

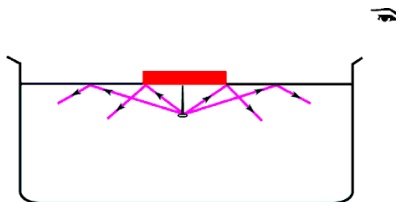
## PROJECT WORK- 4

### REFRACTION OF LIGHT BY PLANE SURFACES

Some items to be given as project work for class-09 students.

They can do any one of the following. The report should be in at least two A4 pages.

1. Collect the values of refractive index of the following media. Find the speed of light in a particular medium. Write your report in a tabular form.  
Water, coconut oil, flint glass, crown glass, diamond, benzene ,  
hydrogen gas, Petrol, Diesel, Glycerine, Vinegar
2. Collect information on working of optical fibres. Prepare a report about various uses of optical fibres in our daily life. [nagamurthy.weebly.com](http://nagamurthy.weebly.com)
3. Take a thin thermocol sheet. Cut it in circular discs of different radii like 2cm, 3cm, 4cm, 4.5cm, 5cm etc and mark centers with sketch pen. Now take needles of length nearly 6cm. Pin a needle to each disc at its centre vertically. Take water in a large opaque tray and place the disc with 2cm radius in such a way that the needle is inside the water as shown in figure.



Now try to view the free end (head) of the needle from surface of the water.

- Are you able to see the head of the needle?

Now do the same with other discs of different radii. Try to see the head of the needle, each time.

**Note:** the position of your eye and the position of the disc on water surface should not be changed while repeating the activity with other discs.

- At what maximum radius of disc, were you not able to see the free end of the needle?
- Why were you not able to view the head of the nail for certain radii of the discs?
- Does this activity help you to find the critical angle of the medium (water)?
- Draw a diagram to show the passage of light ray from the head of the nail in different situations.

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