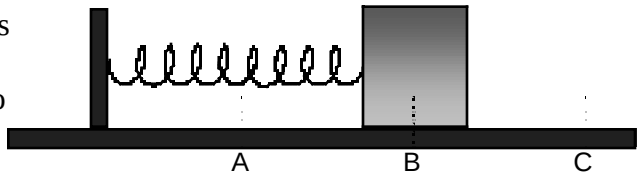
Name_____ **Date**_____ **Period**___

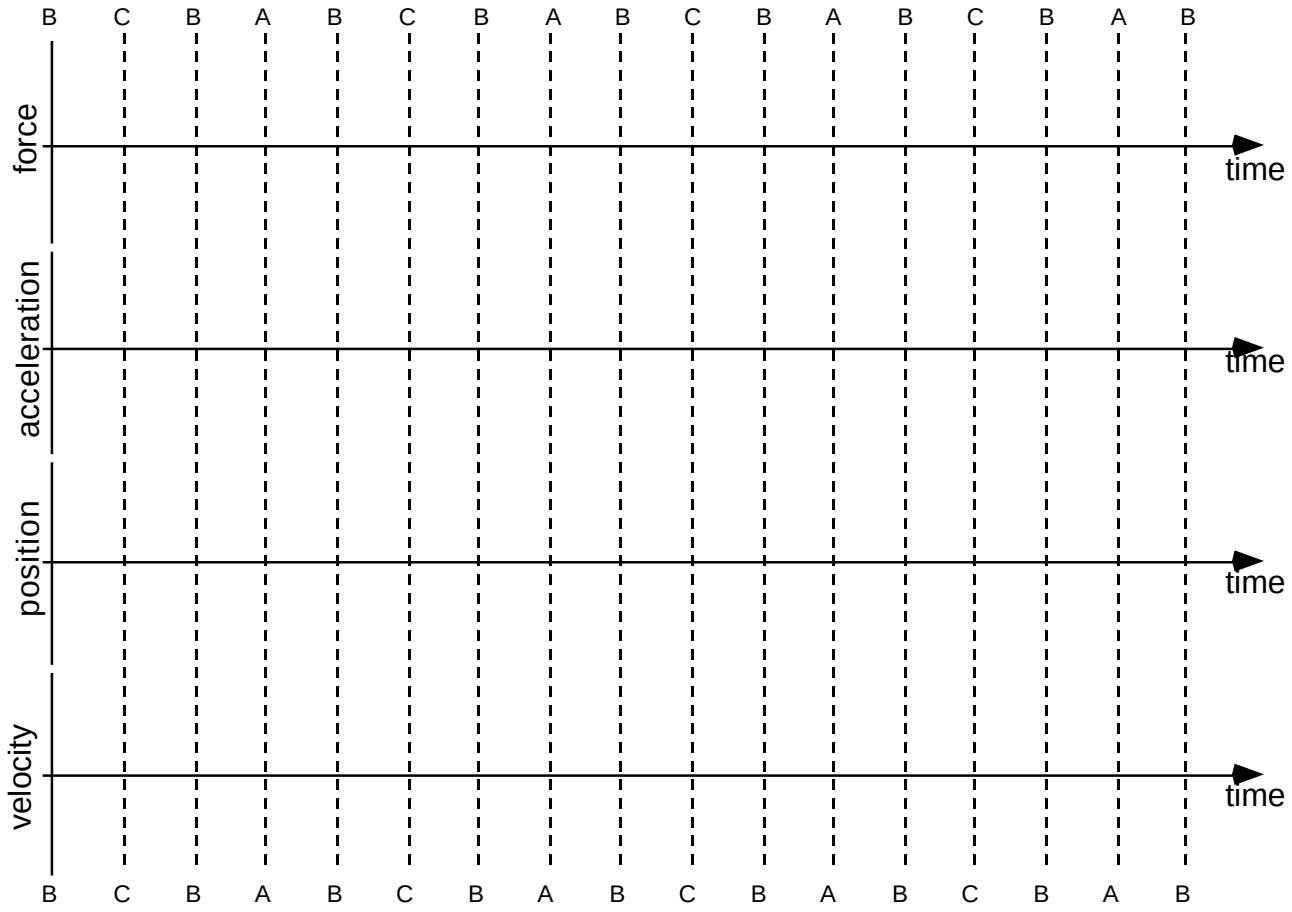
Waves Unit I, Worksheet 1

The diagram to the right shows a block attached to a Hookean spring on a frictionless surface. The block experiences no net force when it is at position B. When the block is to the left of point B the spring pushes it to the right. When the block is to the right of point B, the spring pulls it to the left.



The mass is pulled to the left from point B to point A and released. The block then oscillates between positions A and C. Consider point B to be zero position and right of B positive.

1. On the grid below, sketch a graph that you think reflects how the restoring force applied to the block by the spring changes as a function of time. Start your sketch at time = 0 which represents the block as it passes point B moving to the right just after the block is released.
2. Having completed the sketch of force vs. time, sketch the acceleration vs. time, position vs. time, and velocity vs. time.



Waves Unit I, Worksheet 1

The diagram to the right shows a block attached to a Hookean spring. The block hangs at rest at position B. The block is raised to A and released. The lowest position it reaches is C. (During the oscillations, the spring is only being stretched, never compressed.)

The block then oscillates between positions A and C. Consider point B to be zero position, above B positive and below B negative.

1. Sketch a force diagram for the block at positions A, B, C, B, and A as it moves through a complete oscillation. Your arrow sizes should reflect which force is the largest.

A B C B A

2. On the grid below, sketch a graph that you think reflects how the net force acting on the block changes as a function of time. Start your sketch at time = 0 which represents when the block was released at Point A.
3. Having completed the sketch of force vs. time, sketch the acceleration vs. time, position vs. time, and velocity vs. time