HW
15.7.24

Activity 14

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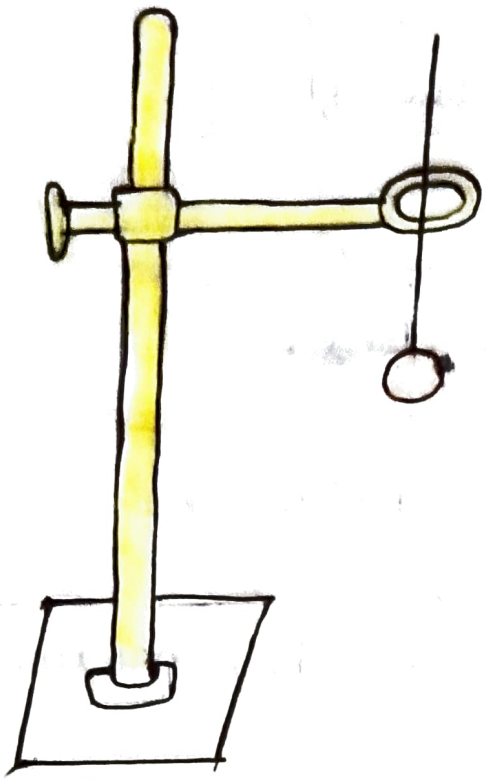
Ball and ring experiment to show that a solid expands on heating and contracts on cooling.

Take a metalic 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 minutes. 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.

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 capillary glass tube through a hole in the cork such that it is dipped in water. Some water enters in the capillary tube. Note the level of water in the capillary tube. Now heat the test tube by putting in a water bath. You will notice that the level of water increases in the capillary tube. So liquid expands on heating. On cooling the test tube, the water level in the capillary tube decreases. Showing that liquids contract on cooling.

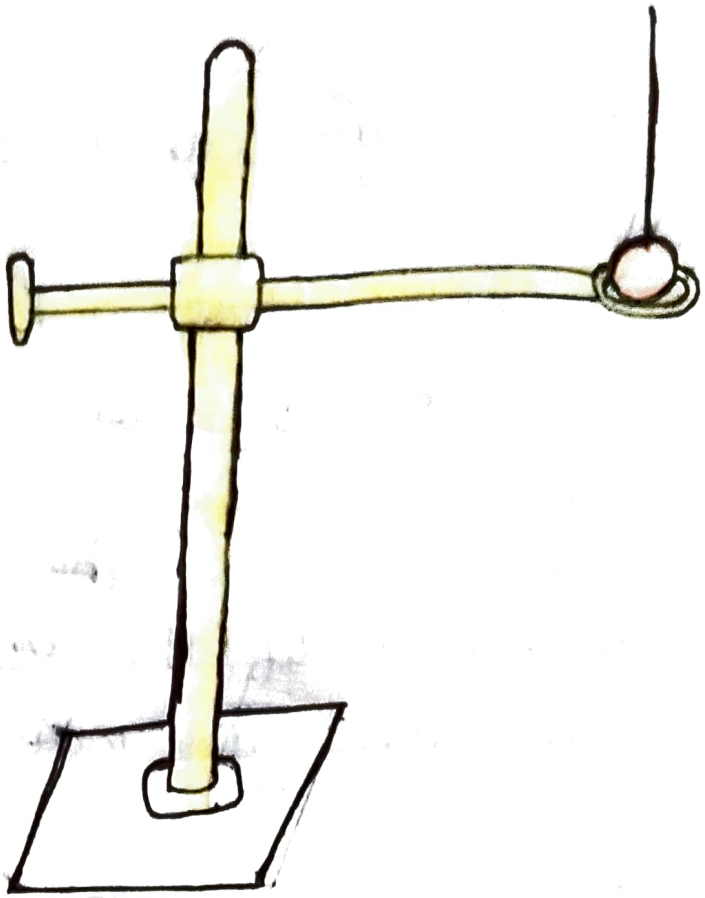


I

The metal ball passes through the ring

II

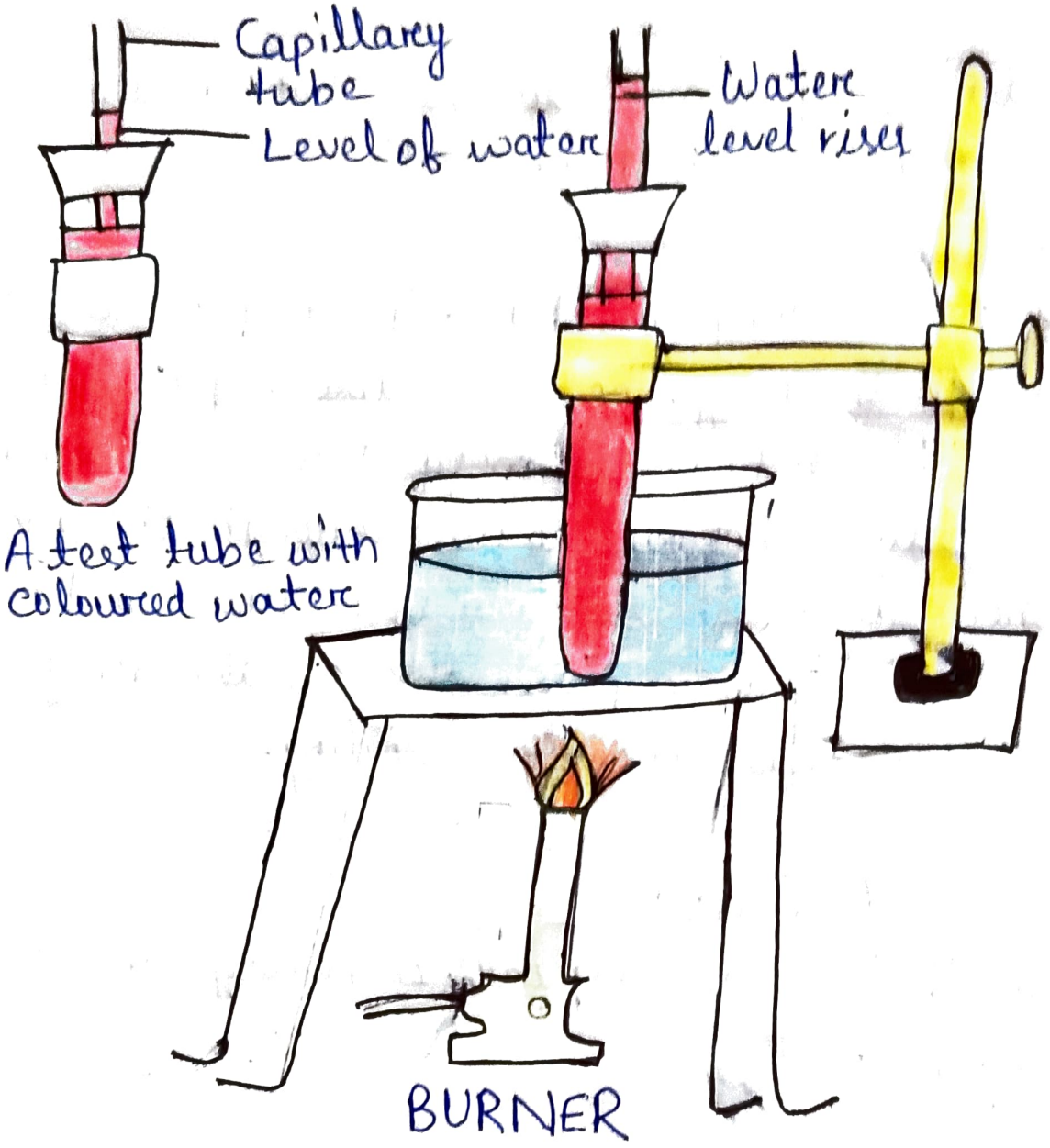
Metal ball is heated



III

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

Activity 14 (Ball-ring experiment)


Capillary tube
Level of water
Water level rises
A test tube with coloured water
BURNER

Activity 15

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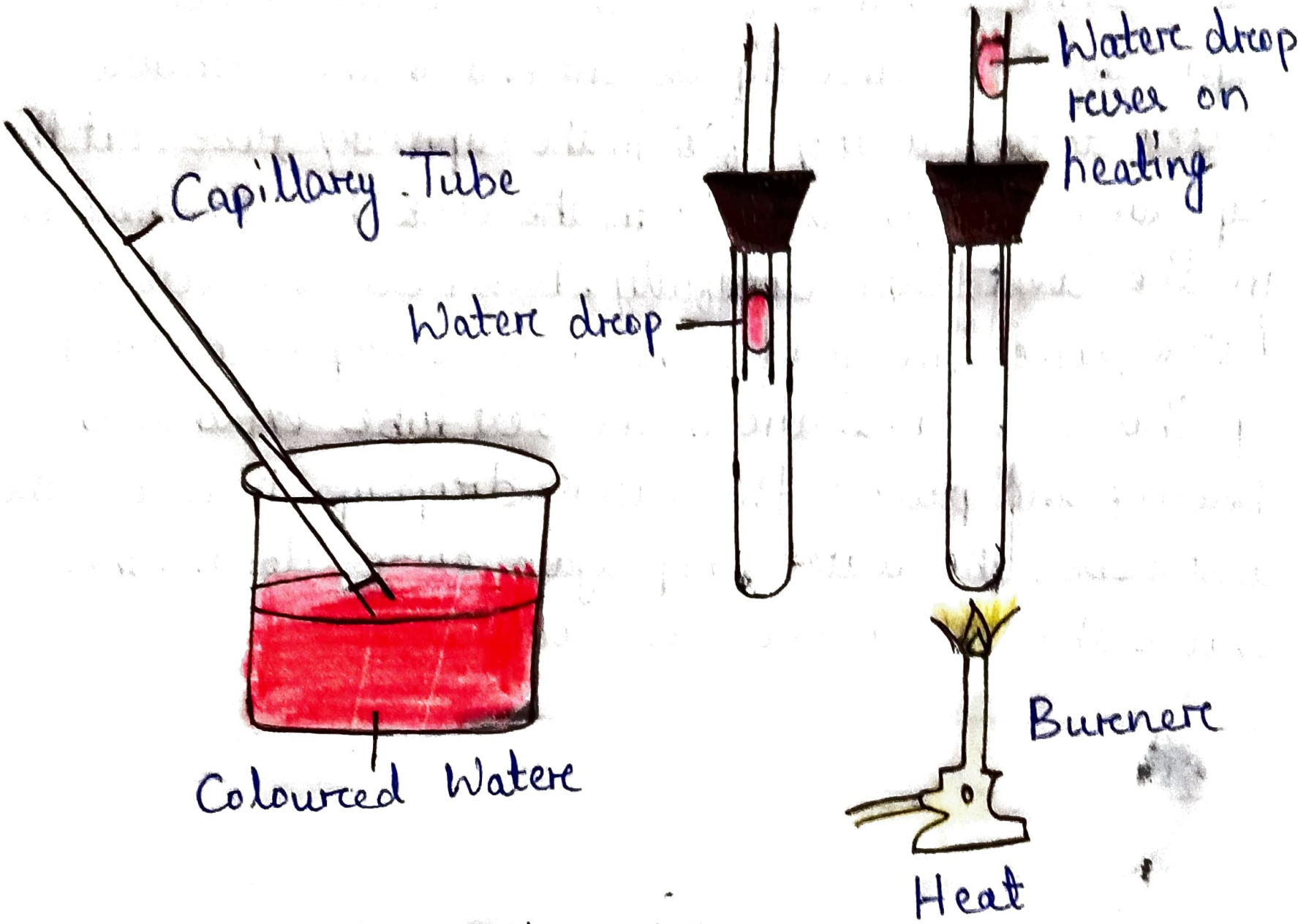
To show thermal expansion of a gas.

Take some coloured water in the beaker. Take a capillary tube and dip its one end in the coloured water to take a drop of it in the capillary tube. Fit this capillary through a hole in the cork. Now fit the cork in the test tube carefully. Now heat the test tube. After some time you will notice that, drop of water moves up. This is because air in the test tube expands on heating and pushes the water drop up. Now cool the test tube, the water drop again comes down. This shows that air contracts on cooling.


Capillary Tube
Water drop
Coloured Water
Water drop raises on heating
Burner
Heat

Activity 16