

Use with textbook pages 288 to 289.

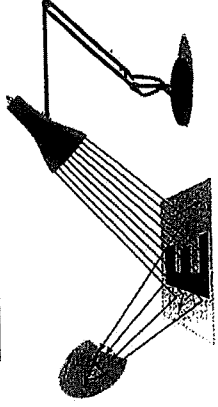
**Light rays**

Answer the questions below.

1. Refer to the light rays in the diagram to explain why you can see each item.

(a) the white paper \_\_\_\_\_

(b) the black print \_\_\_\_\_



2. What will happen when white light strikes each object? Circle all the choices that apply.

a) metal spokes on a bicycle wheel absorption reflection transmission	b) black asphalt on a basketball court absorption reflection transmission
c) swimming pool water absorption reflection transmission	d) fog absorption reflection transmission

3. Is each material opaque, transparent, or translucent?

- a) wood : \_\_\_\_\_
- b) cardboard : \_\_\_\_\_
- c) aluminum foil : \_\_\_\_\_
- d) wax paper : \_\_\_\_\_
- e) plastic wrap : \_\_\_\_\_
- f) clean air : \_\_\_\_\_
- g) clear glass : \_\_\_\_\_
- h) frosted window : \_\_\_\_\_

Use with textbook pages 286 to 293.

**Reflect, absorb, and transmit**

**Vocabulary**

absorb	reflect
absorption	translucent
opaque	transmission
ray	transmit
reflection	transparent

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

1. The process in which light bounces off an object is called \_\_\_\_\_.
2. The process in which light travels through an object is called \_\_\_\_\_.
3. The process in which light energy remains in the object that it hits is called \_\_\_\_\_.
4. A \_\_\_\_\_ is an arrow that shows the direction light is travelling.
5. Light will travel through a(n) \_\_\_\_\_ object as if there was no object in its path.
6. \_\_\_\_\_ objects do not allow light to go through them.
7. Light scatters in different directions after travelling through \_\_\_\_\_ objects.
8. Opaque objects will only \_\_\_\_\_ or \_\_\_\_\_ light.
9. \_\_\_\_\_ and \_\_\_\_\_ objects will transmit light.
10. Clear glass is an example of a(n) \_\_\_\_\_ object.
11. Wax is an example of a(n) \_\_\_\_\_ object.
12. A book is an example of a(n) \_\_\_\_\_ object.

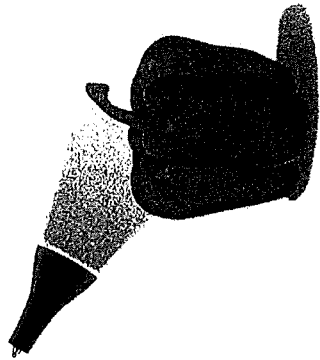
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**Illustrating Concepts**  
Topic 4.2

**The colour of objects**

1. a) Is the pepper opaque, transparent, or translucent?

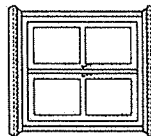
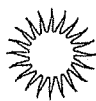
b) Draw rays to explain why the pepper appears green under white light.



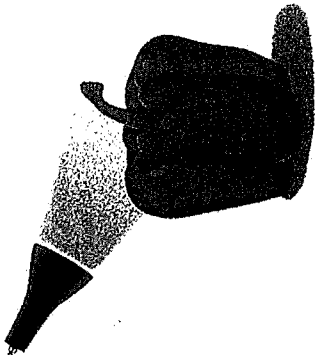
3. The window in this drawing is transparent and tinted yellow.

a) Draw light rays to show how sunlight behaves when it hits the window.

b) What colour will the tinted glass be?



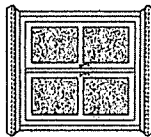
2. Suppose you shine a red light on this green pepper. What colour will the pepper be? Draw light rays to explain your answer.



4. The window in this drawing is translucent and tinted yellow.

a) Draw light rays to show how sunlight behaves when it hits the window.

b) What colour will the tinted glass be?



Use with textbook pages 286 to 293.

**How does light interact with objects to give them colour?**

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

TERM	DESCRIPTOR
1. ___ absorption	A. an arrow that shows which direction light travels.
2. ___ opaque	B. an object through which light travels without changing direction.
3. ___ ray	C. what happens when light bounces off an object.
4. ___ reflection	D. what happens when light energy hits an object and remains in it as heat.
5. ___ translucent	E. what happens when light travels through an object.
6. ___ transmission	F. an object thorough which light travels and changes direction.
7. ___ transparent	G. an object that does not transmit light.

8. a) Explain why you can see black print on a white paper.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b) Draw a ray diagram to show how the light travels.

9. Complete each statement with the words reflect(s), absorb(s), or transmit(s).

- a) An opaque object's colour is determined by the colours that it \_\_\_\_\_ and \_\_\_\_\_.
- b) When a transparent object has a certain colour, it \_\_\_\_\_ and \_\_\_\_\_ that colour and \_\_\_\_\_ all other colours.