3. Emergency stop

Age: 13-16

Learning objectives

1. I know the consequences of drugs and alcohol use in relation to driving.
2. I know my responsibilities as a pedestrian, a passenger and a driver.
3. I know about issues affecting young drivers such as peer pressure, speed, seatbelts, inexperience and overconfidence.
4. I know how to travel safely when I am on my own and understand the benefits of sustainable travel.

Learning outcomes

By the end of this activity, all students will have confronted some assumptions about road safety and the impact of distractions on reaction times. Most students will have reflected on their own behaviours and how distractions could negatively impact their own personal safety. Some students will have made positive decisions about how they will alter their behaviour, to ensure that they stay sharp and are able to react appropriately, when travelling on and around roads.

You'll need

- ✔ It's cool, it's not cool film
- ✔ Emergency Stop True or False – a quiz relating to myths and facts about common road issues
- ✔ Metre rulers (one per pair)
- ✔ Materials to use for drawing out stopping distances and student predictions (chalk/tape)

Lesson detail

Introduction

Kick off the lesson by playing the **It's cool, it's not cool** film. When you see the pause icon, in the bottom corner, pause the film and ask students if they can offer a solution to stop the distraction being a risk:

- 00:33 – driver using a mobile phone
- 01:16 – not paying attention when in a rush
- 02:05 – not taking a moment to Stop, Look, Listen and Think before crossing a road

Once the film has ended, recap that distractions are as dangerous for drivers as they are for other road users, such as cyclists and pedestrians, and that this lesson will be testing drivers' reaction times to demonstrate this. The lesson will also explore other distractions that the students will be faced with in the future, when they are old enough to drive.

Teacher-led activity: Emergency Stop True or False

This can be completed as a class or individually if you have access to tablets/ laptops etc.

Ask the students if there were any answers that were particularly surprising? You may want to dig deeper into the assumptions and surprises that the students report through a short class discussion, as the quiz is being completed, or wait until the end.

At the end of the discussion draw the students' attention to the statistic about mobile phone use – what were the students' reaction to this? Play them the **THINK! Pink Kittens** film to see how much you can miss, just by glancing at your phone.

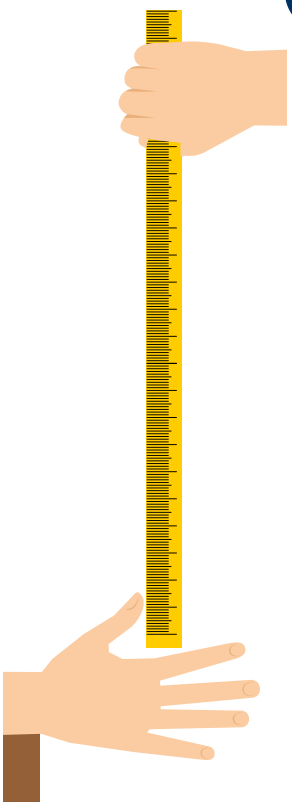
Student-led activity

The next activities are best carried out in a hall or outside. If time allows, you can complete both in two groups and then swap.

Option 1: The reaction time rule

Split students into pairs:

- Student A will sit, resting their arm on a table with their hand protruding, ready to catch the metre stick.
- Student B will stand slightly in front of Student A with the bottom of the metre ruler (0cm) just above Student A's hand.
- Without warning, student B will let go of the metre stick and Student A should try to grab it as quickly as possible.



- Student A shouldn't 'chase' the ruler, but merely keep their hand in the correct position and try to catch the ruler as it falls.

At the point where Student A's hand grabs the ruler, record the measurement. The activity should be repeated 5 times to calculate an average score. The pair should then swap over and repeat the task. The activity should then be repeated with an additional element of distraction. This time Student A will have to try and catch the ruler whilst operating a mobile device (remind them this is illegal in real life) e.g. retrieving numbers from the address book on demand. The pairs should repeat the tasks to get an average score and then swap over.

Once the activity is finished the pair should compare their results from having no distraction, to being distracted. Which one resulted in a longer average reaction time?

Option 2: The impact of stopping distances

This group will be analysing stopping distances. Depending on the space available the group may need to scale their stopping distances down, e.g. 1 metre = 10 cm.

The group will need to read several scenarios and make predictions about whether a vehicle will be able to stop in time, before hitting a pedestrian.

The group should map out the scenario and then each student should use a marker to predict where they think that the car will come to a stop. They should pay attention to the scenarios as the weather conditions, age of tyres and state of the driver (e.g. being tired) can all have a significant impact on stopping distances:

1. A car is travelling at 40 mph. A child walking their dog begins to cross the road 40 metres ahead. Will the car be able to stop in time?

Under normal circumstances, if a driver sees the child and dog, it would take a car travelling at 40 mph 36 metres to stop. In this case, the car would be able to stop in time, but do students think this would be a close call? Remind students that it's not just about reaction time - this would only be the case if the driver has seen them, which is not guaranteed in every situation.

2. It is a rainy day and an older car is travelling at 30 mph. A young child and their dad step out into the road 25 metres ahead. Will the car be able to stop in time?

Under normal circumstances it would take a car travelling at 30 mph 23 metres to stop. However, in this case the roads are wet and the car is older, which may mean that the tyres might not grip the road well. It is highly unlikely that the car would be able to stop in time.

3. A car is travelling at 20 mph. A mum with three young children are crossing the road 20 metres ahead. Will the car be able to stop in time?

Lesson detail

Under normal circumstances it would take a car travelling at 20 mph 12 metres to stop. In this case, the car would be able to stop in time.

4. A car is travelling at 50 mph on a busy carriageway. The driver has had a long journey and is feeling tired, they should have taken a break but on this occasion did not. A young man steps onto the road 50 metres ahead. Will the car be able to stop in time?

Under normal circumstances it would take a car travelling at 50 mph 53 metres to stop. In this case, the driver is fatigued which means their reaction times are likely to be slower. The car would not be able to stop in time. Aside from the likely injury/death to the pedestrian, the driver could be charged with death by dangerous driving (if the nature of their driving was perceived to be dangerous).

Teacher-led summary

The most common reasons for young drivers to be in crashes include familiar distractions and impairments – mobile phones, drink and drugs, carrying young passengers (peer effect) and driving at night – some of which are illegal and all slow down reaction times. If something as simple as using a mobile phone can affect your reaction times, what do you think the impact of drink, drugs and getting involved in banter will do? What about if you're driving at night or in wet conditions? What if you're speeding illegally – another common reason why younger drivers are so much more at risk?

What can students do to make a difference? How does it make them think about being a responsible passenger? Could they speak up in this kind of situation? (See **Speak up lesson plan** for a dedicated lesson on this theme.) Is there anything they can relate to riding a bicycle or being a pedestrian – now that they know how much longer it can take a driver to stop a car, at night, in the rain or if they're being distracted by a phone call, a song or a text?

Ask the students to reflect on the activities that they have carried out – did anything surprise them? Has it made them think more deeply about their attitudes to crossing the road? How about when it comes to learning to drive when they are old enough?

Help the learning stick

Help the learning stick

- End the lesson by asking each student to say one or two things that they can do to help themselves, their friends and their families to stay safe on the roads – as a passenger, a driver, a cyclist or a pedestrian. What could they do to improve their chances of staying safe?

- When the next wet weather is forecast or when it starts getting darker earlier - do a quick poll at registration or the start of lesson to see who can remember what gets affected e.g. reaction times in the dark and stopping distances in the wet; and what they can do to help stay visible and safe as cyclists, pedestrians and future drivers.

- As a homework challenge, ask students to repeat the tests with their family and talk through what they've discovered together. During the next lesson, ask students to feedback:
  - Which part of the test surprised family members?
  - Was there one thing that their family said they might do more or differently as a result of taking the test?

- Use the **THINK! Map investigation lesson** to identify real incidents where young drivers were involved - what were the outdoor conditions?

Differentiation

You may want to also consider liaising with the Physics Department in your school to create extra challenges for higher attainers.

Further recommended resources

Brake
the road safety charity

Resource name	Format	Summary	Age range	Link
Young drivers, the hard facts	Website	The risks of crashing for young drivers (17-24 years old) being much higher than older drivers.	All	http://www.brake.org.uk/facts-resources/15-facts/488-young-drivers-the-hard-facts