

Name: _____

Calculating Potential and Kinetic Energy

Gravitational potential energy and kinetic energy can both be measured in joules (J). To calculate joules of energy, you must use the correct formula.

Gravitational Potential Energy	Kinetic Energy
$GPE = mgh$ <p>m = mass (in kg) g = acceleration due to gravity (9.8 m/s²) h = height (in m)</p>	$KE = \frac{1}{2}mv^2$ <p>m = mass (in kg) v = velocity (speed in m/s)</p>

Use the correct formula to calculate joules of energy and answer the question.



2. A squirrel sitting on a branch 15.4 m up is 0.6 kg. A raccoon standing on a porch railing 2.2 m up is 5 kg. Which animal has more energy?

3. Gargoyle A, 246 kg, is on a roof 21 m above ground. Gargoyle B, 137 kg, is on a roof 42 m above ground. Which gargoyle has more energy?

Name: _____

Calculating Potential and Kinetic Energy

4. Dalia, 72.7 kg, reached 9.8 m/s while snowboarding. Her younger brother Semaj, 63.5 kg, reached 11.2 m/s. Who reached the greater amount of energy?

5. At a construction site, a powered-down 2.7-kg drill sits on a 1.1-m high table. On the roof, 7.2 m high, a worker places down his 0.9-kg hammer. Which tool has more energy?



Preview
Please log in to download
the printable version of this worksheet.

Challenge:

7. Kaylani is driving a 1,325-kg car at 28.9 m/s. A 14,514-kg semi-truck is parked near a cliff 11.8 m above her. Which vehicle has greater energy?

ANSWER KEY

Calculating Potential and Kinetic Energy

Gravitational potential energy and kinetic energy can both be measured in joules (J). To calculate joules of energy, you must use the correct formula.

Gravitational Potential Energy	Kinetic Energy
$GPE = mgh$ <p>m = mass (in kg) g = acceleration due to gravity (9.8 m/s^2) h = height (in m)</p>	$KE = \frac{1}{2}mv^2$ <p>m = mass (in kg) v = velocity (speed in m/s)</p>

Preview

Please log in to download
the printable version of this worksheet.



ANSWER KEY

Calculating Potential and Kinetic Energy

4. Dalia, 72.7 kg, reached 9.8 m/s while snowboarding. Her younger brother Semaj, 63.5 kg, reached 11.2 m/s. Who reached the greater amount of energy?

Dalia

$$KE = \frac{1}{2} \times 72.7 \times 9.8^2$$

$$KE = 3,491.054 \text{ J}$$

Semaj

$$KE = \frac{1}{2} \times 63.5 \times 11.2^2$$

$$KE = 3,982.72 \text{ J}$$

Semaj

Preview

Please log in to download
the printable version of this worksheet.

