18 ARMAGEDDON TIME?



OVERVIEW

This activity uses the context of asteroids and meteorites, and the film Armageddon, to allow students to explore kinetic energy, momentum, and critical thinking by asking them to establish whether the information presented in the film is correct.

Kinetic energy.

Unit conversion.

Problem solving.

Critical analysis.

WHAT YOU NEED



18.1 Armageddon time? worksheets (one per student)

Optional – meteorites from the loan box (if you have it at the time of this lesson)



STARTER

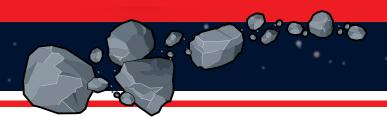
Go through the introduction slides on meteorites and show the images of Barringer crater. Ask students to estimate the size of the object that created this crater.

Run through the answers and get students to reflect on any errors they may have made during their calculation.



A18 PowerPoint







MAIN ACTIVITY 1

Explain that Armageddon was a 1998 film where Bruce Willis and his team saved the world from an impact event by an asteroid.

Set out the parameters of the object (as defined by the movie). Students then calculate how much energy the bomb would need to have to blow the asteroid into two halves that will both just miss the Earth. Ask them to state any assumptions that they have made.

Look at their answers and get them to compare this amount of energy to other known amounts (on the slide). On this basis, and by discussing the simplified assumptions that they have made, get them to comment on how realistic the movie was.





MAIN ACTIVITY 2

Ask students what other methods they can think of that can be used to deflect or destroy an asteroid.

Get them to consider, and attempt to explain, the principals behind gravity tractors, laser ablation and kinetic impactors.

You can then use the slides that cover these topics to summarise and reinforce the physics concepts.



PLENARY

If you have the Borrow the Moon loan box, you could use this as an opportunity to get some of the samples out and view them. If not, get students to write a short piece detailing why it is important to focus on research into protecting our planet from impacts.

They could extend this into a report for the government detailing the physics behind impacts as a homework task.

