

CURRICULUM

LINKS 5-6

The TOM@ Schools program will support teachers in engaging students in the following areas of the Victorian Curriculum.

| Design and Technologies | English |
|---|--|
| <p>Technologies Contexts Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (VCDSTC037)</p> <p>Creating Designed Solutions</p> <p><u>Investigating</u> Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions (VCDSCD038)</p> <p><u>Generating</u> Generate, develop, communicate and document design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (VCDSCD039)</p> <p><u>Producing</u> Apply safe procedures when using a variety of materials, components, tools, equipment and techniques to produce designed solutions (VCDSCD040)</p> <p><u>Evaluating</u> Negotiate criteria for success that include consideration of environmental and social sustainability to evaluate design ideas, processes and solutions (VCDSCD041)</p> <p><u>Planning and managing</u> Develop project plans that include consideration of resources when making designed solutions (VCDSCD042)</p> | <p>Literacy</p> <p><u>Interpreting, analysing, evaluating</u> Use comprehension strategies to analyse information, integrating and linking ideas from a variety of print and digital sources (VCELY319)</p> <p><u>Creating texts</u> Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (VCELY329)</p> <p><u>Interacting with others</u> Clarify understanding of content as it unfolds in formal and informal situations, connecting ideas to students' own experiences, and present and justify a point of view or recount an experience using interaction skills (VCELY337)</p> |
| <p>Ethical Capability</p> <p><u>Understanding Concepts</u> Discuss how ethical principles can be used as the basis for action, considering the influence of cultural norms, religion, world views and philosophical thought on these principles (VCECU010)</p> | <p>Critical and Creative Thinking Capabilities</p> <p><u>Reasoning</u> Consider the importance of giving reasons and evidence and how the strength of these can be evaluated (VCCCTR025)</p> <p>Explore what a criterion is, different kinds of criteria, and how to select appropriate criteria for the purposes of filtering information and ideas (VCCCTR028)</p> <p><u>Meta-Cognition</u> Investigate thinking processes using visual models and language strategies (VCCCTM029)</p> <p>Investigate how ideas and problems can be disaggregated into smaller elements or ideas, how criteria can be used to identify gaps in existing knowledge, and assess and test ideas and proposals (VCCCTM031)</p> |

CURRICULUM LINKS

CONT. 5-6

The TOM@ Schools program will support teachers in engaging students in the following areas of the Victorian Curriculum.

| Personal and Social Capabilities | Mathematics |
|---|--|
| <p><u>Development of resilience</u></p> <p>Reflect on how personal strengths have assisted in achieving success at home, at school or in the community (VCPSCSE026)</p> <p>Describe what it means to be confident, adaptable and persistent and why these attributes are important in dealing with new or challenging situations (VCPSCSE027)</p> | <p><u>Number and place value</u></p> <p>Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (VCMNA185)</p> <p><u>Using units of measurement</u></p> <p>Choose appropriate units of measurement for length, area, volume, capacity and mass (VCMMG195)</p> |
| <p><u>Relationships and diversity</u></p> <p>Explore and discuss behaviours that demonstrate sensitivity to individual, social and cultural differences (VCPSCSO029)</p> <p>Define and recognise examples of stereotypes, discrimination and prejudice and discuss how they impact on the individual (VCPSCSO030)</p> <p>Describe the characteristics of respectful relationships and suggest ways that respectful relationships can be achieved (VCPSCSO031)</p> <p><u>Collaboration</u></p> <p>Identify the characteristics of an effective team and develop descriptions for particular roles including leadership, and describe both their own and their team's performance when undertaking various roles (VCPSCSO032)</p> | <h3 style="text-align: center;">Science</h3> <p><u>Planning and conducting</u></p> <p>With guidance, plan appropriate investigation types to answer questions or solve problems and use equipment, technologies and materials safely, identifying potential risks (VCSIS083)</p> <p>Decide which variables should be changed, measured and controlled in fair tests and accurately observe, measure and record data (VCSIS084)</p> <p><u>Analysing and evaluating</u></p> <p>Compare data with predictions and use as evidence in developing explanations (VCSIS086)</p> <p>Suggest improvements to the methods used to investigate a question or solve a problem (VCSIS087)</p> |

CURRICULUM

LINKS 7-8

The TOM@ Schools program will support teachers in engaging students in the following areas of the Victorian Curriculum.

| Design and Technologies | Ethical Capability |
|--|--|
| <p>Technologies Contexts Analyse how motion, force and energy are used to manipulate and control electromechanical systems when creating simple, engineered solutions (VCDSTC045)</p> <p>Technology and Society Examine and prioritise competing factors including social, ethical, economic and sustainability considerations in the development of technologies and designed solutions to meet community needs for preferred futures (VCDSTS043)</p> | <p><u>Decision Making and Actions</u> Explore the extent of ethical obligation and the implications for thinking about consequences and duties in decision-making and action (VCECD017)</p> |
| | <p>Critical and Creative Thinking Capabilities</p> |
| <p>Creating Designed Solutions</p> <p><u>Investigating</u> Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas (VCDSCD049)</p> <p><u>Generating</u> Generate, develop and test design ideas, plans and processes using appropriate technical terms and technologies including graphical representation techniques (VCDSCD050)</p> <p><u>Producing</u> Effectively and safely use a broad range of materials, components, tools, equipment and techniques to produce designed solutions (VCDSCD051)</p> <p><u>Evaluating</u> Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability (VCDSCD052)</p> <p><u>Planning and managing</u> Use project management processes to coordinate production of designed solutions (VCDSCD053)</p> | <p><u>Questions and Possibilities</u> Suspend judgements temporarily and consider how preconceptions may limit ideas and alternatives (VCCCTQ033)</p> <p>Synthesise information from multiple sources and use lateral thinking techniques to draw parallels between known and new solutions and ideas when creating original proposals and artefacts (VCCCTQ034)</p> <p><u>Meta-Cognition</u> Consider a range of strategies to represent ideas and explain and justify thinking processes to others (VCCCTM040)</p> <p>Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals (VCCCTM042)</p> |

CURRICULUM LINKS

CONT. 7-8

Through engagement in design thinking processes such as ideation and prototyping, the TOM@ Schools program may also support teachers in engaging students in the following areas of the Victorian Curriculum.

| Science | Mathematics – Year 7 | |
|--|--|----------------------|
| <p><u>Science as a human endeavour</u></p> <p>Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (VCSSU090)</p> <p><u>Physical Sciences</u></p> <p>Change to an object’s motion is caused by unbalanced forces acting on the object; Earth’s gravity pulls objects towards the centre of Earth (VCSSU103)</p> | <p><u>Statistics and Probability</u></p> <p>Data representation and interpretation</p> <p>Identify and investigate issues involving numerical data collected from primary and secondary sources (VCMSP268)</p> <p>Describe and interpret data displays using median, mean and range (VCMSP271)</p> | |
| <p>Energy appears in different forms including movement (kinetic energy), heat, light, chemical energy and potential energy; devices can change energy from one form to another (VCSSU104)</p> | <th data-bbox="785 1155 1493 1258">Mathematics – Year 8</th> <p><u>Statistics and Probability</u></p> <p>Data representation and interpretation</p> <p>Distinguish between a population and a sample and investigate techniques for collecting data, including census, sampling and observation (VCMSP297)</p> <p>Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes (VCMSP298)</p> | Mathematics – Year 8 |

CURRICULUM

LINKS 9-10

The TOM@ Schools program will support teachers in engaging students in the following areas of the Victorian Curriculum.

| Design and Technologies | Design and Technologies Cont. |
|---|---|
| <p>Technologies and Society</p> <p>Critically analyse factors, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures and the complex design and production processes involved (VCDSTS054)</p> <p>Explain how designed solutions evolve with consideration of preferred futures and the impact of emerging technologies on design decisions (VCDSTS055)</p> | <p><u>Evaluating</u> Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability (VCDSCD063)</p> <p><u>Planning and managing</u> Develop project plans to plan and manage projects individually and collaboratively taking into consideration time, cost, risk and production processes (VCDSCD064)</p> |
| <p>Technologies Contexts</p> <p>Investigate and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to create engineered solutions (VCDSTC056)</p> | <p>Critical and Creative Thinking Capabilities</p> <p><u>Questions and Possibilities</u> Suspend judgements to allow new possibilities to emerge and investigate how this can broaden ideas and solutions (VCCCTQ044)</p> |
| <p>Creating Designed Solutions</p> <p><u>Investigating</u> Critique needs or opportunities to develop design briefs and investigate and select an increasingly sophisticated range of materials, systems, components, tools and equipment to develop design ideas (VCDSCD060)</p> | <p><u>Reasoning</u> Examine how to identify and analyse suppressed premises and assumptions (VCCCTR047)</p> <p><u>Meta-Cognition</u> Investigate the kind of criteria that can be used to rationally evaluate the quality of ideas and proposals, including the qualities of viability and workability (VCCCTM053)</p> |
| <p><u>Generating</u> Apply design thinking, creativity, innovation and enterprise skills to develop, modify and communicate design ideas of increasing sophistication (VCDSCD061)</p> <p><u>Producing</u> Work flexibly to safely test, select, justify and use appropriate technologies and processes to make designed solutions (VCDSCD062)</p> | <p>Ethical Capability</p> <p><u>Understanding Concepts</u> Investigate the connections and distinctions between and the relative value of concepts including fairness and equality, and respect and tolerance (VCECU019)</p> |

CURRICULUM LINKS

CONT. 9-10

Through engagement in design thinking processes such as ideation and prototyping, the TOM@ Schools program may also support teachers in engaging students in the following areas of the Victorian Curriculum.

| Science | Mathematics – Year 9 |
|--|--|
| <p><u>Physical Sciences</u></p> <p>Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current (VCSSU130)</p> <p>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)</p> | <p><u>Statistics and Probability</u></p> <p>Chance Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (VCMSP323)</p> <p>Data representation and interpretation Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources (VCMSP324)</p> <p><u>Number and Algebra</u></p> <p>Apply set structures to solve real-world problems (VCMNA307)</p> |
| | <p>Mathematics – Year 10</p> <p><u>Statistics and Probability</u></p> <p>Data representation and interpretation Evaluate statistical reports in the media and other places by linking claims to displays, statistics and representative data (VCMSP354)</p> |