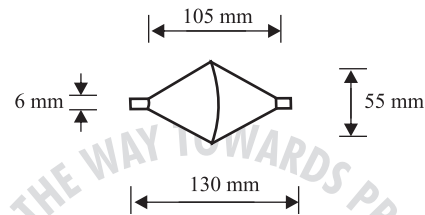


DOUBLE CONE

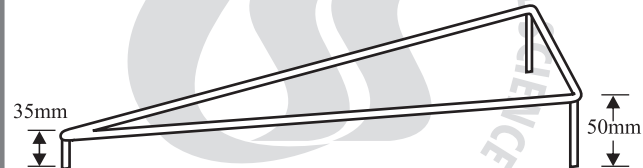
Cone runs up hill

Assembly :

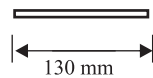
Consists of a double cone made of metal (red colour) of following dimension.



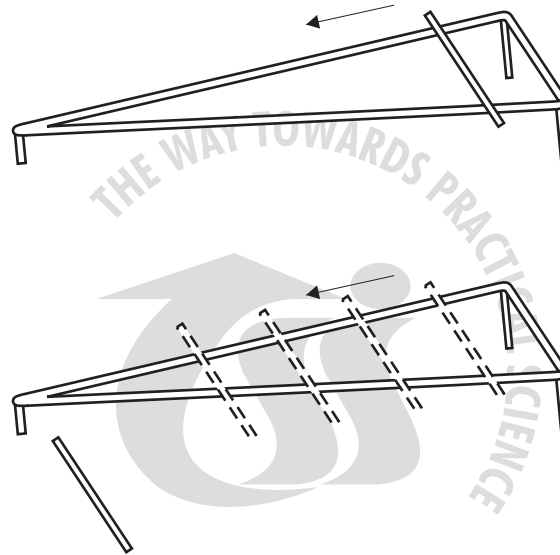
An inclined rail assembly made of MS rod (blue colour) of the following dimension.



A piece of red colored rod of 130 mm in length and 6 mm in dia. comes with the assembly



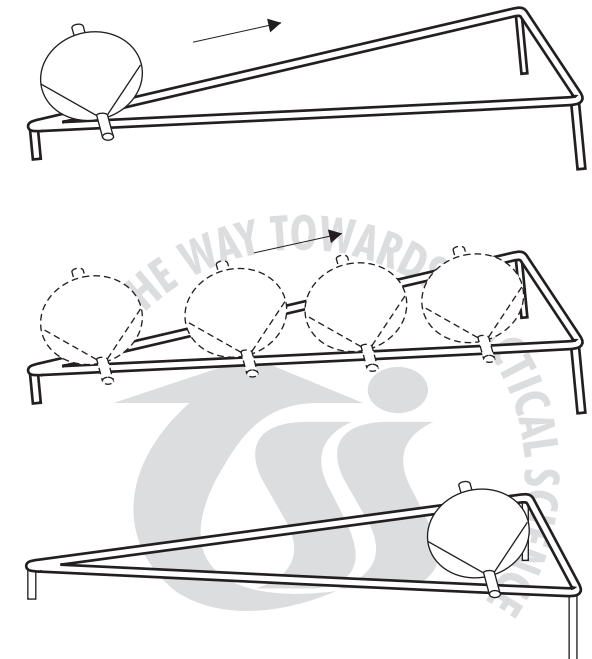
To do and observe



Step 1

Place the red colored piece of MS rod on the highest point of the inclined rail assembly and release it (as shown in fig).

You will observe that the rod rolls down from the point of higher level to the point at lower level.



Step 2

Now place the double ended cone at the lowest point of the inclined rail and release it (as shown in fig.)

You will observe that the double cone goes up, makes a few oscillations and finally rests at the highest point on the inclined rail.

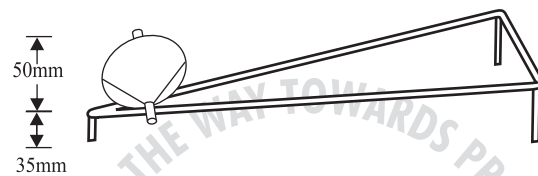
Does it defy laws of gravity ?



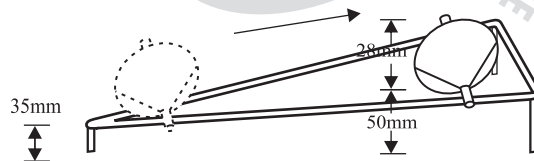
What is going on ?

A free body always seeks a position where its centre of gravity takes lowest position.

From the diagram it is obvious that the centre of gravity of the double cone which is on its rotational axis assumes the lowest position at the upper most point on the rail



Initial position when the double cone is at the lowest point of the inclined rail. (Total height = $50+35 = 85\text{mm}$)



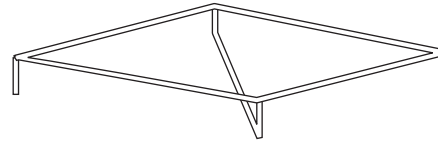
Final position when the double cone is at the highest point of the inclined rail (total height = $50+28=78\text{mm}$)

Find the position of CG at lower and upper position of double cone



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Supplementary Information



Similar effect from both sides can be noticed using the rail tapering at the both ends as shown in the above diagram.



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DOUBLE CONE

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