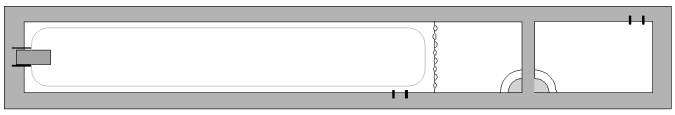
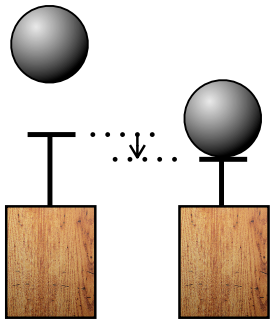
PhyzSpringboard: Potential Energy



A nail is partially driven into a block of wood. An iron ball is dropped onto the nail, driving the nail some depth into the wood. Without changing any characteristics of the wood or nail, how could a dropped iron ball drive the nail deeper into the wood?



1. Factor 1

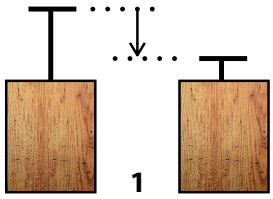
a. One way a dropped iron ball could drive the nail even deeper into the wood is if...

b. So the drive depth is (__directly __inversely) proportional to...

c. In symbols, D ∝

2. Factor 2

a. One way a dropped iron ball could drive the nail even deeper into the wood is if...

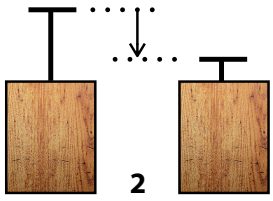


b. So the drive depth is (__directly __inversely) proportional to...

c. In symbols, D ∝

3. Factor 3

a. One way a dropped iron ball could drive the nail even deeper into the wood is if...

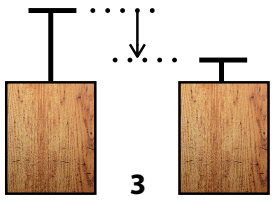


b. So the drive depth is (__directly __inversely) proportional to...

c. In symbols, D ∝

4. The extent to which a dropped ball can drive in a nail is called its gravitational potential energy.

a. What determines a body's gravitational potential energy?



b. Write an equation for gravitational potential energy.: $PE =$

5. What are the units of potential energy?

6. What is the potential energy of a block that has a _____ of _____ and a _____ of _____?

7. Solve the equation for the other variables.

8. Write a numerical problem in which factor 1 is the unknown to be solved for.

9. Write a numerical problem in which factor 2 is the unknown to be solved for.

10. Write a numerical problem in which factor 3 is the unknown to be solved for.