

## Introduction

*Collision Course* is a fun, easy to use investigation into kinetic and potential energy. Aimed at 14-16 year old pupils, it is set in the context 'If a large asteroid hit the Earth, could it cause global catastrophe?' Pupils simulate asteroid impacts on a tabletop scale by dropping objects into sand. They can investigate how the speed and mass of their 'asteroid' affects the distance that the debris travels or the size of the 'crater' produced.

## Requirements per group

- Objects for dropping to represent asteroids. For example, marbles, ball bearings or plasticine. Pupils will need several different sizes of a particular material.
- Material to represent the Earth's surface. For example, flour, sodium hydrogen carbonate or Plaster of Paris. Pupils investigating 'debris range' will also require powder paint and a sieve to sprinkle on as a top layer.
- Plastic tray, aluminium pan, or cardboard box container. This needs to be at least 7.5cm deep and 30cm square to give room for debris to travel.
- Newspaper to put under the container to catch spilled powder.
- Metre stick to measure the drop height.
- Ruler to measure crater diameter and depth.
- Access to a balance to measure the mass of the 'asteroids'.

## Safety

- Pupils should take care if they need to stand on a desk in order to achieve a big drop height.
- They should take care not to allow sand or powder to get in their eyes.