

# Roller Coaster Energy Transfers

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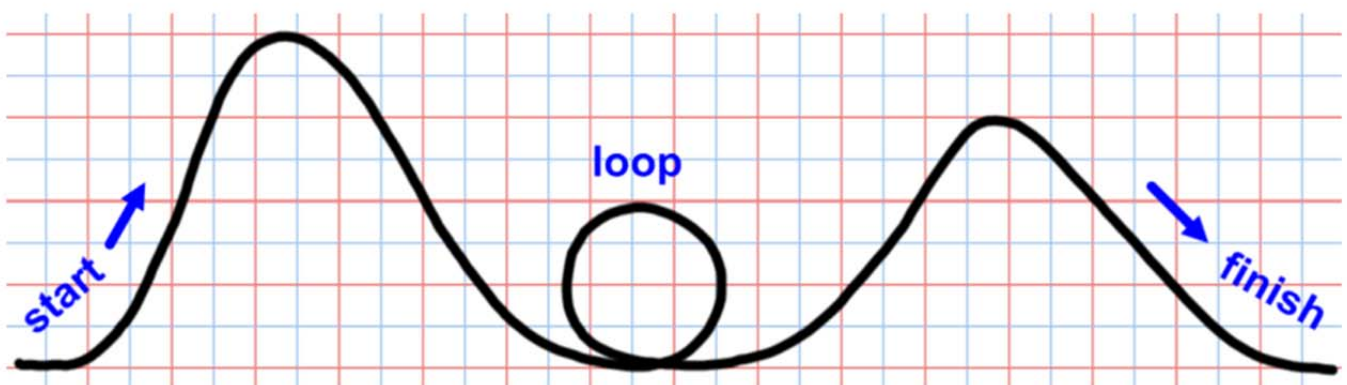
1. Write down the word equation, symbol equation and units for:

a) Gravitational potential energy

b) Kinetic energy

2. State the “Law of Conservation of Energy”.

3. Label the diagram with the following letters. Use a pencil if you're not sure.



- A Gravitational potential energy is highest here
- B Kinetic energy is highest here
- C Kinetic energy is transferred to gravitational potential energy here
- D Gravitational potential energy is transferred to kinetic energy here
- E Kinetic energy is transferred to heat energy here
- F Roller coaster cars are accelerating here
- G Roller coaster cars have gravitational potential energy and kinetic energy here
- H Motors transfer electrical energy to gravitational potential energy here

**4. Each of the red grid lines represents 10m. A roller coaster car is released from rest at the top of the first hump. What speed is it travelling at when it goes over the top of the second hump? Ignore friction and air resistance.**

**5. In reality the car does not travel at this speed over the second hump. Explain why.**