

Chapter 24 Studying the Sun

Section 24.2 Tools for Studying Space

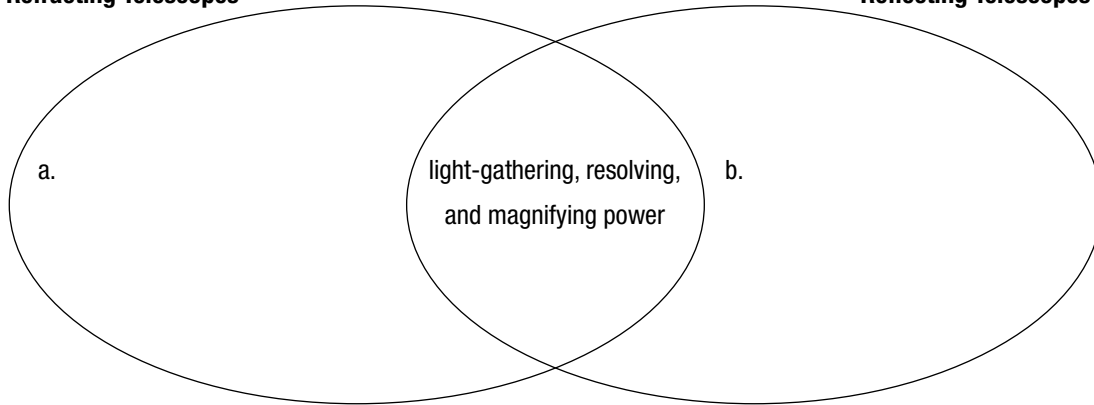
This section describes refracting, reflecting, radio, and space telescopes and how they work.

Reading Strategy

As you read, complete the Venn diagram below to show the differences between refracting and reflecting telescopes. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Refracting Telescopes

Reflecting Telescopes

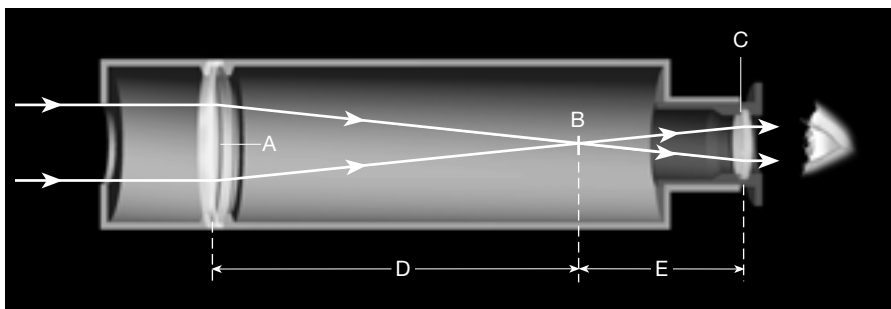


Refracting Telescopes

1. What is the function of the objective lens of a refracting telescope? _____

2. Select the appropriate letter in the figure that identifies each of the following features.

- _____ objective lens
- _____ focus
- _____ focal length of the objective
- _____ eyepiece
- _____ focal length of the eyepiece



3. Refracting telescopes got their name because they refract, or _____, light.

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- 4. Is the following sentence true or false? Astronomers usually study an object by looking directly through a telescope. _____
- 5. Is the following sentence true or false? Refracting telescopes suffer from an optical defect called chromatic aberration. _____

Reflecting Telescopes

- 6. The main difference between a reflecting telescope and a refracting telescope is that a reflecting telescope uses a(n) _____ to focus the incoming light.
- 7. Is the following sentence true or false? Most large optical telescopes are reflectors. _____
- 8. List three properties of optical telescopes that aid astronomers in their work. _____

Detecting Invisible Radiation

- 9. Circle the letter of the type of invisible radiation from space that can be detected from Earth's surface.
 - a. gamma rays
 - b. X-rays
 - c. infrared radiation
 - d. radio waves
- 10. Is the following sentence true or false? A radio telescope works in a similar way to a radio antenna. _____
- 11. Why is it not necessary for radio telescope surfaces to be as smooth as a mirror? _____

- 12. List five advantages of radio telescopes over optical telescopes.

Space Telescopes

- 13. Why do space telescopes produce clearer images than telescopes on Earth?

- 14. Circle the letter of the first space telescope.
 - a. Hubble Space Telescope
 - b. Chandra X-ray Observatory
 - c. Compton Gamma-Ray Observatory
 - d. James Webb Space Telescope
- 15. Is the following sentence true or false? Different space telescopes collect the same information about an object in space.
