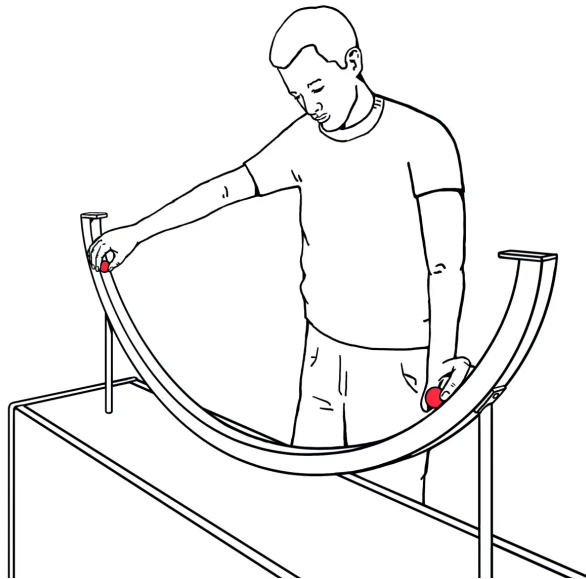# Tautochrone

Where do the two balls meet on the track after you let them go?

Place the two balls on the track. One on the right side, one on the left.

Let them go simultaneosly. Where do they hit each other?

Repeat the experiment with one starting position high and one low. Where do they meet now?

Let both balls go from one side, but from different heights.

No matter from which height you let the balls start, they will always meet at the lowest point of the track.

The track has a special mathematical curve, so that the ball will always need the same time to reach the lowest point of the track. The mathematicians call such a curve tautochrone (from greek to auto = same and chronos = time).

Such a curve is also called cycloid. This is the movement of a point (e.g. the valve of a bicycle tyre) when a circle (e.g. a bicycle tyre) rolls on a directrix (e.g. a straight road).