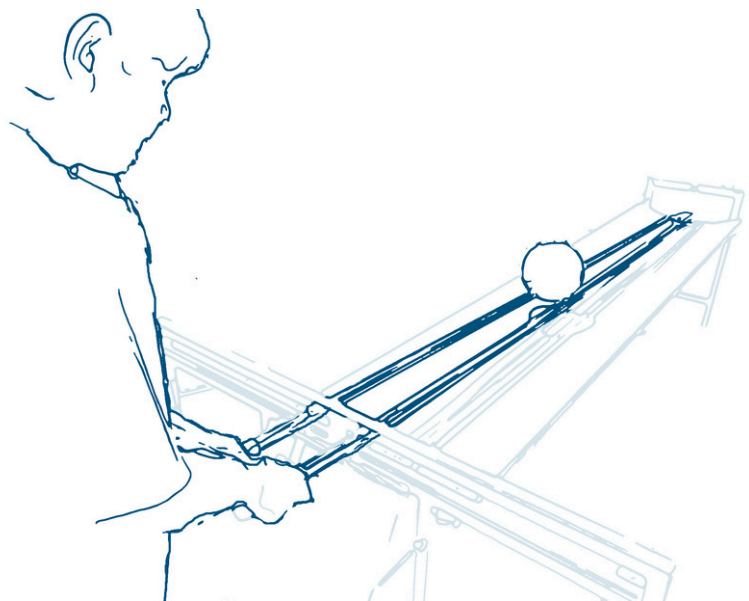


UPHILL WITH TIMING

How far can you bring the ball toward you?

What to do

- Push the two rods all the way together and place the ball on top.
- Adjust the distance between the rods.
- Try to make the ball roll toward you as far as possible.



IF YOU WANT TO KNOW MORE



What Do You Notice?

When the rods are parallel, the ball rolls away from you. As you pull the rods apart, the ball starts rolling toward you. If the gap gets too wide, the ball falls between the rods. If you push them back together at just the right moment, the ball can keep rolling toward you with momentum.



The Science Behind It

When the rods are parallel, the ball rests on top and rolls downhill, away from you, from the higher point to the lower one. If you pull the rods apart, the ball sinks between them. This shifts its center of gravity, causing it to start rolling toward you. It also gains speed. If you push the rods back together at just the right moment, you lift the ball, working against gravity. However, the momentum it has built up keeps it rolling toward you. Timing is the key: build up momentum first, then lift. This lets you use motion and energy to make the ball appear to move against gravity.