**POTENTIAL AND KINETIC ENERGY CALCULATIONS WORKSHEET**

**Gravitational potential energy** can be calculated using the formula:

GPE = m x g x h or GPE = mgh

Where **m** is **mass** in kilograms

**g** is **gravity** (9.8 m/s2) and

**h** is **height** in metres

1. The GPE formula can be used to find the mass or height of objects.
   1. Rewrite the formula to find mass.
   2. Rewrite the formula to find height.
2. Calculate the potential energy of a rock with a mass of 5 kg while sitting on a cliff that is 30 m high.
3. Calculate the potential energy of a statue with a mass of 20 kg while sitting on a shelf that is 2 m high.
4. What distance is a book from the floor if the book contains 195 Joules of potential energy and has a mass of 5 kg?
5. A car is sitting on a hill which is 20 m higher than ground level. Find the mass of the car if it contains 362,600 J of potential energy.

**Kinetic energy** can be calculated using the formula:

KE = ½ x m x v2 or KE = ½mv2

Where **m** is **mass** in kilograms

**v** is **velocity** in m/s

1. The KE formula can be used to find the mass or velocity of objects.
   1. Rewrite the formula to find mass.
   2. Rewrite the formula to find velocity.
2. Calculate the kinetic energy of a rock that has a mass of 55 kg rolling down a hill with a velocity of 8 m/s.
3. Calculate the kinetic energy of a truck that has a mass of 2900 kg and is moving at 55 m/s.
4. Calculate the mass of a man running at 5 m/s if he has 875 J of kinetic energy.
5. A rolling ball has 500 J of kinetic energy. If its mass is 10 kg, what is its velocity?