1. A woman throws a ball of mass 0.200kg by accelerating it from rest to 30.0m/s over a distance (assumed to be along a straight line) of 85.0cm. Find (a)the initial kinetic energy of the ball, (b)the final kinetic energy of the ball, (c)the work done on the ball by the woman and (d)the average force exerted on the ball by the woman.

2. A 10.0g bullet moving at 400m/s travels through 30.0cm of gelatin as shown on YouTube (http://www.youtube.com/watch?v=tTHo0K2Sc0g). The average drag force exerted on the bullet is 1200N. Find (a)the work done by the drag force and (b)the speed of the bullet when it leaves the gelatin.

3. A 0.150kg baseball thrown by a pitcher leaves his hand 2.00m above the ground at a speed of 102mph (45.6m/s). It is caught by the catcher 60.5ft (18.4m) away at a height of 1.00m and a speed of 97.0mph (43.4m/s). Find (a)the initial kinetic energy of the ball, (b)the final kinetic energy of the ball, (c)the net work done on the ball, (d)the work done by gravity and (e)the work done by the resistive forces that act on the ball.

4. A 1.20kg block falls onto a relaxed vertical spring with a spring constant of 500N/m. The block drops 15.0cm before coming momentarily to rest. Find (a)the work done by the spring, (b)the work done by gravity, (c)the total work done on the block, and (d)the speed of the block when it fell on the spring.