Planet Holloway **websheet 5.2**
Cp Physics Energy
You may print this out and write on it or work on your own paper.
Show all work.

1. A 300 N crate of poisonous South American spiders is pushed up a 5 m long ramp which is inclined at 10 degrees. What is the potential energy of the spiders at the top of the ramp?

2. A snowboarder with a mass of 90 kg hits a jump at a speed of 22 m/s and launches into a reverse rodeo clown on jello, no bail Mcflinch, and a half. At the highest point of the trick the snowboarder is 2.5 m above the jump. What is the snowboarders potential energy (relative to the ramp) and her kinetic energy at this point?

3. An archer fires an arrow with a speed of 24 m/s. If the archer pulls the bow string back further and gives a second arrow twice the energy, what speed does the second arrow leave with?

4. A time traveler pulls their 20 kg suitcase 12 m across the timeport by pulling with 40 N at an angle of 45 degrees above horizontal. How much work does the traveler do on the suitcase?

5. How much power does it take to move 4 kg up 14 m in 30 seconds?

6. A pinecone of 1.1 kg is thrown from rest to a speed of 16 m/s in 0.2 seconds. How much work was done on the pinecone?

   ¡Bonus!

7. A 6 kg donut is launched horizontal on an airhockey table from a spring with a spring constant of 40 N/m and compressed by 10 cm. What speed does the donut leave the spring?

Answers:

1. 260.5 J
2. U = 2250 J, K = 19530 J
3. 33.9 m/s
4. 339.4 J
5. 18.67 W
6. 140.8 J
7. 0.26 m/s (that's a big donut)