Regents Review
Astronomy

Know the following vocabulary words:

asteroids
autumnal equinox
background radiation
big bang
black hole
craters
comets
Doppler effect
eccentricity
ellipse
focus (foci)
foucault pendulum
full moon
galaxy
geocentric
gravitation
~~international date line~~
luminosity
lunar eclipse
heliocentric
H-R diagram
main sequence
meteors
moon
neap tides
new moon
neutron star
nuclear fusion
quarter moon
red giant
revolution
rotation
sunspots

solar eclipse
solar system
spring tides
summer solstice
super giant
spring tides
~~time zone~~
vernal equinox
white dwarf
winter solstice

Be able to answer the following questions:

1. Know the difference between rotation and revolution. Be able to find information on the planets based on the reference tables.

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

3. When is the gravitational attraction between two objects the greatest? How does this apply to planetary orbits? How does the gravity change on larger planets?

4. Know how to calculate the eccentricity of a planets orbit given the distance between the foci and length of the ellipse. What is the eccentricity of a circle? Which planet is the most eccentric?

5. In which season is the Sun the farthest from us? the closest?

6. In which direction does the sun rise and set? Where do the moon, planets and stars rise and set? In which direction does the Earth spin?

7. In the beginning of which seasons do the sun rise due East and set due West? Where does the sun rise and set on the first day of summer and winter?

8. How many degrees per hour does the sun move across the sky? How many degrees of longitude are there in one time zone?

9. ~~What is a time zone~~? How does time change as you go west or east?

10. What is the relationship of the altitude of Polaris to your latitude?

11. What is the pattern of star movement around Polaris? How would that change if the Earth never rotated?

12. How did the Foucault Pendulum prove that the Earth rotated? How does the Coriolis effect change the path of wind and ocean currents?

13. What is the relationship between the amount of insolation and the altitude of the sun in the sky? How does temperature change with increasing insolation?

14. What causes seasons?

Quiz Review
Solar System

Know the following vocabulary words:

asteroid
comet
eccentricity
ellipse
focus (foci)
geocentric
gravitation
heliocentric
inertia
Jovian planets
meteor
moon
retrograde motion
revolution
rotation
solar system
terrestrial planets

Be able to answer the following questions:

1. Know the difference between rotation and revolution.

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

3. Know the order of the planets from the sun.

4. What were the major discoveries of Ptolemy, Copernicus, Kepler, Galileo and Newton?

5. Know how planets exhibit retrograde motion and what is the true cause.

6. What are Kepler's laws of planetary movement? (esp. how does the rate of revolution change with proximity to the sun?)

7. When is the gravitational attraction between two objects the greatest? How does this apply to planetary orbits?

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

   ex. the distance between the foci is 6 cm and the length of the longest axis is 24 cm.

9. What are the differences between an asteroid, meteoroid and a comet?

10. How do terrestrial and Jovian planets differ?

11. Know how to locate planetary data on the reference tables such as diameter, eccentricity, rotation and revolution rates.

15. Know the facts on seasons- dates, hours of daylight, sun's paths across the sky, and relative angles above the horizon at noon (zenith). Also be prepared to compare the relative length of the noon shadow among the seasons.

    Summer Solstice

    Autumnal Equinox

    Winter Solstice

    Vernal Equinox

16. Know the positions of the Earth, Moon and Sun during the lunar phases (full moon, new moon, fist and third quarter moons), eclipses (solar and lunar) and spring and neap tides.

17. How many high tides and low tides are there a day? How many hours between high and low tide?

18. Why does the sun shine?

19. Using the H-R diagram in the reference tables, be able to evaluate stars based on their temperature, color and absolute brightness (luminosity).

20. Know that there are different types of stars that evolve in a set pattern. Be familiar (but don't memorize) that our sun is a common mainsequence star that will turn into a Red Giant, White Dwarf and then a Black Dwarf. Larger stars will develop from a Blue Supergiant into a Red Supergiant and then either a Black Hole or a Neutron Star depending size differences.

21. What type of galaxy is the Milky Way? What other galaxy types are there?

22. How did the universe begin?

23. How do the red shift of stars and background radiation prove the Big Bang theory?

Astronomy Test Review
Earth and Moon

Know the following vocabulary words:

~~Eratosthenes~~
gravitation
lunar eclipse
solar eclipse
moon
Polaris
half moon
full moon
new moon
crescent moon
gibbous moon
neap tides
spring tides
~~lithosphere~~
~~hydrosphere~~
atmosphere
~~troposphere~~
~~navigation~~
~~coordinate system~~
equator
latitude
parallel
longitude
meridians
prime meridian
~~international date line~~
~~time zone~~

Be able to answer the following questions:

1. Be able to explain how we know that the Earth is not a perfect sphere.

2. Know why you weigh slightly different at the equator versus the poles

3. Know the different layers of the Earth and its atmosphere (The answers are in the reference table. No need to memorize them).

4. Know the relative densities of the Earth's spheres.

5. Be prepared to give information on the Earth's spheres listed in the Reference tables.

Ex 1. What layer of the atmosphere is 15 miles up?

Ex. 2. What is the percent of hydrogen in the hydrosphere?

6. How is the circumference of the Earth measured? Be able to use the formula for calculating the circumference of a planet.

ex. What is the circumference of a planet when d=2000 and $a=30^0$?

7. Know the difference between latitude and longitude and how they are indicated on a map. Be able to pick out locations on a world map based on their coordinates.

8. What is the relationship of the altitude of Polaris to your latitude? Where can't you see Polaris in the sky?

9. What is a time zone? How does time change as you go west, east or pass over the International Date Line?

10. How many degrees of longitude are there in one time zone? How many degrees does the sun appear to move in the sky in one hour? What information do you need to know in order to figure out your longitude (without a GPS!!!)?

11. Be able to name and illustrate the phases of the moon given a diagram of the Earth, Moon and Sun.

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

13. Why isn't there an eclipse twice a month?

14. How much time elapses between high tides?

15. How many times a day are there high and low tides?

16. Why does the Moon affect the tides more than the Sun?