



THERE ARE 2 PARTS TO THE PHYSICS  
IN MOTION SCIENCE EXCURSION

## PART 1: TRAINING VIDEOS

You will be sent a series of videos to prepare  
students for the excursion.

There are 6 videos covering:

**ACCELERATION** **VEHICLE DYNAMICS**  
**BRAKING** **VEHICLE SAFETY SYSTEMS**  
**G-FORCE** **CRASH ANALYSIS**

# A SCIENCE EXCURSION TO EXPERIENCE VEHICLE SAFETY AND THE LAWS OF MOTION

## 2. PRACTICAL EXCURSION

Students then attend a 4 hour science  
excursion and collect data for their  
Physics in Motion workbooks.

Practical demonstrations  
and experiments will cover:  
**BRAKING**

Vehicle Safety Systems (ABS, AEB)

Braking Techniques

Coefficient of Friction

Braking Distances vs Speed

Braking Distances vs Mass

Skid Mark Analysis

## SPEED/VELOCITY

Speed & Velocity Measurements

Radar Guns vs GPS vs Speedometer  
vs Distance over Time

## G-FORCE

Acceleration vs Braking vs Cornering

Vehicle Dynamics

100% Rule of Tyres

Stability Control on/off

How Seatbelts Function



## VENUES:

RACQ Mobility Centre<sup>1</sup> (Cornubia) 8:30am

Willowbank Raceway (Ipswich) 9:30am start

Carnell Raceway (Stanthorpe) 9:30am start

Also available in Townsville, Mackay, Emerald, Roma,  
Grafton, Armidale, Tamworth but additional costs apply

**\$2880 inc GST** This excursion is for up to  
32 students with 2 instructors + 2 vehicles

**\$4620 inc GST** This excursion is for up to  
60 students allowing physics classes from several  
schools to combine and share the cost.  
3 instructors + 3 vehicles will be supplied

<sup>1</sup> The RACQ Mobility Centre imposes strict cancellation  
penalties which make us liable for the venue hire within  
35 days of a proposed date. As such we must seek a  
non-refundable deposit of \$660 and the course must  
proceed regardless of the weather.



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# A SIMULATOR PROGRAM TO EXPERIENCE CRASHES AND THE LAWS OF MOTION

## THERE ARE 2 PARTS TO THE PHYSICS IN MOTION SIMULATOR PROGRAM

### 1: TRAINING VIDEOS

You will be sent a series of videos to prepare students for the excursion.

There are 10 videos covering:

SIMULATOR GUIDE	VEHICLE DYNAMICS
BRAKING	VEHICLE SAFETY
G-FORCE	CRASH ANALYSIS
WEATHER	TAILGATING DANGER
ACCELERATION	IMPAIRED DRIVING

### 2: SIMULATOR RENTAL

The Driving Simulator will allow your Physics students to experience the following scenarios:

Braking Distances vs Speed  
Reaction Time  
Vehicle Safety Systems (ABS on/off)  
Unexpected Emergency Situations  
Vehicle Crashes (into trees/poles/vehicles)  
Change of Weather (friction from road)  
Change of Lighting (night, sun glare, fog)  
Tailgating Dangers  
Alcohol Impairment Mode  
Distracted Driving can be experienced

#### THE RENTAL INCLUDES:

- ✓ Driving Simulator frame with steering wheel, pedals and gear shifter
- ✓ Computer loaded with City Car Driving simulation software (*commercial edition*)
- ✓ Hard Storage Crate (*with wheels*)
- ✓ Instructions for Simulator operation

#### YOU WILL REQUIRE:

- ✓ Chair for simulator driver to sit in
- ✓ Monitor screen (*via HDMI to computer*)



**RENTAL FEE: South-east QLD**  
\$1430 inc GST for up to 7 business days  
includes delivery and collection  
+\$110 per day thereafter until returned

**RENTAL FEE: rest of Australia\***  
\$2200 inc GST for up to 9 business days  
includes delivery and collection  
+\$110 per day thereafter until returned

\* a surcharge may apply for remote locations

The renter is liable for any damage to the simulator and all accompanying training materials/equipment while in your possession. Insurance coverage while in transit is held by us.



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