MATCHLESS MATCHBOX

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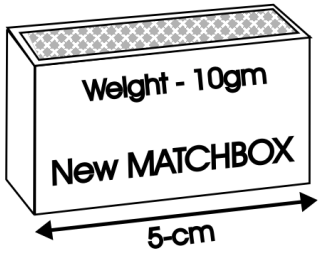
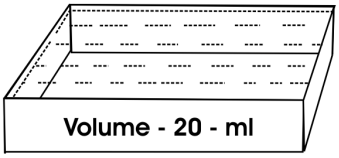
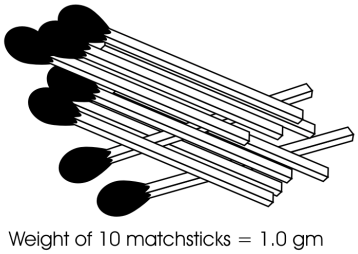
For little children the ordinary matchbox is a MAGIC BOX. Fill it with a little rice and it becomes a rattle. Attach four buttons and it becomes a car on wheels. The matchbox drawer floats like a boat in water. The matchbox is a trunk, box, wagon, tow-car, tiffin box and secret cache all rolled in one!

In the seventies a pioneering science programme in India attempted to revitalize the learning of science in village schools which had no science labs. The shift was from the chalk-and-talk method to hands-on, on making things with simple humble material available in the village. The hunt was on for low-cost, locally available very affordable things to do science.

Science in a Matchbox





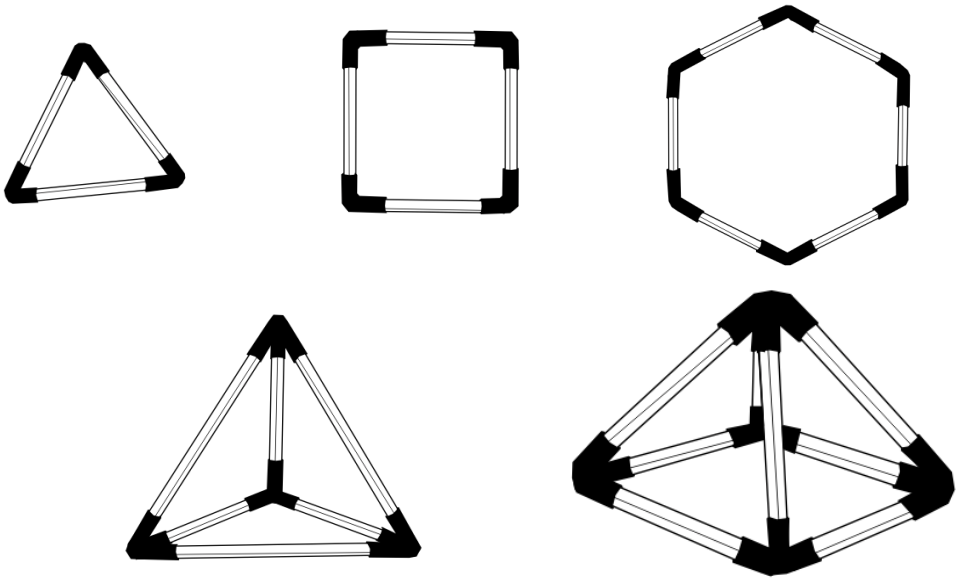

Weight of 10 matchsticks = 1.0 gm

The matchbox surprisingly emerged as a STAR. Being mass produced in a factory the matchbox confirmed to certain standard dimensions. The length of the matchbox is very close to 5-cm (2-inches) – a very good estimate of length. You could put six matchboxes back-to-back to make 30-cm (1-foot). The weight of the new matchbox was very close to 10-gms. Ten new matchsticks (not burnt) weight about 1-gm and the weight of a single matchstick is very close to 0.1-gm!

Paint the matchbox drawer with some oil to make it water proof. Fill it with water and the drawer holds roughly 20-ml of water. Pour out 5 drawers of water in a bottle to make 100-ml. The humble matchbox becomes a good measure for volume.

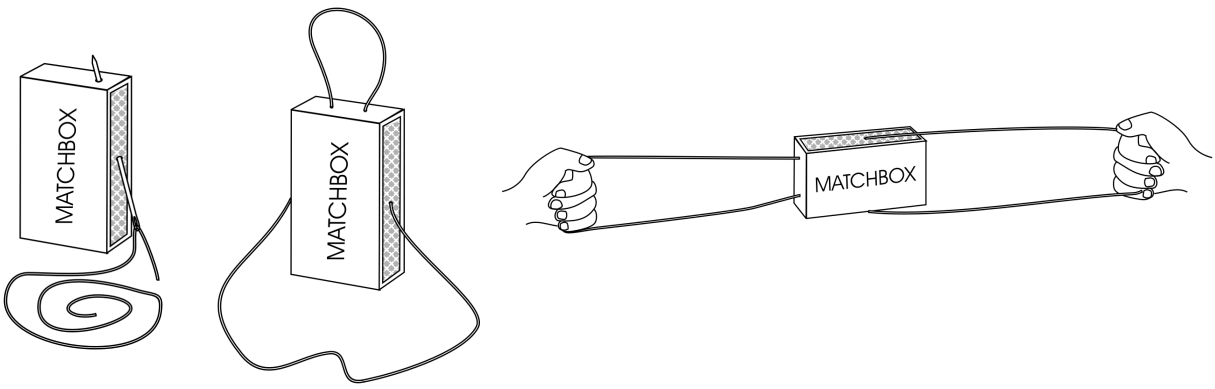
So, using a universally available matchbox, children could get a good feel of length, weight and volume - all very basic entities of any science curriculum!

Matchstick Models



Take two matchsticks, scrape the sulphur and push them in a piece of black cycle valve tube to make a universal-joint of two. With more sticks and tubes make scores of 2-D shapes – triangle, square, hexagon etc. The square when pressed will bend and become a kite shaped rhombus. All other shapes will wobble and shake but not the triangle – it will not budge. Of all the polygons the triangle emerges as the strongest structure. No wonder triangles are used to construct roof trusses, bridges and huge microwave towers. You can also build 3-D structures like tetrahedrons, prisms, cubes and icosahedrons. With these basic modules you can make many more structures. Watch this video http://www.youtube.com/watch?v=E0rLC_WY02Q

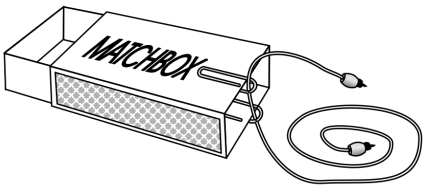
Matchbox Train

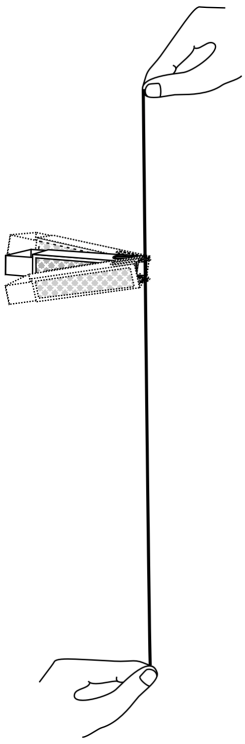


Of course, you make many simple toys with matchboxes – for instance the zero-cost Matchbox Rider which is made by threading an old matchbox in an ingenious way. Make four holes and then weave a 1.5-metre long thread at a slant in the matchbox. Tie a knot on the ends. Hold the string in both hands as shown. Turn and twist the left hand rapidly. The matchbox will travel along the string track. You can stick a picture of a rabbit to make the toy more interesting.

Watch video http://www.youtube.com/watch?v=g7Rcf9Soqfg

Shimmering Matchbox





Another wonderful toy is the Shimmering Matchbox. Fix two paper clips on the outer shell of an empty matchbox and weave a 1-metre long thread through them. Tie fat knots on the ends of the thread. There should be very little gap between the clip and the matchbox edge. Place the matchbox drawer in its shell. Hold the thread tight and let the matchbox go. The matchbox will fall in short funny jerks. You can "slow" the fall by pulling the draw out and "speed" it up by pushing it in.

Watch video http://www.youtube.com/watch?v=OHOb--hfiQU

A Matchbox Teaser

How many things can you fit in a matchbox? 20.... 30.... 100? This exercise was given to children many years back. One child actually managed to pack in a whopping 250 things inside a matchbox! Just look around for small minute things – a mustard seed, hair, thread, cumin, moong dal etc. While doing this project children searched for the smallest artifacts in their vicinity and

they came up with surprises which are difficult to imagine! They really had a good peep in the world of small things! Science is all about keeping our eyes open and looking at similarities, forms, patterns in the world around us. Science in short, is the discovery of order.

You could make many interesting things using old matchboxes. In villages the matchbox is simply indispensable. You can't light the home fire without the matchbox. In the days of old many children used to collect matchboxes with different labels and would exchange them with friends like postage stamps. But with the advent of gas lighters and the internet and couriers both matchboxes and postage stamps have fallen in disuse. Few people know that the hobby of collecting matchboxes and other match related items is called "phillumeny" – a rather strange name!