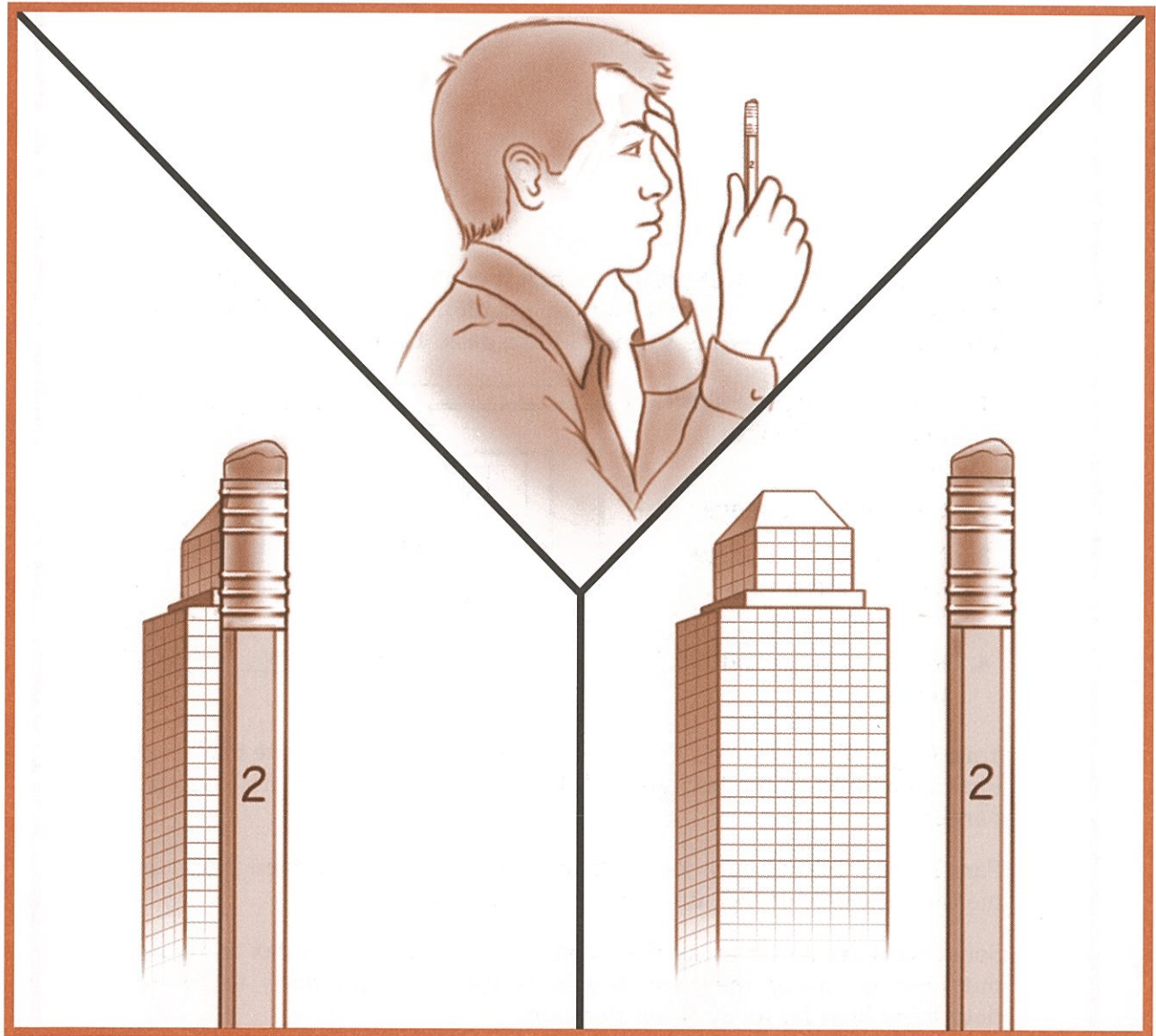


What is parallax?



KEY TERM

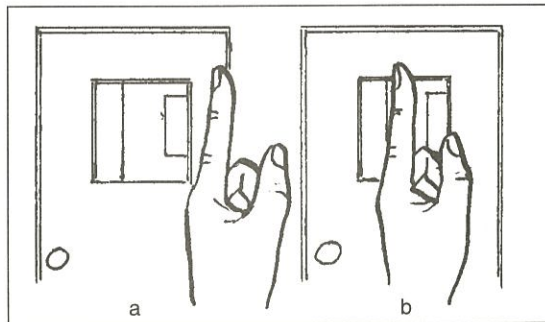
parallax: shift of position an object seems to have when viewed from two different points

LESSON 5 | What is parallax?

5

Any object seems to shift position when it is viewed from two different points. We call this apparent shift in position **parallax** [PAR-uh-laks]. You can see parallax while sitting at your desk. Do this:

1. Hold one finger a short distance in front of your face.
2. Close your right eye.
3. Now open your right eye and close your left eye.
4. Repeat this several times.



Your finger did not move. But it seemed to. It seemed to move back and forth compared to the background. It is this apparent shift that we call parallax.

Parallax lets us measure the distances to many stars. It even helps us measure the size of the sun, moon, and planets.

Some stars are so far away that scientists cannot use parallax to figure out how far away they are. Scientists use other methods to try to determine how far away these stars are.

USING PARALLAX

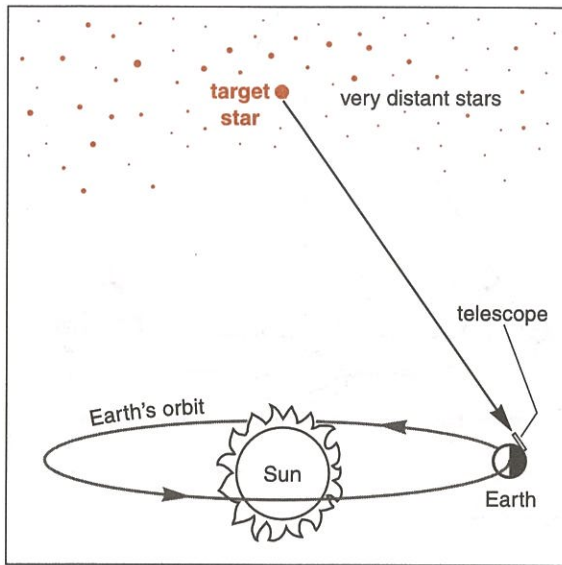


Figure A

Step 1 A nearby "target" star is chosen. Distant stars are in the background. They are photographed together.

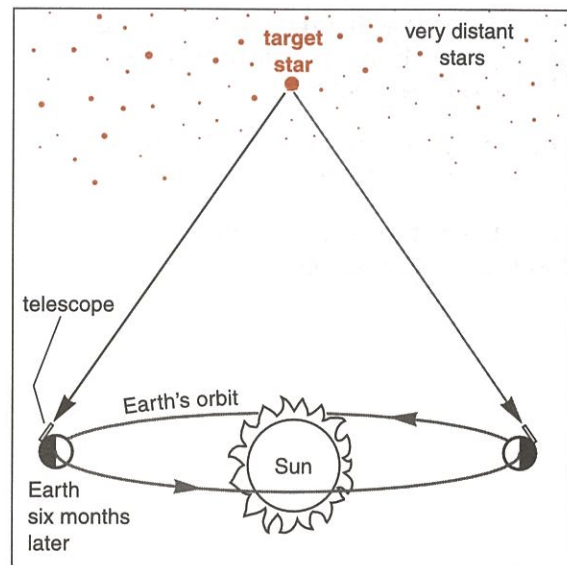


Figure B

Step 2 A second photograph is made six months later. The Earth is then exactly at the opposite end of its path around the sun.

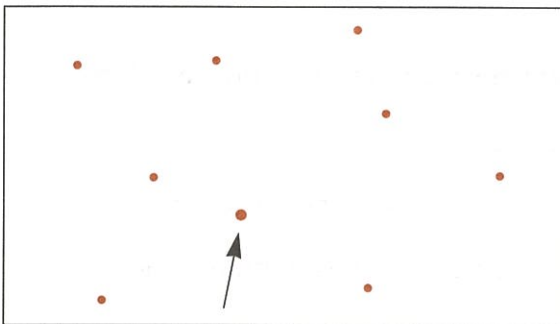


Figure C *The first photo*

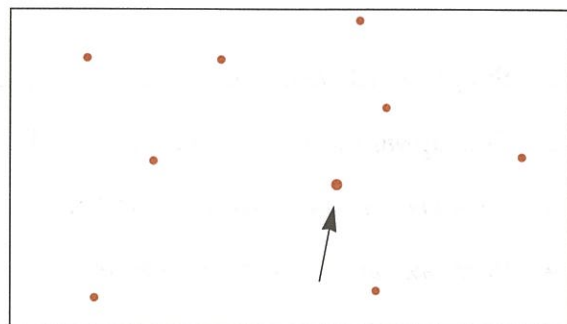


Figure D *The photo taken six months later*

Compare the photos. Notice that the target star is not in the same spot. It seems to have shifted compared to the reference stars. Astronomers measure the angle the target star seems to have shifted. This angle is called the parallax angle.

The final step is simple math. A triangle is set up as in Figure E.

The base is the distance between the Earth's position six months apart. This distance is known.

The angle of greatest shift lets us find angles a and b.

With these figures, we can find the distance to the target star.

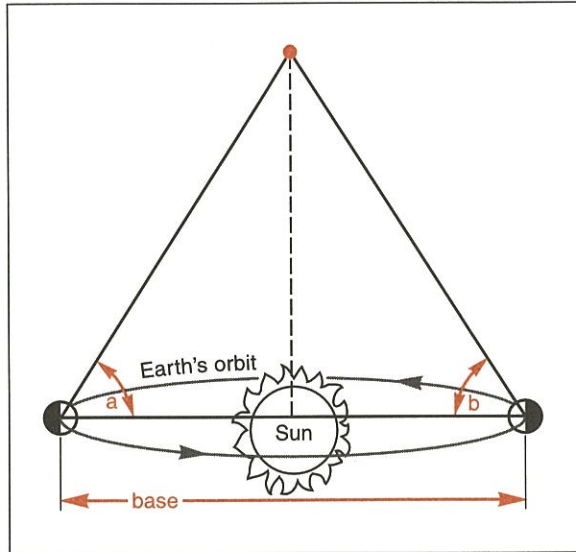


Figure E

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some words may be used more than once.

distances halfway shift position kilometers
two parallax light-years six months

1. Every object seems to _____ when seen from two different places.
2. This apparent shift in position is called _____.
3. Parallax allows us to measure the _____ to some objects in space.
4. Parallax can be used to measure _____ to the sun, moon, and planets.
5. To measure the distance to a star, at least _____ observations are needed.
6. The second observation is made exactly _____ after the first.
7. In six months the Earth has traveled _____ through its path around the sun.
8. The distances between stars is measured in _____, not in _____.