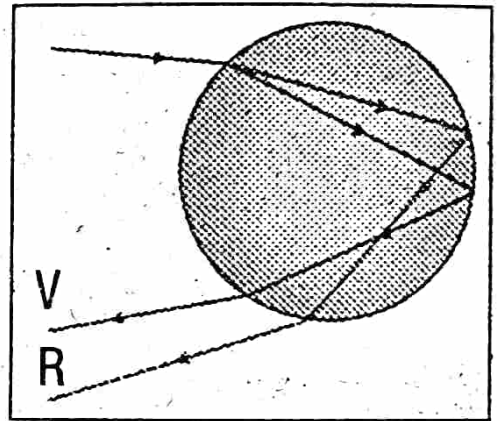


Rainbow

When sunlight passes through a water drop, it undergoes refraction twice and total internal reflection once.

As a result the different colours present in sunlight are dispersed. Violet is seen at the top, red at the bottom and other colours are formed in between them.



Dispersion of sunlight by the water droplets in the atmosphere causes rainbow.

On a sunny day spray water from mouth into the atmosphere in the direction opposite to the position of the sun in the sky. Sunlight when passes through tiny droplets of water undergoes dispersion and internal reflection. All the water droplets having same colour appear to be in the same arc of a circle. The red colour at the outer edge and violet at the inner edge. Always the position of sun is opposite to the rainbow seen.

❖ When is the rainbow formed?

In the sky rainbow is formed either in the morning or in the evening.

- ❖ **Where will be the sun when the rainbow is seen in the east?** In the west
- ❖ **Where will be the sun when the rainbow is seen in the west?** In the east
- ❖ **What colour is seen at the inner and outer edge of the rainbow?** Violet and red
- **The rainbow appears in the form of an arc. Why?**
Even though seven colours come out from a droplet of water, the observer is able to see only one colour. This depends on the angle that the colour of light makes with the line of vision. The angle that makes the red colour with the eye line is 42.7° . The angle for violet is 40.8° . All the other colours make angles in between the above two angles. So the red colour is at the outer edge and violet at the bottom edge. As the colours make definite angles with the line of vision, rainbow is seen as an arc.

Line of vision:- It is the imaginary line connecting the centre of the rainbow and the eye of the observer.