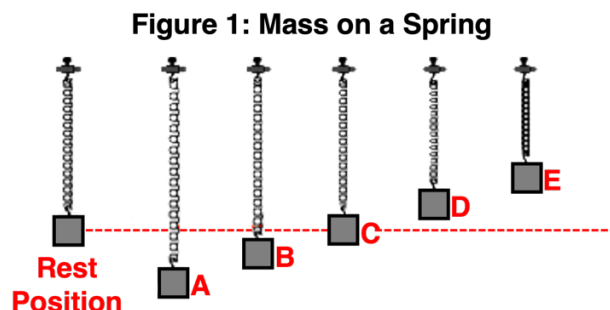


## Mass on a Spring

A mass is suspended on a spring and hangs at its **rest position**. The mass is pulled below its rest position and released. It vibrates up and down between two extreme positions – A and E. See **Figure 1**. The motion repeats itself over and over again.



The vertical position and velocity of the vibrating mass change over time. **Velocity** describes how fast the mass moves and in what direction it moves. A + and - sign is used to indicate the direction of velocity. A + sign indicates an upward direction of motion and a - sign indicates a downward direction of motion. A motion detector is placed below the vibrating mass to detect the vertical position (height above the detector) and velocity as a function of time. The results are shown in **Figure 2**.

**Figure 2: Position vs. Time and Velocity vs. Time**

