

Thermal Expansion of Liquids

Apparatus

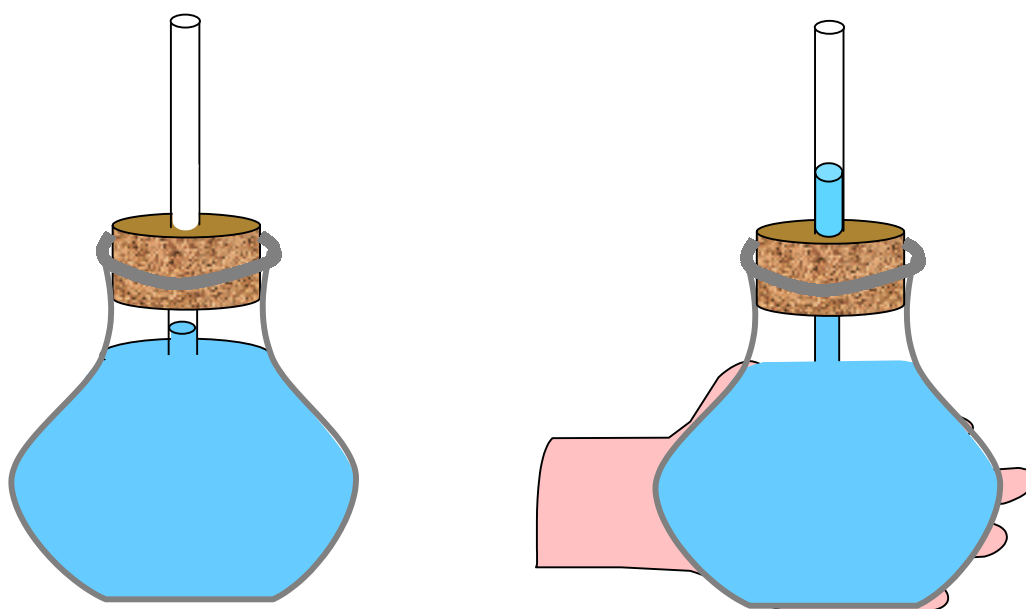
flask containing liquid with high coefficient of thermal expansion – such as ethanol with a bit of food colouring- with cork stopper fitted with a glass tube

Action

The students cup their hands around the flask and observe the rise of the liquid in the tube.

The Physics

The liquid expands as it is heated. The heat from the hands increases the kinetic energy of the molecules in the liquid, so they move faster on average and tend to move further apart as they collide and bump around. This results in an expansion of the liquid. The expansion is easy to see in the tube, but very difficult to see without one. Note that there is a small rise in the tube due to capillary motion before the flask is heated.



Accompanying sheet

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Hold the beaker in your hands.

What happens to the liquid in the tube?
Explain what you observe.