# Crash Investigation – Stage 5

Duration: 4x 50min (approx.)

## Description

In this learning sequence students will explore the major causal factors that contribute to car crashes.

**Educative purpose**

There are a variety of factors that contribute to car crashes. Haddon’s Matrix is a recognised road safety model for examining factors which may have led to a crash. An understanding of this model will improve the ability to identify strategies that can reduce the risk of harm resulting from a car crash.

## Syllabus outcomes

A student:

* PD5-6 critiques contextual factors, attitudes and behaviours to effectively promote health, safety, wellbeing and physical participation.
* PD5-7 plans, implements and critiques strategies to promote health, safety, wellbeing and physical participation I their communities.

All outcomes referred to in this unit come from [PDHPE K-10](http://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/pdhpe/pdhpe-7-10) Syllabus © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2018

## PDHPE skills

|  |  |
| --- | --- |
| Self-management | Interpersonal |
| * Strengthening personal identity

- building self-confidence- cultivating resilience* Self awareness

- reflective practice* Decision-making and problem solving

- information-gathering | * Communication

- verbal and nonverbal communication- listening eg active* Collaboration, inclusion and relationship building

- assessing their own abilities and contributing back to the group |

## Lesson sequence overview

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| --- |
| Teaching, learning and assessment experiences |
| Students:* evaluate strategies and actions that aim to enhance health, safety, wellbeing and physical activity levels and plan to promote these in the school community
* identify major causal factors in road and traffic-related injuries and assess strategies and actions to promote their own and others’ health, safety and wellbeing, eg minimising distractions such as music, and mobile phones, identifying a designated driver, resting when tired, speeding, overcrowding of cars, following road rules
 |
| **Inquiry question: How can I plan and advocate for health, safety, wellbeing and participation in a lifetime of physical activity/**Activity 1 Learning intentions: - Students identify the causal factors of road crashes **Resources** - Labelled A3 sheets with the titles ‘vehicle’, ‘driver’ and ‘environment’ p 8-10Haddon’s MatrixDraw a triangle on the board and label as shown. *Teacher Note: Haddon’s matrix is a recognised road safety model for examining factors which may have led to a crash and the injuries which result from crashes. The matrix was developed to examine the three stages of a crash: the pre-crash phase, the crash phase, and the post-crash phase.*Discuss with students the fact that crashes can be caused by the interaction of factors. Haddon’s Matrix is one way of organising these factors- human factors (H), vehicle factors (V) and environmental factors (E). Explain the definition of each factor below.* Human factors – the behaviour of any people involved.
* Vehicle factors – features of any vehicle involved e.g. type, size, condition, safety equipment.
* Environmental factors – features of the surrounding road and the surrounding area e.g. road surface and condition, objects near the side of the road i.e. trees, power poles.

Explain, the majority of road crashes are behavioural and due to the driver’s actions and characteristics, and very few are the result of the vehicle or environment.Discuss why they are now called ‘crashes’ not ‘accidents’. A crash is preventable by making a change to one or combination of factors, where as an ‘accident’ sounds like there was nothing that could have been done to prevent it. Crash is using a strength based approach in saying it could have been preventable.Graffiti Walk – Factors that can cause a crash1. Use the labelled A3 sheets with the titles ‘vehicle’, ‘driver’ and ‘environment’ at the back of this resource.
2. Explain to students that they will complete a graffiti walk
3. In groups, students move to one of the graffiti sheets and write their ideas.
4. After a specified time, ask students to move to the next graffiti sheet where they should check previous listed responses and add others of their own.
5. Repeat this procedure once more so students have responded to all three graffiti sheets.

Suggested responses could include (but are not limited to):* Vehicle: foggy windscreen, faulty brakes, powerful engine, headlights not working, overcrowded, bald tyres
* Driver: inexperience, overconfidence, risk taker, aggressive, drunk, tired, no seat belt, using mobile, distracted
* Environment: wet weather, road works, night time, poor road surface, other vehicles, tree, poles,

ReviewReview the ideas listed on the sheets. Discuss with students:* Is it just one factor that causes crashes or a number of factors? (A combination of factors)
* Which category contains the most factors? (The majority of road crashes are caused by human factors alone, or in combination with vehicle or environment factors 67% – Have human factors as major contributors, 4% – Have vehicle factors alone, 4% – Have road environment factors alone).
* Which category contains factors that can be most easily changed to reduce the risk of a car crash? (Human category because the driver is most in control of these factors, 95%of crashes have human factors alone or in combination with one or more other factors as major contributors).
* Could changing just one factor have an influence in reducing the risk of a car crash? (Yes it can if it is the major contributing factor i.e. Speed,)

ReflectCan you suggest how a situation or action could be avoided by the driver or passenger? For example:* tired driver - swap drivers or don’t get behind the wheel of a car
* driver consumed alcohol - call a family member or friend for a lift
* passenger showed mobile phone – to be placed on silent or placed out of reach
* driver texting – stop the car in a safe place, turn off ignition and then text

passengers distracting driver – passengers be considerate of driver |
| Activity 2Learning intentions: - Students analyse the causal factors of road crashes- Students identify strategies to manage some causal factors of road crashes **Resources**Campaign stories from Transport for NSW [Sam’s story](https://youtu.be/DlzaF-4dKXY) [Matt’s story](https://youtu.be/deVIZmQDS7A) [Vicki’s story](https://youtu.be/rHnHC0sqo8c) [Di and Graeme’s story](https://youtu.be/KVPTk8843VQ) [Jarrad’s story](https://youtu.be/XT4piTAW4w8) [The Knock-on effect](https://youtu.be/Wh5d0WXJD7I) Teacher note: these stories are from people who have been seriously injured or lost loved ones in road crashes. Group activity – Haddon’s Matrix1. Have students view one or all of the above stories.
2. Explain to students that these video clips are examples of high risk driving behaviours and the consequences.
3. Students are to classify the cause of the crash using Haddon’s Matrix and completing the worksheet on p 11. (Suggested answers are on p12 -13.)
4. This can be done individually, in pairs or as a small group
5. Students then identify strategies that could be used to reduce possible harms to the driver and other users of the road.

Use the following questions to process the activity.1. Was the driver, vehicle or environment usually the factor that would lead to a crash? (Students should identify the driver’s behaviour and actions as having the greatest potential to cause a crash).
2. What can drivers do to stay safer? (eg plan ahead, don’t drive tired or intoxicated, maintain the vehicle, limit the number of passengers, make sure everyone wears a restraint).
3. Could you use some of these strategies in other traffic situations as a passenger or cyclist? (eg don’t walk home intoxicated, call for a lift, make sure bicycles are well maintained, wear a bicycle helmet).
4. What might affect a road user’s ability to make a safer decision? (eg emotions, temperament, use of alcohol or other drugs, friends, the situation such as an emergency).

Individual reflection – think, pair, shareHave students think about three risk reduction strategies they could use to increase safety as a passenger in a motor vehicle.Examples include wear a seatbelt, make sure driver hasn’t been drinking, don’t distract the driver, encourage safe drivingHave students in pairs to discuss their responses.Share with class |

# DRIVER

# VEHICLE

# ENVIRONMENT

##### Haddon’s Matrix

Click on the stories below to identify human, vehicle and environmental components that contributed to these life changing crashes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **HUMAN** | **VEHICLE** | **ENVIRONMENT** | **STRATEGIES TO MINIMISE HARM** |
| [Sam’s story](https://youtu.be/DlzaF-4dKXY) |  |  |  |  |
| [Matt’s story](https://youtu.be/deVIZmQDS7A) |  |  |  |  |
| [Vicki’s story](https://youtu.be/rHnHC0sqo8c) |  |  |  |  |
| [Di and Graeme’s story](https://youtu.be/KVPTk8843VQ) |  |  |  |  |
| [Jarrad’s story](https://youtu.be/XT4piTAW4w8) |  |  |  |  |
| [The Knock-on effect](https://youtu.be/Wh5d0WXJD7I) |  |  |  |  |

##### Haddon’s Matrix: suggested responses

Click on the stories below to identify human, vehicle and environmental components that contributed to these life changing crashes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **HUMAN** | **VEHICLE** | **ENVIRONMENT** | **STRATEGIES TO MINIMISE HARM** |
| [Sam’s story](https://youtu.be/DlzaF-4dKXY) | * seatbelts not on
* drive at a young age on the farm
* seatbelt use not a habit
* speed
 | * tyre blowout
* car rolled
 | * three friends in the car
* country road
* day time
 | * always wear seatbelt
* drive to the speed limit and the conditions
* maintain vehicle
* encourage occupants to wear seatbelt
* no seatbelt, no lift
* encourage driver to drive to the speed limit and the road conditions
* don’t distract the driver
 |
| [Matt’s story](https://youtu.be/deVIZmQDS7A) | * started driving at 2am
* fatigue
 | * car packed with luggage
 | * country road
* dawn
* young family in the car
 | * don’t drive fatigued
* take regular breaks
* share driving
* encourage driver to take a break
 |
| [Vicki’s story](https://youtu.be/rHnHC0sqo8c) | * texting and driving
 |  | * country road
* mid morning
* tree at side of road
 | * don’t text and drive
* pullover somewhere safe if you have to text
* encourage friends not to text whilst driving
 |
| [Di and Graeme’s story](https://youtu.be/KVPTk8843VQ) | * young driver
* inexperienced
 |  | * country road
* day time
* oncoming traffic
 | * drive to conditions
* always watch for other vehicles
* don’t distract the driver
 |
| [Jarrad’s story](https://youtu.be/XT4piTAW4w8) | * speeding
* felt invincible
* over confident
 |  | * metropolitan street
 | * drive to the speed limit
* encourage friends to drive to speed limit and the conditions of the road
 |
| [The Knock-on effect](https://youtu.be/Wh5d0WXJD7I) | * drink driving
* felt invincible
 | * lacked safety features of today’s vehicles such as airbags and crumple zones
 | * night time
* friends in the car
 | * don’t drink and drive
* have a designated driver
* call a friend for a lift
* take public transport
* don’t let a friend who is intoxicated drive a car
 |