



**Down to Earth
KS3**

Student Worksheet

Deep Impact Collision Energy

**national
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Deep Impact collision energy

The aim of this activity is to calculate the kinetic energy of the impact and to learn how the kinetic energy changed when NASA decided to alter the weight of the impactor.

Objectives

Students should:

- Remember the equation for kinetic energy
- Use the equation to calculate the kinetic energy of the impactor

Resources required

Pencils and paper

Question

To make a hole in the side of the comet, a lot of energy needs to be given up on impact. This energy comes from the kinetic energy of the impactor which has a net velocity toward the comet.

In order to reduce costs, the Deep Impact Mission Team decided to make a slightly smaller launch rocket than initially planned. This meant that they had to reduce the overall mass of the spacecraft as the smaller rocket could not carry as much.

One of the places where they were able to reduce mass was on the impactor. The mass of the impactor was changed from 500kg to 370 kg. The scientists were concerned though because this means that the amount of energy produced at impact will be reduced as well.

