**Worksheet 2.2: Investigating Snell’s Law**

In this activity you will design an experiment to examine the change in direction that occurs when light travels from one medium (air) to another medium (glass), and vice versa.

***Preliminary Investigation:***

1. Suppose you shine laser light into the block of glass as in the diagrams below. Draw the direction you would expect light to be travelling when it leaves the glass block in each case.

Laser direction

Glass block

2. Does the direction of light leaving the block depend on the direction of light entering the block?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. How can you tell what path light takes inside the glass block? Draw this path on the previous diagrams.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Experimental Procedure:***

You will now design an experiment to investigate the relationship between the direction that light enters the block and the direction that light travels inside the block.

Write down a description of how you will carry out this investigation. You should consider the following points:

a) How will you measure or ‘quantify’ the directions in each case?

b) How will you standardise that measurement so that the results from everyone in the class can be compared and combined?

b) How many different directions for light entering the block will you need to examine?

c) How will you tabulate your results?

d) If you wish to investigate the relationship between the direction of light travelling to the glass and through the glass, what graph should you plot?

|  |
| --- |
|  |

Tabulate your results in the box below.

|  |
| --- |
|  |