

# The right formula

Taking driving into the classroom

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The Ultimate  
Driving Machine

## Vehicle Dynamics – Theme 6: Crashes

### Worksheet 6b

#### Case studies

Read the case studies below and decide for each one which was the primary cause of the crash and which the secondary (if applicable).

##### Case study 1

**Monday 8.40am. Private car hits female pupil, age 10. Urban area. Driver going to work, estimated vehicle speed 35mph. Pupil crossing road to meet friends on other side.**

Injuries: Driver – minor; pedestrian – serious.

Primary crash cause:

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Secondary crash cause(s):

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##### Case study 2

**Friday 6pm. Lorry breaks down on motorway – unable to move to hard shoulder. Four cars coming up behind, crash on to the lorry. All drivers and passengers were wearing seat belts at the time of crash. Driver 2 was found with alcohol in his blood, but within legal limit.**

Injuries: Lorry driver – minor; car 1 driver and passenger – fatal; car 2 driver – serious; car 3 driver and 2 passengers – serious; car 4 driver – minor, passenger – serious.

Primary crash cause:

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Secondary crash cause(s):

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### Case study 3

**Wednesday 9.30pm. Private car hits cyclist age 50 travelling in same direction. Rural area. Estimated car speed 40mph. Cycle had dynamo lights on but no rear red reflector, nor other reflectors. Driver claims did not see cyclist.**

Injuries: Driver – none (only shock); Cyclist – serious.

Primary crash cause:

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Secondary crash cause(s):

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### Case study 4

**Saturday 1.30am. Two private cars crash head on, on an 'A' road. It appears that car 1 was overtaking a stationary vehicle. Estimated car speeds: vehicle 1 – 55mph, vehicle 2 – 65mph. Driver 1 was breathalysed and found to be slightly above legal limit – the post-mortem showed that driver 2 was clear.**

Injuries: Driver 1 – serious, passenger 1 – fatal; Driver 2 – fatal, 3 passengers – serious.

Primary crash cause:

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Secondary crash cause(s):

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