

# CURRICULUM LINKS

## PHYSICS CHALLENGE

### Key program outcomes

#### Students will:

- Design and conduct a stopping distance experiment using Virtual Reality
- Apply the knowledge gained in the experiment to the real-world problem of setting speed limits for safety
- Understand the relationships between speed, friction and stopping distances
- Gain first-hand experience of the impacts of speed, and qualitative understanding of the notion of inertia, as described in Newton's first law of motion
- Produce a unique set of data for analysis and exploration back at school

### Key curriculum links

#### Science

Science Understanding

*Physical Sciences*

- The description and explanation of the motion of objects involves the interaction of forces and the exchange of energy and can be described and predicted using the laws of physics (VCSSU133)

Science Inquiry Skills

*Questioning and predicting*

- Formulate questions or hypotheses that can be investigated scientifically, including identification of independent, dependent and controlled variables (VCSIS134)

#### VCE Vocational Major

- Numeracy

### Secondary curriculum links

#### Science

Science Inquiry skills

*Planning and conducting*

- Independently plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types (VCSIS135)

- Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability (VCSIS136)

*Recording and processing*

- Construct and use a range of representations, including graphs, keys, models and formulas, to record and summarise data from students' own investigations and secondary sources, to represent qualitative and quantitative patterns or relationships, and distinguish between discrete and continuous data (VCSIS137)

*Communicating*

- Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations (VCSIS140)

#### Capability curriculum

##### Critical and Creative Thinking

*Questions and possibilities*

- Challenge previously held assumptions and create new links, proposals and artefacts by investigating ideas that provoke shifts in perspectives and cross boundaries to generate ideas and solutions (VCCCTQ045)

##### Ethical Capability

*Decision making and actions*

- Discuss issues raised by thinking about consequences and duties, in approaches to decision-making and action, and arguments for and against these approaches (VCECD022)

##### Personal and Social Capability

Social Awareness and Management

*Collaboration*

- Evaluate own and others contribution to group tasks, critiquing roles including leadership and provide useful feedback to peers, evaluate task achievement and make recommendations for improvements in relation to team goals (VCPCSO050)