

Designing a sports outfit



Strand	Organiser	Level						B6
		1	2	3	4	5	6	
Technology Practice	<i>Investigation</i>							
	<i>Ideation</i>							
	<i>Production</i>							
	<i>Evaluation</i>							
Information	<i>Nature</i>							
	<i>Techniques</i>							
Materials	<i>Nature</i>							
	<i>Techniques</i>							
Systems	<i>Nature</i>							
	<i>Techniques</i>							

Purpose

The activities in this module are planned to provide students with opportunities to design a sports outfit for themselves. As a class, they identify their needs and wants and consider possible solutions to problems.

Overview

The following table shows the activities in this module and the way in which these are organised into orientating, enhancing and synthesising phases.

Orientating	Enhancing	Synthesising
<p>Discuss the need for new outfits.</p> <p>Identify individual needs and wants.</p> <p>Find out what students know about designing clothes.</p> <p>Bring in examples of sports uniforms and make a display.</p> <p>Discuss investigations and findings as a whole class.</p> <p>Collect information on large sheets of paper for display.</p>	<p>Generate design ideas for a new sports outfit.</p> <p>Record design ideas in a Technology project folio.</p> <p>Use newspaper to generate a pattern from a design idea.</p> <p>Discuss safety issues to be considered when using equipment.</p> <p>Consider the suitability of different materials and select a suitable material for a sports outfit.</p> <p>Use the generated pattern and follow production procedures to make an outfit.</p>	<p>Discuss the appropriateness of the designs.</p> <p>Evaluate the choice of materials and the designs.</p> <p>Model the outfits.</p> <p>Display the outfits on sports day and wear them in the opening ceremony.</p>

Core learning outcomes

This module focuses on the following core learning outcomes from the *Years 1 to 10 Technology Syllabus*:

Technology Practice

TP 2.1 Students organise knowledge, ideas and data about how needs and wants might be met and use this information when meeting design challenges.

TP 2.2 Students generate design ideas, acknowledge the design ideas of others and communicate their design ideas using annotated drawings that identify basic design features.

TP 2.3 Students identify, sequence and follow production procedures to make products of their own design.

TP 2.4 Students consider initial design ideas with final products and give reasons for similarities and differences.

Materials

MAT 2.1 Students match the characteristics of materials to design requirements.

MAT 2.2 Students select and use suitable equipment and techniques for manipulating and processing materials.

Core content

The core learning outcomes are the focus for planning learning activities and assessment tasks. Students will engage with core content (see pp. 37–40 of the syllabus) when they are provided with opportunities to demonstrate core learning outcomes. While the content is listed in strands for organisational convenience, no one part of that content is to be viewed as discretely associated with a single strand.

The organisation of content within a strand should not be considered hierarchical. Any of the content can be addressed at any appropriate level; not all of the content need be addressed at every level. Core content should be selected to suit students' needs, interests and abilities and to take account of their prior knowledge and experiences.

The core content should be studied in a range of contexts. These could include personal and global contexts, as well as contexts of agriculture, business, communities, home and family, industry, leisure and recreation, and school.

Using this module

The activities in this module are designed to provide opportunities for students to demonstrate Level 2 core learning outcomes. These activities can also provide opportunities for students to develop and demonstrate the related learning outcomes at other levels. In order to do this, teachers will need to prepare additional sets of anticipated evidence derived from the related learning outcomes at different levels. They may also need to modify aspects of the activities.

This module includes a variety of sequenced activities requiring varying amounts of time. Teachers can modify the design brief and related activities depending on the local contexts, particular needs and prior knowledge of students and the availability of materials and resources.

Advice to teachers

Students should label their designs and list the materials to be used so that they can reflect on their designs during the evaluation phase. Students should keep their design ideas and information in a Technology project folio.

Students should use newspaper to experiment with developing patterns. Consider assisting students when they are placing their patterns on the selected materials. Students will find it easier to work in pairs with one student holding the pattern while the other either sticky tapes or pins it down. Some students may need assistance in developing their fine motor skills. Making the outfits from crepe paper maybe an alternative to fabric as it is cheap and colourful and easy to manipulate.

Resources

Students' creativity in demonstrating core learning outcomes in this module should not be limited by the range and scope of resources and equipment provided by the teacher. A variety of resources should be collected over time and should be safely stored and made available to students as required.

Evaluation of a unit of work

After completion of a unit (or units) of work developed from this module, teachers collect information and make judgments about:

- teaching strategies and activities planned or selected to allow students to demonstrate the core learning outcomes
- future learning opportunities for students who have not yet demonstrated the core learning outcomes and to challenge and extend those students who have already demonstrated the core learning outcomes
- the extent to which activities matched needs of particular groups of students and reflected equity considerations
- the appropriateness of time allocations for particular activities
- the appropriateness of resources used.

Information from this evaluation process can be used to plan subsequent units of work so that they build on, and support, student learning. The evaluated units of work may also be adapted prior to their reuse. For further information, refer to the 'Curriculum evaluation' section of the sourcebook guidelines.

Links

Links to other key learning areas

Activities from this module can be used as part of an integrated unit that makes links to other key learning areas. When incorporating this module into an integrated unit of work, teachers can select activities that provide opportunities for students to demonstrate learning outcomes from other key learning areas and identify anticipated evidence of students' demonstrations of these learning outcomes. It is important, however, that the integrity of the processes and concepts within key learning areas is maintained.

This module could link to the following key learning areas:

- The Arts
- English
- Mathematics.

Contributions to the cross-curricular priorities

This module contributes to students' development of the cross-curricular priorities:

- **literacy**, as students develop understandings and use of language used to describe designs ideas
- **numeracy**, as students become familiar with concepts related to proportion, symmetry, balance, estimation, space and measurement
- **lifeskills**, as students' develop and demonstrate understandings of the designed world
- **a futures perspective**, as students envisage and evaluate options when designing outfits.

The valued attributes of a lifelong learner

The overall learning outcomes of the Queensland Years 1 to 10 curriculum contain elements common to all key learning areas and collectively describe the valued attributes of a lifelong learner.

The following points indicate how various activities in this module might contribute towards the development of these attributes.

Knowledgeable person with deep understanding

- examines technology from the past and from other cultures
- uses appropriate methods to manipulate materials
- develops understandings about investigation, ideation, production and evaluation.

Complex thinker

- makes decisions and justifies choices in realising their designs
- evaluates the suitability of materials for particular purposes based on understandings of their characteristics.

Active investigator

- tests the suitability of materials for specific purposes and experiments with techniques for manipulating and processing materials
- explores aesthetic, culture, economic, environmental, ethical, functional and social implications.

Responsive creator

- uses imagination, originality, intuition, enterprise and aesthetic judgment when meeting design challenges
- uses creative strategies to examine needs, wants, opportunities and associated issues from a range of perspectives.

Effective communicator

- uses a variety of methods to communicate design ideas effectively to a range of audiences.

Participant in an interdependent world

- works individually and collaboratively on a variety of design challenges with confidence and initiative
- negotiates with others and resolves conflict in appropriate ways as they work towards common goals and share equipment and resources.

Reflective and self-directed learner

- identifies their strengths, limitations and preferred learning styles and uses this information to improve learning
- looks for and recognises ways of 'working technologically' in everyday life.

Assessment strategies

The assessment opportunities outlined are examples of how to assess students' demonstrations of the identified learning outcomes. As often as possible, negotiate assessment with students and support a variety of ways of demonstrating the learning outcomes. Reflect with students on evidence gathered when making judgments about their demonstrations of learning outcomes. Some students may require more time and/or other contexts in which to demonstrate these learning outcomes. Other modules may provide such time and/or contexts.

Suggestions for gathering information about student learning are provided in the activities section of this module. The table below provides descriptions of anticipated evidence that teachers might gather to support their judgments about students' demonstrations of learning outcomes and suggests sources of evidence. The table is neither exhaustive nor mandatory. Once sufficient evidence has been collected, judgments can be made about students' demonstrations of learning outcomes.

Core learning outcomes	Anticipated evidence	Sources of evidence
TP 2.1 Students organise knowledge, ideas and data about how needs and wants might be met and use this information when meeting design challenges.	Develop concept maps, flow charts, recall charts or graphs. Make lists of needs and wants and how they may be met. Store knowledge, ideas and data to disk, make a booklet, make a recording, keep a Technology project folio.	Observation of students as they participate in planned activities. Consultation with students to verify the evidence gathered. Work samples/technology project folios.
TP 2.2 Students generate design ideas, acknowledge the design ideas of others and communicate their design ideas using annotated drawings that identify basic design features.	Generate design ideas by participating in group brainstorming activities. Question others about their design ideas and discuss ideas with others. Make lists/tables. Draw pictures of their design ideas and label the major features and their purposes. Use sketches and simple annotated diagrams to represent and communicate their ideas clearly so that others can understand their meaning.	Observation of students as they participate in planned activities. Consultation with students to verify the design ideas generated. Work samples/technology project folios.
TP 2.3 Students identify, sequence and follow production procedures to make products of their own design.	Identify production procedures by watching someone modelling a production process. Try to incorporate this process into their production procedures. Identify the production procedures they want to use and explain why they have chosen this production process. Sequence and follow production procedures needed to complete a task. Create products from their own design ideas.	Observation of students as they participate in planned activities. Consultation with students to verify the work completed. Anecdotal notes. Work samples/technology project folios. Focused analysis of the processes and product.
TP 2.4 Students consider initial design ideas with final products and give reasons for similarities and differences.	Share their views about their design ideas and the products they have generated. Ask questions about their own products and how well they compare to original designs. Evaluate their own products and assess how well they meet the intended purpose.	Observation of students as they evaluate their products. Anecdotal notes. Work samples/technology project folios. Self- and peer-assessment.
MAT 2.1 Students match the characteristics of materials to design requirements.	Identify the characteristics that make materials appropriate for use in their designs. Describe the characteristics of the materials — for example, softness, durability, colour and strength.	Observation of students as they participate in activities. Anecdotal notes.
MAT 2.2 Students select and use suitable equipment and techniques for manipulating and processing materials.	Select and use available equipment such as pins and needles, scissors, staplers. Manipulate materials and use techniques that demonstrate development in fine and gross motor control.	Observation of students as they manipulate and use equipment. Anecdotal notes.

In gathering evidence to make judgments about students' demonstrations of core learning outcomes, it may be necessary to look at the level before and after Level 2. The following table indicates evidence of the level before. Students may be demonstrating core learning outcomes at another level.

Core learning outcomes	Anticipated evidence	Sources of evidence
TP 1.1 Students gather knowledge, ideas and data from familiar environments and consider how they will use this information to meet design challenges.	Gather information about sports outfits that will be useful when designing their own outfits. Record this information in Technology project folios.	Analysis of work samples/Technology project folios.
TP 1.2 Students generate design ideas and communicate these through experimentation, play and pictures.	Brainstorm design ideas in groups. Record design ideas in different ways — for example, modelling, making, drawing.	Observation of students as they participate in planned activities.
TP 1.3 Students make products that are meaningful to them, and describe their production procedures.	Use paper materials to create models of sports outfits that represent design ideas.	Consultation with students to verify the evidence gathered. Analysis of work samples.
TP 1.4 Students express thoughts and opinions to evaluate their own and others' design ideas and products.	Evaluate the outfits by expressing thoughts and opinions about the appropriateness of their designs. Explain how the outfits meets needs and wants.	Observation of students as they participate in planned activities.
MAT 1.1 Students identify characteristics of materials and explain how materials are used in everyday products.	Describe the characteristics of a variety of materials. Explain why certain materials were selected for use in the production of their outfits.	Observation of students as they participate in planned activities. Consultation with students to verify the evidence gathered.
MAT 1.2 Students explore equipment and techniques when joining and combining materials for meaningful purposes.	Experiment and play with a range of objects as they explore the use of equipment and techniques to make their sports outfits.	Observation of students as they participate in planned activities. Analysis of work samples/technology project folios.

Background information

Terminology

In this module students have opportunities to become familiar with and use the following terminology:

diagrams	evaluation	materials
design challenge	ideation	pattern
design proposal	investigation	production procedures
diagrams	manipulating	techniques

School authority policies

Teachers need to be aware of and observe authority policies that may be relevant to this module.

Safety policies will be of particular relevance to some of the activities that follow. It is essential that demonstrations and student activities are conducted according to procedures developed through appropriate risk assessments at the school.

Equity considerations

This module provides opportunities for students to increase their understanding and appreciation of equity and diversity within a supportive environment. It includes activities that encourage students to:

- be involved
- work individually or in groups as students will need to assist one another in developing the patterns.
- value diversity of ability, opinion and experience.
- value diversity of language and cultural beliefs where different colour of outfits may indicate different things to different cultures. Be aware that some cultures do not accept certain styles of clothing.
- support one another in their efforts as some students may need more assistance than others.
- become empowered to communicate freely.
- negotiate when using resources and space.
- accept change.

Some students with disabilities may need assistance with some activities. Advice should be sought from their support teachers. It is important that these equity considerations inform decision making about teaching strategies, classroom organisation and assessment.

Activities

Orientating activities

Design challenge

Design and make a new sports outfit for sports days. The outfit must be of two colours, one major house colour and one other colour.

<i>Focus</i>	<p>TP 2.1 Students organise knowledge, ideas and data about how needs and wants might be met and use this information when meeting design challenges.</p> <p>TP 2.2 Students generate design ideas, acknowledge the design ideas of others and communicate their design ideas using annotated drawings that identify basic design features.</p>
<i>Teaching considerations</i>	<p>Consider where students will keep their outfits and all their materials. One suggestion is for each student to have a labelled cardboard box that can be stacked and stored.</p> <p>This phase provides opportunities for students to investigate and compare how different designs of clothing meet needs and wants. Students also identify characteristics of materials and describe what makes them suitable for their products.</p>
<i>Resources</i>	A variety of sports outfits, materials for recording investigations, Technology project folios, sheets of paper, Student resource 1.

Teacher	Students
Collect all the ideas and present them on a chart for classroom display.	Discuss the need for new outfits. Work in pairs and write down ideas about the need for a new sports outfit.
Give each pair a sports outfit to investigate (Student resource 1).	Identify individual needs and wants. Look at different sports outfits and consider how they meet the needs of different users. Discuss how each outfit is designed to suit the sport played. Record ideas in Technology project folios.
Direct students to use the Internet or library to gather information on designing clothes. View videos about clothes.	Find out what students know about designing clothes Discuss the processes involved in designing clothes, the use of different materials and the combinations of materials that can be used. Consider aspects of appropriateness such as aesthetics and functionality.
Assist students to construct a display in the classroom. This could include books, charts, magazines, sports outfits and sample materials. The display should contain labels and information.	Bring in examples of sports uniforms and make a display. Investigate the design of the different outfits and why an outfit for one sport is different to other sports outfits. Write findings in Technology project folios. Investigate the use of colours and logos. Look at the information on clothing labels. Collect information and present it in a display.
Encourage a whole-class discussion of students' investigations and findings. Collect the information on large sheets of paper.	Discuss investigations and findings as a whole class. Collect information on large sheets of paper for display. Present information that has been gathered from a variety of sources.

<i>Assessment</i>	<p>Sources of evidence could include:</p> <ul style="list-style-type: none"> organised written and graphical records in a Technology project folio clear communication of ideas.
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Enhancing activities

Focus

TP 2.2 Students generate design ideas, acknowledge the design ideas of others and communicate their ideas using annotated drawings that identify basic design features.

TP 2.3 Students identify, sequence and follow production procedures to make products of their own design.

Teaching considerations

These activities provide opportunities for students to generate design ideas, acknowledge the design ideas of others, and communicate their ideas using drawings that detail major features.

Resources

Paper or Technology project folios for recording design ideas and production proposals.

Newspaper, pins, sticky tape, scissors, stapler, design proposals.

Teacher	Students
Help students to research sports outfits.	Generate design ideas for a new sports outfit. <ul style="list-style-type: none"> • Discuss ideas for three different sports outfits — for example, swimmers, a tracksuit and an outfit for cricket/basketball/netball.
	Record design ideas in a Technology project folio. <ul style="list-style-type: none"> • Generate and record design ideas and label the major features in their Technology project folios. • Share ideas in pairs and discuss design proposals.
<p>This activity may take some time to complete and students may go through a process of refining and discarding their patterns. These should be kept so that students can reflect on their learning and they can also be used for assessment purposes. Assist students where necessary in the creation of their patterns.</p> <p>The patterns will be modified as students manipulate the paper to fit the model. Give some direction with making the paper pattern.</p> <p>To make shorts, cut an old pair of shorts down the seams and assist students in creating a front and back pattern.</p>	Use newspaper to generate a pattern from a design idea. <ul style="list-style-type: none"> • Work in pairs to generate a pattern for an outfit using newspaper and following design proposals. • Pin or sticky tape the newspaper pattern together. • Label the pattern pieces as front and back. Store the newspaper pattern in their Technology project folio.

[Enhancing activities continues on the next page.]

<i>Focus</i>	<p>TP 2.3 Students identify, sequence and follow production procedures to make products of their own design.</p> <p>MAT 2.2 Students select and use suitable equipment and techniques for manipulating and processing materials.</p> <p>MAT 2.2 Students select and use suitable equipment and techniques for manipulating and processing materials</p>
<i>Teaching considerations</i>	These activities provide opportunities for students to make sports outfits of their own design using step-by-step production processes. They select and use available equipment to manipulate and process materials.
<i>Resources</i>	Crepe paper, different types of fabric, plastic sheeting, garbage bags, collage materials for decorating, scissors, pins, stapler, masking tape.

Teacher	Students
Discuss the safety issues associated with using equipment.	Discuss safety issues to be considered when using equipment. <ul style="list-style-type: none"> • Include information in their production procedures about any equipment and resources needed, as well as any safety notes for using equipment — for example, sewing machine, scissors, glue gun.
Help students identify the materials used to make different clothes by examining the labels. Consider the characteristics of the materials — cotton: cool natural fibre; lycra: stretches; polyester: dries quickly. A variety of tests could be performed on the materials — for example, water resistance, strength, flexibility and durability.	Consider the suitability of different materials and select a suitable material for a sports outfit. <ul style="list-style-type: none"> • List the types of materials used in different sports outfits and explore the characteristics of the materials. • Discuss why particular materials were chosen for each outfit. • Test materials for strength, water resistance, flexibility and durability. • Collect samples of different materials and glue them into Technology project folios with a description of each material and the tests performed on them.
Assist students to follow their production procedures and make up their outfits.	Use the generated pattern and follow production procedures to make an outfit. <ul style="list-style-type: none"> • Lay the material on a flat surface. • Place the newspaper pattern on the material and pin or sticky tape it in place. • Use sharp scissors to cut around the pattern, 5 mm away from the edge. • Label the front and back pieces of the design and staple, stick or sew them together depending on the type of material being used. (Crepe paper is easy to sticky tape or staple together.) • Decorate or embellish the outfit with collage materials if required.

<i>Assessment</i>	Sources of evidence could include: <ul style="list-style-type: none"> • observation of students as they participate in planned activities • observation of students as they manipulate materials.
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Synthesising activities

<i>Focus</i>	TP 2.4 Students consider initial design ideas with final products and give reasons for similarities and differences.
<i>Teaching considerations</i>	Not all students will complete their outfits at the same time and it may be necessary to allow some students to complete them at home. This would enable parents and carers to become involved in the activities.
<i>Resources</i>	Student outfits, Technology project folio.

Teacher	Students
Assist students to evaluate their work by asking questions. Reflect on the design challenge and decide if it was met and if not what they could do differently next time.	Discuss the appropriateness of the designs. Evaluate the choice of material and design. <ul style="list-style-type: none"> • What do you like about your outfit? • Did you choose a suitable material? • What impacts, if any, would your outfit have on society or the environment? • Does it look like the original design? • What changes did you make and why? • How could you modify or improve the design?
Celebrate and reflect on the learnings.	Model outfits. <ul style="list-style-type: none"> • Display outfits on sports day and wear them in the opening ceremony.

<i>Assessment</i>	Sources of evidence could include: <ul style="list-style-type: none"> • observation of students as they participate in planned activities • consultation with students to verify the evidence gathered • anecdotal notes • work samples/Technology project folios • self- and peer-assessment.
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Project planning sheet

Student resource 1

Design challenge	Materials What will I need?	Equipment What will I need?	Information Where will I gather it?	Ideation What are my ideas?
Design proposal What will it look like?	Production Who will help me? How will I make it?	Production/evaluation	Appropriateness	Evaluation Does it meet the design challenge?

Support materials

Print

Baulch, K. and Oppermann, K. 1994, *Textiles and Technology*, Cambridge University Press, Cambridge, UK.

Clarke, P. et al. 1994, *Working with Design and Technology*, Jacaranda Press, Milton, Qld.

Nuffield Design and Technology, Longman, Harlow, 1995.

Ridgewell, T. 1998, *Textiles and Design in Action*, Addison Wesley Longman, South Melbourne.

Websites

(All websites listed were accessed in September 2002.)

Thinkquest Fabric Online: <http://library.thinkquest.org/C004179/>

ThinkQuest site covering the world of clothing and the different kinds of fabric used to create clothes.

Internet Resources for KS1/2 Design & Technology, BA Primary Education Year 3

<http://users.tinyonline.co.uk/harrisonwd/d&twwww.htm>

Provides useful links to Technology sites.

Sports and Olympics Activities: www.dltk-kids.com/sports/

Provides useful links to sports sites.

This sourcebook module should be read in conjunction with the following Queensland Studies Authority materials:

Years 1 to 10 Technology Syllabus

Years 1 to 10 Technology Sourcebook Guidelines

Technology Initial In-service Materials

Technology CD-ROM

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Any inquiries should be addressed to:

Queensland Studies Authority, PO Box 307, Spring Hill Q 4004 Australia

Phone: (07) 3864 0299. **Fax:** (07) 3221 2553

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