

Name: _____ Block: _____

Energy

1. Calculate the kinetic energy of a car with a mass of 1200 kg moving at a velocity of $15 \frac{\text{m}}{\text{s}}$.

135 000 J

2. Calculate the gravitational potential energy of a person with a mass of 60. kg at the top of a 10. m flight of stairs.

5 880 J

3. An 0.200 kg model rocket is observed to rise 100. m above the ground after launch. What was the launch speed of the rocket at the ground?

$44.3 \frac{\text{m}}{\text{s}}$

4. A 70. kg pole-vaulter converts the kinetic energy of running at ground level into potential energy to clear the crossbar at a height of 4.0 m above the ground. What is the minimum velocity that he must have when he takes off from the ground in order to clear the bar?

$8.9 \frac{\text{m}}{\text{s}}$

5. A 500. kg roller coaster car is launched, from ground level, at $20. \frac{\text{m}}{\text{s}}$. Neglecting friction, how fast will it be moving when it reaches the top of a loop, which is 15 m above the ground?

$$10.3 \frac{\text{m}}{\text{s}}$$

6. A 10.0 kg monkey swings on a vine from a point which is 40.0 m above the jungle floor to a point which is 15.0 m above the floor. If the monkey was moving at $2.00 \frac{\text{m}}{\text{s}}$ initially, what will be his velocity at the 15.0 m point?

$$22.2 \frac{\text{m}}{\text{s}}$$