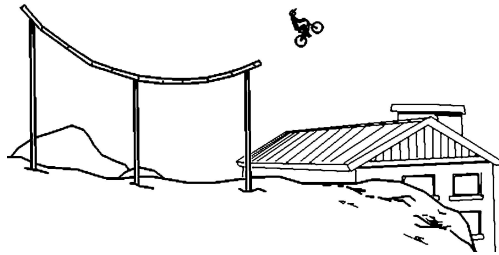


## Stage 2 Physics

### Practical Investigation: Range of a Projectile

The aim of this task is to investigate the effect of launch angle on the range of a projectile.



#### Phase 1: Design

- Hypothesis
  - Identify the independent and dependent variables, factors held constant, and factors that may not be able to be controlled.
  - Derive a hypothesis describing the effect changing angle will have on the range, assuming all other factors are held constant.
- Equipment
  - Think about how the experiment can be carried out, and become familiar with any available equipment, such as the projectile launcher and measuring tape.
  - Write a list of the equipment needed to carry out the experiment.
- Procedure
  - Draw a diagram of how the equipment should be set up.
  - Write a method. It should be clear, numbered, and step-by-step.
  - Include justification for the design of your method.
- Results
  - Draw up a results table. This will be filled in as the experiment is performed.

Hand in the design for marking.

Carry out the experiment, filling out the results table and recording observations.

#### Phase 2: Report

- Manipulation and Collaboration
  - Discuss how you cooperated to take measurements carefully and safely, and how any challenges were overcome.
- Results and Calculations
  - Plot a clearly labelled graph of the results, including a line of best fit.
  - Include any calculations used during analysis of results.
- Discussion
  - Analyse the results, identifying trends, and linking results to concepts.
  - Evaluate the experimental procedure and effects on data, identifying sources of uncertainty.
- Conclusion
  - Formulate a relevant conclusion based on the hypothesis, with justification.