Classroom clean-up

Strand	Organiser	Level						
		1	2	3	4	5	6	B6
Technology Practice	*Investigation*		■	■				
	Ideation		■	■				
	Production		■	■				
	Evaluation		■	■				
Information	*Nature*		■	■				
	Techniques		■	■				
Materials	*Nature*		■	■				
	Techniques		■	■				
Systems	*Nature*		■	■				
	Techniques		■	■				

Purpose

The activities in this module provide opportunities for students to design and create containers or systems that can be used to keep the classroom tidy and well organised. The culminating activities involve students presenting their solutions during a class or school Open Day.

Overview

The following table provides an overview of the activities in this module and the way in which these are organised into introductory, developmental and culminating phases.

Introductory	Developmental	Culminating
Investigate classroom organisation to identify needs (Think, pair, share). Establish Technology project folios. Determine indicators of the effectiveness of their designs. Determine personal organisational needs and generate a design brief. Conduct an environmental scan. Analyse products to identify desirable design features. Identify safety features and test stability. Examine materials. Design personal organisers. Make personal organisers. Evaluate personal organisers.	Negotiate a design brief for improving an aspect of classroom or year-level organisation. Conduct an environmental scan of classroom management systems. Assess risks. Prepare design proposals. Communicate designs to others and provide and respond to feedback. Work from their design proposals to create devices and systems that enhance classroom organisation.	Trial, 'bench test' and implement systems. Reflect on products and processes. Prepare for Open Day.

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 3.1 Students examine knowledge, ideas and data from a range of sources and establish the relevance of 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 3.2 Students collaboratively generate design ideas and communicate these using presentations, models and technical terms.

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

TP 3.3 Students cooperatively develop and follow production procedures to make products that reflect their design ideas.

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

TP 3.4 Students test and judge how effectively their own and others' processes and products meet the design challenge.

Information

INF 2.1 Students explain the purposes of different forms of information and describe how these are used in everyday life.

INF 3.1 Students describe advantages and disadvantages of different sources and forms of information.

INF 2.2 Students use simple techniques for accessing and presenting information for themselves and others.

INF 3.2 Students select and use techniques for generating, modifying and presenting information for different purposes.

Materials

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

MAT 3.1 Students choose materials according to various characteristics that best suit the product and user.

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

MAT 3.2 Students select and use suitable equipment and techniques to combine materials accurately in order to meet design requirements.

Systems

SYS 2.1 Students identify and describe the order of components in familiar systems.

SYS 3.1 Students identify and describe relationships between inputs, processes and outputs in systems.

SYS 2.2 Students combine components to assemble systems in order to meet their needs and the needs of others.

SYS 3.2 Students assemble and trial systems they design by considering inputs, processes and outputs.

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 Levels 2 and 3 Technology 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 develop additional sets of anticipated evidence derived from the related learning outcomes at different levels. They may also need to modify aspects of the activities.

The module includes a variety of sequenced activities requiring varying amounts of time. Teachers and students should negotiate design challenges and related activities depending on the local contexts, particular needs and prior knowledge of students and the availability of materials and resources. Students to undertake one or more of the challenges. Activities from the first design challenge can be adapted for use in the second or third design challenges.

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 develop additional sets of anticipated evidence derived from the related learning outcomes at different levels. They may also need to modify aspects of the activities.

Advice to teachers

Classrooms are busy places. Considerable amounts of time are spent setting out and putting away equipment and tidying personal belongings. In a tidy well-organised classroom, students can focus on learning. The three design challenges in this module are related to the organisation of personal belongings and to classroom and year-level management systems.

The first design challenge is relatively closed, and requires students to work independently. Each student designs and creates a product for organising their personal belongings. Teachers guide the design process and help students to establish Technology project folios.

The second design challenge is open and requires students to work in pairs or small groups. They work collaboratively to identify aspects of classroom or year-level organisation that could be improved, and design and trial devices and systems for improving aspects of classroom or year-level management.

The third design challenge is optional. It can be related to either of the first two challenges. Students design and prepare presentations that explain how their devices, systems or information products were developed and how they work. They deliver their presentations at a class or school Open Day.

Collaboration and cooperation

Level 3 Ideation and Production core learning outcomes in the Technology Practice strand emphasise collaboration and cooperation. To facilitate effective group work, it is important that students negotiate and establish class guidelines for working in groups. These guidelines should describe the roles that members can take and how the members of the group should interact.

Group members should be encouraged to take turns at roles such as *recorder* (keeps a record of the group's decisions), *reporter* (speaks for the group when reporting back to the class), *encourager* (monitors participation and encourages all members to contribute and stay on task) and *storeperson* (checks that equipment is ready at the start of each session and put away at the end).

Working guidelines should be simple. They might include: *be organised* (make sure necessary resources and equipment are available for the session), *stay on task*, *make sure everyone contributes*, *take turns*, *value all contributions* (no put downs).

It is important to allow students to have input into group composition. Some students feel uncomfortable working in groups. Provision should be made for these students to work in pairs or small groups with adult support until they are more comfortable with the processes of group work.

Technology project folios

Many professional designers use folios to record their design ideas and map out the processes they have used. Technology project folios mirror this professional practice by providing a record of progress as students work technologically on design challenges.

Technology project folios are valuable learning tools for students and a source of assessment information for teachers. Students should be encouraged to discuss their folios with peers, parents/carers and teachers, explaining their ideas and the development of their product and reflecting on their production processes and learning. The folio also provides a focus for student–teacher conferences and is a rich source of information for reporting to parents/carers. Teachers can use examples from Technology project folios to illustrate to parents/carers how students have demonstrated core learning outcomes.

At this level, Technology project folios might contain:

- a list of potential sources of information about design ideas
- information gathered during investigations, including lists or pictures of existing solutions to similar needs, wants or opportunities and ideas for further consideration and reflection
- evaluations of the features and functions of existing solutions
- samples of materials and the results of tests on materials
- design specifications
- initial design drawings or sketches
- drawings or plans that include measurements and specify materials
- production plans and timelines
- reasons for their design decisions
- illustrations or photographs of final products
- self-evaluation material including the student's opinions about knowledge, practices and dispositions developed during the project.

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.

Establish a handling collection of wooden, plastic, cardboard, fabric or metal containers for storing personal belongings, and devices used for aspects of classroom organisations.

Resources might include recyclable materials collected by the students or donated by local business. Students will require simple tools and equipment for manipulating and staplers, glues and fasteners for joining and combining materials.

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 to support future 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 has links to strands from the following key learning areas:

- English
- Health and Physical Education
- Languages other than English
- Mathematics
- Science
- Studies of Society and Environment.

Contributions to the cross-curricular priorities

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

- **literacy**, as students develop an understanding of and begin to use appropriate language to describe materials and equipment used to make classroom tidies
- **numeracy**, as students familiarise themselves with concepts related to shapes and measurement
- **lifeskills**, as students develop skills in the areas of self-management, establishing and maintaining relationships and cooperation
- **a futures perspective**, as students envisage and evaluate options while designing personal organisers and products and systems for storing and sharing class and year-level resources.

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

- uses knowledge of the properties of materials to select them for particular purposes
- selects appropriate techniques to manipulate materials to create desired effects.

Complex thinker

- analyses the organisational needs of the classroom
- recognises cause-and-effect relationships in classroom management systems.

Responsive creator

- uses imagination and originality to envision and generate a range of products and processes for enhancing classroom organisation
- realises and refines innovative designs.

Active investigator

- tests the suitability of materials for particular purposes and experiments with different tools and techniques for manipulating them
- trials and evaluates simple classroom management systems.

Effective communicator

- interviews people about products and systems that can be used to organise belongings and manage classroom resources
- presents design ideas using, for example, diagrams, plans and flow charts
- prepares and interprets labels and instructions for simple management systems for ordering, storage and borrowing.

Participant in an interdependent world

- works in pairs or small groups to evaluate materials, organisers and simple management systems
- devises and constructs ways to keep the classroom tidy and well organised.

Reflective and self-directed learner

- describes preferences for specific design features, justifies design choices and identifies ways to refine their designs, production processes or products
- displays self-motivation and perseverance in competing design challenges.

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.

[This table spreads over three pages.]

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.	Record their analyses of personal organisers in table form. Use their analyses of personal organisers to identify features they can use or adapt for their designs. Collect information about examples of classroom and year-level management systems.	Anecdotal records: • observations of students' participation in environmental scanning, and discussions • records of student–teacher interviews. Technology project folios: • illustrations or pictures of personal organisers • descriptions of systems used at home, work or in other classrooms. Student resources 1 and 2.
TP 3.1 Students examine knowledge, ideas and data from a range of sources and establish the relevance of this information when meeting design challenges.	Analyse information gathered from home, other classes and catalogues to select ideas that are relevant to the design challenge. Explain how ideas gathered can be used to improve aspects of classroom and year-level management.	
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 designs for personal organisers and/or classroom or year-level management systems. Discuss their own and others designs. Communicate designs using drawings, flowcharts or diagrams labelled with basic design features.	Anecdotal records: • observations of students' preparing designs • records of student–teacher interviews. Technology project folios. • design ideas • front-, side- and top-view plans and/or models of personal organisers or devices for improving classroom organization. Open Day presentations.
TP 3.2 Students collaboratively generate design ideas and communicate these using presentations, models and technical terms.	Collaborate with peers to generate and communicate designs. Prepare plans of different view s and label them with dimensions and technical terms. Communicate processes using simple flow charts labelled with correct technical terms.	

TP 2.3 Students identify, sequence and follow production procedures to make products of their own design.	Describe procedures for producing their personal organisers and/or implementing their management systems. Follow their procedures to make their organisers and/or implement their management systems.	Anecdotal records: • observations of students' participation in activities and discussions • records of student–teacher interviews. Technology project folios: • student resource 3 • production procedures in design proposals. Devices and systems for improving classroom organization.
TP 3.3 Students cooperatively develop and follow production procedures to make products that reflect their design ideas.	Collaboratively develop production procedures. Follow production procedures safely when creating products.	
TP 2.4 Students consider initial design ideas with final products and give reasons for similarities and differences.	Identify similarities and differences between design ideas and their organisers and/or classroom or year-level management systems. Explain why there are differences.	Anecdotal records: • observations of students' participation in discussions. Technology project folios: • annotated designs. Student resource 4.
TP 3.4 Students test and judge how effectively their own and others' processes and products meet the design challenge.	Devise methods of evaluating the effectiveness of their classroom cleanup strategies. Evaluate the effectiveness of their products and processes.	
INF 2.1 Students explain the purposes of different forms of information and describe how these are used in everyday life.	Explain the purposes of different forms of information such as labels, timetables and instructions in classroom and year-level management systems.	Anecdotal records: • observations of students' participation in discussions. Technology project folios: • results of investigations (illustrations, diagrams, flow charts and descriptions) • annotated designs for labels and instructions. Open Day presentations.
INF 3.1 Students describe advantages and disadvantages of different sources and forms of information.	Identify the advantages and disadvantages of particular sources of information about personal organisers and/or classroom and year-level management systems. Describe the advantages and disadvantages of using different forms of information to support the implementation of classroom and year-level management systems. Describe the advantages and disadvantages of using different forms for their open day presentations.	
INF 2.2 Students use simple techniques for accessing and presenting information for themselves and others.	Interview students and teachers in other classes to identify techniques for creating labels and instructions to complement classroom and year-level management systems. Use simple techniques to prepare labels, instructions to improve classroom organisation.	Anecdotal records: • observations of students accessing and presenting information. Technology project folios: • results of interviews • labels and instructions developed to facilitate implementation of classroom and year-level management systems. Open Day presentations.
INF 3.2 Students select and use techniques for generating, modifying and presenting information for different purposes.	Generate and record data to support their evaluation of their classroom cleanup strategies. Use references to their data analyses to support their open day presentations.	

MAT 2.1 Students match the characteristics of materials to design requirements.	Identify materials used to make personal organisers and locate similar materials to create their designs. Use understandings of their characteristics to explain why they are suitable.	Anecdotal records: • observations of students' participation in activities and discussions. Technology project folios: • descriptions and results of tests on materials. Open Day presentations.
MAT 3.1 Students choose materials according to various characteristics that best suit the product and user.	Identify and describe characteristics of materials that make them suitable for creating personal organisers. Evaluate a range of materials to select those best suited to the design.	
MAT 2.2 Students select and use suitable equipment and techniques for manipulating and processing materials.	Select and use suitable equipment and techniques to make their personal organisers and devices for improving classroom or year-level organisation.	Anecdotal records: • observations of students using equipment and techniques to manipulate and combine materials • records of student–teacher interviews. Personal organisers and devices for improving classroom organization. Technology project folios: • production procedures. Open Day presentations.
MAT 3.2 Students select and use suitable equipment and techniques to combine materials accurately in order to meet design requirements.	Select and use techniques with precisions to join materials to meet design requirements — for example combining fabrics, plastics, wood, metals or cardboard, with glue, nails, staples, tape or screws.	
SYS 2.1 Students identify and describe the order of components in familiar systems.	Use simple flowcharts to record the order of components and processes in linear classroom and year-level management systems.	Anecdotal records: • observations of students developing their classroom or year-level management systems • records of student–teacher interviews. Technology project folios: • flowcharts or diagrams of systems. Open Day presentations.
SYS 3.1 Students identify and describe relationships between inputs, processes and outputs in systems.	Annotate flowcharts or diagrams to identify cause and effect relationships within classroom and year-level management systems.	
SYS 2.2 Students combine components to assemble systems in order to meet their needs and the needs of others.	Set up and use systems that improve aspects of classroom and year-level management .	Anecdotal records: • observations of students assembling and trialling their classroom or year-level management systems. Technology project folios • descriptions, diagrams, flow charts and production procedures. Classroom or year-level management systems. Open Day presentations.
SYS 3.2 Students assemble and trial systems they design by considering inputs, processes and outputs.	Identify inputs, processes and outputs in classroom and year-level management systems they have designed. Assemble and trial their classroom and year-level management systems.	

Background information

Terminology

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

bench testing	legend	scale
brittle	management	side-view plan
environmental scan	personal organiser	storage
fabric	pliable	textile
feature	recyclable	top-view plan
flexible	re-usable	trial
flow chart	rigid	
front-view plan	risk assessment	

School authority policies

Teachers need to be aware of and observe school 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 teacher demonstrations and student activities are conducted according to procedures developed through appropriate risk assessments at the school.

In this module, teachers may need to consider safety issues relating to the use of tools and materials in the classroom. Depending on the types of materials and equipment used, teachers may need to consult several sections of the school's safety manual.

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 in negotiating classroom management systems
- work individually or in groups to create devices or systems for organising belongings
- value diversity of ability, opinion and experience
- value diversity of language and cultural beliefs
- support one another in their efforts
- become empowered to communicate freely in group discussions and negotiations
- consider personal and group needs in devising solutions and negotiating and accepting change.

It is important that these equity considerations inform decision making about teaching strategies, classroom organisation and assessment.

Some students with disabilities may need assistance with some activities. Advice should be sought from their support teachers.

Activities

Introductory activities

Focus, Activities 1–7

During the introduction activities, students identify aspects of personal, classroom or year-level organisation that could be improved and work individually on a design challenge to develop a product to meet a personal need. Students investigate methods of organising and storing personal belongings in the classroom. They evaluate a range of existing organisers and identify desirable design and safety features of organisers. They generate design briefs for personal organisers and explore suitable materials for constructing organisers.

Teaching considerations

Students identify aspects of personal, classroom and year-level organisation that could be improved. The classroom should be organised so it is easy for students to move from individual work to pairs and then groups of four.

Aspects of organisation students could explore might include:

- storing personal belongings
- maintaining displays of student work and maintaining activity centres
- storing, borrowing and using class and year-level equipment and resources
- establishing classroom or year-level monitor systems or rosters for tuckshop, banking, sharing computer facilities.

Provide students with examples of a range of styles and types of Technology project folios. Prompt students to record information in their folios at strategic points during the project.

Collect a range of recycled materials for students to test and use. Students operating at Level 2 might need assistance with measuring activities. Where appropriate, students can measure using arbitrary units.

Resources

Example Technology project folios.

Paper, pens, chart paper or overhead transparencies.

Student resources 1 (Evaluate organisers), 2 (Desirable features) and 3 (Safety issues).

Handling collection of containers for storing personal belongings.

Handling collection of wooden, plastic, cardboard, fabric or metal containers for storing personal belongings.

Students' Technology project folios.

Activity 1

Investigate classroom organisation to identify needs (Think, pair, share)

Technology Practice (Investigation)

1. Explain that students will be working individually, in pairs and then in groups of four. Establish guidelines for working in groups and a method of reporting back and compiling a whole class list.
2. Individually, students list the aspects of classroom organisation that are working well and those that they think could be improved.
3. In pairs, students compare lists and add further ideas.
4. Where possible, pairs combine to form groups of four. Students work in groups of four to combine their lists. They then select the three aspects that they consider to be most interesting or most important.
5. Groups report back to the class.
6. Students compile a list of aspects of classroom management that are working well. They compile a prioritised list of aspects of classroom organisation that require improvement.
7. Display the lists in a prominent place in the classroom for future reference.

Activity 2

Establish Technology project folios

1. Explain the purpose of Technology project folios and discuss the type of information students might include. Information is provided on p. 5 of this module. Provide examples of Technology project folios prepared by other students or a sample folio prepared for demonstration purposes.
2. Explain that the folio format is flexible and might change in response to the way students work.
3. Work with students to determine possible formats for their Technology project folios. Display a list of possible folio contents in a prominent area of the classroom.
4. Create a handout of possible folios contents for students to paste into their project folio for future reference.

Activity 3

Determine indicators of the effectiveness of their designs

1. Explain that during this unit of work students will have opportunities to undertake one or more design challenges, and that at the end of the unit students will need to evaluate their designs. Students discuss what they would like their classroom to be like.
2. Discuss how students might be able to determine whether their designs are effective. Indicators might include the appearance of the classroom, the time taken to setup and clean up particular activities, the time taken for particular borrowing processes, the amount of workspace available to students.

Technology Practice (Investigation, Evaluation)

3. Discuss methods students might use to evaluate their designs. These might include:
   - comparing photos of the classroom taken before and after the clean-up campaign
   - comparing the time students take to tidy up after specific activities before and after the clean-up campaign
   - comparing measurements of the useful workspace available to students before and after the clean-up campaign.
4. Encourage students to collect data that will assist them in their comparisons. Students record their data in their Technology project folios.

Activity 4

Design challenge 1

Design and make a personal organiser to keep your classroom belongings tidy and close at hand.

Determine personal organisational needs and generate a design brief

1. Introduce the first design challenge.
2. Explain that their personal organisers should cater to their personal preferences and accommodate their belongings.
3. Students gather the items they would expect to store in their personal organiser and to consider the sizes, shapes and weight of these items as they generate their design brief.
4. Students brainstorm ways of keeping their personal belongings tidy and easily accessible. Ideas might include tidy boxes, chair bags, shelves and pencil cases. Discuss the limitations of these devices.

Technology Practice (Investigation)

5. Assist students to generate design briefs. The design briefs might indicate what the organiser will need to hold, its size and where it will be located. Confer with students about their design brief.
6. Students record their negotiated design brief in their Technology project folios. They list or draw items they intend to store in their personal organiser.

Activity 5

Conduct an environmental scan

1. Explain that design and development activities within business and industry are often preceded by environmental scans of existing products that meet similar needs.
2. Encourage students to conduct an environmental scan and collect personal organisers used at home, in other classrooms and in the work place. They:
   - brainstorm objects at home or in the classroom that can be used to organise personal belongings
   - visit other classrooms and describe or sketch useful ideas
   - contributing to a handling collection of personal organisers that can be examined by students
   - contribute to a class list of ideas that could be used develop a personal organiser.

Technology Practice (Investigation)

3. Encourage students to produce quick sketches of a range of existing organisers in their Technology project folios. These might include organisers that can be placed inside or on their desk or mounted on the side.
4. Provide students with Student resource 1. Students select and examine three organisers. They record interesting features of the organisers and aspects they like and dislike (benefits and limitations) about each on the resource sheet. Students add the sheets to their Technology project folios.

Activity 6

Analyse products to identify desirable design features

Technology Practice (Investigation)

1. Students conduct a product analysis. They work in groups to compare containers that are useful for storing personal belongings in the classroom.
2. Students:
   - measure the dimensions of the organisers and compare sizes and shapes
   - compare purposes of organisers to the objects — for example, what objects are they designed to store
   - match objects to specific organisers
   - identify desirable functional or aesthetic features of particular organisers — for example, lids, compartments, magnetic sides or bottoms, colour schemes, decorations.
3. Students record their findings on Student resource 2 and store it in their Technology project folio.
4. Invite students to report their findings to the class. Create a class list of desirable features. Encourage students to explain why these features are desirable.

Activity 7

Identify safety features and test stability

Technology Practice (Ideation, Investigation)

1. Discuss the need to consider safety in designing their personal organisers. Students identify aspects of safety that should be considered when designing personal organisers for the classroom. These might include aspects such as weight, sharp edges and stability. Create a class list.
2. Students examine the handling collection and determine how these safety aspects have been overcome. Encourage them to use Student resource 3 to structure their investigations.
3. Students share their findings. Help students to list features that would make personal organisers safe.
4. Assist students to devise a test for stability. Demonstrate how to use this test to check the stability of a container. Students work in groups to test a range of containers. Suggest that they use objects of different lengths to test stability. Students record their test methodology and findings in their Technology project folios and to identify common features of stable containers.
5. Encourage students to test or evaluate containers for another safety feature.

Assessment

Sources of evidence could include:

- Student resources 1, 2 and 3
- teacher's records of observations and conferences.

[Introductory activities continue on next page.]

Focus, Activities 8–11

These activities provide opportunities for students to design their organiser, select materials, and make and evaluate their finished product.

Teaching considerations

Remind students to provide supportive comments when discussing design ideas and to use the agreed criteria when evaluating products.

Resources

Technology project folios.

Handling collection of wooden, plastic, cardboard, fabric or metal containers for storing personal belongings.

Lists of desirable design and safety features.

Selection of materials for making personal organisers and appropriate equipment for cutting, shaping or joining materials.

Activity 8

Examine materials

Technology Practice (Investigation)

1. Students identify the materials used to construct a range of personal organisers.
2. Encourage them to consider the properties that make these materials suitable for particular purposes. Students might discuss:
   - Are the materials strong, flexible or rigid?
   - Are the materials easy to cut, shape and join?
   - Will using these materials have any environmental impacts?
   - Are the materials 'recyclable' or 're-useable'?
3. Provide time for students to examine the range of materials available to them for creating their personal organisers.
4. Students think about other materials they might want to use to create their organiser and to list them in their Technology project folio. Students might consider using plastic, textiles, cardboard or metal. Combinations of these materials will probably be popular. Discuss how students might access these materials.

Activity 9

Design personal organisers

Technology Practice (Ideation)

1. Provide time for students to examine the handling collection. Students draw a range of design ideas for personal organisers. Encourage them to discuss their ideas with others.
2. Students select one design and draw front, side and top views. They should include dimensions and list materials to be used.
3. Discuss with individual students how they might construct their designs. Students outline their proposed production processes in their Technology project folios.
4. Provide opportunities for students to present their designs to others. Preparing their presentations will help students to clarify their ideas.
5. Discuss the design proposals in small groups. Students consider the implications of some of their design choices. They discuss, for example:
   - how the choice of materials might enhance the aesthetic appeal or functionality of the product
   - how the proposed size, shape and weight might affect the stability of the organiser
   - how mass-producing organisers using particular materials might impact on the environment
   - how all students using a particular organiser might impact on the classroom.
6. Encourage students to record points raised during these discussions in their Technology project folios and, where necessary, to revise their designs.

Activity 10

Make personal organisers

Technology Practice (Production)

1. Provide a number of sessions for students to make their personal organisers. Ensure there is time at the end of each session for students to record their progress in their Technology project folios.
2. Encourage students to test aspects of their designs as they work.
3. Meet with students to discuss their progress. Encourage them to consider how their actual production processes have differed from their proposed production processes.

[Activities continue on the next page.]

Activity 11

Evaluate personal organisers

Technology Practice (Evaluation)

1. Revisit the list of desirable design and safety features compiled earlier.
2. Students work in pairs to test or evaluate their organiser using these lists as criteria.
3. Meet with each pair to discuss their product evaluations. Encourage students to record what they have learnt about materials and production processes in their Technology project folios.

Assessment

Sources of evidence could include:

- records of observations and conferences about students' progress and proposed production processes
- proposed production processes and results of tests and evaluations of products in Technology project folios
- personal organisers.

Developmental activities

Focus, Activities 12–14

The following developmental activities focus on identifying classroom and year-level organisational needs and investigating how these can be addressed.

Design challenge 2
Negotiate to design and trial improvements to a particular aspect of class or year-level organisation.

Teaching considerations

Students might negotiate to undertake design challenges such as:

- Design a way to store the class reading materials that makes books easy to find and put away.
- Design, test and refine a system for borrowing and returning sports equipment. Prepare instructions for efficiently establishing and maintaining the system.

Allocate time for interviewing individuals and groups about their design briefs.

Resources

Technology project folios

Activity 12

Negotiate a design brief for improving an aspect of classroom or year-level organisation

Technology Practice (Investigation)

1. Re-examine the chart showing aspects of classroom organisation that require improvement (compiled and displayed in Activity 2). Add aspects of year-level organisation that could be improved.
2. Students form groups to design and trial improvements to a particular aspect of class or year-level organisation.
3. Negotiate a design challenge with each group that involves developing artefacts, systems or information products to enhance classroom or year-level organisation.
4. Explain that designers such as architects and computer programmers use their design brief to guide the development of their product and constantly refer to them as they work.
5. Ask each group to prepare a design brief for their task.

Activity 13

Conduct an environmental scan of classroom management systems

Technology Practice (Investigation)

1. Students list familiar ways of organising aspects of the classroom. These might include simple utilities for storing and carrying items and simple management systems — for example:
   - clothing baskets, cutlery organisers, shelving
   - storage and borrowing systems.
2. Encourage students to conduct an environmental scan of other methods that can be used to meet classroom and year-level organisational needs by:
   - brainstorming methods they have encountered in the past
   - visiting other classrooms to see how they are organised, and describing or sketching useful ideas
   - interviewing students and teachers from other classes or, where possible, using email to survey students and teachers in other schools.

Activity 14

Assess risks

Technology Practice (Investigation)

1. Students brainstorm hazardous situations or security risks that might be related to the particular aspect of classroom or year-level organisation that is the focus of their design brief.
2. Encourage students to discuss safety and security issues related to their design challenge and to list them in their Technology project folio.
3. Students should also consider safety issues related to working with materials to create their products or systems.

Assessment

Sources of evidence could include:

- observations and student–teacher interviews
- students' negotiated design challenges and ideas in their Technology project folios.

[Developmental activities continue on next page.]

Focus Activities 15–17

The following developmental activities focus on generating range of design ideas and preparing design proposals. Students select materials and develop devices and systems for organising aspects of classroom or year-level management. This might include implementing systems for sharing, storing, borrowing or ordering classroom or year-level resources.

Teaching considerations

Design requirements will vary according to whether the group is producing a device, management system or information product. Students should reflect on the appropriateness of their design ideas and production processes throughout the design process. If students are unfamiliar with preparing front-, side- or top-view plans or devising flow charts, activities will need to be devised to introduce these skills.

Resources

Technology project folios.

A range of materials and equipment.

Activity 15

Prepare design proposals

Technology Practice (Ideation)

1. Students work in their groups to:
   - identify desirable design and safety features
   - outline a range of design ideas
   - evaluate the design ideas in terms of desirable design and safety features and negotiate to select an option.
2. Each group prepares a detailed design proposal that includes, for example:
   - front-, side- and top-view plans, dimensions, flow charts,
   - dimensions and technical terms
   - materials specifications or resource requirements,
   - production procedures
   - trial processes
   - evaluation criteria.

Activity 16

Communicate designs to others and provide and respond to feedback

Technology Practice (Evaluation)

1. Each group presents its design to the class to gather feedback.
2. Encourage each group to discuss a range of materials that might be used to make their design.
3. Assist students to devise ways to test the suitability of these materials.
4. Confer with groups about their designs and encourage them to make refinements based on the class discussions.
5. Discuss safety issues related to design choices.

Activity 17

Work from their design proposals to create devices and systems that enhance classroom organisation

Technology Practice (Production)

1. Provide a number of sessions for students to create and refine their devices, management systems or information products.
2. Students should:
   - ensure that all group members participate and that the contributions of all group members are valued
   - work carefully with materials, tools and equipment
   - provide instructions for management systems that all users can understand.
3. Encourage students to refer to their production procedures and annotate them with notes about challenges encountered and decisions made to overcome these.

Assessment

Sources of evidence could include:

- observations and student–teacher interviews
- devices and systems for enhancing classroom organisation
- evaluations of products in Technology project folios.

Culminating activities

Focus

The activities in this section focus on evaluation. Students use and evaluate their personal organisers and the device, system or information product they designed to improve aspects of classroom or year-level organisation. Students have further opportunities to demonstrate learning outcomes from the Technology Practice, Materials, Information and Systems strands as they prepare presentations about their devices, systems or information products.

Design challenge 3
Design a presentation that explains how you made your device or system and how it works.

Teaching considerations

Encourage students to reflect on the processes they have used to investigate, ideate and produce their products, and assist them to modify their designs where necessary. The students' Technology project folios should provide much of the material they need for their presentations. Using their folios in this way will help them to evaluate the effectiveness of their record keeping.

Resources

Technology project folios

Student resource 4 (Reflection and self-evaluation)

Cardboard, pens, computers and multimedia software, tape recorders

Activity 18

Trial, 'bench test' and implement systems

Technology Practice (Evaluation)

1. Explain that developers often have a 'trial' or 'bench-testing' phase before they implement a new system. Encourage students to devise their own methods of 'trialling' or 'bench testing' their products. This might involve having 'tidy-up speed contests' or asking other groups to try their device or system.
2. Students review and refine the criteria specified in their design proposals. They consider a range of aspects such as:
   - aesthetic appeal and functionality of their designs
   - economic implications of their designs
   - potential environmental impacts arising from their designs
   - social impacts of their designs within the classroom or year level.
3. Negotiate and implement a trial period for the products. Encourage students to think about how they will collect information from users during and at the end of the period.
4. Students report on their trial. They record their evaluation criteria, information about the methods they use to collect feedback and the results of the trials in their Technology project folios. They consider the results of their trial and identify ways their products and/or processes could be improved.

Activity 19

Reflect on products and processes

Technology Practice (Evaluation)

1. Students report their findings from the trial to the class.
2. Discuss the contributions each of the devices and systems has made to the overall classroom environment.
3. Provide students with Student resource 4. Students complete a peer- or self-evaluation exercise and record their responses in their folios.

Activity 20

Prepare for Open Day

Information, Systems, Technology Practice (Evaluation)

1. Students work in their groups to design and prepare brief presentations about the devices and systems they have created to improve classroom or year-level organisation.
2. Presentations might include charts, multimedia presentations, audio or video recordings or practical demonstrations. Students should identify the sources of their ideas, explain how their systems work, and describe how they were tested and how they might be further improved.
3. Students use their presentations at a class Open Day to explain to parents/carers and visitors how the classroom operates.

Assessment

Sources of evidence could include:

- self-evaluations in Technology project folios
- presentations for Open Day.

Evaluate organisers

Student resource 1

Select three organisers. Evaluate each of them.

Organiser:	**Purpose:**	
Like	**Dislike**	**Interesting**

Organiser:	**Purpose:**	
Like	**Dislike**	**Interesting**

Organiser:	**Purpose:**	
Like	**Dislike**	**Interesting**

Desirable features

Student resource 2

Select an organiser from the handling collection. List the materials used to make it.

_____ _____

_____ _____

_____ _____

Measure the dimensions of the organiser. Draw a front view, side view and top view below. Label each view with the dimensions and materials used.

Front view	
Top view	Side view

Desirable features (continued)

Student resource 2

List or draw the objects that will fit into this organiser.

List the features of this organiser that you like. Explain why.

Feature that I like	Reason

Safety issues

Student resource 3

List possible safety issues you might need to consider when designing personal organisers.

Draw or describe possible solutions to each safety issue.

Possible safety issue	Solution

Reflection and self-evaluation

Student resource 4

The purpose of the _____ was to _____

_____

The _____ met the following design requirements:

_____

_____

_____

Features of the design that changed included:

Feature	Reason

The hardest part of creating the design was

_____

_____

The feature I liked best was

_____

_____

_____

Things that I could have been done differently are:

_____

_____

_____

Support materials

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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