Astronomy

Unit 1 Test Study Guide – Cycles of the Sky

Objective 1: Describe the effects of the four Universal Forces at work in the Universe.

Students will be able to:

1. List the four Universal Forces at work in the Universe.
2. Describe how each force affects matter.
3. Analyze how the strength of gravitational force is affected by the amount of matter present and the distance between two masses.
4. Analyze how gravity plays a part in the motion of celestial bodies.

How to Study:

a.) Read Pages: 8 – 9

b.) Define the following terms:

- Strong Nuclear Force:
- Coulomb (Electromagnetic Force):
- Weak Nuclear Force:
- Gravity:
- Atoms:
- Nucleus (of an atom):
- Protons:
- Electrons:
- Neutrons:

c.) Review Power Point Lecture Notes on Universal Forces (PowerPoint slides # 1-10).

d.) Complete Schoology Unit 1: Assignment 1 – The Universal Forces

Objective 2: Explain how distances are measured in the Universe and the Earth's location in the Universe.

Students will be able to:

1. List the three ways distances are measured in the Universe.
2. Define astronomical unit and light year. Explain how these units are different from each other.
3. Know the "address" of the Earth in the Universe, starting from the smallest unit to the largest unit.

How to Study:

a.) Read Pages: 4 - 7

b.) Define the following terms:

- Astronomical Unit (AU):
- Light-year (ly):
- Parsec:
- Solar System:
- Kuiper Belt:

- Oort Cloud:
- Star:
- Galaxy:
- Galaxy Clusters:
- Milky Way Galaxy:
- Local Group:
- Virgo Supercluster:
- Great Attractor:
- Universe:

c.) Review Power Point Lecture Notes on measuring distances in space and our location in the Universe. Know and understand Figure P.13 on Page 11.

d.) Complete Schoology Unit 1: Assignment 2 – Distances in the Universe and Earth's Location in the Universe.

Objective 3: Analyze the daily motions of the Earth, Sun, and Stars.

Students will be able to:

1. Explain why the daily movement of the Sun and stars appear to move from the East to the West.
2. Explain how we as humans currently keep time.
3. Locate and explain the significance of the imaginary lines placed on a globe (or map) and the Celestial Sphere.

How to Study:

a.) Read Pages: 16 – 20, and 174 – 181.

b.) Define the following terms:

- Celestial Sphere:
- Horizon:
- Constellations:
- Celestial Poles:
- Celestial Equator:
- Circumpolar Stars:
- Polaris (North Star):
- Rotation:
- Rotation Axis:
- Prime Meridian:
- Longitude:
- Equator:
- Latitude:
- International Date Line:
- Time Zone:
- Standard Time:
- Universal Time:
- Daylight Savings Time:
- Leap Year:

c.) Review Power Point Lecture Notes on the Celestial Sphere, Rotation, and Time Keeping.

d.) Complete Schoology Unit 1: Assignment 3 – Daily motions of the Earth, Sun, and Stars.

Objective 4: Analyze the annual motions of the Earth, Moon, Sun, and Stars. (12 Questions)

Students will be able to:

1. Explain why constellations appear to change location on the Celestial Sphere throughout the year.
2. Explain what causes the Earth's different seasons.
3. Describe how the tilt of the Earth and the latitude of one's position on the Earth effects the temperature and number of daylight hours at that location.

How to Study:

a.) Read Pages: 21 – 26.

b.) Define the following terms:

- Revolution:
- Orbit:
- Ecliptic:
- Zodiac:
- Astrology:
- Perihelion:
- Aphelion:
- Equator:
- Tropic of Cancer:
- Tropic of Capricorn:
- Equinox:
- Solstice:
- Zenith:
- Altitude:

c.) Complete Schoology Unit 1: Assignment 4 – Annual motions of the Earth, Moon, Sun, and Stars.

Objective 5: Analyze the phases in the lunar cycle and when lunar and solar eclipses can take place.

Students will be able to:

1. Name the different lunar phases and describe the location of the Sun, Earth, and Moon during each phase.
2. Describe the location of the Sun, Earth, and Moon during both solar and lunar eclipses.
3. Explain why eclipses do not happen every month during the new and full moons.

How to Study:

a.) Read Pages: 27 – 34.

b.) Define the following terms:

- Lunar Phases (Lunar Cycle):
- Waxing:
- Waning:

- New Moon:
- Crescent (Waxing/Waning):
- First Quarter:
- Gibbous (Waxing/Waning):
- Full Moon:
- Third Quarter:
- Solar Eclipse:
- Lunar Eclipse:
- Annular Eclipse:
- Umbra:
- Penumbra:

c.) Review Power Point Lecture Notes on the Moon and eclipses.

d.) Complete Schoology Unit 1: Assignment 5 – The Lunar cycle and eclipses.