

## Physics Lab

### Shoot the Puck

*This lab will be assessed on all the assessment criteria.*

#### Introduction:

In this lab you will project a puck along a smooth horizontal surface with an elastic cord. Due to friction the body will come to rest after travelling some distance. There are a number of factors besides friction which influence how far the puck will go. Your task is to derive a mathematical relationship between these factors and the distance travelled and design an experiment to test it.

#### Procedure:

Identify all the relevant variables and decide which of these you are going to investigate. Using conservation of energy, hypothesise a quantitative relationship between the distance travelled and each of the variables you wish to investigate. Design an experiment that allows you to collect enough data to test your hypothesis. For each variable plot a suitable graph so that the observed data can be **quantitatively** analysed and compared with your hypothesis. Finally, make an evaluation of your results and your experimental procedure and comment on how successfully you were at predicting the behaviour of the projected body. Indicate any areas where you could improve your results.

Note: If you are careful you should be able to use your graphs to determine the coefficient of kinetic friction between the body and the horizontal surface. Think about what additional measurements you might need to make in order to do this.