

Review 2

Chapter 16

Vocabulary

Differential rotation	Photosphere	Chromosphere
Transition Zone	Solar Corona	Convective Zone
Radiation Zone	Solar Constant	Luminosity
Nuclear Fusion	Strong Nuclear Force	Deuteron
Deuterium	Heavy Hydrogen	Positron
Neutrino	Weak Nuclear Force	Proton-proton Chain
Hydrostatic Equilibrium	Helioseismology	SOHO
Granulation	Spicules	Solar Wind
Sunspots	Umbra	Penumbra
Polarity	Solar Minimum	Solar Maximum
Solar Cycle	Active Regions	Prominence
Quiescent Prominence	Active Prominence	Flares
Coronal Mass Ejections	Coronal holes	Solar Neutrino Problem

Neutrino Oscillations

- Have a general knowledge of the size, mass, and density of the Sun
- Know what is meant by differential rotation and know the rotational period at the equator
- Know what the photosphere, the chromosphere, and the transition zone are
- Know what the solar corona is
- Understand what the convective zone does for the Sun
- Know what the radiation zone is and where it is found
- Know what is meant by luminosity
- Know that nuclear fusion powers the Sun
- Know what the proton-proton chain is and how it works
- Know what the strong nuclear force does for the atom
- Know what the deuteron and deuterium are
- Know what the positron and neutrino are
- Know what the weak nuclear force is
- Know what an isotope is
- Know how we come up with solar model for the interior
- Know what is meant by hydrostatic equilibrium
- Know what helioseismology is and why it is important
- Know what SOHO is
- Know what the radiation zone is and what moves through it
- Know how ht energy reaches the surface from below
- Know what granulation is and about how big they are on the surface
- Understand that when you look at the Sun you are looking into different depths of the Sun
- Know what the Fraunhofer lines are
- Know what the chromosphere is and why it is red
- Know wshat a spicule is
- Know what the corona is and where it is found
- Understand how we know how hot the corona is

- Understand how the temperature changes as you move away from the surface of the Sun
- Know what the solar wind is
- Know what sunspots are and what causes them
- Know what the umbra and penumbra are
- Know whether the sunspots are hotter or cooler than the rest of the Sun
- Know how much stronger the magnetic field is at the sunspots rather than at the Sun
- Know what is meant by [polarity
- Know what the sunspot cycle is and how long it is
- Know what is meant by solar minimum and maximum
- Know what the solar cycle is and what happens every 11 years
- Know what the Maunder Minimum is
- Know what is meant by active regions
- Know what a prominence, Quiescent prominence and active prominence are
- Know what a flare is and how it is different from a prominence
- Know what is meant by a coronal mass ejection
- Know what coronal holes are
- Know what the problem was with neutrinos
- Understand what neutrino oscillations are

Chapter 17

Vocabulary

Arcseconds

Transverse Motion

Apparent Brightness

Apparent Magnitude

Speckle Interferometry

Supergiants

Main Sequence

Luminosity Classification

Visual Binaries

Parsecs

Proper Motion

Energy Flux

Absolute Magnitude

Giants

Dwarf Star

H-R Diagram

Multiple Star System

Spectroscopic Binaries

Radial Motion

Absolute Brightness

Magnitudes

Spectral Classification

Red Giants

White Dwarf

Spectroscopic Parallax

Binary Stars

Eclipsing Binaries

- Know the name of our galaxy
- Know that stars are born, live and die
- Know what types of things we are able to determine about stars
- Know what one thing is essential to determining properties of stars
- Understand how parallax is used
- Know what a parsec is
- Know what star is closest to the Earth other than the Sun
- Know how putting a satellite into space helped in our parallax measurements
- Know what radial and transverse motion are and which one is essential to measuring the Doppler effect
- Know what proper motion is
- Know what is meant by absolute brightness
- Know what apparent brightness is

- Know what energy flux is
- Know what is meant by an inverse square law
- Know how the magnitude scale works and who thought it up
- Know that the brightness difference for every 1 magnitude difference is 2.5 times
- Know what taking the absolute magnitude of the Sun does to its brightness as seen from Earth
- Know how far away a star is theoretically placed to measure its absolute magnitude
- Know how using a B and V filter when looking at the blackbody curve allows us to measure the temperature of a star
- Know how temperature affects spectral lines
- Have a basic understanding of how temperature affects the hydrogen lines in the spectra
- Know the spectral classification from hot to cool
- Understand how the spectral classification is used
- Know how we can do stellar sizes from Earth
- Know the different kinds of stars out there: giants, red giants, supergiants, white dwarfs, etc.
- Understand the H-R diagram
- Know what is special about the main sequence and how long a star lives there
- Know where the white dwarf and re giant regions are on the H-R diagram
- Know how spectroscopic parallax is used to determine distance in the universe
- Know what is meant by the luminosity classification and how the Sun is classified
- Know that everything about a star is determined by the mass
- Know what a multiple star system is and the different type of binary stars
- Know what is meant by an optical double
- Know why determining mass in a binary system is so simple
- Know how we can determine the basic length of another stars lifetime

Chapter 18

Vocabulary

Interstellar Medium	Dust	Gas
Extinction	Reddening	Globules
Polarized	Emission Nebulae	Dark Nebulae
Photoevaporation	Reflection Nebulae	HII Regions
Forbidden Lines	Dark Dust Clouds	Radio Telescope
21-cm Radiation	Parallel Stars	Antiparallel State
Molecular Clouds	Tracers	Molecular Cloud Complexes

- Know that dark areas where you can't see anything are actually dense clouds in the galaxy
- Know what is meant by the interstellar medium
- Know that dust and gas are found everywhere in space
- Know how dust affects the light coming to us and why
- Understand what is meant by the term extinction when referring to light
- Understand what is meant by the term reddening when referring to light

- Know what a globule is
- Know the basic composition of the interstellar medium
- Know how we know that the dust grains are elongated
- Know what is meant by polarization and how it occurs
- Know what an emission nebula is
- Know that the Orion nebula is one of the northern hemispheres most impressive emission nebulae
- Know what is meant by a dark nebula
- Know what lights up an emission nebula
- Know what a reflection nebula is and how it to glows
- Know what photoevaporation is
- Know what is meant by HI, HII, or OIII
- Know what caused the forbidden lines in the spectra of the nebula
- Know what the dark dust clouds are
- Know why the 21-cm radiation is important and what we use to see it
- Know the difference between the parallel and antiparallel states are
- Know what the difference between atomic hydrogen and molecular hydrogen is
- Know what a molecular cloud is
- Know what happens to a molecule that causes its spectra to look so different from an atom
- Know what molecular tracers are and why they are important
- Know what is meant by molecular cloud complexes