Bienhur Andemariam Science level two

Investigation of the Speed of a Trolley Down a Ramp and Its Gradient

Introduction

In this investigation I will be testing how the speed of the trolley is affected by the gradient of the ramp. The speed of the trolley will be affected by the gradient of the ramp by many factors. One of these factors is gravitational potential energy. GPE is the energy stored in an object because of its height. The energy is stored as a result of the gravitational pull of the earth for the object. GPE is also affected by the mass of the object, but I am going to use the same trolley. I am going to increase the gradient of the ramp and therefore increase the height of the trolley. The higher the trolley is on the ramp, the more GPE it should have and this energy will be transferred to kinetic energy when the trolley is released from the top.

The trolley moves so it has gained kinetic energy. As it falls it loses GPE and gains an equal amount of KE. The total amount of energy remains constant. The amount of gravitational potential energy that the trolley has at the top of the ramp should be transferred directly into kinetic energy, but this doesn't happen as some of the energy is wasted as heat and sound. The more KE the trolley gains, the faster it moves.

The main aim of this investigation is to find the acceleration of the trolley as the height of the ramp is increased. Acceleration occurs if the velocity of an object changes.

Acceleration = change in velocity / time taken

Friction will also affect the speed of the trolley. Friction will be produced as the trolley