Define Acceleration:

\*Acceleration is the rate of change of velocity.

A cheetah, starting from rest, reaches a speed of 27ms(-1) in 3 seconds.

\*The acceleration of the cheetah is 9ms(-1)/s.

\*The distance covered by the cheetah in the 3 seconds is 54ms(-1)

\*The time taken for the cheetah to move the first 18 meters is 2 seconds.

The kinetic energy of the moving cheetah is determined by its mass and its velocity.

Define weight and work. State the SI unit of each.

\*Weight is mass/area.

\*Work is the product of force and displacement. The Si unit is Joules.

What is meant by potential energy and kinetic energy?

\*Potential energy is energy due to position.

\*Kinetic energy is the energy of movement.

A diver of mass 60kg is about to step off a platform and drop into a pool which is 7.5m below. What is the potential energy gained when she climbs onto the platform from the pool level?

\*The potential energy gained is 4410j.

At an instant during the drop the divers potential energy is 3,660J. What is the kinetic energy and the speed of the diver at this moment?

\*The potential energy of the diver at that moment is 750j.

\*The speed of the diver at that moment is 25ms.

State the law of conservation of energy.

\*The law of the conservation of energy states that an object in motion will stay in motion unless acted upon by an external force.

Define work and state its SI unit of measurement.

\*Work is the product of force and displacement; the SI unit is joules.

An archer fired a bow at an average force of 180N to pull the center of the string back by 0.45m. What energy conservation takes place as the archer pulls back on the string?

\*Potential energy is converted into thermal energy.

Explain why no work is done by the archer if the string pulled is held steady.

\*No work is done by the archer because there is no displacement.

During a practise session an arrow of mass 62g is released with a speed of 60ms(-1). The arrow strikes the center of a target after 1.2s.

\*The mass of the arrow expressed in kg is