

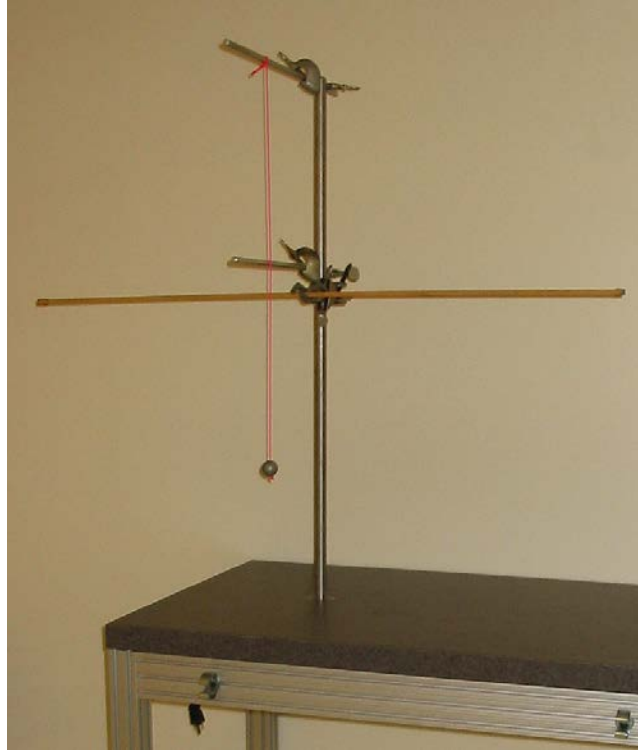
mgh

Purpose: Demonstrates gravitational potential energy.

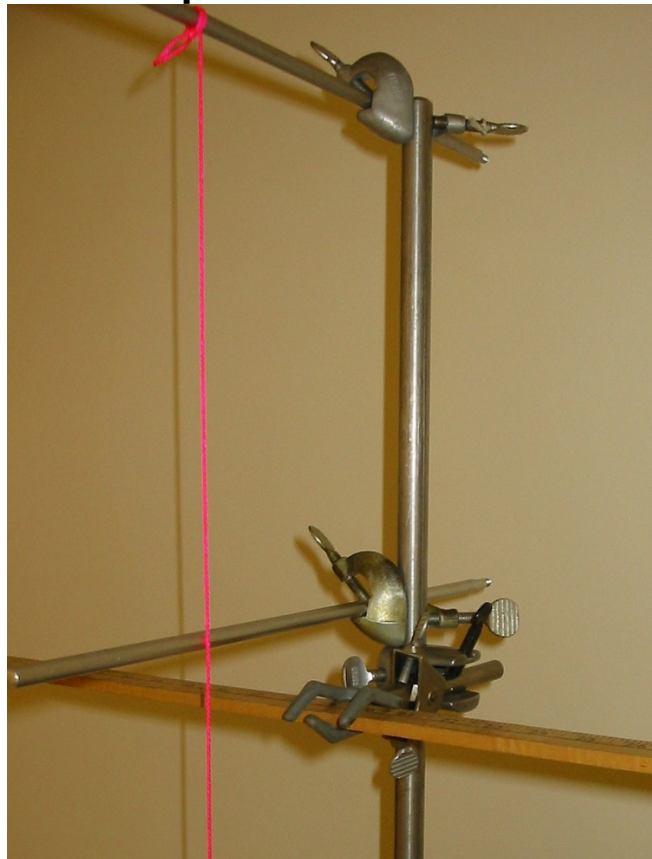
This is a simple demo, but illustrates the point of energy conservation fairly well. It is a pendulum with a meter stick mounted horizontally, just behind the plane of swing. The meter stick provides a visual reference point for vertical height. Hold the pendulum ball level with the ruler and release it. It swings to the other side, attaining the original height (almost). Next, mount a second pivot rod between the ruler and the top rod. When the ball swings now, the extra pivot radically alters the motion of the swing—but the ball still rises to the original height. Further fun comes from moving the 2nd pivot below the ruler. The pivot can be moved (in steps) so low that the ball, restrained by the string, cannot reach the original height on the swing. In this case there is leftover kinetic energy at the top of the swing and the ball continues on around. The point is that however the ball is constrained to move, it cannot swing higher than its original elevation of release.

Note: It works best to tie the string to the top rod, rather than making a loop.

Extra Equipment: Everything! Ring stand paraphernalia is found in the (labeled) drawers at the rear of the room. In another (labeled) drawer there are weights and plumb bobs to make a pendulum. String can be found in the G.P. cabinet.



Setup Pivot above Ruler



Closeup