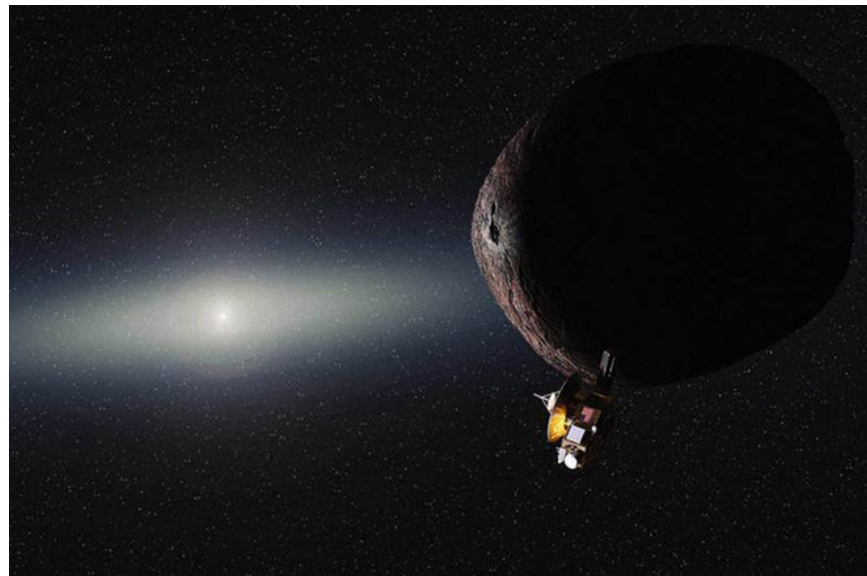
Monday, January 23, 2017

Exams will be based on lecture notes. Advice: read ahead in book to have some idea where I am going. Then use book as backup to lecture notes for exams.

Facebook group (optional); Twitter posts (not classroom related).

Astronomy in the news?

New Horizons Spacecraft that flew by Pluto is now aimed at a small object in the Kuiper Belt.



Reading:

Chapter 6 Supernovae, §6.1, 6.2, 6.3

Background:

Chapter 1 Introduction, §1.1, 1.2.1, 1.3.1, 1.3.2

Chapter 5 White dwarfs, §5.1

SUPERNOVAE

Catastrophic explosions that end the lives of stars,

Provide the heavy elements on which planets and life as we know it depends,

Energize the interstellar gas to form or inhibit new stars,

Produce exotic compact objects, neutron stars and black holes,

Provide yardsticks to measure the history and fate of the Universe.

Concept Check

What's on the cover of the book?

Background Check

What is a main sequence star?

What is a red giant star?

What is a white dwarf?

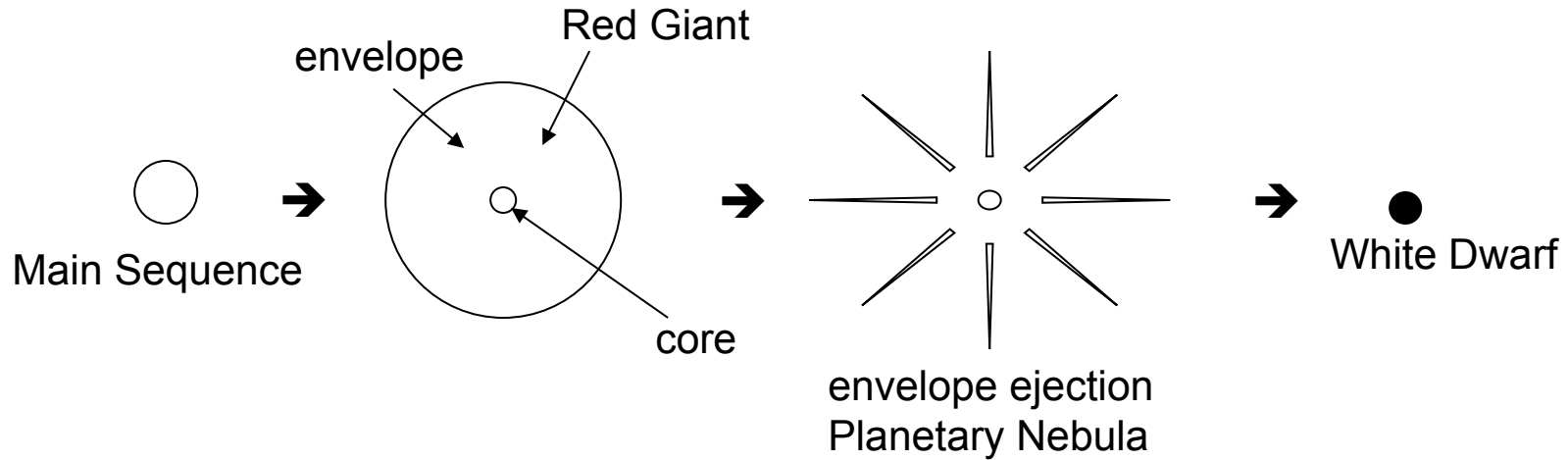
Write a few sentences.

Discussion Point:

Why are red giants called red giants?

Why are white dwarfs called white dwarfs?

Main Sequence to Red Giant to White Dwarf



White dwarfs are the most common stellar “corpse.”
They come from low mass stars → plentiful.



Examples of planetary nebulae
surrounding new-born white dwarfs



White Dwarfs (Section 5.1)

White Dwarf – dense core left behind by low mass stars (less than 8 solar masses) after red giant and planetary nebular phase.

White dwarfs live a long time. Essentially every white dwarf formed since beginning of the Galaxy is still here 10-100 billion of them (about 100 billion stars total), but a few white dwarfs have blown up.

Most white dwarfs are dim, undiscovered, we see only those that are nearby, none naked eye.

Sirius, the brightest star in the sky, is a main sequence star of about twice the mass of the Sun. It has a white dwarf companion. Can't see the white dwarf with the naked eye, too small, dim, but Sirius is easy if you look for it at the right time.

Sky Watch Extra Credit:.

Find red giant Betelgeuse in Constellation Orion

Other red giants

Find Sirius, a bright main sequence star.

Other main sequence stars.

Find Constellation Draco, site of the Cat's Eye Nebula

Can't see nebula with naked eye, but can find Draco

Other planetary nebulae

Sirius has an orbiting companion, a white dwarf.

Other white dwarfs

Also, **for orientation only**, Moon, Mars, Venus, Jupiter, Big Dipper, NSEW, learning to use a star chart, links on web page.

Check out links: [Whole Sky Chart](#)

