

The apparent motion of nearby objects relative to distant objects, which you just described, is called **parallax**.

- 6) Consider two stars (C and D) that both exhibit parallax. If Star C appears to move back and forth by a greater amount than Star D, which star do you think is actually closer to you? If you're not sure, just take a guess. We'll return to this question later in this activity.

### Part II: What's a Parsec?

Consider the diagram to the right.

- 7) Starting from Earth in January, draw a line through Star A to the top of the page.
- 8) There is now a narrow triangle, created by the line you drew, the dotted line provided in the diagram, and the line connecting Earth and the Sun. The small angle, just below Star A, formed by the two longest sides of this triangle is called the **parallax angle** for Star A. Label this angle " $p_A$ ."

Knowing a star's parallax angle allows us to calculate the distance to the star. Since even the nearest stars are still very far away, parallax angles are extremely small. These parallax angles are measured in "arcseconds" where an arcsecond is  $1/3600$  of 1 degree.

To describe the distances to stars, astronomers use a unit of length called the **parsec**. One parsec is defined as the distance to a star that has a **parallax** angle of exactly 1 arcsecond. The distance from the Sun to a star 1 parsec away is 206,265 times the Earth–Sun distance or 206,265 AU. (Note that the diagram to the right is not drawn to scale.)

