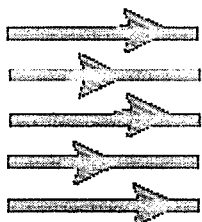
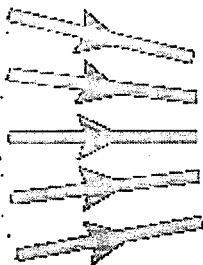


Science 8
Unit 3 Topic 1
Page 174 –187

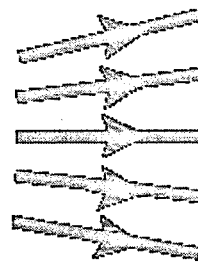
Do worksheets and then Review Topic 1 page 187q 1-7 on last page



Parallel



Converging



Diverging



TOPIC 1
REINFORCEMENT
What Is Light?
BLM 3-2
Goal • Review terms introduced in Topic 1.

What to Do

Use the terms at the beginning of each section to complete the sentences that follow.

Fluorescence

efficient	electrical	expensive	fluorescent
hot	incandescent	phosphor	poisonous
ultraviolet	vapour	visible	

- The long tubes in overhead lights and the tubes that spell the names of stores and restaurants are examples of _____ light sources. They do not work the same way as _____ bulbs, which have filaments that heat up and glow. 19
2
- In fluorescent bulbs, _____ energy is absorbed by the particles of mercury _____ inside the tube. These particles give off _____ light (a type of light you cannot see), which hits the white _____ powder on the inside of the bulb. The phosphor particles give off _____ light. 4
- A disadvantage of these bulbs is that they are _____, so their contents are _____. An advantage of these bulbs is that they are energy _____ because they do not get _____. 4

Phosphorescence

delay	energy	glows	light
-------	--------	-------	-------

- Phosphorescence is similar to fluorescence, except the particles that absorb the _____ do not release it immediately. There is a _____. An example is a toy ball that _____ after you hold it near a bright _____ for a while. 15

Chemiluminescence and Bioluminescence

artificial	chemical	light	living
------------	----------	-------	--------

- Electrical and solar energy are used to make incandescent or fluorescent light. Energy released in _____ reactions provides the energy for chemiluminescence and bioluminescence. Chemiluminescence refers to _____ light produced this way. Bioluminescence refers to the _____ produced by _____ organisms. 4

Goal • Calculate the cost of electricity.

Think About It

Have you ever been told to turn off the lights in your room when you leave? This is because energy costs money. We have to pay for the gasoline needed to drive a car, and for the electricity used by our lights and appliances.

The cost of electricity varies. In rural areas, electricity often costs more than it does in cities because the electric companies have to use longer wires to service fewer people. Businesses, industries, and homes are charged different rates. How much do you think it costs to use electricity? Complete this worksheet to find out.

What to Do

Answer the following questions in the space provided. Assume that electricity costs $8¢/\text{kW}\cdot\text{h}$. This means that if a 1000 W appliance is left on for 1 h, it uses $8¢$ worth of electricity.

$$\begin{aligned}\text{Cost} &= \text{number of kilowatts} \times \text{number of hours} \times 8¢ \\ &= \text{number of watts} \div 1000 \times \text{number of hours} \times 8¢\end{aligned}$$

1. What is the cost of electricity in each situation? Show your work.

(a) A 100 W light bulb is left on from 10:00 at night to 7:00 the next morning.

2

(b) A turkey takes 3 h to cook in a 1500 W oven.

2

(c) You watch a 500 W television set for 7 h.

2

Going Further

- Lee's family has a summer cottage that they usually close up for the winter. One year, they closed up the cottage on October 8. When they returned the next year, on May 22, they discovered that they had left a 1 kW heater on. Assuming that the heater ran about half the time, approximately how much did this little mistake add to their electricity bill?

Goal • Classify various materials as transparent, opaque, or translucent, and describe the behaviour of light when it strikes different materials.

What to Do

Answer the following questions in the space provided or on a separate page.

1. What does a sharp shadow tell us about the way light travels?

2. Describe how light is affected by

(a) a transparent object _____

(b) an opaque object _____

(c) a translucent object _____

3. Why is frosted glass often used for bathroom windows instead of clear glass or a solid wall?

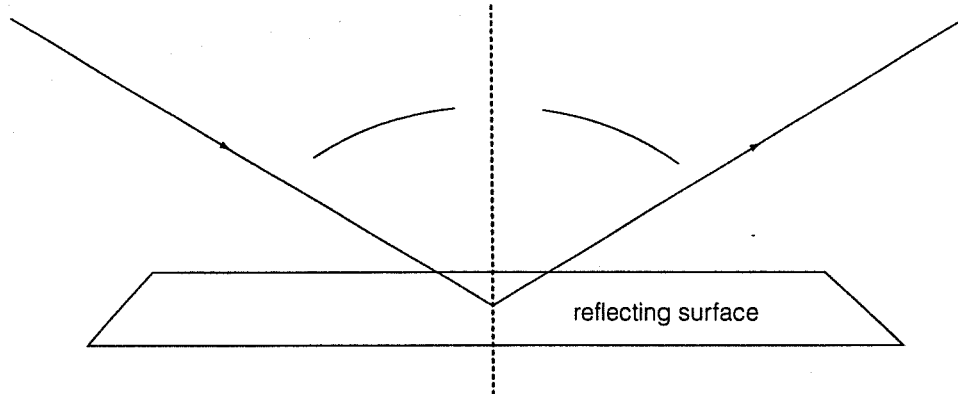
4. Complete the table below. In the second column, classify each material as transparent, opaque, or translucent. In the third column, state whether light is absorbed, reflected, transmitted, or scattered when it strikes the material. In the last two boxes of the first column, write your own examples.

Material	Classification	Behaviour of light
glass		
white clouds		
stained glass window		
aluminum foil		
fog		
cellophane		
cardboard		
wax paper		
black chalkboard		
mirror		
	transparent	
		scattered

Goal • Review your understanding of light rays.

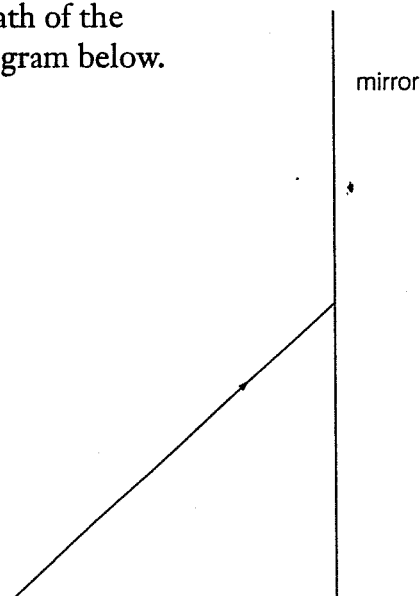
What to Do

1. (a) Label the diagram below using the following terms: reflected ray, angle of reflection, angle of incidence, incident ray, normal line.



- (b) Measure the angles of incidence with your protractor. _____
- (c) Measure the angle of reflection with your protractor. _____
- (d) Compare the sizes of the angles of incidence and reflection.

2. Use the law of reflection to draw the path of the reflected ray from the mirror in the diagram below.

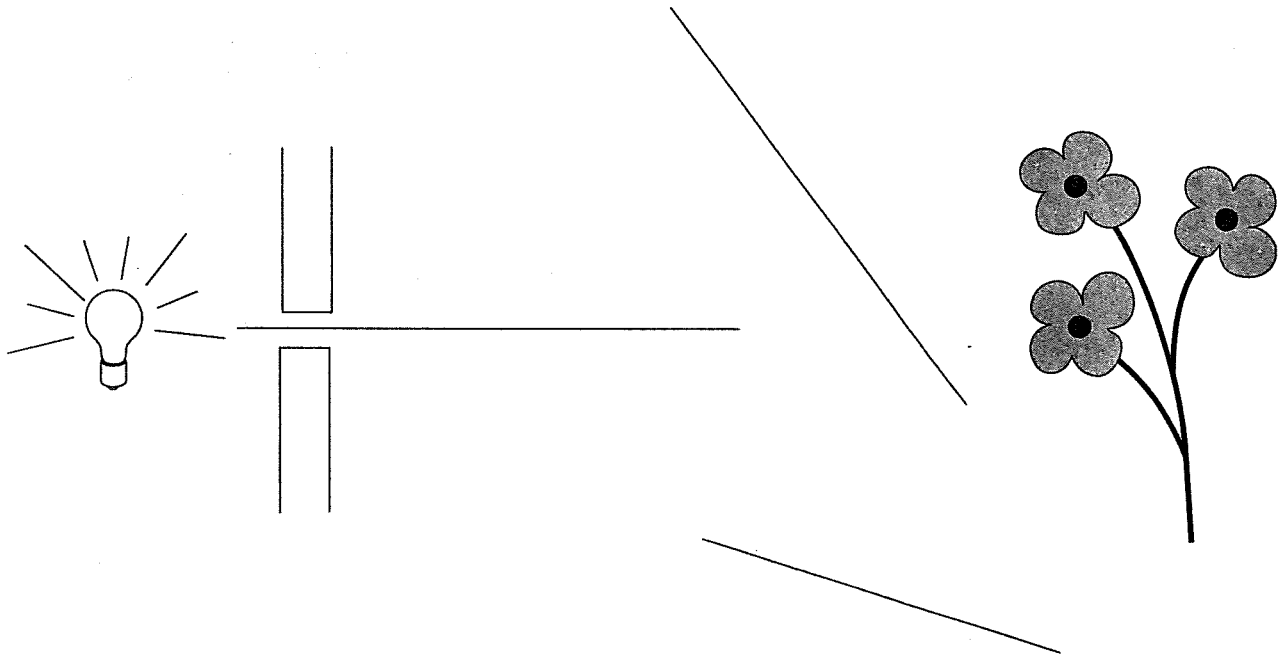


TOPIC 1
REINFORCEMENT

BLM 3-5

Ray Diagrams (continued)

3. The following diagram shows a light ray coming through an opening. It is directed at two mirrors and three flowers. Use the law of reflection, your ruler, and your protractor to draw the light ray as it bounces from one mirror to the next. Which of the three flowers will be hit by the light?



1.)

2a.)

2b.)

2c.)

3.)

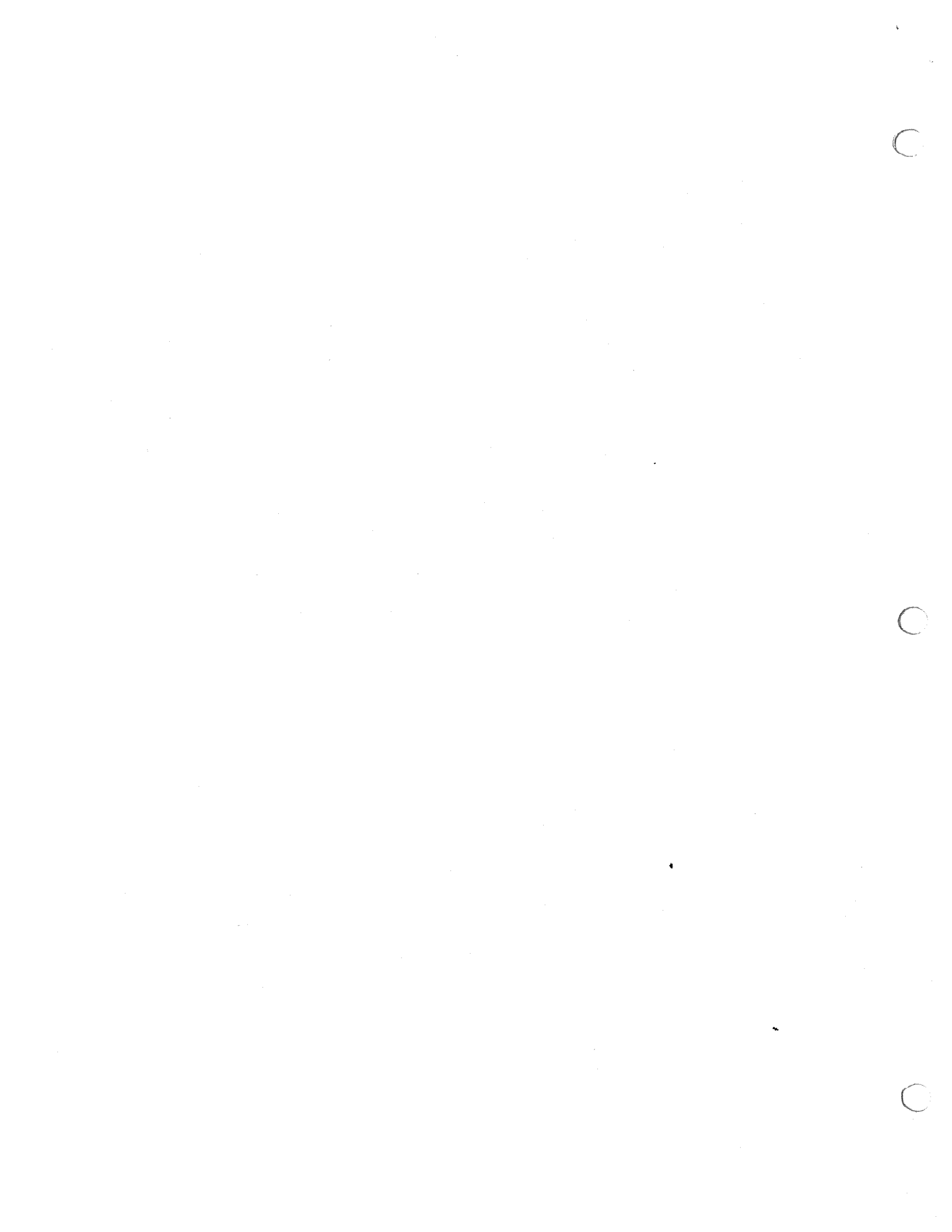
4.)

5.)

6.) a.) translucent:

b.) transparent:

c.) opaque:





7.)



