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Conceptual Physics: \_\_\_\_\_  
Date: \_\_\_\_\_

Unit XII  
The Universe  
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# XII

## Zodiac Activity

**Directions:** First complete the prelab by circling the correct response. When everyone has finished the prelab correctly then we will start the activity.

**Prelab:** (Circle the correct response.)

1. This is the path the sun and planets appear to take in the sky. [ecliptic, ellipse]
2. This is the plane the sun, Earth and planets lie upon. [ecliptic, ellipse]
3. This is the name of the constellations that lie along the ecliptic. [Zodiac, Zenith]
4. This is the apparent path the sun and planets appear to take across the sky. [Zodiac, Zenith]
5. The constellations of the zodiac have one thing in common: [they all lie along the equator, they all lie along the ecliptic.]
6. The night sky at midnight is always opposite from the [sun, moon].

**Activity:** Start by choosing one of the six months. Bring a globe near the position and point the north pole of the globe toward the front of the room. Spin the globe counter clockwise (CCW).

**June:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. Look up at the ecliptic during the night sky. What constellation do you see? \_\_\_\_\_
- b. Which constellation is on the other side of the sun? \_\_\_\_\_
- c. Many of the constellations cannot be seen at this time of year due to the sun. The only time they could be seen would be during a [solar eclipse, lunar eclipse].

**February:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. Find the ring of twilight around the Earth. The side of the Earth that is in darkness and is just about to rotate into the sunlight is having dawn. Look at the rising sun. What constellation do you see? (Just to the right of the sun.) \_\_\_\_\_
- b. What constellation would be visible at midnight? (opposite the sun) \_\_\_\_\_

**September:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. What constellation lies on the other side of the sun? (September's sign) \_\_\_\_\_
- b. If there were a total solar eclipse then the stars behind the sun would be visible during the daytime. What constellation would be visible along the ecliptic near the sun? \_\_\_\_\_

**March:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. What constellation is visible along the ecliptic at midnight? \_\_\_\_\_
- b. Sundown, or dusk, is caused by the rotation of part of the Earth away from the sun. What constellation is visible along the ecliptic in the western sky just after dusk?  
\_\_\_\_\_

**July:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. Be sure the North Pole of the Earth is pointed toward the North Star. The southern hemisphere lies below the equator. Can anyone in the southern hemisphere see the North Star? \_\_\_\_\_
- b. If a solar eclipse happened you could see the stars during the daytime. What constellation lies opposite the sun? \_\_\_\_\_

**December:** The North Pole is pointed toward the North Star. Spin the globe CCW once to simulate the passage of one day.

- a. Which constellation is visible at midnight? \_\_\_\_\_
- b. The North Pole has the North Star at zenith. All the constellations of the zodiac appear close to the horizon. What constellation of the Zodiac is closest to the North Star?  
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