Name Date

Section 5.2 Summary

Using Mirrors to Form Images

Textbook pages 182–189

Before You Read

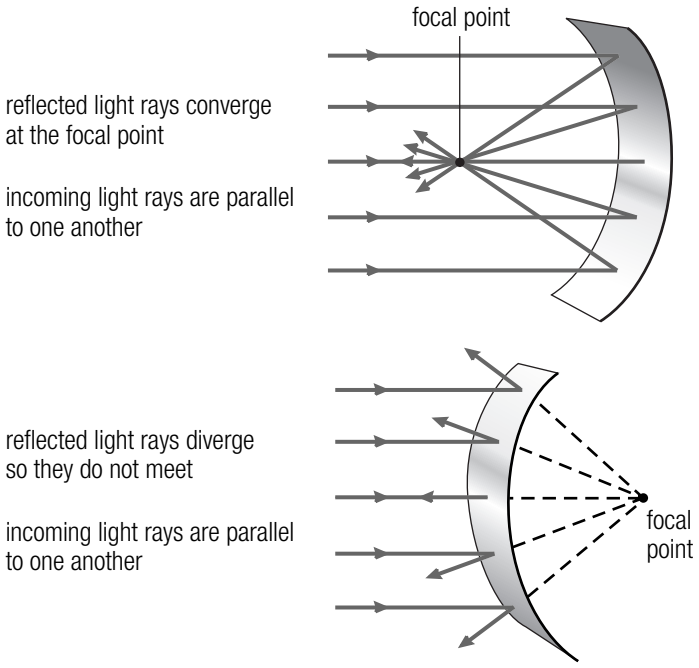
You stand in front of a mirror. In what ways is your reflection the same as you? In what ways is your reflection different from you? Write your ideas on the lines below.

_____

_____

Mark the Text

Identify Concepts
Highlight each question heading in this section. Then use a different colour to highlight the answers to the questions.



What are three common types of mirrors?

There are three common types of mirrors:

1. A plane mirror is a mirror with a flat surface. You might find a plane mirror on a bathroom wall or cabinet.
2. A **concave** mirror is a mirror that curves inward, like the inside of a spoon. A flashlight has a concave mirror behind the bulb. Shaving mirrors and make-up mirrors are concave, too.
3. A **convex** mirror is a mirror that curves outward, like the outside of a spoon. Some bicycle mirrors are convex. The large, curved mirrors that are used for security in many stores are convex, too. ✔

Reading Check

1. How is a concave mirror different from a convex mirror?

_____

_____

_____

What happens when light rays strike curved mirrors?

You learned what happens to light rays when they reflect from a plane mirror in section 5.1. Light rays behave in a different way when they reflect from curved mirrors.

The light rays that reflect from a concave mirror meet (converge) at a single point. This point is called a **focal point** because the light rays focus together there. Light rays that meet at a focal point are called **converging** light rays.

The light rays that reflect from a convex mirror spread out (diverge). Light rays that spread out after they reflect from a convex mirror are called **diverging** light rays.

Reading Check

2. What is the difference between light rays that are converging and light rays that are diverging?

_____

_____

_____

How do the images formed in mirrors compare?

All mirrors form images of objects because mirrors reflect the light that strikes them in a regular pattern. How the image looks depends on whether the mirror is flat or curved.

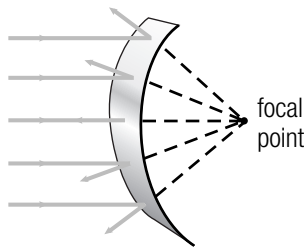
Appearance of image	Plane mirror	Concave mirror (if object is near the mirror)	Concave mirror (if object is far from the mirror)	Convex mirror
Object 	Object as seen in plane mirror 	Object as seen in concave mirror (near mirror) 	Object as seen in concave mirror (farther from mirror) 	Object as seen in convex mirror 
Location	behind the mirror	behind the mirror	in front of the mirror	behind the mirror
Size	same size as object	larger than object	smaller than object	smaller than object
Shape	same shape	different shape	different shape	different shape
Left-right orientation	reversed	reversed	reversed	reversed
Up-and-down orientation	upright	upright	upside down	upright

Use with textbook pages 182–186.

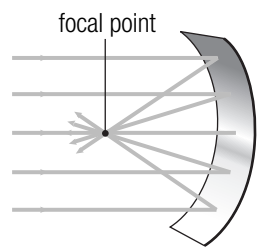
Mirrors

Examine these diagrams. Then fill in the chart.

plane mirror



convex mirror



concave mirror

On the first line, identify whether the mirror is plane, convex, or concave.
On the second and third lines, briefly explain how the mirror is used to see images.

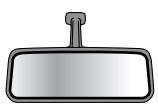
1. full-length bedroom mirror

_____
_____
_____

2. make-up mirror

_____
_____
_____

3. car rear-view mirror



_____
_____
_____

4. dental mirror

_____
_____
_____

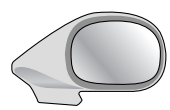
5. store security mirror

_____
_____
_____

6. jeweller's mirror

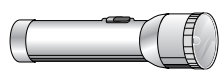
_____
_____
_____

7. car side-view mirror



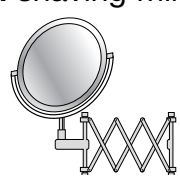
_____
_____
_____

8. mirror in flashlight



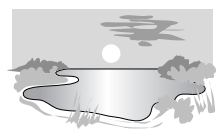
_____
_____
_____

9. shaving mirror



_____
_____
_____

10. surface of a lake



_____
_____
_____

Use with textbook pages 182–186.

Flat mirrors and curved mirrors

Complete the following table describing the three different types of mirrors.

	Plane Mirror	Concave Mirror (object near to mirror)	Concave Mirror (object far from mirror)	Convex Mirror
Is the reflecting surface of the mirror flat, curved inward, or curved outward?				
Is the image smaller, larger, or the same size as the object?				
Is the image upright or upside down?				
Is the image the same shape as the object?				
Does the image seem to be behind the mirror or in front of the mirror?				
Draw and label one example of how this type of mirror might be used.				

Name Date

Cloze Activity

Section 5.2

Use with textbook pages 182–186.

Mirror, mirror, on the wall

Vocabulary	
behind	images
concave mirror	in front
converging	plane mirror
convex mirror	reflect
diverging	upright
focal point	upside down

Use the terms in the vocabulary box to fill in the blanks. Use each term only once. You will not need to use every term.

1. All mirrors _____ light.

2. There are three types of mirrors. All three types reflect light rays to form _____.

3. A _____ is a mirror that is flat and smooth. It produces an image that is the same as the object and appears to be the same distance from the mirror as the object.

4. A _____ is a mirror that curves inward. The image formed by this type of mirror depends on how far away the object is from the _____.

5. Light rays that come together at a focal point are described as _____.

6. If the object is far from the concave mirror, its image is small and _____.

7. If the object is close to a concave mirror, then the image appears to be larger than the object and is _____.

8. A _____ is a mirror that curves outwards. It reflects parallel light rays as if they came from a focal point _____ the mirror.

9. Light rays that spread apart after reflecting are described as _____.

Use with textbook pages 182–189.

Using mirrors to form images

Match each Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

Term	Descriptor
1. _____ diverging	**A.** spreading apart
2. _____ converging	**B.** coming together
3. _____ plane mirror	**C.** curves inwards
4. _____ convex mirror	**D.** curves outwards
5. _____ concave mirror	**E.** is smooth and flat
	F. point where light rays meet

Circle the letter of the best answer.

6. Which of the following is used to make an image that is the same size as the object?

A. plane mirror

B. convex mirror

C. concave mirror

D. both concave and convex mirrors

7. What do all three types of mirrors have in common?

A. they all produce upside down images

B. they all reflect light rays to form an image

C. they all reflect light rays so that the rays diverge and do not meet

D. they all reflect light rays so that the rays converge on a focal point

8. What type of image would you expect to see if you looked at yourself in the bowl of a spoon?

A. an upright, larger image of yourself

B. an upright, smaller image of yourself

C. an upside down, larger image of yourself

D. an upside down, smaller image of yourself

9. Which of the following mirrors can produce an upright image?

I.	plane mirror
II.	convex mirror
III.	concave mirror

A. I and II only

B. I and III only

C. II and III only

D. I, II, and III

10. Which of the following mirrors can be used to make you look taller?

A. plane mirror

B. convex mirror

C. concave mirror

D. both convex and concave mirrors

11. Which of the following statements is **incorrect** about a plane mirror?

A. It reverses left and right.

B. It produces an image in front of the mirror.

C. It produces an image that is the same size as the object.

D. It produces an image that appears to be the same distance from the mirror as the object.