



SAMPLE ASSESSMENT TASKS

BUILDING AND CONSTRUCTION
GENERAL YEAR 12

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Sample assessment task

Building and Construction – General Year 12

Task 1 – Unit 3

Assessment type: Design

Conditions

Period allowed for completion of theory lessons and to complete this range of practical design tasks: three weeks

Task weighting

5% of the school mark for this pair of units

Structural design for a residential backyard project (30 marks)

You are to investigate and design a modular structure to be constructed in a residential backyard

What you need to do

Prepare a design folio

As an example of the design process used to develop a backyard structure, the following is provided, based on a children's cubby house

- collect a series of photographs, drawings, plans and ideas of children's cubbies, a cubby house for small children (3–10 years) or similar structure suitable for a residential backyard, along with any construction guidelines available
- include references and your sources of information

Structure specifications

- it is preferable for the parts to be designed to be modular and therefore easily stored or transported
- skillion roof or similar
- the cubby house must have at least two windows and one door

Design development process

1. Examine the images that you have collected, then make comparisons, and produce a PMI table (9 marks)
2. From the results of your PMI, develop a series of sketches and decide upon any changes that you would make to your designed project
 - detail the changes to any ideas that you will make utilising sketches (6 marks)
3. Plan the layout and design features of the cubby house or similar structure suitable for a residential backyard
 - generate suitable 2D drawings with conventions for the designed solution (4 marks)

Pre-construction

4. Review your design's suitability against design needs, including investigation of materials and construction methods
5. Investigate and select appropriate materials to construct the project
 - investigate the timber framing construction standards (AS1684)
 - prepare a list of materials (6 marks)
6. You are to plan and provide a construction procedure from which you and others will build the structure
 - investigate the guidelines as to the construction and safety standards required for such a construction, as well as any stated safety features or requirements; you should use common sense to enhance the safety of the final structure
 - detail the benefits of using these materials to yourself and the environment (5 marks)

A later task requires the production of a model of a project (cubby house) solution

- class project construction groups can be arranged
- from all the designs received, the best (or best two) will be chosen and constructed as a whole class project/s
- to this end, you will be required to prepare installation plans for the structure
- depending on the design chosen, this may involve some form of concrete footings
- alternatively, as a transportable package, the structure may be sold as a modular kit with installation plans provided

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Pictures, notes and images of your collected ideas	
<input type="checkbox"/> Completed notes on PMI table of ideas	
<input type="checkbox"/> Completed sketches and details of development of possible solution	
<input type="checkbox"/> Completed list of possible construction materials	
<input type="checkbox"/> Completed possible construction procedure	

Marking key for sample assessment Task 1 – Unit 3

Sections of the Design folio – Investigation, concept development, sketches and materials for backyard structure design project	Maximum possible mark	Allocated mark
Provides information about existing products <ul style="list-style-type: none"> carefully selected number of existing similar products, with source referencing, using the design considerations to make detailed comparisons comparisons between a carefully selected number of images against the design considerations a number of different products with notes describing the differences a selection of ideas of a single product with limited annotation about likes and dislikes collection of dissimilar images and few notes 	5 4 3 2 1	/5
Produces suitable PMI table <ul style="list-style-type: none"> provides relevant positives and comparisons in a clear and concise manner, detailing reasons for including selected images provides relevant information in a clear manner, detailing some reasons for material selection 	3–4 1–2	/4
Provides ideas and concepts through collected and annotated images <ul style="list-style-type: none"> clear development of ideas and concepts showing concept development with annotations on images and sketches referring to design needs, safety and construction considerations concept development using annotated images, with reference to design needs, safety and construction considerations concept development is limited to few images and simple annotations, little or some reference to ideas meeting design needs 	5–6 3–4 1–2	/6
Plans the layout and design features in concept 2D drawings <ul style="list-style-type: none"> correctly proportioned, and conforms to appropriate convention standards utilises appropriate drawing techniques, minor errors 	3–4 1–2	/4
Selection of appropriate materials <ul style="list-style-type: none"> provides all relevant information in a clear and concise materials list, detailing reasons for material selection provides relevant information in a clear list, detailing some reasons for material selection missing detail or incomplete list of materials 	5–6 3–4 1–2	/6
Possible project construction <ul style="list-style-type: none"> provides clear simple statements covering all aspects of the construction provides statements covering main structural aspects of the construction limited or unclear statements provided 	4–5 2–3 1	/5
Total		/30

Sample assessment task

Building and Construction – General Year 12

Task 2 – Unit 3

Assessment type: Design

Conditions

Period allowed for completion of the task: two weeks

Task weighting

3% of the school mark for this pair of units

Draft the proposed structure

(30 marks)

Students use a design process to prepare drawings, patterns or templates, and develop a construction plan to build the structure

What you need to do

Follow on from the first part of your design folio, and include in this second part the following:

1. Finalise the details of the design sketches/drawings (8 marks)
2. Create simple working orthographic drawing/s for construction plan (6 marks)
 - generate suitable 2D scaled drawings
 - use suitable conventions
 - select and show methods of joining
 - show notes on likely finishes
3. Confirm selection of all appropriate materials to construct the project (10 marks)
 - estimate quantities of materials
 - calculate and prepare a materials list and order form
4. Produce a plan and timeline for construction, including: (6 marks)
 - modular fabrication of sections
 - site preparation
 - site assembly of modular sections

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Final sketches/drawings of proposed solution	
<input type="checkbox"/> Working drawings or template or pattern for product	
<input type="checkbox"/> Materials/parts list, and order form	
<input type="checkbox"/> Work schedule/construction plan	

Marking key for sample assessment Task 2 – Unit 3

Drafting proposed structure and pre-production	Maximum possible mark	Allocated mark
Complete final sketches of possible modular sections, joins, specific features, likely dimensions and notes on likely finishes <ul style="list-style-type: none"> • detailed, well-proportioned sketches showing final concepts; parts, showing relevant joining methods with appropriate specific dimensions; other materials and finishes • well-shaped final sketches that show concept ideas, including some joining and appropriate overall dimensions • sketches that show development of mainly a single concept idea, some materials and joining, some dimensioning • collection of dissimilar final sketches, limited design progression, and few notes 	7–8 5–6 3–4 1–2	/8
Presentation of working drawing/s or template or selected pattern <ul style="list-style-type: none"> • well-drawn, correctly labelled view/s with clear, accurate dimensioning • well-drawn views with correct major dimensions • views with majority of correct dimensions, but with minor errors 	5–6 3–4 1–2	/6
Completed list of materials and order form, plus any additional parts <ul style="list-style-type: none"> • logical presentation of a complete and correct naming of materials, list of all individual parts with accurate sizes, correct total cost, and completed order form • clear list of materials and parts with correct sizes, costing completed • list of materials with approximate sizes and calculated approximate cost • list of materials with approximate cost • incomplete list of parts 	9–10 7–8 5–6 3–4 1–2	/10
Proposed timeline and steps of construction <ul style="list-style-type: none"> • logical list of procedures to fabricate and fit the sections of the project together with correct tools and correct procedure for site preparation • correct procedures listed with available tools for making and assembly of the project • outline, with limited and/or partial list of procedures and tools 	5–6 3–4 1–2	/6
Total		/30

Sample assessment task

Building and Construction – General Year 12

Task 6 Part A – Unit 3

Assessment type: Response

Conditions

Period allowed for completion of this task: three weeks

Task weighting

3% of the school mark for this pair of units

Environment and sustainability reports

(40 marks)

Prepare and present reports for **two** of the three following topics:

- building insulation and its purpose
- the types of energy (electrical, heat, mechanical) used during construction
- recycling of building materials

What you need to do

In your groups, you are to choose **two** topics from the following three research topics

Investigate and compile a report on each of the **two** chosen topics

Provide a list of references and sources of information

(2 marks)

1. Building insulation and its purpose in building and construction
 - define the term insulation (6 marks)
 - list the different commercial insulation materials (6 marks)
 - list their purpose and insulation rating, and identify where each type of insulation may be placed in a residential dwelling (6 marks)
2. The types of energy (electrical, heat, mechanical) used during construction
 - identify methods of supply of energy to construction sites (6 marks)
 - give a brief description and examples of the use of:
 - electrical energy
 - methods of heating
 - mechanical lifting and movement of materials (12 marks)
3. The types of environmentally friendly methods of recycling building materials
 - identify materials recovered from demolition sites (6 marks)
 - give brief descriptions of methods of recovering materials (6 marks)
 - give a brief description and examples of the use of:
 - recovered metal materials
 - recovered timber materials
 - recovered cement or ceramic materials (6 marks)

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Completed Report One	
<input type="checkbox"/> Completed Report Two	

Marking key for sample assessment Task 6 Part A – Unit 3

Report on building insulation and its purpose in building and construction	Maximum possible mark	Allocated mark
Definition of insulation <ul style="list-style-type: none"> accurate, detailed definition and correct use of terminology adequate definition with minor errors in use of terminology definition uses incorrect terminology and/or critical information missing 	5–6 3–4 1–2	/6
List the different commercial insulation materials <ul style="list-style-type: none"> accurate, detailed listing of materials and correct use of terminology minor errors or some details missing from list; uses general terminology correctly to explain materials terminology incorrect and/or critical information missing 	5–6 3–4 1–2	/6
List their purpose and insulation rating, placement of insulation in a dwelling <ul style="list-style-type: none"> accurate, detailed listing of purpose, placement and correct rating minor errors or some details missing from list terminology incorrect and/or critical information missing 	5–6 3–4 1–2	/6
<ul style="list-style-type: none"> appropriate reference list limited or no reference list provided 	2 0–1	/2
Total Insulation report		/20

Teacher feedback

Report on the types of energy (electrical, heat, mechanical) used during construction	Maximum possible mark	Allocated mark
Presents methods of supply of energy to construction sites <ul style="list-style-type: none"> accurate, detailed identification of methods with correct use of terminology minor errors or some details missing from notes; uses general terminology correctly to identify methods terminology incorrect and/or critical information missing 	5–6 3–4 1–2	/6
Presents brief descriptions and examples of the use of electrical energy, methods of heating and mechanical lifting and movement of materials <ul style="list-style-type: none"> accurate identification of each type and correct descriptions, using appropriate terminology and common examples correct terminology in identifying each type but has minor errors in some descriptions some types identified and described in general terms, with errors in some descriptions types not clearly described and/or limited or incorrect examples 	10–12 7–9 4–6 1–3	/12
<ul style="list-style-type: none"> appropriate reference list limited or no reference list provided 	2 0–1	/2
Total Energy report		/20

Teacher feedback

Report on types of environmentally friendly methods of recycling building materials	Maximum possible mark	Allocated mark
Identify materials recovered from demolition sites <ul style="list-style-type: none"> accurate identification of each type and correct descriptions, using appropriate terminology and common examples correct terminology in identifying each type but has minor errors in some descriptions some types identified and described in general terms, with errors in some descriptions 	5–6 3–4 1–2	/6
Brief descriptions of methods of recovering materials <ul style="list-style-type: none"> accurate identification of each type and correct descriptions, using appropriate terminology and common examples correct terminology in identifying each type but has minor errors in some descriptions some types identified and described in general terms, with errors in some descriptions incorrect use of terminology to identify and describe examples of only a few types 	5–6 3–4 1–2	/6
Brief descriptions and examples of the use of recovered metal and timber materials and recovered cement or ceramic materials <ul style="list-style-type: none"> accurate identification of each type and correct descriptions, using appropriate terminology and common examples correct terminology in identifying each type but has minor errors in some descriptions some types identified and described in general terms, with errors in some descriptions 	5–6 3–4 1–2	/6
<ul style="list-style-type: none"> appropriate reference list limited or no reference list provided 	2 0–1	/2
Total Recycling report		/20

Teacher feedback

Sample assessment task

Building and Construction – General Year 12

Task 6 Part B – Unit 3

Assessment type: Response

Conditions

Period allowed for completion of this task: three weeks

Task weighting

2% of the school mark for this pair of units

Structure and Services reports

(40 marks)

Prepare and present **two** reports for the following topics:

1. Two-dimensional forces on trusses, frames and structural components (20 marks)
2. The provisions for the supply of: on-site gas, electric power, water, drainage and sewerage (20 marks)

What you need to do

Investigate and compile reports to cover the following two sections

Within each report, provide in-text referencing for the sources of information (2 marks)

1. Two-dimensional forces on trusses, frames and structural components
 - name and present suitable images of **two** different common types of each of the following:
 - trusses
 - frames
 - other general structural components (6 marks)
 - list the terms used to describe and calculate the forces within trusses, frames and structural components
 - list the common units of measurement for forces when calculating the forces within structures (6 marks)
 - define Factor of Safety (FS) and Safe Working Load (SWL) (6 marks)
2. Outline the methods of providing the following to a building site, and name the trades responsible for the supply of:
 - on-site gas
 - electric power
 - water
 - rain and storm water drainage
 - sewerage (20 marks)

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Completed Report One	
<input type="checkbox"/> Completed Report Two	

Marking key for sample assessment Task 6 Part B – Unit 3

	Maximum possible mark	Allocated mark
Report on forces on trusses, frames and structural components		
Name two different common types of trusses, frames and structural components, including suitable images <ul style="list-style-type: none"> accurate, detailed images with names and correct use of terminology adequate images with names with minor errors in use of terminology names incorrect images/terminology and/or critical information missing 	5–6 3–4 1–2	/6
List the terms used to describe and calculate the forces within trusses, frames and structural components; present correct units of measurement for forces <ul style="list-style-type: none"> correct listing of terms and correct use of terminology; all units of measurement correctly presented minor errors or some details missing from lists; uses general terminology correctly to explain majority of terms terminology incorrect and/or critical information missing 	5–6 3–4 1–2	/6
Define Factor of Safety (FS) and Safe Working Load (SWL) <ul style="list-style-type: none"> accurate, detailed definition using correct use of terminology adequate definition with minor errors in use of terminology definition uses incorrect terminology and/or critical information missing 	(for each) 3 2 1	/6
<ul style="list-style-type: none"> appropriate in-text referencing to sources of information limited or no referencing provided 	2 0–1	/2
Total		/20
Report on the trades responsible for, and the methods of providing services to, a building site		
Outline of methods of providing services to a building site <ul style="list-style-type: none"> accurate, detailed statements that outline the methods of service provision; uses specific terminology associated with each trade majority of correct statements explaining methods of services; uses appropriate terminology minor errors or some details missing from some statements; uses general terminology correctly to explain methods errors and some details missing from some statements terminology incorrect and/or critical information missing 	9–10 7–8 5–6 3–4 1–2	/10
Name trade/s responsible for service supply (five trades) <ul style="list-style-type: none"> correct naming of trade/s responsible for each service minor errors in naming each trade incorrect trade or service and/or critical information missing 	(for each) 2 1 0	/10
Total		/20
Final total		/40

Teacher feedback

Sample assessment task

Building and Construction – General Year 12

Task 7 – Unit 3

Assessment type: Production

Conditions

Period allowed for completion of theory lessons and to complete a range of practical tasks:
six weeks

Task weighting

5% of the school mark for this pair of units

Building exercises: bricklaying and brick paving (56 marks)

Gain a theoretical understanding from lessons, then complete a range of practical tasks to experience and develop skills in building and construction processes

What you need to do

Complete theory worksheets supplied by your teacher and the following activities

Activity 1: Theory

Complete worksheets, identifying terminology, and the tools and the materials for the different tasks

- calculate materials quantities
- types of bricks
- bricklaying terms
- bricklaying and paving tools (8 marks)

Activity 2: Bricklaying

Complete these tasks safely and independently, including site preparation and clean up

- site preparation
- construction of brick wall using racking
- construction of brick wall using line blocks
- constructing a corner (24 marks)

Activity 3: Brick paving

Complete these tasks safely and independently, including site preparation and clean up

- site preparation
- both running and stack bond patterns
- basket weave (24 marks)

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Activity 1: Theory worksheets	six weeks from commencement date
<input type="checkbox"/> Activity 2: Bricklaying	
<input type="checkbox"/> Activity 3: Brick paving	

Marking key for sample assessment Task 7 – Unit 3

	Maximum possible mark	Allocated mark
Activity 1: Theory		
Completed worksheets identifying terminology, and the tools and the materials for the four different theory tasks (2 marks for each worksheet)	(for each)	
<ul style="list-style-type: none"> • correct terminology and tools/materials for each task • minor errors in terminology and tools/materials for each task • incorrect terminology/tools/materials and/or critical information missing 	2 1 0	
Total		/8
Activity 2: Bricklaying		
Site preparation		
<ul style="list-style-type: none"> • correct tools • setting out • preparedness 	1 1 1	/3
Construction of brick wall using racking		
<ul style="list-style-type: none"> • square • level • raking 	1-2 1-2 1-2	/6
Construction of brick wall using line blocks		
<ul style="list-style-type: none"> • square • level • raking 	1-2 1-2 1-2	/6
Construction of a corner		
<ul style="list-style-type: none"> • square • level • raking 	1-2 1-2 1-2	/6
Work habits – safely and independently; clean up		
<ul style="list-style-type: none"> • safely works independently • use of materials/tools/equipment • satisfactory clean up 	1 1 1	/3
Total		/24
Activity 3: Brick paving		
Site preparation		
<ul style="list-style-type: none"> • correct tools • setting out • preparedness 	1 1 1	/3
Laying a running pattern		
<ul style="list-style-type: none"> • square • flat • compacted 	1-2 1-2 1-2	/6
Laying a stack bond pattern		
<ul style="list-style-type: none"> • square • flat • compacted 	1-2 1-2 1-2	/6
Laying a basket weave pattern		
<ul style="list-style-type: none"> • square • flat • compacted 	1-2 1-2 1-2	/6

	Maximum possible mark	Allocated mark
Work habits and Occupational Safety and Health		
• safely works independently	1	
• use of materials/tools/equipment	1	
• satisfactory clean up	1	/3
	Total	/24
	Final total	/56

Teacher feedback

Sample assessment task

Building and Construction – General Year 12

Task 9 – Unit 3

Assessment type: Production

Conditions

Period allowed for completion of theory lessons and to complete a range of practical tasks:
five to eight weeks

Task weighting

5% of the school mark for this pair of units

Fabrication exercises – welding

(45 marks)

Complete a series of practical exercises in the three types of welding
Present welds on a suitable display board

What you need to do

You are to complete the following welding exercises. The exercises are to be presented on a suitable display board that you have constructed

Suggested range of welding to be completed (materials in brackets are suggested material sizes)

1. Demonstrate the correct preparation and safety set up for each welding process (12 marks)
2. Electric Arc (9 marks)
 - butt joint (flat bar 2 off 100 x 20 x 3)
 - lap joint (flat bar 2 off 100 x 20 x 3 with 5mm overlap only)
 - round bar (Ø10 x 50) to plate (flat black bar 40 x 40 x 5)
3. Oxy/acetylene (15 marks)
 - fused butt joint (bright mild steel [ms] 2 off 100 x 25 x 1.6)
 - fused outside corner (bright ms 2 off 100 x 25 x 1.6)
 - brazed butt joint (bright ms 2 off 100 x 25 x 1.6)
 - brazed fillet weld (bright ms 2 off 100 x 25 x 1.6)
 - silver solder a copper pipe, end to end (2 off Ø12 x 70)
4. MIG welding (9 marks)
 - fillet weld (flat bar base 100 x 40 x 3, upright 100 x 20 x 3)
 - open butt joint (flat bar 2 off 100 x 20 x 3)
 - T joint using thin walled square tube (2 off □25 x 1.6 x 100 long)

Optional: Present completed welds mounted on a suitable display board

What needs to be submitted for assessment	Due date
<input type="checkbox"/> Progressive presentation of completed welding exercises	
<input type="checkbox"/> Optional: completed welds on a suitable display board	

Marking key for sample assessment Task 9 – Unit 3

Fabrication exercises – welding	Maximum possible mark	Allocated mark
Correct and safe preparation of welding equipment <ul style="list-style-type: none"> • correct safe set up of equipment • personal protective equipment used • correct setting of: <ul style="list-style-type: none"> ▪ oxy/acetylene gas pressures ▪ rod selection and amperage ▪ amperage and wire speed • correct shut down of equipment 	1–2 1–2 1–2 1–2 1–2	/12
Marking based on description of each joint (maximum 3 marks) <ul style="list-style-type: none"> • joint holds together; no holes or gaps; good penetration along 90% of weld length; good appearance; parts square and aligned • joint holds together; minimal unevenness or gaps; penetration at least 66% of weld length • joint hangs together; some penetration evident; holes or gaps; uneven/poor/fair appearance 		
Electric Arc <ul style="list-style-type: none"> • butt joint • lap joint • round bar to flat plate 	1–3 1–3 1–3	/9
Oxy/acetylene <ul style="list-style-type: none"> • fused butt joint • fused outside corner • brazed butt joint • brazed fillet weld • silver solder a copper pipe, end to end 	1–3 1–3 1–3 1–3 1–3	/15
MIG welding <ul style="list-style-type: none"> • fillet weld • open butt joint • T joint using thin walled square tube 	1–3 1–3 1–3	/9
Total		/45