ROAD TO ZERO

RESOURCES TO SUPPORT THE ROAD TO ZERO PROGRAM: PHYSICS CHALLENGE, SCIENCE YEARS 9 AND 10

Activity overview	Victorian Curriculum learning areas	Activity duration	Suggested use
See, think, react Students devise and conduct a series of reaction timer tests, and consider which test is the best analogue for a car driver reacting to a braking stimulus. Students then: • explore the neurological and biomechanical steps involved • compare findings to their *Road to Zero* virtual reality test track data.	**Science** • Science Understanding • Science as a Human Endeavour **Capabilities** • Critical and Creative Thinking	45 – 60 minutes	Pre-visit (without data comparison) Post-visit (with data comparison)
Calm down! Speed and road treatments investigation Using streets close to the school, students collect primary data to explore the effect of traffic calming treatments on vehicle speeds. Students: • plan for and design the investigation • analyse the data • consider the effectiveness of the road design under examination.	**Science** • Science Understanding • Science as a Human Endeavour **Mathematics** • Algebra • **Capabilities** • Critical and Creative Thinking	60 – 75 minutes	Pre or post-visit
Safer roads where we live Linked to the study of motion, students work in small groups to undertake an investigation into a road they believe is unsafe in their local area. Students: • identify road safety concerns for different road users • suggest road design and speed limit changes to improve the safety of the road environment.	**Science** • Science Understanding • Science Inquiry **Capabilities** • Critical and Creative Thinking • Personal and Social	150 minutes	Pre-visit to provide context Post-visit to reinforce learning
Stopping distance and speed This investigation will explore the relationship between stopping distance and speed. Provided with a smart spreadsheet, students: • Manipulate variables to test the impact of different speeds and conditions on stopping distances. • compare their findings to their Road to Zero experimental stopping distance data.	**Science** • Science Understanding • Science Inquiry **Capabilities** • Critical and Creative Thinking	45 – 60 minutes	Post-visit
Road to Zero Physics Challenge – data analysis This resource provides suggested approaches to analysing the data collected by your students during the Road to Zero Physics Challenge program. Students will: • Pool class data, calculate averages and graph their findings. • Consider how their virtual data compares to re-world data. • Draw conclusions regarding the mathematical relationship between speed and stopping distance.	**Science** • Science Understanding • Science Inquiry **Mathematics** • Algebra **Capabilities** • Critical and Creative Thinking	45 – 60 minutes	Post-visit