
Design and Technology

School Based Assessment (SBA)

Hand Book

for

Solomon Islands School Certificate

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Evaluation

1. What is not so good about your job?

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2. What skill have I learnt during this project?

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3. What new information have I learnt during this project?

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4. Could your solution be produced and sold commercially?

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5. The best things about my project are:

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6. What would you change about your job if you were to make it again?

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7. Other comments

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Steps in Construction

Management Diary

This is a record of all work completed and each lesson should be recorded

Date	Step completed	Details

Working Drawing – Include dimensions and a cutting list*

* You can glue in a larger sheet if necessary

FOREWORD

This document was produced during a workshop held in Honiara from the 8th – 11th June 1998. This document which supercedes the previous SISC Marking scheme will be implemented in 1999 (and is use as a reference material for 2006 and onwards). This workshop was made possible with the assistance from the SPBEA and the MEHRD co-ordinated by the National Examinations and Standards Unit (NESU)

TASK OUTLINE FOR THE STUDENT

The task you are going to do will come in different phases which require you to demonstrate a positive attitude to good craftsmanship; putting into practice the skills and knowledge learnt. The different skills, knowledge and attitude applied will be assessed. All assessed works will form 60% of your SISC Assessment.

The Assessment Tasks will require you to keep all your design sketches, drawings and diary neatly in a folder (Design Folio Folder) which you will present whenever it is required.

TASK DETAIL FOR THE STUDENT

Any design is the result of attempts at finding solutions to a problem. The whole process of designing is based on the need to solve problems.

Design Brief

In any given situation, there must be several ways of arriving to the problem involved. Your Design Brief should state clearly how the situation is to be resolved. Your Design Brief is a written statement describing what is to be designed.

Analysis and Investigation

Before solutions to a design can be attempted, problems associated with designing the project will require analyzing and investigation. Areas of investigating are: function, shape and form, material, joining, strength, surface finish, fittings, safety economic, tools

Solution

While considering the various aspects of investigations, a number of solutions will arise. Notes and drawing should indicate the flow of ideas of solving the design brief. The solution will normally take the form of drawings and notes describing how the design is developing.

Chosen Solution

From the ideas shown by the variety of solutions a single solution will be chosen. This should satisfy the demands of the situation and the design brief.

Final Working Drawing

Final drawings of the selected solution made. The drawing shows the symbols, the size, shape, joint etc. to be used.

Construction of project

The actual construction of the project based on plans and specifications.

Diary

Daily record on what is being done during each period, time, day etc

Evaluation

Does the project meet the requirements? Does it need modifications to improve the design. Evaluation takes the form of takes.

NOTE: Refers to Form 4 and 5 syllabus

Marking (Assessment)

By the end of week 18, term 1, form five, all task should be completed and ready for assessment

TASK 1

1. TASK TITLE: CONSTRUCTION OF WOODWORK PRACTICAL: PROJECT 1

2. OBJECTIVES

The student must:

- i. Design from wood material.
- ii. Complete a design folio for the project.
- iii. Consider the available materials for the project.
- iv. Design the project so that it is simple enough to construct.
- v. Produce the working drawing of the project.
- vi. Construct the project based on the working plan.
- vii. Demonstrate proper craftsmanship skills.
- viii. Include a form of hardware in the project.

3. ADVICE TO TEACHERS

Handling of the task

1. Timing

Phase 1 – Design	-	Minimum of 4 periods for 2 weeks.
Phase 2 – Tech/Drawing	-	Minimum of 4 periods for 2 weeks.
Phase 3 – Construction	-	Minimum of 80 periods for 2 5weeks.
2. Students should complete the three phases independently, but should be given guidance as necessary.
3. Teachers must advice the students of the materials that will be made available to them before they design the project.
4. Students must not be given replacement materials when they have made errors in construction.
5. Phase one details must be given to students prior to the design task.
6. All phases must be completed in the classroom under teacher supervision.

TASK 1 DESCRIPTION

The project specification will be decided by the panel in the year the project is to be completed. This will include the type of joints (compulsory or optional), size, finishing and use of hardware.

Phase 1 Design

The design phase of this project requires student to open a folder folio. This folio will be done according to the format describe in the Industrial Arts/Technology course syllabus for form 4 and 5.

In this phase, students will produce their own free hand sketch of the project which will serve as the base for the drawing and construction phases which follow.

Students must be advice on the project specifications prior to the design phase. The teacher must spell out clearly to the students how much material will be available and other limitations.

In assessing the skills of this phase, refer to the marking criteria.

After the design has been marked and the marks recorded, corrections may be made to phase 1 so that the student can proceed to phase 2 without further disadvantage.

Teaching Input – New information learned

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Ideas / Sketches – At least three different ideas for possible solutions

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Preliminary Sketches – DEVELOPMENT OF YOUR PREFERRED IDEA

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Analysis

Ask questions about the problem – What do you need to find out

1. Available resources

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2. Uses of the project

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3. Who will use the project?

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4. How will this affect the projects sizes/structure?

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5. What materials could be used?

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6. What skills and techniques could be used?

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7. How long would it take to complete this project?

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8. What information have you collected?

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Phase 2 Technical Drawing

The drawing phase requires students to produce a working plan and also the pictorial sketch for the project which reflects the final corrected design created in phase 1.

The drawing should be both accurate and in sufficient detail to allow them to be used as the basis for the construction that follows in phase 3.

Refer to the marking criteria in order to see what skills are being assessed in this phase.

After the drawing have been marked and the marks recorded, corrections may be made to phase 2 so that the student can proceed to phase 3 without further disadvantage.

Phase 3 Construction

The construction phase requires students to produce a completed project based on the working plan develop in phase 2.

Refer to the Industrial Art/Technology syllabus for forms 4 and 5 under the woodwork section for the list of materials and tools required for the completion of the project.

4. MATERIALS

For all materials and tools required for the three phases, refer to the syllabus.

TASK 2

1. TASK TITLE: CONSTRUCTION FROM NON-WOOD MATERIAL PRACTICAL: PROJECT 2

2. OBJECTIVES

The students must:

- i. Design the project.
- ii. Design the project according to the type of material specified by the panel.
- iii. Consider the available material for the project.
- iv. Design the project so that it is simple enough to construct.
- v. Produce the working drawing of the project.
- vi. Construct the project based on the working plan.
- vii. Demonstrate proper craftsmanship skills.

3. ADVICE TO TEACHERS

Handling of task

1. Timing
 - Phase 1 – Design - Minimum of 2 periods for 2 weeks.
 - Phase 2 – Tech/Drawing - Minimum of 2 periods for 2 weeks.
 - Phase 3 – Construction - Minimum of 8 periods for 8 weeks.
2. Students should complete the three phases independently, but should be given guidance as necessary.
3. The teachers should inform the students of the materials used for the project as stated in the specification.
4. Teachers must advise students of the materials that will be available to them before the design of the project.
5. Phase one details must be given to the students prior to the design task.
6. All phases must be completed in the classroom under teachers supervision.

Task 2 Description

The project will be decided by the panel in the year before the project is to be completed.

Phase 1 Design

The design phase of this project requires students to produce their own free hand sketch of the project which will serve as the base for the drawing and construction phases which follow.

Students should be advised on the material to use (Plastics, Sheet Metal, Metal Fabrication and electronics) prior to the design phase. The teacher should spell out clearly to the students how much material is available and other limitations.

In assessing the skills of this phase, refer to the prepared marking criteria.

After the design has been marked and the marks recorded, corrections may be made to phase 1 so that the students can proceed to phase 2 without further disadvantage.

DESIGN FOLIO

Project Title _____

Students Name _____

Presentation Drawing – A 3 Dimensional Drawing

Need

Brief - A statement of the problem to be solved

Specification – In your own words specify what the solution must do

Phase 1 - Preliminary Designs Marking Criteria

ASPECT ASSESSED	CRITERION LEVEL		
	4	2	0
Overall proportion shown in sketch.	Sketch demonstrate good design proportion throughout	Proportion weakness seen in 5-10 members	Proportion weakness seen in more than 10 member.
Construction feasible from available material.	Clearly able to be made from selected material	Minor adjustment required to build from selected material.	Unable to be built from selected material.
Identification of members from the sketch.	All members clearly identified from the sketch	50% and more can be identified from the sketch.	Less than 25% of the members can be identified from the sketch
Proportion of members.	Very well proportioned	50% or more of members are well proportioned	Less than 25% of members are well proportioned
Suitability to function.	Very suitable	Fair	Unsuitable

Phase 2 - Devising Marking Criteria

ASPECT ASSESSED		CRITERION LEVEL		
		5	3	1
1	Layout of drawings on page	Orthographic layout, border and title box all correct.	Weakness in 50% of orthographic, border or title box.	Weakness in less than 25% of orthographic, border or title box.
2	Orthographic and isometric compatibility.	Totally compatible.	No more than 50% minor errors.	More than 25% minor errors
3	Sketch and isometric compatibility.	Totally compatible.	Less than 50% of minor error.	Less than 25% of minor errors.
4	Orthographic plan view.	Accurate.	50% of the views contain error	No view shown.
5	Orthographic front view.	Accurate.	50% of the views contain error	No view shown.
6	Orthographic end view.	Accurate.	50% of the views contain error	No view shown.
7	Line quality.	All lines are clean and continuous as appropriate.	No more than 2 lines fails to meet the standard.	Lines are not joined or show double.
8	Orthographic dotted lines.	Correctly shown and are accurate.	Shown but not totally accurate.	Not shown.
9	Orthographic construction lines.	Correctly shown and are accurate.	Shown but not totally accurate.	Not shown.
10	Orthographic dimension lines.	All shown and adhere to convention.	Some shown.	Not shown or shown but do not adhere to convention.
11	Orthographic dimensions.	All shown and accurate.	Shown but not wholly accurate.	Not shown.
12	Isometric layout.	Correct.	Incorrect.	Not done.
13	Isometric dark lines.	All correctly shown.	50% correctly shown.	Less than 25% correctly shown.
14	Isometric fine lines.	All correctly shown.	Some correctly shown.	All incorrect or not shown.

Phase 2 Technical Drawing

The drawing phase requires students to produce a working plan and also the pictorial sketch for the project which reflected the final corrected design in phase one.

The drawing should be both accurate and in sufficient detail to allow them to be used as the basis for the construction that follows in phase 3.

Refer to the marking criteria in order to see what skills are being assessed in this phase.

After the drawings have been marked and the marks recorded, corrections may be made to phase 2 so that the student can proceed to phase 3 without further disadvantage.

Phase 3 Construction

The construction phase requires students to produce a completed project based on the working plan developed in phase 2.

Refer to the Industrial Art/Technology syllabus for forms 4 and 5 under Plastics, Sheet Metal, Metal Fabrication and Electronics sections for the list of materials and tools required for the completion of the project.

Refer to the marking criteria in order to see what skills are being assessed in this phase.

4. MATERIALS

For all materials and tools required for phase 3, refer to syllabus.

PHASE 1: DESIGN

1. You must design a project.
2. Your design must consider the available materials and tools.
3. Your design must be simple enough for you to construct within the specified time.
4. Your design must have a compulsory joint(s) and other joints given to you.
5. Your design must be able to produce a strongly constructed project reflecting good Craftsmanship.
6. Your design must fit the function your project will serve.
7. Your design must have the notes to show the materials used and any other construction features of importance (eg. Type of joints, hardware, finishes).
8. Your design must be drawn as a free hand sketch on a single sheet of A4 paper.

PHASE 2: DRAWING

1. You must produce a working drawing from the project design that you sketched in phase 1.
2. Your working drawing must be drawn on two A4 sheets of paper using a range of technical drawing instruments made available to you.
3. On the first sheet of A4 paper, you must draw your project in isometric projection.
4. On the second sheet of A4 paper, you must draw an orthographic projection for your project.
5. Your isometric drawing and your orthographic projection must show all dimensions clearly in millimeters.
6. Both sheets must have a 10mm border and a title block containing your name and the name of your school.
7. On another sheet of A4 paper, you must produce the material list for your project. The sheet must have a 10mm border and a title block.

PHASE 3: CONSTRUCTION

1. You must construct a project based on the working plans produced in phase 2.
2. You must choose from the materials available, supplied by your teacher/department.
3. You must use appropriate tools from those available in your workshop.
4. Your construction involves taking the appropriate available materials and constructing the project right through to completion.
5. You are reminded to use the compulsory joint(s) and optional joint(s) given to you and shown in your original design and in the working drawings (plans).
6. You are required to keep a diary of your practical sessions.
7. You must observe safety rules at all

Phase 3 - Construction

Project 1 - Wood

SISC-Design and Technology – 20.....

STUDENT'S NAME:.....

EXAM NUMBER:.....

Major Joint (20 Marks)

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Optional Joint 1

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Optional Joint 2

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Project Dimensions

Skill area	5	4	3	2	1	0
Length						
Width						
Height						
Squareness						
Total =						

Hardware

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability/ proportion						
Total =						

Finishing

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
proportion						
Total =						

Students Folio/Folder

Skill area	
Phase 1	/20 Marks
Phase 2	/70 Marks
Phase 3-Evaluation	/25 Marks
Total =	/115 Marks

STUDENT'S NAME:.....

EXAM NUMBER:.....

Major Joint (20 Marks)

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Optional Joint 1

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Optional Joint 2

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
Proportion						
Total =						

Project Dimensions

Skill area	5	4	3	2	1	0
Length						
Width						
Height						
Squareness						
Total =						

Hardware

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability/ proportion						
Total =						

Finishing

Skill area	5	4	3	2	1	0
Accuracy/Square						
Flush						
Suitability						
proportion						
Total =						

Students Folio/Folder

Skill area	
Phase 1	/20 Marks
Phase 2	/70 Marks
Phase 3-Evaluation	/25 Marks
Total =	/115 Marks

Phase 3 - Construction
Mark Allocation - Project 2 (Minor Project)

Sheet Metal						
Skill Area	5	4	3	2	1	0
Folds						
Joints						
Edges						
Function						

Metal Fabrication						
Skill Area	5	4	3	2	1	0
Filing						
Bending						
Finishing						
Function						

Acrylic Plastics and GRP						
Skill Area	5	4	3	2	1	0
Bending						
Forming						
Finishing						
Function						

Electronics						
Skill Area	5	4	3	2	1	0
Function						
Cct board						
Solder/screw						
Body/cover						

There is no marking criteria available for this project. Thus allocation of marks will rest entirely on the teacher

Design and Technology Practical Project 1

Solomon Islands School Certificate

School:.....

Teacher:.....

Date:.....

Principal:.....

Signature:.....

Surname : Alphabetical Order	First Name	Student Code SISC Number	Student Design Folio 15%				Phase 3 : Construction 35%							Total 235 Marks		
			Phase 1 20 Marks	Phase 2 70 Marks	Phase 3 Evaluation 25 Marks	Total Design Folio 115 Marks	Joints 60 Marks			Dimension 20 Marks	Hard ware 15 Mark	Finish 25 Marks	Total construction 120 Marks			
							J1	J2	J3						l	w

Phase 3 - Construction Finishing Marking Criteria

Skill Area	5	4	3	2	1	0
Application	Very good choice and application	Good	Reasonable	Fair	Poor	Not done
Aesthetic	Very attractive and pleasing	Good	Reasonable	Fair	Poor	Not done
Completion	Complete	Almost	Half	Fair	Just started	Not done
Reflection of specification	Fully meets its design specification	Almost	Reasonable	Fair	Poor	Not done
Proportional	Standard sizes and very well balanced	Good	Reasonable	Fair	Poor	Not done

Evaluation Marking Criteria

Skill Area	5	4	3	2	1	0
Project specification	Meet all specification	Meet 80% of specifications	Meet 60% of specifications	Meet 40% of specifications	Meet less than 40% of specifications	Not done
Success	Finishing, Quality and Function	Reasonably good	Good	Fair	Poor	Incomplete
Failure	Clearly states the areas of failure	State 80% of failure	Identify 40% of failure	Briefly state very few areas of failure	Identify 10% of failure	Incomplete
Improvements	Clearly states improvements required	10% less than the failure	40% less than the failure	Briefly state improvements required	60% less than the failures	Incomplete
Finish on time	Completes the project	80% complete	60% complete	40% complete	20% complete	Incomplete

Phase 3 - Construction Widening Joints Marking Criteria

Skill Area	5	4	3	2	1	0
Accuracy and squareness	Perfect joint boards have perfect level	Very good Good level	Reasonable joint	Fair	Poor 2-3 mm gap	Not done
Flushness	Perfect flushness	Good	Reasonable 1mm gap	Fair 2mm gap	Poor	Not done
Suitability	Very good choice of joint and use	Good use of joint	Reasonable	Fair	Poor	Not done
Proportion	Very well balanced and standard sizes	Good	Reasonable	Fair	Poor	Not done

Project Dimensions Marking Criteria

Skill Area	5	4	3	2	1	0
Length	Actual dimensions as stated in the *working drawing	1 or 2 mm more or less	3 mm more or less	4mm more or less	5mm more or less	
Width	SAME	AS	ABOVE			
Height			SAME	AS	ABOVE	
Squareness	Equal diagonal measurements	SAME	AS	ABOVE		

* Working drawing in the student design folio

Project Hardware Marking Criteria

Skill Area	5	4	3	2	1	0
Accuracy	Heading the screw not damaged perfect recess or screw holes	Reasonably good	Reasonable	Fair	Poor	Not done
Flush	Hardware correctly placed	Good 1mm gap	Reasonable 2mm gap	Fair 4mm gap	Poor 6mm gap	Not done
Suitability/proportion	Excellent choice of hardware and well centered	Good choice but off centered	Reasonable choice and off centered	Fair	Poor	Not done

[illegible]

Key: C1 - Criteria 1; C2 - Criteria 2; C3 - Criteria 3; C4 - Criteria 4

Phase 3 - Construction Framing Joints Marking Criteria

This marking criteria can be use to mark the following framing joints

- Mortice and tenon
- Mitre joints
- Halving joints

Skill Area	5	4	3	2	1	0
Accuracy and squareness	Perfect joint 90 degree	Very good	Reasonable joint	Fair	Poor 2-3 mm gap	Not done
Flushness	Perfect flush	Good	Reasonable 1mm gap	Fair 2mm gap	Poor	Not done
Suitability	Very good choice of joint and use	Good use of joint	Reasonable	Fair	Poor	Not done
Proportions	Very well balanced and standard sizes	Good	Reasonable	Fair	Poor	Not done

Angle Joints Marking Criteria

This marking criteria can be use to mark the following angle joints

- Multiple dovetail
- Through housing
- Rebate joint

Skill Area	5	4	3	2	1	0
Squareness	Perfect squareness of joint	Very good 1mm off	Reasonable 2mm off	Fair 3mm off	Very poor 4-5 mm off	Not done
Flush	Perfect flush - No gap	1 mm gap on 90% of joint	2 mm gap on 90% of joint	3 mm gap on 50 - 90% of joint	Very poor	Not done
Suitability	Very good choice of joint having high strength	Good choice of joint	Reasonable	Fair	Very oor	Not done
Proportions	Standard size of measurements have very good balance	Good	Reasonable	Fair	Very poor	Not done