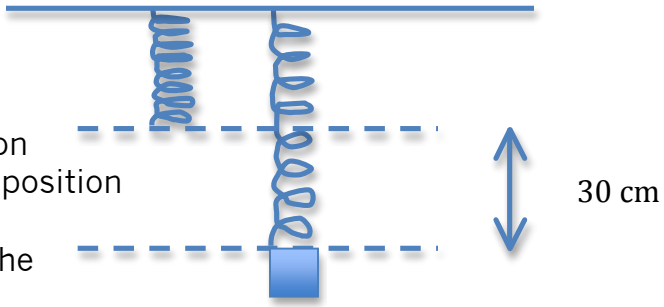
SHM Review

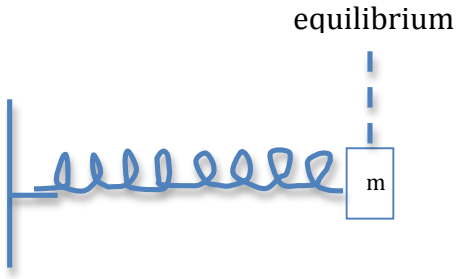
1. A boy on top of a mountain takes out his trusty pendulum of length 85.2 cm and mass 150 g. He swings it and finds that it does 20 cycles in 37.5 sec. Find g at this point on the mountain.

2. A boy made a pendulum that does 20 cyc/min where g is 9.80 m/s^2. How much more string will he need to make a pendulum that does 18 cyc/min?

3. A 500 g mass stretches the spring 30 cm. It is then pulled down 25 cm from this point and released. Find
   a. k
   b. the period
   c. time to get to the highest point
   d. its speed at the equilibrium position
   e. its acceleration at the equilibrium position
   f. its acceleration at the top
   g. its speed when it is 10 cm above the equilibrium position



4. Another spring has a 200 g mass and is moving through the equilibrium position with a speed 6 m/s to the right. The time to return to the equilibrium position is 0.65 sec. Find
   a. k
   b. amplitude
   c. the total energy
   d. PE at x = 0.5 m
   e. The speed at x = 0.4 m
   f. The speed at x = 1.20 m
   g. Find the magnitude and direction of the acceleration at x = -.5 m and x = 1 m



5. A student wants a pendulum to have the same period as his friend's spring system, which stretches 20 cm beyond its unstretched length when a 2 kg mass is attached. How long should the pendulum be?