GOVERNMENT OF WESTERN AUSTRALIA

School Curriculum and Standards Authority

Design and Technologies

Design and Technologies

Pre-primary year Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the dispositions developed in the early years. Learning focuses on practical and applied knowledge and understanding of process and production skills.

In Pre-primary, students have hands on opportunities to explore designs and solutions in at least one of the following technologies contexts: Engineering principles and systems; Food and fibre production (includes Food specialisations in this year); and Materials and technologies specialisations. Students explore the design of products and begin to develop an understanding about products.

Students have opportunities to explore technologies taking particular note of the components and equipment used to make products. They begin to develop an understanding that products have a purpose for their own personal needs and that of their family. Students reflect on designed solutions using questions such as 'How does it work?', 'What purpose does it meet?', 'Who will use it?', 'What do I like about it?' or 'How can it be improved?'

Pre-primary students begin to explore the needs for design of products that impact on people's everyday lives. Using a range of techniques, students will communicate their design ideas.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

People produce familiar products to meet personal and community needs (ACTDEK001)

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Explore needs for design

Literacy

Critical and creative thinking

Personal and social capability

Ethical understanding

TECHNOLOGIES CONTEXTS

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Designing

Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Evaluating

Use personal preferences to evaluate the success of simple solutions

Literacy

Critical and creative thinking

Personal and social capability

Ethical understanding

Collaborating and managing

Works with others, or independently, when creating designs

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 1 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the dispositions developed in the early years. Learning focuses on practical and applied knowledge and understanding of process and production skills.

In Year 1, students have opportunities to create solutions in one of the following technologies contexts: Engineering principles and systems; Food and fibre production (includes Food specialisations in this year); and Materials and technologies specialisations. Students investigate the process of designing and producing products and services.

Students have opportunities to explore and question the use of technologies including components and equipment, their purpose and how they meet personal and social needs within known settings. They develop an understanding of how communities and local circumstances influence design and technologies decisions. Students appraise designed solutions using questions such as 'How does it work?', 'What purpose does it meet?', 'Who will use it?', 'What do I like about it?' or 'How can it be improved?'

Students begin to consider the impact of design decisions and the use of technologies on others in their local community. They have opportunities to reflect on their participation in a design process. With support, students develop new strategies, and engage in different ways of evaluating and judging products and services based on personal preferences. Students are encouraged to make informed choices and to accept challenges, take risks and manage change when unexpected outcomes occur.

Using a range of techniques, including a variety of graphical representations to communicate, students draw, model and explain design ideas; label drawings; draw products and simple environments; and verbalise design ideas.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

People produce familiar products and services to meet personal and community needs (ACTDEK001)

- Literacy
- Critical and creative thinking
- Personal and social capability

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Explore opportunities for design

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability

Ethical understanding

TECHNOLOGIES CONTEXTS

Critical and creative thinking

Designing

Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Evaluating

Use personal preferences to evaluate the success of design processes

Literacy

Critical and creative thinking

Personal and social capability

Ethical understanding

Collaborating and managing

Works with others, or independently, to safely create and share a sequence of steps for making a solution

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 2 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the dispositions developed in the early years. Learning focuses on practical and applied knowledge and understanding of process and production skills.

In Year 2, students have opportunities to create solutions in at least one of the following technologies contexts: Engineering principles and systems; Food and fibre production (includes Food specialisations in this year); and Materials and technologies specialisations. Students experience designing and producing products, services and environments.

Students have opportunities to investigate technologies: materials, systems, components, tools and equipment, including their purpose and how they meet personal and social needs within local settings. They develop an understanding of how society and environmental sustainability factors influence design and technologies decisions. Students evaluate and judge designed solutions using questions such as 'How does it work?', 'What purpose does it meet?', 'Who will use it?', 'What do I like about it?' or 'How can it be improved?' They are encouraged to make judgments about the design solutions in order to solve problems in their own design ideas.

Students begin to consider the impact of their decisions, and of technologies, on others and the environment, including in relation to preferred futures. They have opportunities to reflect on their participation in a design process. With support, students develop new strategies and engage in different ways of evaluating and judging products, services and environments based on personal preferences.

Using a range of techniques, including a variety of graphical representations to communicate, students draw, model and explain design ideas; label drawings; draw products and simple environments; and verbalise design ideas.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

People design and produce familiar products, services and environments to meet local and community needs (ACTDEK001)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Explore design to meet needs or opportunities

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Designing

Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Evaluating

Use simple criteria to evaluate the success of design processes and solutions

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Collaborating and managing

Work collaboratively to safely create and share a procedure for a solution

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to 'set' standards through paired comparisons.

Year 3 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the range of concepts, skills and processes developed in previous years.

In Year 3, students have opportunities to learn about technologies in society as they create solutions in at least one of the following technologies contexts: Engineering principles and systems; Food and fibre production (includes Food specialisations in this year); and Materials and technologies specialisations. Students are provided with opportunities to produce products and develop an understanding that designs for services and environments meet community needs.

Students have opportunities to develop self-ownership of their ideas. They explore creative, innovative and imaginative ideas and approaches to achieve solutions. Students begin thinking about their peers, their communities and themselves as consumers, and explore the need for services and environments within both the local and broader community.

Students plan with an awareness of the characteristics and properties of materials, and the use of tools and equipment. They have opportunities to reflect on their actions, and develop decision-making skills. Students explore aspects of the social implications of existing products and processes to develop an understanding of their place in the world.

Students communicate using a range of techniques for documenting design and production ideas.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Role of people in design and technologies occupations (ACTDEK010)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Ways products, services and environments are designed to meet community needs (ACTDEK010)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Create a sequence of steps to solve a given task

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Designing

Develop and communicate ideas using labelled drawings and appropriate technical terms

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Producing and implementing

Forces, and the properties of materials, affect the behaviour of a product (ACTDEK011)

- Numeracy
- Critical and creative thinking

Food and fibre production

Types of food and fibre produced in different environments, cultures or time periods, including the equipment used to produce or prepare them (ACTDEK012)

- Numeracy
- Critical and creative thinking
- Intercultural understanding

Materials and technologies specialisations

Suitability and safe practice when using materials, tools and equipment for a range of purposes (ACTDEK013)

- Numeracy
- Critical and creative thinking

Select, and safely use, appropriate components with given equipment to make a solution

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Use criteria to evaluate design processes and solutions developed

- Literacy
- Critical and creative thinking
- Ethical understanding

Collaborating and managing

Work collaboratively to safely plan and publish steps in a process

- Literacy
- Numeracy
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 4 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the range of concepts, skills and processes developed in previous years.

In Year 4, students have opportunities to learn about technologies in society as they create solutions in at least one of the

following technologies contexts: Engineering principles and systems; Food and fibre production (includes Food specialisations in this year); and Materials and technologies specialisations. Students are provided with opportunities to design and produce products, services and sustainable environments.

Students' sense of ownership of their ideas is further developed and expanded, with a greater focus on community needs when making decisions about designs. They have opportunities to develop a broader understanding of the concept of themselves as consumers. Students begin to explore and learn to harness their creative, innovative and imaginative ideas.

Students become aware of the design characteristics and properties of materials, and the use of components and equipment when planning solutions. They have opportunities to reflect on actions to refine design solutions through the use of decision-making skills. Students engage in learning to explore the social and environmental sustainability implications of existing products and processes to raise awareness of their place in the world. Students explore the role of those working in design and technologies occupations, and how they think about the way a product might change in the future.

Students broaden the techniques they use to clarify and present ideas, such as drawing annotated diagrams for documenting design and production ideas.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Role of people in design and technologies occupations (ACTDEK010)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Ways products, services and environments are designed to meet community needs, including consideration of sustainability (ACTDEK010)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Define a sequence of steps to design a solution for a given task

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Identify and choose the appropriate resources from a given set

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Designing

Develop and communicate design ideas and decisions

Forces, and the properties of materials, affect the behaviour of a product or system (ACTDEK011)

- Numeracy
- Critical and creative thinking

Food and fibre production

Types of technologies used in food and fibre production or processing, including how they are used to help meet consumer needs (ACTDEK012)

- Numeracy
- Critical and creative thinking
- Intercultural understanding

Materials and technologies specialisations

Suitability and safe practice when using materials, systems and components for a range of purposes (ACTDEK013)

- Numeracy
- Critical and creative thinking

using annotated drawings and appropriate technical terms

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Producing and implementing

Select, and safely use, appropriate components and equipment to make solutions

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Use criteria to evaluate and justify simple design processes and solutions

- Literacy
- Critical and creative thinking
- Ethical understanding

Collaborating and managing

Work collaboratively to safely plan and publish a sequence of steps

- Literacy
- Numeracy
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 5 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the range of concepts, skills and processes developed in previous years.

In Year 5, students have opportunities to learn about technologies in society through different technology contexts as they create solutions in at least one of the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to produce products and develop an understanding that designs for services and environments meet community needs.

Students have opportunities to explore technologies that incorporate materials, components, and equipment used in the home and wider community. They continue to consider society, cultural needs and environmental factors, paying attention to sustainable practices. Students question why and for whom technologies are developed.

Students begin to engage with ideas beyond the familiar, exploring how the people working in a range of technologies contexts contribute to society. They are provided with opportunities to explore innovative design solutions that build on their own design capabilities.

Using a range of techniques, students explore how to represent objects and ideas in a variety of forms, such as thumbnail sketches, models, drawings, diagrams and storyboards to communicate the development of designed solutions.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

How people address competing considerations when designing products, services and environments (ACTDEK019)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

Forces can control movement, sound or light in a product

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Define a problem, and set of sequenced steps, with users making a decision to create a solution for a given task

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Identify available resources

- Literacy
- Numeracy

or system (ACTDEK020)

Numeracy

Critical and creative thinking

Materials and technologies specialisations

Characteristics and properties of a range of materials and components, and the suitability and safe practice of their use (ACTDEK023)

Literacy

Critical and creative thinking

Information and Communication Technology (ICT) capability

Critical and creative thinking

Designing

Develop and communicate alternative solutions, and follow design ideas, using annotated diagrams, storyboards and appropriate technical terms

Literacy

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Producing and implementing

Select, and apply, safe procedures when using components and equipment to make solutions

Numeracy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Personal and social capability

Evaluating

Develop negotiated criteria to evaluate and justify design processes and solutions

Literacy

Critical and creative thinking

Personal and social capability

Ethical understanding

Collaborating and managing

Work collaboratively to safely develop and publish basic plans, including sequencing of steps

Literacy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 6 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on the range of concepts, skills and processes developed in previous years.

In Year 6, students have opportunities to learn about technologies in society through different technology contexts as they create solutions in at least one of the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to produce products and develop an understanding that designs for services and environments meet community needs.

Students have the opportunity to begin to critically examine technologies, including materials, systems, components, tools and equipment that are used regularly in the home and wider community. They explore and begin to consider ethical points of view, social impact and environmentally sustainable factors when developing design solutions. Students examine why and for whom technologies are developed.

Students have opportunities to engage with ideas beyond the familiar, exploring how people working in a range of technologies contexts contribute to society. They continue to build on design capabilities through broadening their own design ideas used in solutions. Students have opportunities to explore trends and data to predict what the future will be like, and suggest design decisions that contribute positively to preferred futures.

Using technologies to suit the purpose, students explore how to represent objects and ideas in a variety of forms to communicate the development of designed solutions. They use a range of preferred techniques to illustrate how products function.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

How people address competing considerations, including sustainability when designing products, services and

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

environments for current and future use (ACTDEK019)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

Electrical energy and forces can control movement, sound or light in a product or system (ACTDEK020)

- Numeracy
- Critical and creative thinking

Materials and technologies specialisations

Characteristics, properties and safe practice of a range of materials, systems, tools and equipment; and evaluate the suitability of their use (ACTDEK023)

- Literacy
- Critical and creative thinking

Define a problem, and a set of sequenced steps, with users making decisions to create a solution for a given task

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Identify available resources

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Designing

Design, modify, follow and represent both diagrammatically, and in written text, alternative solutions using a range of techniques, appropriate technical terms and technology

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Producing and implementing

Select, and apply, safe procedures when using a variety of components and equipment to make solutions

- Numeracy
- Information and Communication Technology (ICT) capability
- Personal and social capability

Evaluating

Develop collaborative criteria to evaluate and justify design processes and solutions

Literacy

Critical and creative thinking

Personal and social capability

Ethical understanding

Collaborating and managing

Work collaboratively, considering resources and safety, to plan, publish and manage projects, including sequenced steps

Literacy

Information and Communication Technology (ICT) capability

Critical and creative thinking

Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 7 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend these as needed.

In Year 7, students have opportunities to learn about technologies in society at least once in the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to design and produce products, services and environments.

Students have opportunities to select from a range of technologies, materials, components, tools and equipment. They consider the ways characteristics and properties of technologies can be combined to design and produce sustainable solutions. They develop strategies which enable them to consider society and ethics; economic, environmental and social sustainability factors. Students' use of creativity, innovation and enterprise skills is encouraged to increase independence

and collaboration.

Students are given opportunities to respond to feedback from others and evaluate their design processes and solutions. They investigate design and technology solutions and the implications for each on society, locally, regionally and globally. Students develop their techniques for evaluating the advantages and disadvantages of design ideas.

Students have opportunities to engage with a range of technologies, including a variety of graphical representation techniques to communicate ideas. Students generate and clarify ideas through sketching, modelling and perspective drawings.

Students identify the increasingly complex sequences and steps involved in design tasks. They develop plans to manage design tasks, including safe and responsible use of materials and tools to successfully complete design tasks.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Competing factors, including social, ethical and sustainability considerations, in the development of technologies (ACTDEK029)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

The use of motion, force and energy to manipulate and control electromechanical and mechanical systems (ACTDEK031)

- Numeracy
- Critical and creative thinking

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Define and break down a given task, identifying the purpose

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Ethical understanding

Consider components/resources to develop solutions, identifying constraints

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Ethical understanding

Designing

Design, develop, review and communicate design ideas, plans and processes within a given context, using a range of techniques, appropriate technical terms and technology

- Literacy

- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Follow a plan designed to solve a problem, using a sequence of steps

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Producing and implementing

Safely make solutions using a range of components, equipment and techniques

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Independently apply given contextual criteria to evaluate design processes and solutions

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Collaborating and managing

Work collaboratively, and individually, considering resources and safety; to plan, publish and manage projects, including sequenced steps

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 8 Syllabus

The syllabus is based on the requirement that all students will study both Technologies subjects from Pre-primary to Year 8.

Year Level Description

Learning in Design and Technologies builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend them as needed.

In Year 8, students have opportunities to learn about technologies in society at least once in the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to design and produce products, services and environments.

Students have opportunities to investigate and select from a range of technologies, materials, systems, components, tools and equipment. They consider the ways characteristics and properties of technologies can be combined to produce sustainable solutions. Considering society and ethics; and economic, environmental and social sustainability factors is of increasing importance in this year. Students use creativity, innovation and enterprise skills with increasing independence and collaboration.

Students have the opportunity to respond to feedback from others and evaluate their design processes and solutions. They investigate design and technology professions and the contributions that each makes to society locally, regionally and globally through creativity, innovation and enterprise. Students are expected to evaluate the advantages and disadvantages of design ideas and technologies.

Students have the opportunity to engage with a range of technologies, including a variety of graphical representation techniques, to generate and clarify ideas through annotated sketches, modelling and scaled drawings.

Students identify the sequences and steps involved in design tasks. They have opportunities to develop plans to manage

design tasks, including safe and responsible use of materials and tools, and apply management plans to successfully complete design tasks. Students establish safety procedures that minimise risk and manage a project with consideration to safety and efficiency, when making solutions.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Social, ethical and sustainability considerations, in the development of technologies and designed solutions, to meet community needs for economic, environmental and social sustainability (ACTDEK029)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

The design of simple solutions using motion, force and energy, to manipulate and control electromechanical and mechanical systems (ACTDEK031)

- Numeracy
- Critical and creative thinking

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Investigate a given need or opportunity for a specific purpose

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Ethical understanding

Evaluate and apply a given brief

- Literacy
- Numeracy
- Critical and creative thinking

Consider components/resources to develop solutions, identifying constraints

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Ethical understanding

Designing

Design, develop, evaluate and communicate alternative solutions, using appropriate technical terms and technology

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability

- Critical and creative thinking
- Personal and social capability

Produce a simple plan designed to solve a problem, using a sequence of steps

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Producing and implementing

Safely apply appropriate techniques to make solutions using a range of components and equipment

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Develop contextual criteria independently to assess design processes and solutions

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Collaborating and managing

Plan, publish and manage projects, collaboratively and/or individually, considering safety, specific task requirements, time and other required resources

- Literacy
- Numeracy

- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

Year 9 Syllabus

The syllabus is based on the requirement that in Years 9 and 10 the study of Technologies is optional.

Year Level Description

Learning in Design and Technologies builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend them as needed.

In Year 9, students have opportunities to learn about technologies in society at least once in the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to design and produce products, services and environments.

Students have opportunities to use design and technologies knowledge and understanding, processes and production skills, and design thinking to produce solutions to identified needs or opportunities. They work independently and collaboratively. Students specifically focus on solutions, taking into account social values; economic, environmental and social sustainability factors. They have the opportunity to use creativity, innovation and enterprise skills with increasing confidence, independence and collaboration.

Using a range of increasingly sophisticated technologies, including a variety of graphical representation techniques, students have opportunities to generate and represent original ideas and production plans in two-dimensional and three-dimensional representations.

Students identify and establish safety procedures that minimise risk and manage projects. They learn to transfer theoretical knowledge to practical activities.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Processes and production skills

CREATING SOLUTIONS BY:

Social, ethical and sustainability considerations that impact on designed solutions (ACTDEK040)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Development of products, services and environments, with consideration of economic, environmental and social sustainability (ACTDEK041)

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

The characteristics and properties of materials, combined with force, motion and energy, to create solutions (ACTDEK043)

- Numeracy
- Critical and creative thinking

Investigating and defining

Identify and define the needs of a stakeholder, to create a brief, for a solution

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Investigate a selection of components/resources to develop solution ideas, identifying and considering constraints

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Designing

Apply design thinking, creativity and enterprise skills

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Design solutions assessing alternative designs against given criteria, using appropriate technical terms and technology

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Producing and implementing

Safely select, implement and test appropriate technologies and processes, to make solutions

- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Evaluate design processes and solutions against student developed criteria

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Collaborating and managing

Project planning using appropriate interactive digital technology, creating an iterative and collaborative approach, identifying risk and safety considerations

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to 'set' standards through paired comparisons.

Year 10 Syllabus

The syllabus is based on the requirement that in Years 9 and 10 the study of Technologies is optional.

Year Level Description

Learning in Design and Technologies builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend them as needed.

In Year 10, students have opportunities to learn about technologies in society at least once in the following technologies contexts: Engineering principles and systems; Food and fibre production; Food specialisations; and Materials and technologies specialisations. Students are provided with opportunities to design and produce products, services and environments.

Students have opportunities to use design and technologies knowledge and understanding, processes and production skills, and design thinking, to produce solutions to identified needs or opportunities of relevance to individuals, and regional and global communities. Students work independently and collaboratively. They have opportunities to understand the complex interdependencies involved in the development of technologies and enterprises. The focus is on students designing solutions, taking into account ethics; legal issues; social values; economic, environmental and social sustainability factors; and using more sophisticated strategies. They use creativity, innovation and enterprise skills with confidence, independence and collaboration.

Using a range of technologies, including a variety of graphical representation techniques, students have opportunities to generate and represent original ideas and production plans in two-dimensional and three-dimensional representations using a range of technical drawings, including perspective, scale, orthogonal and production drawings with sectional and exploded views, appropriate to their designs.

Students identify the steps involved in planning the production of designed solutions. They develop detailed project management plans incorporating elements, such as sequenced time, cost and action plans to manage a range of design tasks safely. Students apply management plans, changing direction when necessary, to successfully complete design tasks. They continue to identify and establish safety procedures that minimise risk and manage projects maintaining safety standards and management procedures to ensure success. Learning experiences require students to transfer theoretical knowledge to practical activities across a range of projects.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Social, ethical and sustainability considerations that impact on designed solutions, complexity of design, and production processes involved (ACTDEK040)

- Literacy
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Processes and production skills

CREATING SOLUTIONS BY:

Investigating and defining

Identify the needs of the client/stakeholder to determine the basis for a solution

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Impact of emerging technologies on design decisions, and/or economic, environmental and social sustainability (ACTDEK041)

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

TECHNOLOGIES CONTEXTS

Engineering principles and systems

The process of materials being combined with force, motion and energy to create solutions (ACTDEK043)

- Numeracy
- Critical and creative thinking
- Personal and social capability

Create and critique briefs to solutions

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Designing

Apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking

Producing and implementing

Safely select, justify, implement and test appropriate technologies and processes, to make solutions

- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Evaluating

Analyse design processes and solutions against student developed criteria

- Literacy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability
- Ethical understanding

Collaborating and managing

Use appropriate interactive digital technology to plan and manage projects, using an iterative and collaborative approach; identifying risks and analysing time, cost, production processes, safety, sustainability and legal responsibilities

- Literacy
- Numeracy
- Information and Communication Technology (ICT) capability
- Critical and creative thinking
- Personal and social capability

Achievement standard

To be developed in 2015 using (assessment) work sample evidence to ‘set’ standards through paired comparisons.

ABLE*WA* Stage A

ABLE*WA* A stage description

In Stage A, students are exposed to technologies, including its purpose and how technologies meet every day personal needs.

Students experience the characteristics and properties of some familiar designed solutions from one of the technologies contexts:

- Engineering principles and systems
- Food and fibre production
- Food specialisations
- Materials and technologies specialisations.

Students are exposed to designed solutions that meet their needs.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Experience how people create familiar designed solutions to meet their needs (VCDSTS001)

TECHNOLOGIES CONTEXTS

Experience the characteristics and properties of familiar designed solutions in at least one technologies context (VCDSTS002)

Processes and production skills

CREATING DESIGNED SOLUTIONS

React to a designed solution that has been created and produced safely to meet their needs(VCDSCD003)

Achievement standard

By the end of Stage A, students react to significant designed solutions that meet their needs.

With guidance, students experience designed solutions in at least one technologies context. They begin to communicate their needs and indicate a choice or preference through accept and reject actions.

Students react to the use of tools and equipment and experience the sequenced steps involved in producing a designed solution.

ABLE*WA* Stage B

ABLE*WA* B stage description

In Stage B students explore technologies, including its purpose and how technologies meet personal and social needs.

Students examine the characteristics and properties of some technologies from one of the technologies contexts:

- Engineering principles and systems
- Food and fibre production
- Food specialisations
- Materials and technologies specialisations.

With teacher support, students communicate simple design ideas.

Students experience how designed solutions meet their needs.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Explore the use of familiar designed solutions to meet their needs (VCDSTS004)

TECHNOLOGIES CONTEXTS

Explore the characteristics and properties of familiar designed solutions in at least one technologies context (VCDSTC005)

Processes and production skills

CREATING DESIGNED SOLUTIONS

Experience and explore how designed solutions are created and produced safely to meet personal needs(VCDSCD006)

Achievement standard

By the end of Stage B, students are using some familiar designed solutions appropriately to meet their needs.

With guidance, students explore designed solutions in at least one technologies context. They experience designed solution ideas and select materials and components based on personal preferences.

Students follow a design process step by step and use tools safely when prompted.

ABLE*WA* Stage C

ABLE*WA* C stage description

In Stage C students explore and investigate technologies, including its purpose and how technologies meet needs.

Students describe the characteristics and properties of familiar designed solutions from one of the technologies contexts:

- Engineering principles and systems
- Food and fibre production
- Food specialisations
- Materials and technologies specialisations.

With teacher support, students communicate simple design ideas. Students are introduced to different forms of evaluating designed solutions based on personal preferences.

Students, with teacher support, follow directions to complete their own or group design ideas or projects.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Match familiar designed solutions to the personal needs they meet (VCDSTS007)

TECHNOLOGIES CONTEXTS

Examine and indicate the characteristics and properties of familiar designed solutions in at least two technologies contexts (VCDSTC008)

Processes and production skills

CREATING DESIGNED SOLUTIONS

Examine and indicate how designed solutions are created and produced safely to meet needs (VCDSCD009)

Achievement standard

By the end of Stage C, students use and identify the purpose of familiar designed solutions. They match some designed solutions to a need.

Students use designed solutions in at least two technologies contexts. With guidance, students reflect on created and produced designed solutions, developing ideas based on personal preferences. They begin to follow simple sequenced steps and teacher direction to use tools and equipment safely when producing designed solutions.

ABLE*WA* Stage D

ABLE*WA* D stage description

In Stage D students explore and investigate technologies, including its purpose and how technologies meet personal and social needs within local settings.

Students explore the characteristics and properties of familiar designed solutions from one of the technologies contexts:

- Engineering principles and systems
- Food and fibre production
- Food specialisations
- Materials and technologies specialisations.

With teacher support, students communicate simple design ideas and begin to evaluate designed solutions based on personal preferences.

Students begin to plan their design idea with teacher support, and follow simple steps and directions to complete their own or group design ideas or projects.

Knowledge and understanding

TECHNOLOGIES AND SOCIETY

Explore how people create familiar designed solutions and identify their ability to meet personal and local community needs (VCDSTS010)

TECHNOLOGIES CONTEXTS

Explore and communicate the characteristics and properties of familiar designed solutions in at least two technologies contexts (VCDSTC011)

Processes and production skills

CREATING DESIGNED SOLUTIONS

Explore and communicate how designed solutions are generated and produced to meet needs (VCDSCD012)

Achievement standard

By the end of Stage D, students describe the purpose of familiar designed solutions and what needs they meet.

Students use designed solutions in at least two technologies contexts, identifying significant features.

With guidance, students create designed solutions evaluating their ideas based on personal preferences. They select materials based on some understanding of their properties and characteristics. They follow simple sequenced steps to create a designed solution and demonstrate safe use of tools and equipment.