

# The right formula

Taking driving into the classroom

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The Ultimate  
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## Vehicle Dynamics – Theme 6: Crashes

### Worksheet 6a

### Crash scenarios

#### Scenario 1

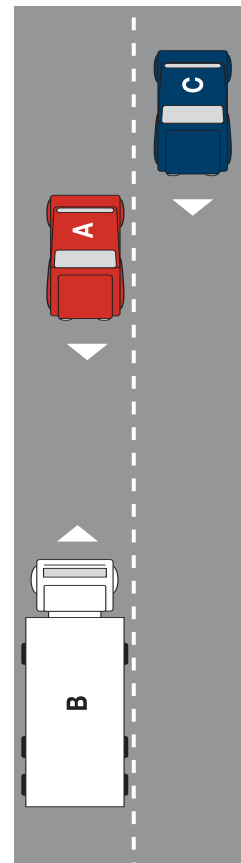
Car A is overtaking car C on a narrow country lane. By doing so, the driver of car A is travelling against oncoming traffic. He thinks he will have time to complete the manoeuvre but he is wrong. He crashes with vehicle B, a lorry travelling towards him, head on.

#### At the time of impact:

Car A, which has a mass of 500kg, was travelling at a speed of 60 miles per hour.

Lorry B, with a mass of 2,000kg, was already braking and had a speed of 20 miles per hour.

Calculate the total force of the crash. (Remember to change miles per hour into metres per second.)



#### Scenario 2

The driver of car D is distracted by a call on her mobile phone and crashes into the cyclist E travelling in front of her.

#### At the time of impact:

Car D, which has a mass of 500kg, was travelling at a speed of 30 miles per hour.

Cyclist E, with a mass of 80kg (bicycle plus cyclist), was travelling at a speed of 10 miles per hour.

Calculate the total force of the crash. (Remember to change miles per hour into metres per second.)

