

Name \_\_\_\_\_

Date \_\_\_\_\_

**Environmental Science - Review Sheet**

**Origins of Modern Astronomy**

**DUE DATE: Friday, September 18<sup>th</sup>**  
**EXAM DATE: Tuesday, September 22<sup>nd</sup>**

**Ancient Astronomy (Pages 600-605)**

1) What astronomical observations were the Chinese known for one thousand years ago? \_\_\_\_\_  
\_\_\_\_\_

2) Look at the photograph taken by the Hubble Space Telescope on page 601. What does this show? \_\_\_\_\_

3) When was the "Golden Age" of astronomy? \_\_\_\_\_

4) Define *geocentric*: \_\_\_\_\_  
\_\_\_\_\_

5) What does a "geocentric view of the universe" profess? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6) Stars and planets appear to move across the sky. In reality what occurs?

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7) Who was the Greek philosopher that concluded Earth was a sphere?

When did he live? \_\_\_\_\_

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8) 40,075 kilometers or 24,902 miles represents \_\_\_\_\_

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9) Who was the first Greek to profess a *heliocentric* view of the universe?

What does this mean? \_\_\_\_\_

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10) What was Hipparchus known for? \_\_\_\_\_

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11) Ptolemy was known for \_\_\_\_\_

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**The Birth of Modern Astronomy (Pages 605-611)**

1) The text mentions that "...astronomy's development was more than a scientific endeavor..." What does this particular phrase refer to given the times?

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Please briefly describe each of the following scientists AND give the years of their lives.

Nicolaus Copernicus ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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Giordano Bruno ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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Tycho Brahe ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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Johannes Kepler ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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What is an AU? How far is 1 AU? \_\_\_\_\_

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### **AU Application**

Venus's period of revolution is .62 years (that is Earth Years). This means it takes Venus approximately 224 Earth days to make one complete orbit. Why is Venus's orbit shorter than Earth's?

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Look at the chart (table 21.1) on the bottom of page 608. How far is the

planet Neptune in Earth years from the Sun? \_\_\_\_\_

Using that information, calculate it's AU. You may use a calculator as you will be able to use one on the exam; however, you must **SHOW YOUR WORK BELOW!!!!**

Neptune's AU = \_\_\_\_\_

Please briefly list Kepler's laws of planetary motion:

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Galileo Galilei ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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Make sure you are familiar with 5 of his discoveries mentioned in the text (pages 608-609).

Sir Isaac Newton ( \_\_\_\_\_ to \_\_\_\_\_ ) - \_\_\_\_\_

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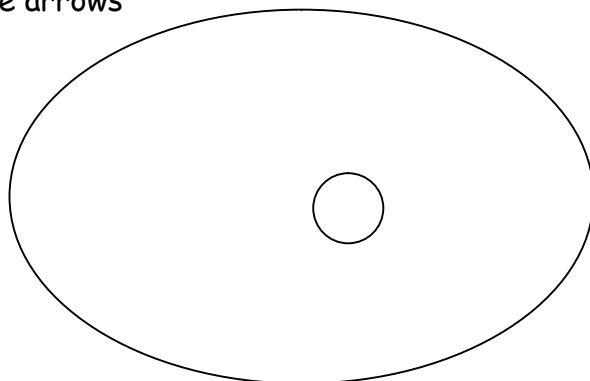
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\*Note: Galileo came up with the concept of *inertia*; however, it was Newton who proved that the force of *gravity* combined with *inertia* causes an elliptical orbit.

Please label the arrows that indicate *inertia* and *gravity*.



**Positions in the Sky (Pages 611-614 and Class Notes)**

1) \_\_\_\_\_ are patterns (shapes of mythological characters) depicted by stars.

2) How many constellations are there? \_\_\_\_\_

3) \_\_\_\_\_ magnitude is how far a star (or any object for that matter) appears to be while \_\_\_\_\_ magnitude is the actual distance.

**The Motions of Earth and Seasons (Pages 615-616 and Class Notes)**

1) The Earth \_\_\_\_\_ on its axis while it \_\_\_\_\_ around the Sun.

2) How long is one revolution? One Rotation? \_\_\_\_\_

\_\_\_\_\_

3) What is a solar day? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4) What is a sidereal day? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5) What accounts for the approximate 4 minute difference between a solar day and a sidereal day? \_\_\_\_\_

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6) What is Earth's average distance from the sun in miles and kilometers?

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7) \_\_\_\_\_ occurs on January 3<sup>rd</sup> each year and indicates when the Earth is closest to the sun.

8) \_\_\_\_\_ occurs on July 4<sup>th</sup> each year and indicates when Earth is actually farthest away from the sun.

9) Axial precession refers to \_\_\_\_\_

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10) How long does it take Earth to make one complete orbit around the Milky Way Galaxy? \_\_\_\_\_

11) Our closest galaxy is referred to as \_\_\_\_\_ or \_\_\_\_\_.

12) How far is M31 (Andromeda) from Earth? \_\_\_\_\_

**Motions of the Earth-Moon System (Pages 617-620)**

1) How long does it take moon to orbit Earth? \_\_\_\_\_

2) Moon orbits Earth in a \_\_\_\_\_ motion. Its distance is approximately \_\_\_\_\_ kilometers or \_\_\_\_\_ miles from Earth.

3) Why do observers from Earth always see the same side of the lunar surface? \_\_\_\_\_

4) Why does the Moon experience such drastic temperature changes?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5) Below are phases of the Moon. Please indicate the various phases as the Moon orbits Earth.

6) What is a solar eclipse? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7) What is a lunar eclipse? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8) Why are solar eclipses so rare? \_\_\_\_\_

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