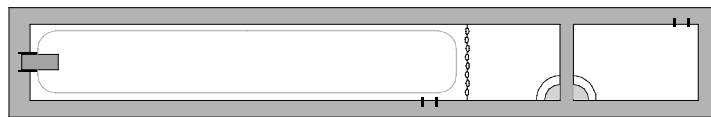


# PHYZ SPRINGBOARD: ELASTIC POTENTIAL ENERGY

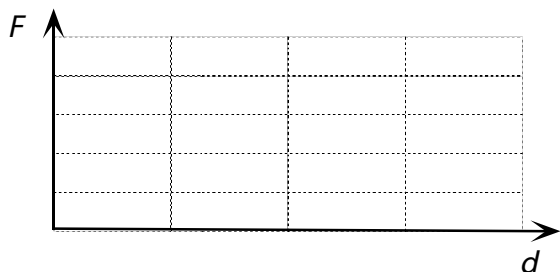


## 1. What happens when you lift a box?

- Do you exert a force?
- Is the force applied through a distance?
- Is work done?
- What happens to the work you did once the box is lifted? Where is the energy stored and what is it called?

## 2. How can the work done in this case be calculated?

- Make a plot of Force vs. Distance for lifting a 4 N object to a height of 3 m.



- What is represented by the "area" bound by the "curve"? How much area is bound in this case?

- Generalize: make a plot that represents lifting any body with a mass  $m$  to a height  $h$ . Careful: *mass* is not *force*.



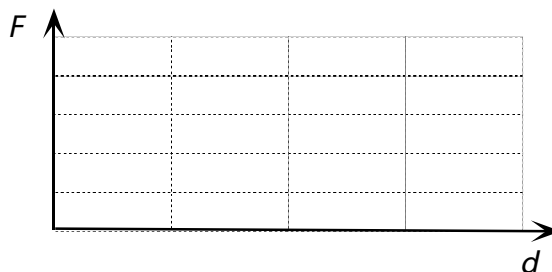
- Write a general formula for the area bound.

## 3. What happens when you stretch a spring?

- Do you exert a force?
- Is the force applied through a distance?
- Is work done?
- What happens to the work you did once the spring is stretched? Where is the energy stored and what is it called?

## 4. How can the work done in this case be calculated?

- Make a plot of Force vs. Distance for stretching a spring 3 m with a force of 4 N.



- What is represented by the "area" bound by the "curve"? How much area is bound in this case?

- Generalize: make a plot that represents stretching any spring a distance  $x$  by applying a force  $kx$ .



- Write a general formula for the area bound.