Technology 7–8 – Materials and production processes (timber) – sample program of learning

My BBQ Rules (20-week unit)

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# Rationale

The NSW Department of Education publishes a range of curriculum support materials, including samples of lesson sequences, scope and sequences, assessment tasks, examinations, student and teacher resource booklets, and curriculum planning and curriculum evaluation templates. The samples are not exhaustive and do not represent the only way to complete or engage in each of these processes. Curriculum design and implementation is a dynamic and contextually-specific process. While the mandatory components of syllabus implementation must be met by all schools, it is important that the approach taken by teachers is reflective of their needs and faculty or school processes.

NSW Education Standards Authority (NESA) defines [programming](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/programming) as ‘the process of selecting and sequencing learning experiences which enable students to engage with syllabus outcomes and develop subject specific skills and knowledge’ (NESA 2022). A program is developed collaboratively within a faculty. It differs from a unit in important ways, as outlined by NESA on their [Advice on units](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/understanding-the-curriculum/programming/advice-on-units) page. A unit is a contextually-specific plan for the intended teaching and learning for a particular class for a particular period. The organisation of the content in a unit is flexible and it may vary according to the school, the teacher, the class and the learning space. They should be working documents that reflect the thoughtful planning and reflection that takes place during the teaching and learning cycle. There are mandatory components of programming and unit development and this template provides one option for the delivery of these requirements. The NESA and department guidelines that have influenced this template are elaborated upon at the end of the document.

This resource has been developed to assist teachers in NSW Department of Education schools to create learning that is contextualised to their classroom. It can be used as a basis for the teacher’s own program, assessment, or scope and sequence, or be used as an example of how the new curriculum could be implemented. The resource has suggested timeframes that may need to be adjusted by the teacher to meet the needs of their students.

School leaders and teachers should refer to [Equipment Safety in Schools](https://esis.education.nsw.gov.au/esis/teacher/), [Animals in Schools](https://education.nsw.gov.au/teaching-and-learning/animals-in-schools), and [Chemical Safety in Schools](https://ecmjsp.education.nsw.gov.au/ecmjsp/chemicals/#skipToContent) for current information on safety and safe working practices.

# Overview

**Description**: this program of learning addresses the Materials and production processes focus area with an emphasis on timber. The lessons and sequences in this program of learning are designed to allow students to design, plan, manage and produce a timber project.

**Duration**: this program of learning is designed to be completed over a period of approximately 20 weeks in 50-minute lesson sequences but can be adapted to suit the school context.

**Explicit teaching**: suggested learning intentions and success criteria are available for some lessons provided. Learning intentions and success criteria are most effective when they are contextualised to meet the needs of students in the class. The examples provided in this document are generalised to demonstrate how learning intentions and success criteria could be created.

# Outcomes

A student:

* explains relationships between sustainability, design and production **TE4-SDP-01**
* describes the practices and processes of designers and producers **TE4-PDP-01**
* explains how materials, systems and components contribute to solutions **TE4-MSC-01**
* communicates and evaluates design ideas and solutions **TE4-DES-01**
* applies processes in the planning, management and production of projects **TE4-PPM-01**
* selects and safely uses tools, materials, technologies and processes **TE4-SAF-01**

[Technology 7–8 Syllabus](https://curriculum.nsw.edu.au/learning-areas/tas/technology-7-8-2023/overview) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2023.

**Prior to planning for teaching and learning, please consider the following**:

**Engagement**

* How will I provide authentic, relevant learning opportunities for students to personally connect with lesson content?
* How will I support every student to grow in independence, confidence and self-regulation?
* How will I facilitate every student to have high expectations for themselves?
* How will I identify and provide the support each student needs to sustain their learning efforts?

**Representation**

* What are some different ways I can present content to enable every student to access and understand it?
* How will I identify and address language and/or cultural considerations that may limit access to content for students?
* How will I make lesson content and learning materials more accessible?
* How will I plan learning experiences that are relevant and challenging for the full range of students in the classroom?

**Expression**

* How will I provide multiple ways for students to respond and express what they know?
* What tools and resources can students use to demonstrate their understanding?
* How will I know every student has understood the concepts and language presented in each lesson?
* How will I monitor if every student has achieved the learning outcomes and learning growth?

# Lesson sequence and details

## Weeks 1 to 3

### Introductory activity – ‘the sign’

Table 1 – weeks 1 to 3 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-MSC-01**  **TE4-SAF-01**  **Content**  Students:   * Identify the characteristics and properties of materials. * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes | **Learning intention**  We are investigating where wood comes from and products that are made from timber.  **Success criteria**  We can:   * identify where wood comes from * explain how timber is used differently in real world contexts.   **Teaching and learning activity**  Introduce students to the workshop, drawing on prior learning experiences.  Introduce the learning sequence and give an overview of the semester, outlining the sequence of activities and assessments.  Explain to students that they will learn new terminology throughout the unit. Students complete the glossary as required to ensure they are pre-taught terminology and can correctly use specialist terminology in context.  Teacher asks students to think of 10 things they used in the past 24 hours made from timber. Teacher uses the prompt ‘What are the qualities of timber?’, [connecting learning](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/connecting-learning#What0) to the initial activity ‘What wood you know?’ Teacher leads discussion on the parts of a tree and the process of converting a tree to useful timber.  Watch [From Trees to Lumber: Watch how boards are made from pine trees (](https://www.youtube.com/watch?v=eISJ33Scrnc)8:12) and outline the steps involved in producing timber from trees.  Teacher leads a discussion on timber terminology. Students label a diagram of a length of timber using the following terminology: face, length, width, thickness, with the grain, across the grain and edge.  **Learning intention**  We are learning to understand and apply safe processes and practices in the workshop.  [**Success criteria**](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/sharing-success-criteria)  We can:   * follow safe processes and practices when learning in the workshop * identify PPE required to use workshop equipment.   **Teaching and learning activity**  Students complete the workshop induction. Students are introduced to all the machines, their physical appearance and their function, including machines not approved for the cohort. Question students regarding their experiences in workshop environments and their expectations for safe conduct within the general workshop.  Teacher and class develop classroom expectations by first asking students to identify what makes the workshop different from a regular classroom. Teacher to expand on this by co-constructing a list of expectations and class procedures with students. Point out the safety signage (PPE and SOPs ), line markings and explain that safety will be a focus of this unit. This [connecting learning](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/connecting-learning) activity will give you an understanding of students’ prior knowledge and experiences in using tools and machines. | Students record their prior knowledge about wood, timber, tools and so on.  Students show understanding of key terms throughout unit by providing accurate glossary entries and using terms correctly verbally, and in writing.  Students successfully complete safety tests. Ongoing teacher assessment is required throughout the practical activities during unit.  Safety tests are successfully completed. Teacher to record student completion.  Student responses to discussion will provide an indication of the knowledge and skill level of the class which could inform future teaching and learning activities and decisions. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Students could provide verbal answers.  Provide a glossary, allowing the use of bilingual dictionaries for new terminology and use visuals where appropriate.  Ensure closed captions are turned on to support students who are deaf or hard of hearing.  Use a verb scaffold for written responses.  Assist students with literacy in completion of tests. A 100% success rate should be mandated for all safety tests. |  |
| **Outcome**  **TE4-SDP-01**  **TE4-MSC-01**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Identify the characteristics and properties of materials * Describe how the properties of materials and production techniques contribute to the quality of solutions * Explain ethical and legal considerations for innovation, design and production processes * Apply design and creative thinking to assess ideas and quality solutions * Use a range of sketching and drawing techniques to communicate ideas and solutions * Communicate the development of design ideas and solutions, using annotations * Use tools, materials, techniques, technologies and processes to develop practical skills * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Work collaboratively to test, modify and improve the quality of ideas and solutions * Evaluate ideas and solutions using written, visual, verbal or multimodal communication forms * Create prototypes, models and samples to test materials and production processes * Justify the selection and use of a range of tools, materials, techniques and technologies | [**Learning intention**](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/sharing-learning-intentions)**s**  We are:   * continuing to learn to apply safe processes and practices in the workshop * learning to apply material and design considerations to the planning and production of a project.   **Success criteria**  We can:   * follow safe processes and practices when learning in the workshop * identify a suitable material to produce my project * produce simple working drawings for my project.   **Teaching and learning activity**  Students complete relevant safety tests. Teacher provides a demonstration of the safe use of hand tools and workshop machinery. Teacher observes students as they use tools and machinery.  Teacher introduces worked examples of the introductory activity ‘The sign’. Explain to students why radiata pine is a suitable material to use in production, including that it is:   * commercially available in suitable sizes * closed grain timber suitable for embellishment with a variety of media, including pens, pencils and ink * sustainably-produced forestry product.   Demonstrate properties of timber, grain, grain direction and end grain. Outline surface finishing options, including wood burning, laser engraving, colouring in face of timber and ironing on printed design.  Introduce the mini folio scaffold. Students apply design and planning processes to sketch sign project ideas. Students research ideas suitable for the adornment of signs. These could be inspired by graphics, logos or symbols.  Students identify constraints for their design, including commercial sizes of suitable available timbers and intellectual property of images.  Students select a final idea and complete a final annotated design drawing, including materials, measurements and relevant colours.  Students complete the justification and evaluation of the design they have selected.  [**Learning intention**](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/sharing-learning-intentions)  We arelearning how to safely and competently use hand tools to produce quality projects.  [**Success criteria**](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/sharing-success-criteria)  We can:   * identify hand tools used for specific processes * use hand tools in a safe and competent manner to achieve a quality project.   **Teaching and learning activity**  **Note:** students will be guided to complete each step of ‘the sign’ project, watching teacher demonstration first. Then by process of [gradual release of responsibility](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/gradual-release-of-responsibility), students will experiment with each tool, machine and technique.  Demonstrate each process step-by-step, highlighting safe practices and common mistakes. Engage students by asking them to identify potential hazards during the demonstration.  Students to complete the glossary and ‘Timber tools, machines and their use’ worksheets as they encounter each new term, tool, machine or technique.  **The sign**   1. Teacher demonstrates marking out using a rule and try square. Students complete the marking out of sign blank, clearly indicating the wastage and cutting line. 2. Teacher demonstrates cutting to length using a tenon saw and bench hook, emphasising correct grip, posture and ergonomics. Students cut to length.   **Class discussion**: ask students to recall what they learned in previous lessons about properties of timber such as grain, grain direction and end grain. Highlight that this is important to know before we learn to use the disc sander and chamfer techniques.   1. Teacher demonstrates disc sanding. Students undertake process with direct teacher supervision to sand both ends of their sign blank. Emphasise correct stance, pressure and movement.   **Skill practice – Chamfer**  Using scrap radiata pine, the teacher demonstrates using a pencil gauge to mark out a chamfer. The teacher also demonstrates using a hand plane, using the correct stance and stroke. Class discusses the effects of grain on planing. Include the following questions and prompts:   * What is wood grain, and how is it formed? * Different types of grain patterns (straight, wavy, spiral) and how they affect the planing process. * How does the direction of the grain influence the angle and technique used in planing? * Discuss the importance of planing with the grain versus against the grain. * How do different grain types affect the smoothness and appearance of the finished surface? * Discuss strategies to overcome issues like tear-out or splintering when planing against the grain.   Students use a pencil gauge to accurately mark out the chamfer on a piece of scrap timber. Emphasise the importance of precision in this initial step.  Students plane the chamfer according to the marked lines. Encourage them to focus on maintaining consistent pressure, angle and stance throughout the process.  After planing, students evaluate their results by examining the quality of their chamfer. They document their findings in their workbooks under the ‘Skill tester’ heading. Prompt students to consider:   * What went well? * What challenges did they face? * How might they improve their technique?   Facilitate a class discussion where students share their evaluations and compare results with peers. Encourage constructive feedback and discussions on different approaches used.  Students then repeat the process of marking and planning the chamfer, applying the feedback received. Based on their reflections and peer discussions, they should adjust factors such as pressure, angle, stance and movement.   1. Teacher introduces eye hooks to be used to hang signs. Students identify and select a drill bit size to drill holes for eye hooks.   **Skill practice – pedestal drill**  Introduce the pedestal drill, highlighting key components such as the vice, chuck key and depth-setting mechanism. Explain the function of each part to ensure students understand its importance.  Using scrap timber, the teacher demonstrates the ‘X’ method for marking out drill points. Emphasise the significance of precision in marking to ensure accurate drilling.  Show students how to securely fasten the timber in the vice. Explain the importance of stability for safety and accuracy during drilling.  Demonstrate how to set the drill depth accurately, discuss the correct posture and hand positioning while using the pedestal drill, and highlight any safety precautions to take during operation. Explain why placing scrap timber underneath the workpiece is essential for achieving clean drill holes. Discuss how it prevents blowout and relates to the orientation of the timber grain, enhancing their understanding of wood properties.  Ask students questions throughout the demonstration to encourage engagement. For example, inquire about their thoughts on the importance of marking out accurately or the potential consequences of incorrect depth setting.   1. Students mark out and drill suitable drill size for eye hooks on their sign blank. 2. Prepare timber for finishing using cork block and 100-grade abrasive. Explain the different grades of abrasive materials, starting with 100 grade and progressing to 180 grade. Discuss the purpose of each grade, emphasising how the coarser 100 grade is used for initial smoothing and the finer 180 grade is for achieving a smooth finish. Using a cork block, the teacher demonstrates how to use the 100 grade abrasive on the timber. Highlight the technique for even pressure and consistent motion, ensuring students understand how to effectively prepare the surface. Follow up with 180-grade abrasive. Explain the importance of this step for achieving a polished finish and how it enhances the final appearance of the timber.   **Skill practice – wood burning (laser engraving can be utilised if available)**  Teacher demonstrates a variety of methods for finishing or decorating timber, such as wood burning, carving and painting. Highlight the creative potential of each method and how they can enhance the aesthetic appeal of the project.  Teacher demonstrates wood burning techniques using a pyrography tool. Explain the different tips and their uses, as well as the effects that can be achieved with various techniques, including shading and line work.  Emphasise the importance of safety when using wood burning tools. Discuss potential hazards, such as burns and the inhalation of fumes. Make sure to cover the following safety precautions:   * Always use the wood burning tool in a well-ventilated area. * Wear appropriate personal protective equipment (PPE), including gloves and safety glasses. * Maintain a safe distance from the tip of the tool while working.   Students practice wood burning on scrap pieces of timber, applying the techniques demonstrated. Encourage them to experiment with different designs and styles while reinforcing the safety measures discussed. After the practice session, facilitate a class discussion where students can share their experiences, challenges and successes. Students add their selected design to timber.  **Skill practice – finishing**  Demonstrate how to apply a water-based clear finish using a brush. Emphasise the technique of starting in the middle of the timber and working with the grain toward the ends to ensure an even application and to avoid streaks.  After applying the finish, the teacher will show students how to place the finished pieces on drying plates to ensure proper airflow and drying. Demonstrate the correct method for cleaning the brush immediately after use to maintain tool quality.  The teacher guides students to read the Safety Data Sheet (SDS) and the application instructions on the back of the clear finish can. They discuss the importance of understanding these documents for safe handling and application. Highlight key aspects of chemical safety, including:   * the importance of working in a well-ventilated area * wearing appropriate personal protective equipment (PPE), such as gloves and masks, if necessary * knowing how to respond to spills or skin contact and where to find emergency information.   Students complete finish on the sign.   1. Students’ complete the application of first coat of finish. Following the demonstration and safety discussion, students will practise applying the water-based clear finish on their projects, ensuring they follow the techniques and safety precautions demonstrated. 2. When dry, students lightly sand to remove any rough surface using 240 grit paper. Remove all sanding dust. 3. Screw in eye hooks. | Students successfully complete safety tests. Ongoing teacher assessment is required throughout the practical activities during unit.  Record of safety test that has been successfully completed to be accessible.  Students demonstrate knowledge of timber properties by labelling cross-section images of a face side, face edge, end grain and grain direction.  Students sketch 3 design ideas for their sign, annotating features and measurements techniques.  Students complete their final design and the justification and evaluation of their final design idea.  Teacher observation – observe from a whole class viewpoint, check for understanding of industry standard procedures.  **Note:** follow the following procedure for student errors. First error: correct student. Second error: correct student. Third error: stop whole class and repeat the class demonstration.  Observation – using disc sander. Directly supervise students. Take immediate action to correct procedures where required.  Students are provided with a piece of scrap timber for planning practice. Check and assess results to determine if further instruction is required before moving onto chamfer.  Teacher directly supervises students using pedestal drill.  Students produce accurate holes without grain tear out.  Timber is finished smoothly without scratches.  SDS activity is completed on safety sheet in workbook.  Teacher observation –check for and correct over-application of finish. | Students with developing sketching skills could be provided with drawings to trace.  A variety of partially-completed drawings used to model examples as needed by students.  Students who successfully complete the chamfer early can attempt a bevel or splay after brief teacher instruction.  Scaffolds and templates can be provided for students to complete tasks.  Students can provide responses using their preferred communication method. |  |

## Weeks 4 to 6

### Introduce project and folio – BBQ caddy

Table 2 – weeks 4 to 6 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-PDP-01**  **TE4-MSC-01**  **Content**  Students:   * Describe products and systems created by designers, producers and manufacturers * Outline factors affecting the design of products and solutions | **Learning intentions**  **We are:**   * learning to work collaboratively * learning to outline the factors affecting the design of products * learning to describe the practices and processes of designers and producers.   **Success criteria**  **We can:**   * examine a product and identify design features that contribute to a successful product * identify the steps in the design and production process.   **Teaching and learning activity**  Students investigate a sample BBQ caddy project. Teacher leads discussion of the caddy’s purpose (use) and identifying key features that contribute to its functionality and aesthetic appeal.  Teacher to use [effective questioning](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/using-effective-questioning) to prompt discussion, using the sample questions below:   * What is the purpose of the serviette weight? * What size, shape, and weight are ideal for the caddy? * How big are standard serviettes? * What are the dimensions of the sauce bottles? * Is the caddy comfortable to carry? * Does it remain stable when carrying only one bottle?   Explain to students that all designers follow a design process to create successful products. Emphasize that this process is not linear; it often involves revisiting earlier stages, conducting research, generating multiple design ideas, evaluating options and creating prototypes.  Outline various factors that influence design choices, such as:   * functionality * cost * limitations * resources * accessibility.   Encourage students to brainstorm these factors and write definitions or notes around their impact on design and its importance for the end user.  Students reflect on how these factors might apply to their own design projects.  Watch [Designer, Furniture Maker (Episode 87)](https://www.youtube.com/watch?v=9mm9PWMEbmM) (4:47).  Students complete the ‘Designer – furniture maker’ worksheet. Highlight to students that this is an example of a career in the timber industry and a short snapshot of some aspects of the design process in action.  Students research a designer in the Australian timber industry and create a fact sheet about them. | Class discussion of design features. Students to record thoughts and initial ideas in BBQ caddy folio.  Responses to workbook activities and contributions to classroom discussion will indicate an understanding of the design process, the factors that influence design and how these are reflected in a real-life example. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  Pre-teach key vocabulary and concepts prior to viewing videos, provide a transcript and use closed captions when viewing.  **Sample differentiated question**: How does the design and material composition of a serviette weight contribute to its functionality in maintaining table setting integrity during various dining scenarios? |  |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Document design processes when using materials and production technologies * Apply design and creative thinking to assess ideas and quality solutions * Work collaboratively to test, modify and improve the quality of ideas and solutions * Evaluate ideas and solutions using written, visual, verbal or multimodal communication forms | **Project/Folio work**  **Learning intentions**  We are:   * learning how to document the design process, apply creative thinking * learning to improve our BBQ caddy by considering factors affecting design through collaboration and evaluation.   **Success criteria**  We can:   * document our design process effectively, showing clear steps from idea generation to solution refinement. * apply design and creative thinking strategies to assess the quality of our ideas and proposed solutions.   **Teaching and learning activity**  **Practical project**  Introduce the Design Project Assessment – practical BBQ caddy project and design folio.  Ensure all students have a copy of the outline. Highlight key components, deadlines and expectations.  Read through the design brief and discuss the objectives and constraints outlined. Emphasise the need to understand the end-user and context of the BBQ caddy.  Divide students into small groups. The following are group discussion talking points:   * Identify the specific end purpose for their BBQ caddy (for example portability, functionality, aesthetics). * Discuss the factors affecting design (materials, user needs, environment, safety).   Encourage groups to share their ideas and insights.  Co-construct success criteria by guiding students to develop a set of criteria for success based on their discussions. Criteria may include:   * functionality (Does it meet the intended purpose?) * durability (How well does it withstand outdoor conditions?) * aesthetics (Is it visually appealing?) * safety (Are there any hazards?) * portability (Is it easy to transport?)   Record these criteria on a shared document or board.  Teacher guides students through the folio component of the task. The folio can be presented in a multimodal format at the discretion and advice of the teacher.  Complete folio task 1 by assessing existing BBQ caddy designs (this can be researched online by students).  Include research on materials used, design features, pros and cons and user feedback. | Student analysis of the design brief and assessment outline and co-construction of a set of ‘criteria for success’. This could be completed in small groups or as class. Scaffold as required pending abilities of class.  Students to determine mode of presenting folio (Folio booklet, Canva, Adobe Express, Google Suite and so on). Complete an assessment of current designs. | Higher-ability students will account for the factors that affect design from previous lesson as well as criteria from the design brief; lower-ability students will be able to identify key criteria from the design brief.  For lower-ability students, the teacher may provide pictures of existing products and a folio scaffold with leading sentences. |  |
| **Outcome**  **TE4-MSC-01**  **TE4-SAF-01**  **Content:**  Students:   * Identify the characteristics and properties of materials. * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes | **Teaching and learning activities**  **Note:** students will be guided to complete each step the BBQ caddy project, watching teacher demonstration first, then by process of [gradual release of responsibility](https://education.nsw.gov.au/teaching-and-learning/curriculum/explicit-teaching/explicit-teaching-strategies/gradual-release-of-responsibility), students’ will experiment with each tool, machine and technique.  Teacher guides students to safely use and experiment with tools and equipment not used in the ‘The sign’ introductory project.  Demonstrate each process step-by-step, highlighting safe practices and common mistakes. Engage students by asking them to identify potential hazards during the demonstration.  **Measurement**: teacher to provide instruction about how to use a metal rule. Students' complete ruler measurement activities to understand units of measurements (mm or cm).  **Workshop skill tester**: teacher provides a range of timber samples from the workshop or varying lengths, widths and thicknesses. Each sample should be marked with a letter, A to H. Students measure the length, width and thickness of each piece of timber with a metal ruler and record findings in the table provided in the teacher resource. Check answers with the teacher for accuracy.  **Joining timber**: teacher explains the importance of joining timber in woodworking projects. Explain how strong, reliable joints contribute to the overall integrity and durability of the finished product.  Introduce students to different types of timber joints, such as:   * butt joint: simple and easy to make; ideal for frames * lap joint: provides more surface area for gluing; useful for cross-bracing * mortise and tenon joint: a strong joint often used in furniture making; provides structural strength * dovetail joint: known for its strength and aesthetic appeal; commonly used in drawer construction.   Discuss the function of each joint type, including when and why to use them. Highlight the strengths and weaknesses of each joint, considering factors such as load-bearing capacity, ease of construction and aesthetics.  Introduce students to various types of screws and nails, explaining their specific applications:   * wood screws: designed for joining timber; provide strong connections * finish nails: used for trim work; have small heads that can be countersunk for a clean finish * brad nails: smaller than finish nails; perfect for delicate work and light assemblies.   Discuss the function of each type of screw and nail, including:   * How screws provide a removable and adjustable connection. * How nails offer speed in assembly but may not be as strong in shear as screws.   Organise a hands-on activity where students can practise making different types of joints using timber scraps. Provide guidance on using screws and nails appropriately for each joint type. Emphasise safety practices when using tools and fasteners. Remind students to wear appropriate personal protective equipment (PPE) and follow safe handling procedures.  Encourage students to experiment with both screws and nails in various joint configurations.  After the hands-on activity, hold a class discussion to reflect on the experience:   * What did students learn about the strengths and weaknesses of different joints and fasteners? * Which joints did they find easiest or most challenging to construct? * How does the choice of joint or fastener affect the overall design and function of their projects? | Students successfully complete safety tests. Ongoing teacher assessment is required throughout the practical activities during unit.  Teacher to conduct roaming checks and assist students who require greater support.  Teacher reviews completed activities in workbook. | Students could be grouped in mixed-ability ‘teams’ for peer-learning in measurement activity. |  |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Apply design and creative thinking to assess ideas and quality solutions * Use a range of sketching and drawing techniques to communicate ideas and solutions * Communicate the development of design ideas and solutions, using annotations * Evaluate ideas and solutions using written, visual, verbal or multimodal communication forms | **Folio work**  **Learning intentions**  We are:   * understanding the purpose of workshop drawings in various industries * developing skills in production planning including creating timelines and cutting lists.   **Success criteria**  We can:   * identify and explain the different types of workshop drawings and their uses * develop a project timeline that outlines key stages of our BBQ caddy project * create a cutting list that includes all materials required for the project.   **Teaching and learning activities**  **Documentation folio**  Students complete folio task 2 – annotated ideas sketches and justification of selected idea.  Students should brainstorm multiple design ideas related to the project. They can draw inspiration from existing designs, their personal interests and the requirements of the project.  Each student will produce at least 3 sketches of their ideas. Encourage them to consider different angles and views (for example, top view, side view) to fully communicate their concepts.  Instruct students to annotate their sketches, explaining key features, materials and functions. They should highlight what makes each design unique and practical.  After presenting their sketches, students should select one design to develop further. They must write a justification for their choice, discussing how it meets the project requirements, its functionality, aesthetics and any other potential challenges.  Students complete folio task 3 – produce a Computer-aided design (CAD) drawing of your chosen design.  Teacher introduces the chosen CAD program (Google SketchUp, Canva, or another suitable application). Provide a brief overview of its features and capabilities.  Demonstrate the basic functions of the CAD program, such as creating shapes, scaling objects and adding dimensions. This may involve guided practice to help students feel confident using the software.  Students use the CAD program to produce a detailed drawing of their selected design.  After completing both tasks, hold a class discussion to reflect on the process, using the following discussion points:   * What challenges did students encounter while sketching and creating CAD drawings? * How did the CAD program help them visualise their designs more effectively?   Encourage students to consider how they can integrate feedback into their design project. | Teacher observation of student confidence and competence with workshop machinery and basic joinery and assembly techniques.  Completed folio activities. | For a higher-ability class, teacher may elect to complete another small skill builder project such as a mobile phone holder to demonstrate and practise a range of techniques. Lower-ability classes or classes with less time could complete discrete skill building practice with tools, machinery and techniques such as butt joint, measuring and marking out and so on. |  |

## Weeks 7 to 8

Table 3 – weeks 7 to 8 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-PPM-01**  **Content**   * Outline production techniques and materials used by designers, producers and manufacturers * Communicate the development of design ideas and solutions, using annotations | **Learning intentions**  We are:   * understanding the purpose of workshop drawings in various industries * developing skills in production planning including creating timelines and cutting lists.   **Success criteria**  We can:   * identify and explain the different types of workshop drawings and their uses * develop a project timeline that outlines key stages of our BBQ caddy project * create a cutting list that includes all materials required for the project.   **Teaching and learning activities**  Teacher introduces workshop drawings. Discuss how they serve as detailed plans or blueprints that communicate the specifications, dimensions and assembly instructions for a project.  Highlight their importance in various industries, including woodworking, engineering and manufacturing.  Introduce the Australian Standard AS1100, which outlines the conventions for technical drawings. Explain that understanding these standards is crucial for producing clear and effective workshop drawings.  Discuss key aspects of AS1100, such as:   * drawing conventions: line types, symbols, and text styles * projection methods: orthographic projection (top, front, side views) and isometric drawings * dimensioning: the importance of accurate measurements, including how to indicate dimensions on a drawing.   Present different types of workshop drawings that students may encounter, for example:   * detail drawings: show specific components with dimensions and specifications. * assembly drawings: illustrate how different parts fit together, often including exploded views. * general arrangement drawings: provide an overall view of the project, indicating the layout and positioning of components.   Ask students if they have seen them before and where (suggested expected responses could be IKEA or Bunnings).  Demonstrate how to create a basic workshop drawing using AS1100 standards. Use a simple project or design as an example.  Set a simple project for students to create their own workshop drawing. Encourage them to apply AS1100 standards in their drawings.  Provide templates or examples to guide students in their work.  Once students complete their drawings, organise a peer review session. Encourage students to exchange drawings and provide constructive feedback based on clarity, adherence to AS1100 standards and overall presentation.  The following are class discussion points:   * Why is it important to follow standards like AS1100 in workshop drawings? * How can clear and accurate drawings improve communication and efficiency in projects?   Students apply this learning to the design of their project. Consider what size condiment bottles and serviettes will be used. This should determine the size of the base and how high the sides should be to stop things from falling out. Discuss ergonomics of angles, how it will be carried and design features.  Students complete production planning activities in workbook including introductory activities on timelines and Gantt charts. Students to also create a cutting list for their BBQ caddy project.  Teacher introduces production planning. Begin by explaining the significance of production planning in woodworking projects. Emphasise how effective planning can lead to better time management, resource allocation and overall project success.  Students will learn how to develop a project timeline that outlines the key stages of their BBQ caddy project from start to finish.  Guide students through identifying major phases such as:   * Design and planning * Material preparation * Cutting and assembly * Finishing touches * Final review and evaluation.   Students should create a visual timeline in their workbooks, marking specific deadlines for each phase. Explain what a Gantt chart is and how it helps in visualising project schedules. Discuss the benefits of using Gantt charts for tracking progress and managing time effectively.  Students create a Gantt chart for their BBQ caddy project, using their timelines as a reference. They should:   * list tasks on the vertical axis * represent the duration of each task on the horizontal axis, using bars to indicate start and end dates * highlight dependencies between tasks (for example, cutting materials must occur before assembly).   Encourage students to reflect on how they can adjust their plans if certain tasks take longer than expected.  Teacher introduces cutting lists. Explain the purpose of a cutting list in woodworking projects, including how it helps ensure efficient use of materials and accurate measurements.  Students create a detailed cutting list for their BBQ caddy project, including:   * the type and quantity of timber pieces needed (for example, dimensions for each part such as the base, sides and compartments) * any additional materials required (for example, screws, nails, finishes) * a brief note on the intended finish for each piece (for example, sanded, stained).   Encourage students to double-check their measurements and consider any waste or excess material when planning their cutting list.  After completing the production planning activities, hold a class discussion to reflect on the process using the prompts below.   * Why is production planning essential in woodworking projects? * How do timelines and Gantt charts help in managing project workflows? * What challenges did students encounter while creating their cutting lists, and how did they address them? | Students’ complete workbook activities, demonstrating a developing understanding of the importance of planning to project management success. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  Pre-teach key vocabulary and concepts prior to demonstrations.  For lower-ability classes, this ‘pre-learning’ of some folio tasks will be beneficial and necessary for success in the folio. For higher-ability classes, you might like to show samples in the PPT and omit the pre-learning activities. |  |
|  | **Practical project**  Marking and cutting BBQ caddy components to length including redemonstration of FEWTEL. (Face, Edge, Width, Thickness, End, Length).  Mark and cut hole for handle using pedestal drill and coping saw.  **Documentation folio**  Students to complete Folio task 4 – produce and evaluate production timeline (Gantt chart). | Students’ complete timeline, preferably using a computer. Teacher to encourage students to regularly check progress against timeline. | Lower-ability students may like to use the template and pre-learning activities on timelines and Gantt charts from their workbook. |  |

## Weeks 9 to 10

Table 4 – weeks 9 to 10 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-MSC-01**  **TE4-SDP-01**  **Content**  Students:   * Identify the characteristics and properties of materials * Outline production techniques and materials used by designers, producers and manufacturers * Describe how the properties of materials and production techniques contribute to the quality of solutions | **Learning intentions**  We are:   * understanding the different types of timber (hardwood, softwood and engineered) * researching the properties, characteristics and uses of each timber type.   **Success criteria**  We can:   * identify and describe the different types of timber and their significance in woodworking and construction * present key characteristics and uses of a specific type of timber to our peers effectively.   **Teaching and learning activities**  Teacher introduces different types of timber (hardwood, softwood and engineered), discussing their significance in woodworking and construction.  Students research the properties and characteristics of each timber type. They will investigate:   * physical properties (for example, density, strength and workability) * common uses and applications * advantages and disadvantages of each material.   Students work in small groups to present their findings on a specific type of timber, covering key characteristics, uses and considerations.  Class uses discussion to synthesise the information, focusing on how the properties of different timbers influence their applications in various projects and the importance of material selection.  Teacher hands out samples of different timber types to compare their physical attributes and reinforce student understanding of the material properties. | Students to research and complete properties of common timbers in their workbook. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  Pre-teach key vocabulary and concepts prior to viewing videos, provide a transcript and use closed captions when viewing.  Use a verb scaffold for written responses.  Templates can be provided to students to complete each section of the assessment task.  The assessment task can be presented in individual sections and modifications made when necessary.  Some students may require a procedure to appear in a different format, for example a storyboard with photographs of each step. |  |
| **Outcome**  **TE4-MSC-01**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Document design processes when using materials and production technologies * Justify the selection and use of a range of tools, materials, techniques and technologies | **Practical project**  Marking and cutting housing joints including demonstrations of marking out, cutting shoulders and cleaning joint  A practice housing joint is encouraged.  **Documentation folio**  Students to complete folio task 5 – properties of materials. | Teacher conducts roaming checks of student progress – measuring, marking out and cutting, providing support and scaffolding as required.  Complete folio tasks. Encourage students to use Australian websites where possible to ensure information is accurate and relevant. | Practice housing joint may be required for lower-ability classes (time permitting).  Lower-ability students will be able to use the learning on radiata pine from their classwork book to assist with folio task 5. Higher-ability students will examine alternative timbers for this activity. |  |

## Weeks 11 to 12

Table 5 – weeks 11 to 12 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-SDP-01**  **TE4-PDP-01**  **Content**  Students:   * Compare sustainable sourcing practices * Explain ethical and legal considerations for innovation, design and production processes | **Learning intentions**  We are:   * learning to understand the differences between sustainable and traditional timber sourcing practices and their environmental impact * exploring how sustainable design can benefit both the user and the environment.   **Success criteria**  We can:   * explain ethical and legal responsibilities involved in sourcing timber and other materials * compare sustainable sourcing practices and resource management practices * minimise waste during design and production.   **Teaching and learning activities**  Teacher leads a class discussion comparing sustainable and traditional timber sourcing practices. Watch [Sustainable Wood from Sustainable Forests (15:35).](https://www.youtube.com/watch?v=uNTPcJIdmPk)  Students research and create an engaging informative resource or infographic comparing the practices, using Canva or Adobe Express.  Discuss the importance of being responsible users of natural resources, not wasting timber, measuring twice, cutting once and the concept of sustainable design as enduring and designed with the user and environment in mind. | Completion of informative resource comparing sustainable time sourcing practices. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  HPGE students might like to explore more complex ideas or ‘wicked’ problems associated with sustainable timber practices. For example, ‘How can we use timber in a way that protects the environment, helps local communities, and supports businesses without causing long-term damage to forests and wildlife?’ |  |
| **Outcome**  **TE4-PDP-01**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Document design processes when using materials and production technologies * Justify the selection and use of a range of tools, materials, techniques and technologies | **Learning intention**  We are learning about techniques to join timber.  **Success criteria**  We can:   * apply techniques to measure and mark out my project * complete a butt joint and rebate joint.   **Teaching and learning activities**  **Practical project**  Students to mark and cut rebate joints for the corner of the carcase. Teacher demonstrates marking out, cutting shoulders and cleaning joints.  **Documentation folio**  Students to complete folio task 6 and 7 – describe types of joints and write a procedure. | Complete folio tasks. Encourage students to use Australian websites where possible to ensure information is accurate and relevant. | Pending delivery of this unit (Year 7 or Year 8) or lower- or higher-ability class) you may need to scaffold tasks or direct students toward limited options or simpler design choices. You could also consider using template or jigs to make measuring easier, more precise and efficient. Lower-ability classes or early Year 7 delivery might consider a butt joint rather than a rebate joint for the corners. |  |

## Weeks 13 to 14

Table 6 – weeks 9 to 10 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-SDP-01**  **TE4-PDP-01**  **Content**  Students:   * Investigate products and systems developed by Aboriginal and Torres Strait Islander Peoples * Explain ethical and legal considerations for innovation, design and production processes * Describe products and systems created by designers, producers and manufacturers | **Learning intentions**  We are:   * learning about the history and culture of products and systems developed by Aboriginal and Torres Strait Islander peoples * developing an awareness of the ethical and legal considerations in design and production.   **Success criteria**  We can:   * describe the historical engineering and function of timber products and design by Aboriginal and Torres Strait Islander peoples * appreciate Aboriginal and Torres Strait Islander peoples art and identify the difference between inspiration and copyright (ICIP).   **Teaching and learning activities**  **Note:** consulting with Aboriginal and/or Torres Strait Islander communities is essential to the development of meaningful Aboriginal and/or Torres Strait Islander Histories and Culture embedded across the curriculum. Aboriginal and/or Torres Strait Islander peoples are the owners and custodians of their knowledge and cultures and should be consulted when aspects of Aboriginal and/or Torres Strait Islander Histories and Cultures are being incorporated into the school curriculum.  **Suggested reading**: [Getting to know local Aboriginal and/or Torres Strait Islander Histories and Cultures](https://education.nsw.gov.au/teaching-and-learning/aec/universal-resources---aboriginal-education/getting-to-know-local-aboriginal-and-or-torres-strait-islander-h).  **Teaching and learning activities**  Students investigate products and systems developed by Aboriginal and Torres Strait Islander Peoples. Consider the engineering, function and innovation or our people. Useful resources include:   * [Aboriginal Plant use and Technology (PDF 376 KB)](https://www.anbg.gov.au/gardens/education/programs/pdfs/aboriginal_plant_use_and_technology.pdf) * [Tools & Technology - Deadly Story](https://deadlystory.com/page/culture/Life_Lore/Science/Tools_Technology).   Students investigate Aboriginal art and expression. Invite a local Aboriginal community member into the classroom to share and facilitate learning. Students read [Understanding symbols in Aboriginal art – Red Kangaroo](https://redkangaroogallery.com.au/pages/u) and complete the activity on Aboriginal art and symbols.  Discuss ethical and legal considerations for innovation, including Aboriginal cultural knowledge protected by Indigenous Cultural and Intellectual Property (ICIP). Students watch [Protecting Indigenous Cultural and Intellectual Property rights (ICIP) (2:02)](https://www.youtube.com/watch?v=W6zGG6tYGr0) and read [First Nations artists and souvenir sellers back crackdown on fake Indigenous art - ABC News](https://www.abc.net.au/news/2023-02-03/artist-retail-fake-indigenous-art-crackdown/101923386). Students then investigate ICIP and ‘fake’ Aboriginal art, in particular souvenirs, as a current ethical and legal issue.  Prompting questions could include:   * What are the issues with non-Aboriginal people selling Aboriginal art? * Are there laws protecting ICIP? * Would it be appropriate for you to decorate your bedroom sign with Aboriginal symbols? Why or why not? | Completion of workbook activities. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  Review Personalised Learning Pathways for Aboriginal and Torres Strait Islander students and differentiate accordingly. |  |
| **Outcome**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Document design processes when using materials and production technologies | **Practical project**  Students continue to make their BBQ caddy. Unique design elements can be added to carcase components. These could include laser-cut or wood-burnt designs or the addition of labels.  Teacher to demonstrate skills and techniques of surface finishing techniques.  **Documentation folio**  Students continuing to work on folio tasks – add surface decorative details to CAD drawing, or update timeline. |  | Pending equipment available in your context and skill level or time remaining, students can use paint or markers, wood burning, laser cut or even heat transfer of labels. |  |

## Weeks 15 to 16

Table 7 – weeks 15 to 16 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-PDP-01**  **TE4-SDP-01**  **TE4-MSC-01**  **Content**  Students:   * Describe products and systems created by designers, producers and manufacturers * Outline production techniques and materials used by designers, producers and manufacturers | **Learning intention**  We are learning about the products and systems created by a diverse range of designers, producers and manufacturers.  **Success criteria**  We can research and describe the production techniques and materials used by designers, producers and manufacturers.  **Teaching and learning activities**  **Timber designer case study**  Students research a designer in the Australian timber industry. It could be a woodworker or furniture maker, focusing on aspects such as sustainability, Aboriginal culture, innovation or gender representation.  In a Google Doc or similar format, students will complete the following activities:   * Identify the designer or business, detailing who they are and what their work represents. Discuss the factors that contribute to their success. * Describe the products, techniques, materials and systems used by the designer. Focus on specific designs, techniques and materials, explaining their unique design process. Include annotated images to enhance understanding. * Analyse the impact of the designer's work on ethical or sustainable design and their broader influence on society. | Completion of case study. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  HPGE students could present their research and explain the impact of their designers on society and/or the environment. They could write a letter to the company or the designers asking questions about their work. |  |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Document design processes when using materials and production technologies | **Practical project**  Students assemble the BBQ caddy using the glue and nail method. When demonstrating, use guiding question such as:   * How can we ensure that the edges of the joints are perfectly aligned? What techniques can we use to achieve a flush surface? * How do we verify that our caddy is square as we assemble it? What tools or methods can we use to check for squareness during the process? * What is the role of glue in this assembly? Why is it important to use both glue and nails? * How do flush joints contribute to the overall strength of the project?   Students attach and machine base to caddy.  **Documentation folio**  Students continue to work independently on folio tasks. |  |  |  |

## Weeks 17 to 18

Table 8 – weeks 17 to 18 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes | **Learning intentions**  We are:   * learning about the function of the serviette weight * considering designs for our project * learning about finishing techniques of timber.   **Success criteria**  We can:   * design and manufacture an appropriate serviette weight * identify and select appropriate finishing techniques for my project * apply functional and aesthetic requirements to my project.   **Teaching and learning activities**  **Surface finishing**: students complete the workbook activity on function, types, preparation and application, prior to applying finish to their project.  Teacher leads a class discussion and demonstration of surface finishing. Discuss the roles of surface finishing, such as protection from moisture and damage, enhancing appearance and improving durability. Encourage students to explore how finishing can affect the longevity and usability of their projects.  Students will research and identify various types of finishes, including:   * oil-based finishes: teak oil, linseed oil * water-based finishes: acrylic, polyurethane * shellac and varnish including their properties and suitable applications * stains including their ability to enhance wood grain and colour * paints including their different types and their uses on wood surfaces.   Highlight the importance of surface preparation before applying any finish. Discuss techniques such as sanding, cleaning and filling imperfections. Students should understand how proper preparation contributes to the finish's effectiveness and appearance.  Guide students through various application methods, such as:   * brush application – techniques for even coverage and avoiding streaks * spray application – when to use and how to achieve a smooth finish * rag application – effective for oils and stains.   Discuss the importance of ventilation, protective gear and following manufacturer instructions.  Students apply their knowledge by preparing their projects for finishing. They will select the appropriate finish based on their project requirements and demonstrate proper application techniques. | Workbook activity on surface finishing techniques. | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method.  Some students may require a procedure to appear in a different format, for example a storyboard with photographs of each step. |  |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Select tools, materials, techniques, technologies and processes to make solutions and projects * Demonstrate safe practices when selecting and using materials, technologies and processes * Document design processes when using materials and production technologies | **Practical project**  Teacher groups student based on similar serviette weight design and tools required to manufacture the project.  Teacher conducts small group demonstrations for each serviette weight design.  Students manufacture and attach weight to their BBQ caddy.  **Documentation folio**  Students continue to work independently on folio tasks. |  | For lower-ability classes, teacher may identify 1–2 designs for serviette weight for students. Provide dimensions and scaffold manufacturing steps. |  |

## Weeks 19 to 20

Table 9 – weeks 19–20 lesson sequence and details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcomes and content | Teaching and learning activities | Evidence of learning | Differentiation and adjustments | Registration and evaluation notes |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **Content**  Students:   * Work collaboratively to test, modify and improve the quality of ideas and solutions * Evaluate ideas and solutions using written, visual, verbal or multimodal communication forms * Use factors affecting design to evaluate the quality of ideas and solutions | **Learning intentions**  We are:   * investigating evaluation as a way of self-assessing our work and our peers * learning to refer to the criteria for success to gauge the success of our project.   **Success criteria**  We can:   * evaluate the success of our project and my peers against the criteria for success * select and apply appropriate finishing techniques to my project.   **Teaching and learning activities**  **Class peer assessment activity**  Teacher guides class discussion around the co-construction of the project assessment. Check the rubric in the assessment outline and co-construct a set of student-friendly terms to assess each project.  Students place completed projects around the room while peers evaluate projects based on co-constructed criteria. | Student self-reflection based on peer evaluation of projects. Do you agree or disagree? Why or how? | **Suggested adjusted activities. This section is also for use in school when making adjustments to support all students to achieve in their learning.**  Provide visual and/or multimodal examples and check for understanding of concepts.  Scaffolds and templates can be provided for students to complete tasks.  Students can respond using their preferred communication method. |  |
| **Outcome**  **TE4-DES-01**  **TE4-PPM-01**  **TE4-SAF-01**  **Content**  Students:   * Use tools, materials, techniques, technologies and processes to develop practical skills * Demonstrate safe practices when selecting and using materials, technologies and processes * Work collaboratively to test, modify and improve the quality of ideas and solutions * Evaluate ideas and solutions using written, visual, verbal or multimodal communication forms * Use factors affecting design to evaluate the quality of ideas and solutions | **Teaching and learning activities**  **Practical project**  Students prepare project for finishing including steaming dents, gap filling and sanding.  Students apply finish to manufacturer’s instructions.  **Documentation folio**  Students complete folio task 8 (Evaluation).  Students complete final evaluation of their project. |  |  |  |

# Overall program evaluation

Collating ongoing evaluations and reflecting on the strengths and areas for development within the program creates opportunities to enhance student outcomes. The following prompts can be used to support your evaluation of the program:

* Did the program assist all students to improve in their learning?
* How could the sequencing of the program be improved?
* What did the student evaluations of the program indicate? How can these be actioned to improve the program?
* The strategies and resources that were most effective for student learning were …
* Teaching strategies and resources that would benefit from review and refinement are …

## Capturing student voice when evaluating a program

Student voice is useful in the evaluation process for programs. The statements below could be useful as a starting point when asking students to provide feedback on their learning experiences. These statements are derived from some of the themes from [What works best 2020 update](https://education.nsw.gov.au/about-us/education-data-and-research/cese/publications/research-reports/what-works-best-2020-update) (CESE 2020b) and could be useful in teacher reflection on how these themes could be incorporated into a teaching program. The statements could also prompt student reflection on their metacognitive processes while learning.

**Please rate how much you agree with these statements:**

* My teacher had confidence that I could achieve and improve in my learning. (CESE 2020b Chapter 1: High expectations)
* I had a clear idea of what I was learning and why. (CESE 2020b Chapter 2: Explicit teaching)
* I used the feedback provided to improve my performance. (CESE 2020b Chapter 3: Effective feedback)
* I understood the feedback on the assessment task. (CESE 2020b Chapter 3: Effective feedback)
* I was able to predict the marks I achieved in the assessment tasks. (CESE 2020b Chapter 5: Assessment)
* The activities in the unit prepared me for the assessment task. (CESE 2020b Chapter 5: Assessment)
* I found the activities in the lessons interesting to me. (CESE 2020b Chapter 7: Wellbeing)
* I made valuable contributions to the class during this unit. (CESE 2020b Chapter 7: Wellbeing)
* I ask questions in class when I don’t understand yet. (CESE 2020b Chapter 7: Wellbeing)

**Optional open-ended prompts:**

* The lessons and/or activities that I most enjoyed were when we … because …
* When the learning was difficult, the strategy I used was …
* If I was giving advice to a student who was starting this unit I would tell them to …
* If I was giving advice to a teacher who was teaching this unit I would tell them to …

# Support and alignment

**Resource evaluation and support**: all curriculum resources are prepared through a rigorous process. Resources are periodically reviewed as part of our ongoing evaluation plan to ensure currency, relevance and effectiveness. For additional support or advice, or to provide feedback, contact the TAS Curriculum team by emailing [TAS@det.nsw.edu.au](mailto:TAS@det.nsw.edu.au).

**Differentiation:** further advice to support Aboriginal and Torres Strait Islander students, EALD students, students with a disability and/or additional needs and High Potential and gifted students can be found on the [Planning, programming and assessing 7–12](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12) webpage. This includes the [Inclusion and differentiation 7–10 advice](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/inclusion-and-differentiation-advice-7-10) webpage.

**Assessment**: further advice to support formative assessment is available on the [Planning, programming and assessing 7–12](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12) webpage. This includes the [Classroom assessment advice 7–10](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/classroom-assessment-advice-7-10-). For summative assessment tasks, the [Assessment task advice 7–10](https://education.nsw.gov.au/teaching-and-learning/curriculum/planning-programming-and-assessing-k-12/planning-programming-and-assessing-7-12/assessment-task-advice-7-10) webpage is available.

**Consulted with**: Curriculum and Reform, Aboriginal Education and Communities and subject matter experts.

**Alignment to system priorities and/or needs**: [School excellence](https://education.nsw.gov.au/policy-library/policies/pd-2016-0468).

**Alignment to the School Excellence Framework**: this resource supports the [School excellence](https://education.nsw.gov.au/policy-library/policies/pd-2016-0468) elements of curriculum (curriculum provision) and effective classroom practice (lesson planning, explicit teaching).

**Alignment to Australian Professional Standards for Teachers**: this resource supports teachers to address [Proficient Teacher Standard Descriptors](https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/meeting-requirements/the-standards/proficient-teacher) 3.2.2, 3.3.2.

**Creation date: 30 January 2025**

# Evidence base

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[Technology 7–8 Syllabus](https://curriculum.nsw.edu.au/learning-areas/tas/technology-7-8-2023/overview) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2023.

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