

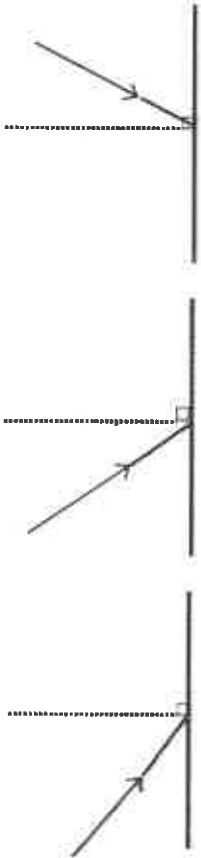
Station #1 Ray Model of Light: Measuring and Labeling

State the law of reflection:

Angle of incidence = angle of reflection

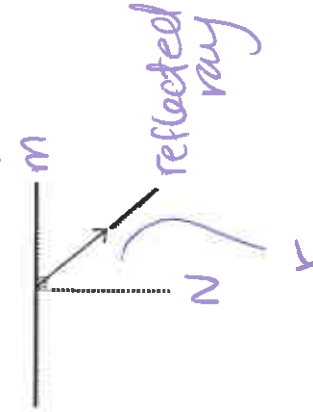
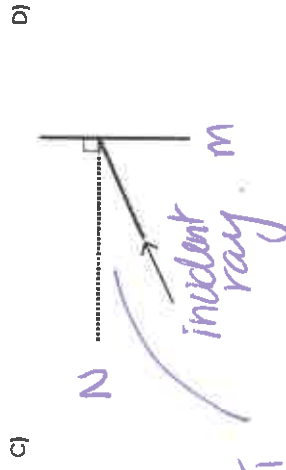
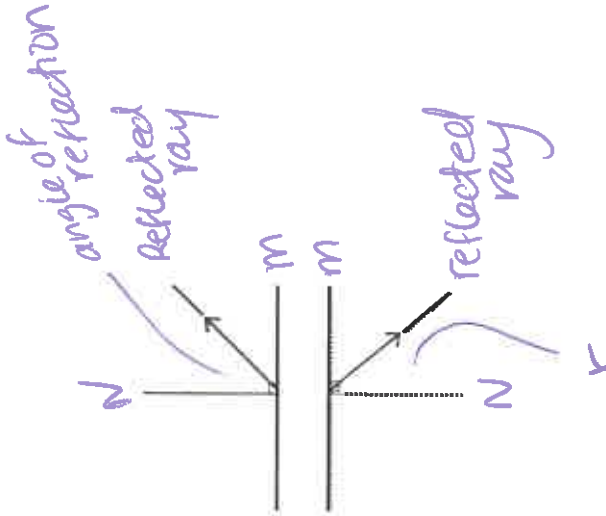
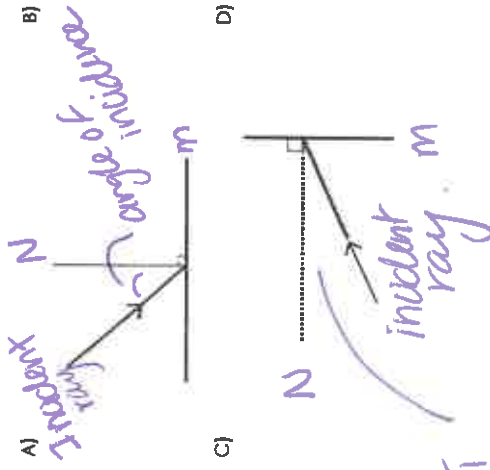
Measure the following angles:

A) Angle: 52° B) Angle: 34° C) Angle: 29°



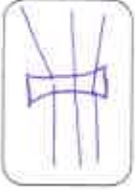
Label the following diagrams with:

- Normal N
- Mirror m
- Incident Ray or reflected ray
- Angle of incidence or angle of reflection



Station #2 Lenses

Concave lens
(objects close)



Draw three rays passing through the lens

diverge

upright

smaller

Concave lens
(objects far)

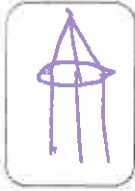


diverge

upright

smaller

Convex lens
(objects close)

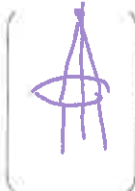


converge

upright

larger

Convex lens
(objects far)



converge

inverted

smaller

Is the image upside down or inverted?


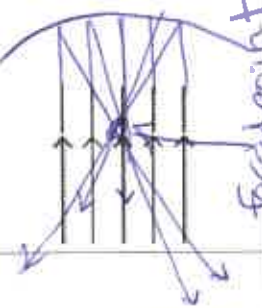
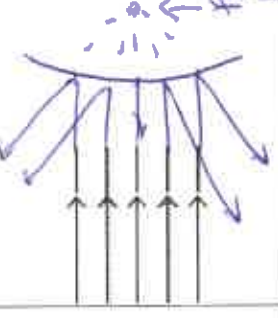
Is the image smaller or larger than the object?

Station #3 Mirrors

Complete the following table:

	Plane mirror	Concave mirror with near object	Concave mirror with far object	Convex mirror with near object	Convex mirror with far object
Shape of Mirror	Flat	curved inward	curved inward	curved outward	curved outward
Size	Same	larger	smaller	smaller	smaller
Shape compared to object	same	different	different	different	different
Up-down orientation	upright	upright	inverted	upright	upright
Use	washroom mirror	make up mirror		security mirror	

In the space below, sketch what happens when the light rays hit the following mirrors.

Plane mirror	Concave mirror	Convex mirror
		
<p>Converge</p> <p>Diverge</p> <p>Neither</p>	<p>Converge</p> <p>Diverge</p> <p>Neither</p>	<p>Converge</p> <p>Diverge</p> <p>Neither</p>

Station #4 Vocabulary

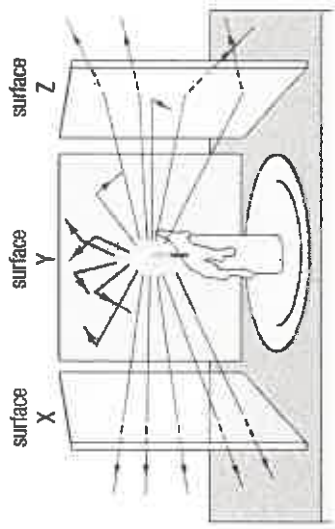
Match the term with the descriptor. Each descriptor can only be used once.

Term	Descriptor
B. lens	A. Equal to angle of reflection for a plane mirror
E. focal length	B. A piece of transparent material that bends light
F. convex lens	C. Light rays spreading apart
Q. concave lens	D. Material that scatters light
C. diverging	E. The distance between the lens and the focal point
O. converging	F. A lens that is thicker in the middle than at the edge
K. upright	G. How an image appears when looking at a faraway object through a convex lens
G. inverted	H. Material that curves inwards and reflects light
H. concave mirror	I. Point where the converging light rays meet
I. convex mirror	J. Material that is flat and smooth and reflects light
S. plane mirror	K. How an image appears when looking through a concave lens
S. opaque	L. Measured between the refracted ray and the normal
N. transparent	M. A material that reflects light
D. translucent	N. Material that allows all light rays to pass through
I. focal point	O. Light rays coming together
P. normal	P. An imaginary line that passes through the materials at a right angle
L. angle of refraction	Q. A lens that is thinner in the middle than at the edge
R. angle of reflection	R. Angle between reflected ray and the normal
A. angle of incidence	S. Material that absorbs or reflects light
U. ray model of light	T. Material that curves outwards and reflects light
M. mirror	U. A representation of how light travels when it hits different material

Station #5 Light and Matter

Determine whether the following objects are transparent, translucent or opaque:

- a) cloud: *translucent*
- b) flower: *opaque*
- c) puddle: *transparent*
- d) bathroom shower glass: *translucent*
- e) pillow: *opaque*
- f) paper: *translucent*



Describe how the light behaves for each of the surfaces in the diagram above:

Surface:	Descriptions:	Vocabulary
X	<i>transparent</i>	G, H
Y	<i>opaque</i>	A, B, C, E, J
Z	<i>translucent</i>	D, F, I

Station #6 Refraction

Draw a sketch of how light behaves as it passes from left to right through the following materials. Remember there is a NORMAL at every boundary!

