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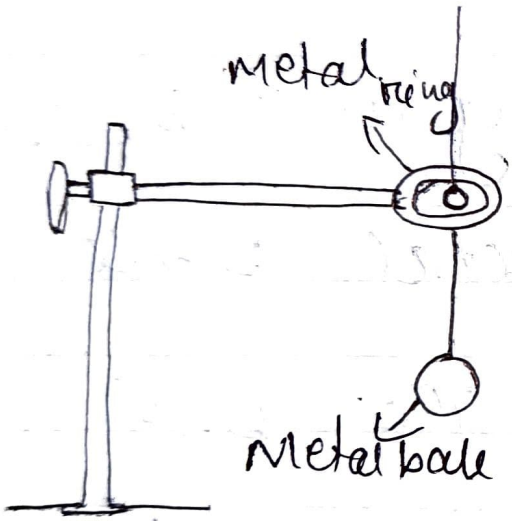
Activity 14

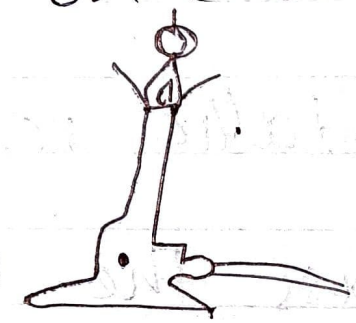
Ball and ring experiment to show that a solid expends on heating and contracts on cooling.

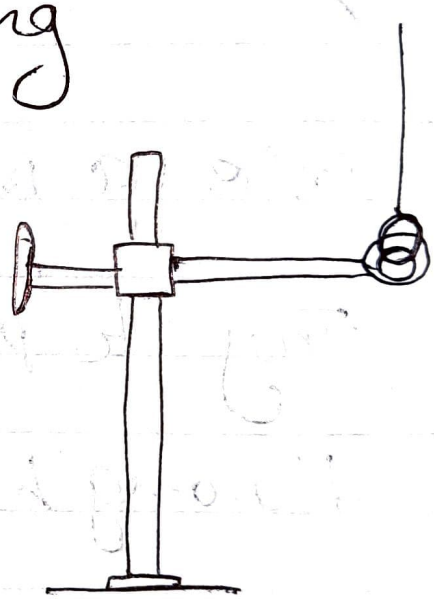
Take a metallic ring and ball. Try to pass the metal ball through the ring. The ball is able to pass through the ring. Now heat the metal ball for 5-6 mins. The hot ball is not able to pass through the ring.

This shows that a solid expands on heating. Now cool the ball, it again passes through the ring. This shows that a solid contracts on cooling



The metal ball passes through the ring.





The metal ball is unable to pass through the ring after being heated.

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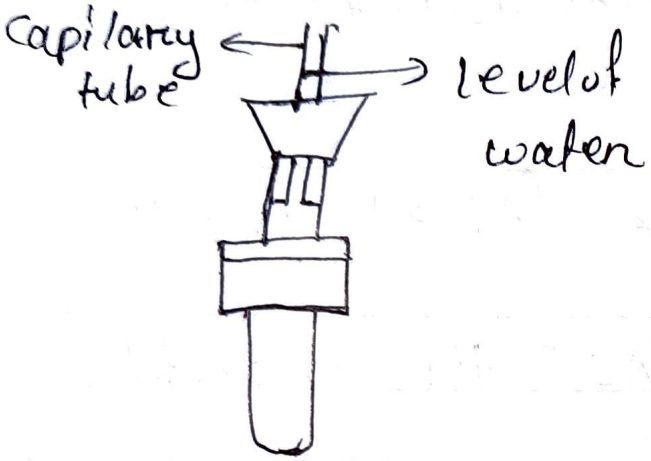
Activity 15

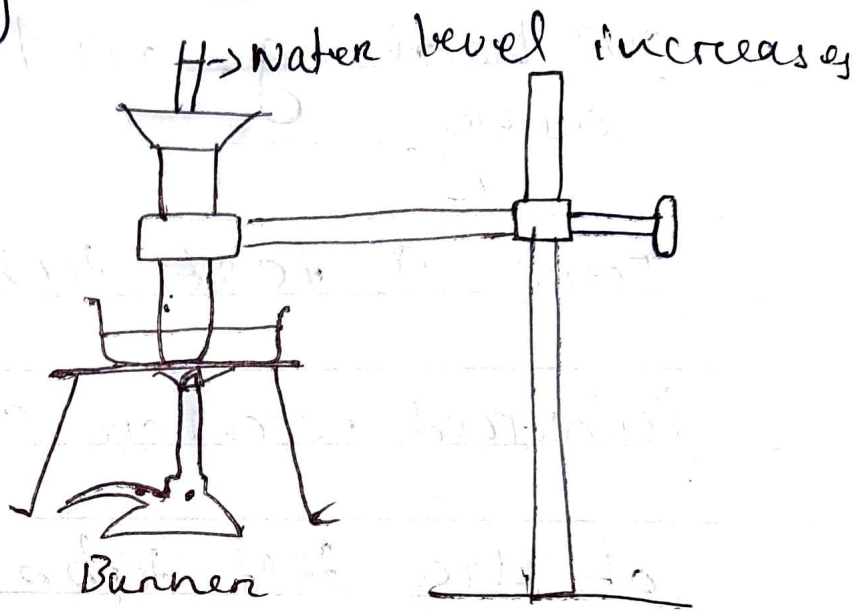
To show that a liquid expands on heating and contracts on cooling.

Take a test tube filled with coloured water close the mouth of the test tube with a cork. Fit a capilary glass tube through a hole in the cork such that it is dipped in water. some water enters the capilary tube. Now heat the test tube by putting in a warm bath. You will observe that

the level of coloured water increases in the capilary tube.



A test tube with coloured water.



This shows that liquids expands on heating.

On cooling the test tube, the water level in the capilary tube decreases, showing that liquids contracts on cooling.

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Activity 16

To show thermal expansion of a gas

Take some coloured water in a beaker. Take a capilary tube and dip its one end in the coloured water to take a drop of it in the capilary tube. Fit this capilary through a hole in the cork. Now fit the cork in a test tube carefully.

Now heat the test tube after some time you will observe that, drop of water expands on heating which pushes the water drop up. Now cool the test tube, the water drop again comes down. This shows that air contracts on cooling.