

Practical 4 – Topic 2

Projectiles

Criteria assessed

- DCP
- CE

Materials needed

- Flat rubber band
- Small projectiles (e.g. small weights) in a range of masses but similar shape
- Tape measure

What to do

Attach the rubber band to the horizontal surface of a table near the edge of the table. Stretch the rubber band by an amount x by pulling back the middle of the rubber band so that, when released, the rubber band will project the projectile forward, beyond the table top.

Measure the horizontal distance R travelled by the projectile before it lands on the floor.

- How is R related to x ?
- Make a theoretical prediction of the dependence of R on x by using simple mechanics. Does your theoretical prediction agree with your experimental results?

Now keep constant the distance x by which the rubber band has been extended. Use projectiles of different mass m (but roughly the same shape).

- How is R related to m ?
- Does your simple mechanics model predict this behaviour?