Astronomy Final Review

Know the following vocabulary words:

asteroids
asteroid belt
autumnal equinox
background radiation
big bang
black hole
Coriolis effect
comets
constellations
craters
cyclic tides
Doppler effect
eccentricity
ellipse
focus (foci)
full moon
galaxy
geocentric
gravitation
Jovian
luminosity
lunar eclipse
heliocentric
H-R diagram
main sequence
meteors
moon
neap tide
new moon
neutron star
nuclear fusion
quarter moon
red giant
red shift
revolution
rotation
sunspots
solar eclipse

solar system
summer solstice
super giant
spring tides
terrestrial planets
vernal equinox
white dwarf
winter solstice
zenith

Be able to answer the following questions:

1. Know the difference between rotation and revolution.

2. How do the stars move around Polaris? How would the stars move around Polaris if the Earth did not rotate?

3. What is the relationship between the altitude of Polaris and the latitude of the observer?

4. Be able to recognize the phases of the moon given a diagram of the Earth, Moon and Sun.

5. What causes moon phases?

6. How does the relative size of the moon compare with the Earth?

7. Know the positions of the Earth, Moon and Sun during a lunar and solar eclipse.

8. How does the pattern of tides change per day? In which phase of the moon are the tides the strongest?

9. Be able to differentiate between the Geocentric and Heliocentric models of the solar system.

10. Know how to use the Earth Science reference tables to answer questions about the characteristics of planets.

    ex. 1. How long does it take Venus to revolve around the Sun?

    ex. 2. Which planet has the most moons?

11. When is the gravitational attraction between two objects the greatest?

12. When do planets move the slowest and the fastest within their orbit?

13. Which planets take the longest to orbit (revolve) around the sun?

14. Know how to calculate the eccentricity of a planets orbit. What is the eccentricity of a circle?

15. In which season is the Sun the farthest from us? the closest? Be able to diagram the tilt of the Earth relative to the vertical sun's rays during summer vs. winter.

16. What two things cause seasons?

17. Know the differences between the seasons- dates, length of daylight, location of sun's zenith (directly overhead), angle of sunlight and relative length of shadow.

    Summer Solstice

    Autumnal Equinox

    Winter Solstice

    Vernal Equinox

18. Be able to interpret a diagram of the sun's path and locate how the sun would appear to move across the sky during the summer and winter solstices and the equinoxes.

19. In which direction does the sun rise and set? What causes this? How many degrees per hour does the sun move through the sky?

20. When does the sun rise exactly in the East and set in the West?

21. Where does the sun rise and set in summer and winter? How would that change if you lived south of the equator?

22. How does the position of the noon sun in the New Paltz sky change throughout the year?

23. Why does the sun shine?

24. What is the age of the Earth and the solar system?

25. What are the types of galaxies?

26. Using the reference tables, be able to determine information from the H-R diagram such as the temperature, color and luminosity of stars.

27. Know how the evolution of blue giants differs from the evolution of a small to medium star. What are the final stages of a star's life?

28. What is the evidence of the big bang theory?

29. How does the Coriolis Effect change the direction of winds and ocean currents in the Northern Hemisphere?

30. What causes the Coriolis Effect?

Astronomy RED HOT Study Tips

The sun rises in the east and sets in the west. The stars follow the same path as the sun.

The sun moves about 15 degrees per hour. (360 degrees in 24 hours). The sun's apparent motion around the earth is due to the earth's rotation.

The stars follow a circular path around Polaris.

The first model of the solar system was the geocentric model. This placed the earth in the center of the universe with the sun and stars circling around it.

The model accepted today is the heliocentric model which puts the sun in the center of the solar system and the planets revolving around it.

The earth is tilted 23.5 degrees on its axis. It takes 24 hours for the earth to complete one rotation. It takes one year for the earth to complete one revolution around the sun.

The altitude of Polaris is equal to your latitude.

During the equinox there is an equal amount of daylight and night at every location on earth. During the equinox the noon sun is located directly above the celestial equator.

In the northern hemisphere the longest hours of daylight occurs on June 21. The shortest hours of daylight occur on December 21 (first day of winter).

On June 21 the direct rays of the sun are on the Tropic of Cancer.

On the equinox the direct rays are on the equator.

On December 21 the direct rays are on the Tropic of Capricorn.

All planets orbit the sun in the shape of an ellipse. The eccentricity of an ellipse describes how round or flat the orbit is.

> Rounder orbits have a number closer to 0.0, while flatter orbits have a number closer to 1.0. (According to the E.S.R.T. the eccentricity of earth's orbit is 0.017 - a slightly eccentric ellipse.)

The gravitational attraction between 2 bodies in space increases as they get closer (or gain mass) and decrease as they get farther apart (or lose mass).

The closer a planet is to the sun, the faster it revolves (because it gravitational attraction is greater).

The phases of the moon are caused by the different amounts of sunlight reflected off the moon's surface as it revolves around us.

Four moons equal the size of the Earth.

The solar eclipse is when the moon is in front of the sun during a new moon.

The lunar eclipse occurs when the Earth's shadow falls on the moon during a full moon.

The craters on the moon where caused by impact from meteors and asteroids.

Only a small portion of the energy given off by the sun is visible to humans (visible light). Other energies include X-rays and Gamma rays (high frequency, short wavelength, dangerous) and infrared or AC generator waves (lower frequency, longer wavelength, safer).

The angle at which the sun's rays strike the earth's surface is called the angle of insolation.

When the sun is directly overhead it is called zenith.

Solar rays that strike the earth's surface at a 90 degree angle are called direct or vertical rays.

The Earth's shape is slightly oval (oblate spheroid) but in a scale model on a page or a photo the Earth appears perfectly round.

The evidence for the big bang is the red shift and background radiation.

The Coriolis effect is caused by the Earth's rotation.

The Coriolis effect bends winds and ocean currents to the right in the Northern Hemisphere.