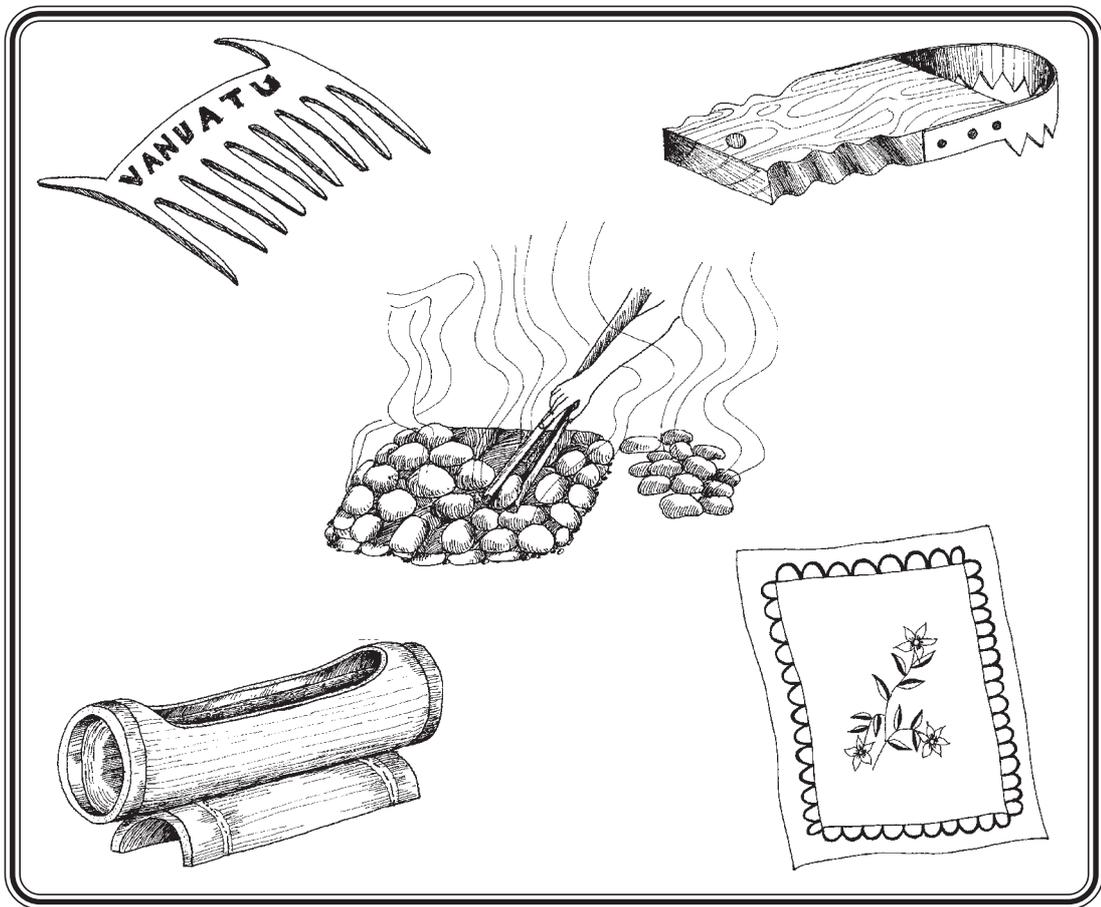


TECHNOLOGY

TEACHER'S GUIDE



Year 7

TECHNOLOGY

TEACHER'S GUIDE



Year 7

**Ministry of Education
Port Vila
Republic of Vanuatu
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Skills learnt in Year 7 continue through next three years plus

Woodwork

Year 7	Year 8	Year 9	Year 10
Measure timber etc. Plane Chisel Tenon Saw Hammer - nailing Mallet Trysquare Sandpaper Finishing Decoration Butt Joint Halving Housing Marking gauge Sketching Design Safety Gluing Preparation of timber	Joints: Butt Halving Housing Reboute Mitre Joint Metal Tinstrips Boring and drilling Electric drill Panel saw	Joints: Mortise and Tenons Wood Turning Wood carving Technical Drawing Screw driver Screwing Tool sharpening Setting a plane Crosscut saw	Pop Revets: Stapler Staples Bolts and nuts Electric Sander Ripsaw

Sewing

Year 7	Year 8	Year 9	Year 10
Sewing equipment Stitches Setting up sewing machine Basic fabric construction Textile fibres - vegetable	Textile fibres - animal Applying designs Basic seams Cleaning agents and equipment	Textile fibres: Man-made -Patterns Fastenings Sleeves Pockets Collars Hems	Complete Year 9 work Internal Assessment Task

AIMS OF TECHNOLOGY

The Aims of Technology are:

- to present courses in Years 7 to 10 which require students to express ideas in practical terms, by using selected materials and processes and through the application of the principles of good design and development of effective craft skills.
- to encourage and exercise equity in developing skills and knowledge in technology.

Objectives

Students in Years 7 to 10 will:

- develop design skills that will allow the translation of knowledge and ideas into practical realities.
- be encouraged to obtain a sense of achievement and satisfaction through success in craft skills through multidisciplinary courses.
- gain experience in decision-making through practical problemsolving.
- develop self discipline and a range of practical skills which permit the safe and successful use of tools and equipment with soft and hard materials.
- be encouraged to use appropriate locally available materials and to maintain ethnic and cultural skills.
- develop the ability to recognise the properties of a range of materials and apply them correctly in a range of contexts.
- practice the skills of reading, measurement, calculation, reasoning and experimentation in solving practical problems.
- develop skills in researching information on an individual basis and presenting the findings in a logical and informative manner.
- develop the ability to make an honest appraisal of the quality of completed projects in relationship to their original design solution.
- learn how to maintain the projects made in their courses and extend this skill into their daily life.

Courses of Study

Courses of study at each year level are based on a number of units through design briefs.

The choice of design briefs in each course will ensure that students develop a range of design and practical skills, and investigate a range of materials and processes.

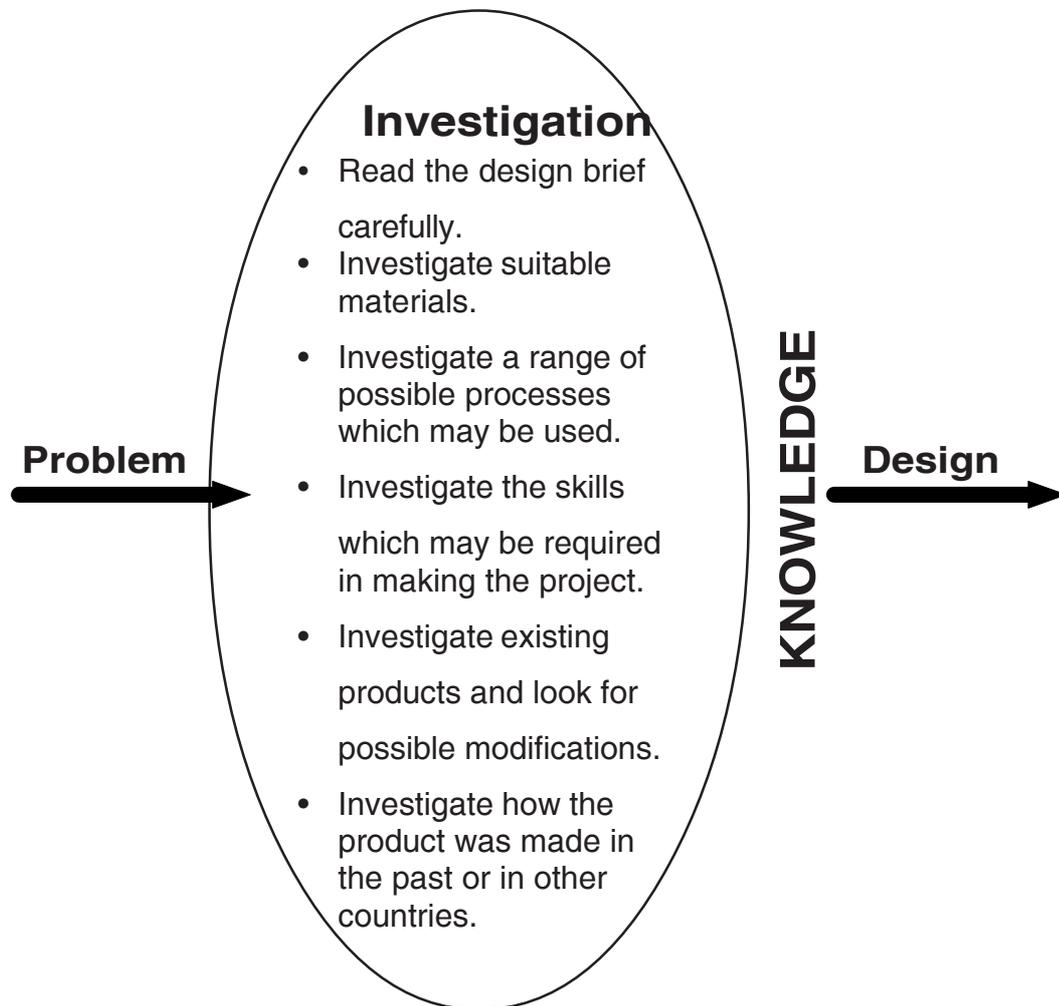
The number of projects will be determined by the complexity of the design brief and the workload that each imposes.

The course at each level will ensure that students are fully extended by the year of study.

A typical course will consist of six units each comprising practical, research and design aspects.

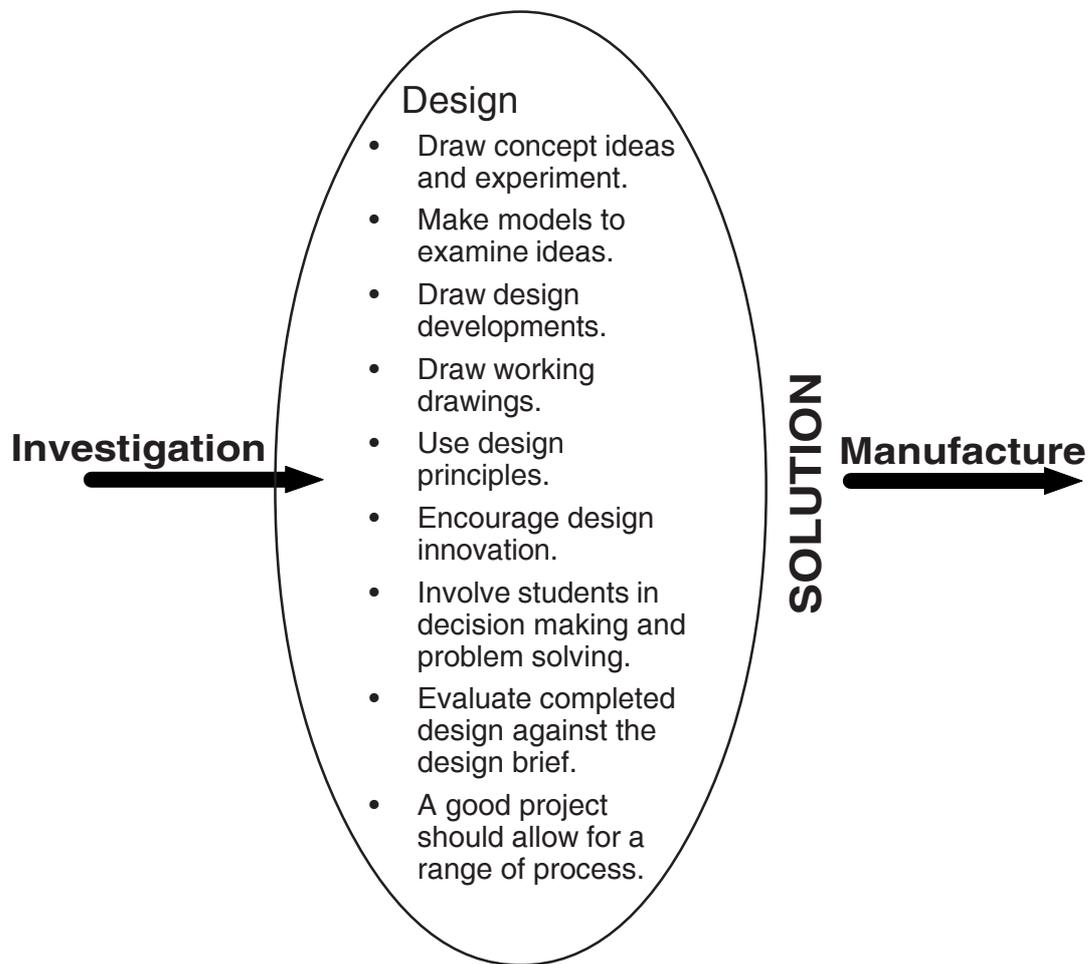
P.R.I.S.M.E.

- P** - Problem: The problem is presented to the students in the form of a design brief.
- R** - Restrictions: on the design brief. Any restrictions on materials, (Requirements) size or items which must be included are given.
- I** - Investigation: The students will list and investigate the knowledge and skills required to assist them in designing a solution to the problem.
- S** - Solution: The design process is used to find a solution to the problem.
- M** - Manufacture: The final solution is manufactured.
- E** - Evaluation: The product is evaluated against the criteria set in the design brief to see if it meets or betters them.



Investigation is the first step

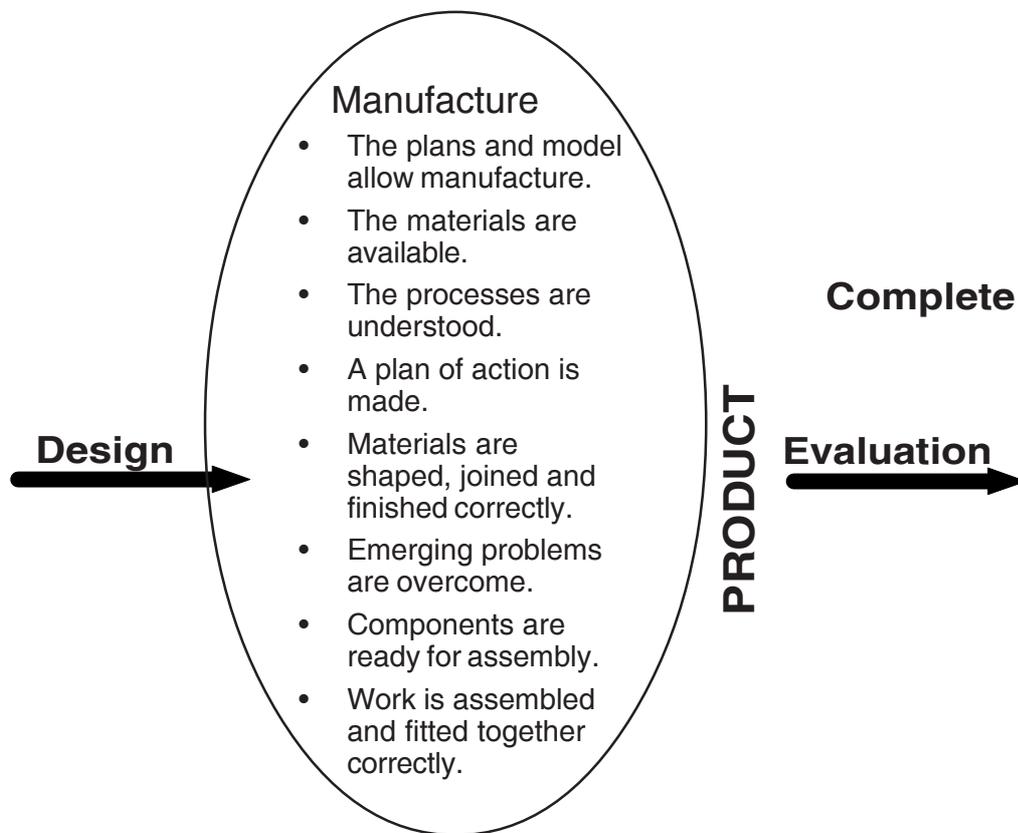
- Investigate a range of materials which might be suitable for the project.
- Investigate the processes which might be useful in manufacturing the project.
- Investigate the needs of different people for this product. Some may prefer one idea, some another.
- Investigate the effects that the product is likely to have on other people and the environment.
- Investigate existing examples and look at how they could be modified.
- Investigate whether there are other possible ways of addressing the problem other than that initiated.



Design is the second step

This process is broken down into aspects which should be covered.

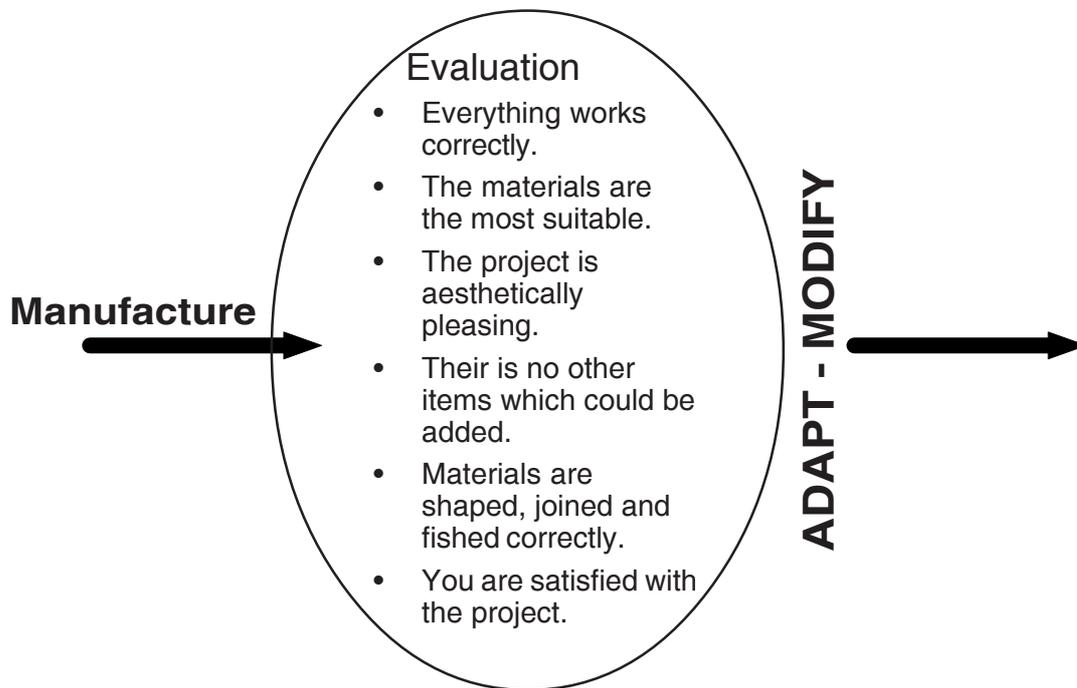
- Concept ideas and Experiment - draw a range of possible ideas.
- Design development - develop the best idea by drawing details of each component and how joins are made, how seams are constructed, how materials meet and other details.
- Working drawings - drawings give measurements and information on material types.
- Design principles - form, aesthetics, proportion, function, ergonomics and balance.
- Design innovation - interesting solutions should be attempted.
- Decision making and problem solving - explanation of reasons for choice are given.
- Evaluation of final design - information on how the final design meets the brief is given.



Manufacture

The following questions should be taken into consideration during manufacture.

- Does the product show a range of processes?
- Is there a better way to do this now I have begun?
- How will I fit this together?
- Will this assemble correctly if I change something?
- Do I need to make a drawing to clarify?
- Is the completed product the best I can make?
- Is it functioning well?



HOW SHOULD DESIGN BE TAUGHT?

Here are some guidelines which may prove helpful in developing an understanding of *design* in your students.

As a teacher you should:

- know what is good design and how you may distinguish between good and poor design.
- endeavour to illustrate good and poor design to help your students throughout their programme of work.
- ensure that students actively think about and discuss a wide variety of design features.
- encourage students to observe the many examples of sound and mediocre design in shops.
- know the basic elements of design which need to be considered when solving problems related to technology projects.
- teach these elements through illustration, discussion, assignments and practical work throughout the programme.
- teach students how to use and take advantage of sketches and drawings, to produce mock-ups, to check proportions, strengths and joining methods show students the materials that are available to them. Illustrate their various properties through practical demonstrations.
- allow students to find out the working characteristics of materials themselves.
- ensure that the students have sufficient knowledge and skills to satisfactorily manufacture a project.

TECHNOLOGY EVALUATION

When students have completed their projects they should go through a process of evaluation. This will help them to recognise and learn from any skills or knowledge that they gained in the process of making the project. In some cases it is possible that the first attempt to make the project can be considered a prototype and a further example can be *manufactured* incorporating the changes or improvements which have been discovered in making the first.

What should be evaluated?

There are four areas:

1. Performance against the brief. Does the completed article meet all the criteria of the problem?
2. Appearance and aesthetics. Does the completed article look as good as was hoped?
3. Accuracy of the final article against the original design. Any problems which arose during the manufacture which led to change and how they were solved.
4. How the student felt about the process gone through and whether he/ she is satisfied with the end result.

Note: When self evaluating students should try to answer using the 4 headings given above - using sketches to help explain where possible.

Some checklist questions that could help evaluation

- Have you tested your project for its intended use?
- Does it work in the way intended?
- What difficulties and solutions have been met in the manufacturing process?
- How could you improve the function or appearance?
- Did you use the best materials for the project?
- State the best and worst features of your construction. List comments made by another person you asked for a peer evaluation.
- Does the completed project look like your final design drawing? If not then why?
- Did you complete the project within the time - if not why?
- Where did you need the most help in completing the project?
- Which parts of the project did you: (a) enjoy most? (b) enjoy least?

Self evaluation is part of developing critical awareness of good design and manufacturing processes. Students will develop the ability to question their designs before proceeding into the manufacturing stages, resulting in fewer mistakes and more efficient processes.

A further stage in this development is the introduction of peer assessment or peer critical appraisal of work. This would be appropriate at Year 11 and 12 levels.

Note to the Teacher

The design briefs at this level are to be used as a guide, and it is hoped the teacher will encourage the students to use their creative talents to improve the design brief by the use of alternative materials. Teachers should be prepared to help and assist students in all their endeavours.

Teaching Notes

Design Brief: Chopping Board

Problem

Design and make a board to chop vegetables and meat on.

Restrictions

The board must be made of a wood which is hard. The timber must not shrink in hot or cold weather. It should be attractive to look at. It must be portable and **able to be hung up**. The board should be no bigger than 240mm x 320mm.

Investigation

Size

Is an important factor in this project. Students should be encouraged to interview those people who use a chopping board to determine what is a good size for a board.

Material

This project will be made from timber. It is the investigation of the correct type of timber that is required. Samples of a number of timbers should be gathered and tested for properties such as hardness, shrink proof qualities, attractiveness.

Processes

These will be involved in the cutting and shaping of the board. Thought should be given to a range of methods of hanging up the board rather than just drilling a hole in the end of the board.

Safety and Health

The material investigation should cover the suitability of the timber for use with food items such as the timber giving a taste to the food. The students should be encouraged to provide safety information for each of the tools to be used in the project.

Tools

Steel ruler or measuring tape.

Saws - Tenon, Cross cut, Coping

Files - Rasp, Round,

Bastard - use of handles, not placing one file over the top of another
(This damages the teeth)

Spokeshave - to chamfer corners.

Cabinet scraper - for smoothing grain.

Hand-drill, electric hand drill, ratchet brace.

Sandpaper - coarse and fine - high number/fine, low number coarse.

Compass - for marking out curves.

Handplane - must be sharp and balanced.

Solution

Draw at least six different ideas for your chopping board. Choose one of these ideas and develop drawings of any special features involved in the design.

Draw a final solution in three dimensions.

Manufacture

Preparation of timber

Selecting the best and hardest timber that can be used for the project.

Marking and cutting to the right length. Planing to the right width and thickness. Marking, cutting or shaping special features. Finishing or

smoothing:

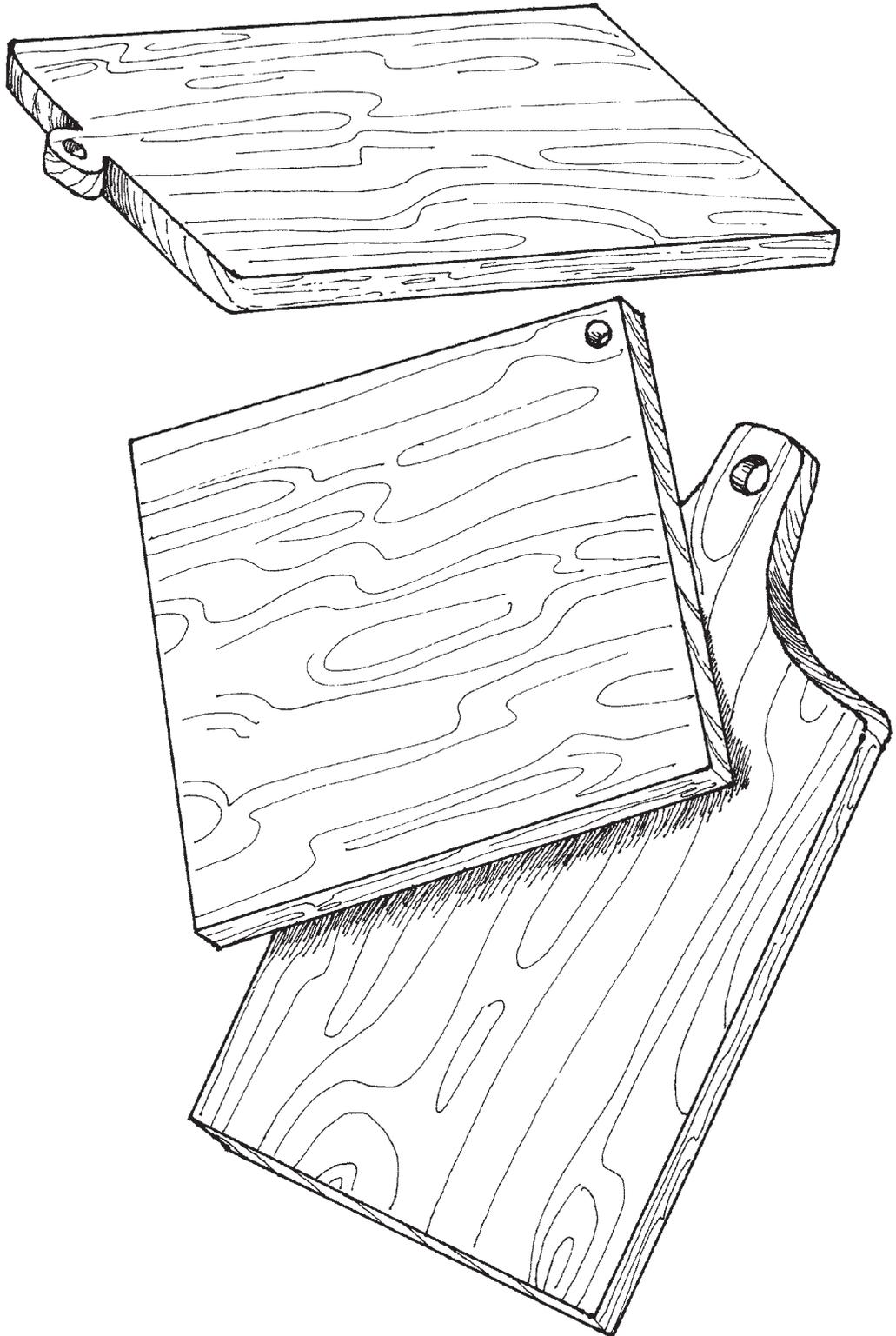
painting

varnishing

oil finishing.

Timing

Approximately 4 hours teaching time.



Teaching Notes

Design Brief: Flower Vase

Introduction

Introducing problems to students by:

- using diagram (pictures)
- verbal discussion
- written information on paper, blackboard.

Restrictions

- Must have an appropriate appearance
- Can hold the flowers upright without falling over.
- Can contain water.

COCONUT SHELL

TOOLS	PROCESS	SAFETY
Knife, Hacksaw, Broken glass, Paintbrush	Remove coconut husk Remove nut Cut coconut shell Smooth Varnish	Safe use of knife Safe use of hacksaw Safe use of glass
Material Coconut shell Glue Varnish	Clean and cut in shape Glue two pieces together Varnish the shell	

SEA SHELL

TOOLS	PROCESS	SAFETY
Wire brush File Paintbrush	Clean Treat edge Varnish the shell	Safe use of wire brush Safe use of file Clean the brush and hand after varnishing
Material Seashell Glue Varnish		



Design Brief: Mosquito Coil Stand

Problem

Design and make a device to hold a mosquito coil without falling over.

Restrictions

It must be able to stand without tipping over.

The ashes must be collected.

It must be portable (easy to move.)

It must be fireproof.

Local materials should be used to keep costs minimal.

Investigation

Materials

Suggested materials for use in this project are:

Coconut shell

Shells, eg. pearl shell

Timber (hardwood)

Recycled metal (tins)

Super glue, wood glue

Coconut oil, etc.

Varnish, paints

Sandpaper, broken bottle, knives

Nails, wire

Iron sheet scraps

Size

Approximate size should be 16 x 16 x 2 cm.

Safety

Correct use of knives, glass, and other sharp objects must be taught before the students attempt this project.

First Aid treatment for cuts should also be introduced before proceeding.

Cost

Locally available materials should be used where possible to reduce cost.

Processes

Describe all the processes that should be used in carrying out this project.

A step by step detailed description of each process must be written by the students in their book. This should not be just those they will use but also those of each possible material. Examples are given.

Wood/Stone

Select a hardwood. Size should be approximately 16 x 16 x 2cm (depends on shape).

Carve a hole approximately 1 cm deep.

Take a sharpened object and glue it to the centre of the shell.

Coconut Shell

Select a suitably sized fruit.

Remove the husk and clean it thoroughly outside.

Cut it in half and remove all the flesh.

Cut the shell to a suitable size.

Use the other half for the base if required.

Take a sharpened object (see below) and glue it to the centre of the shell.

Clam or any other type of suitable shell

Find a shell which is large enough to hold a mosquito coil. Clean it and make a stand from anything suitable to balance the shell. Punch a hole in the centre of the shell. Take a sharpened object and glue it to the centre of the shell.

The Central Spike

Take a sea urchin and sharpen it to a point and glue to the centre of the object.

Take a strip of iron sheet and glue it to the centre of the object.

Take a piece of sharpened wire and glue it to the centre of the object.

Solution

Encourage the students to make as wide a range of designs as possible combining as many material types as possible.

Working drawings in a step by step process for the final solution should be made.

A 3 dimensional drawing which has been coloured in to use for comparison with their completed project would be an asset.

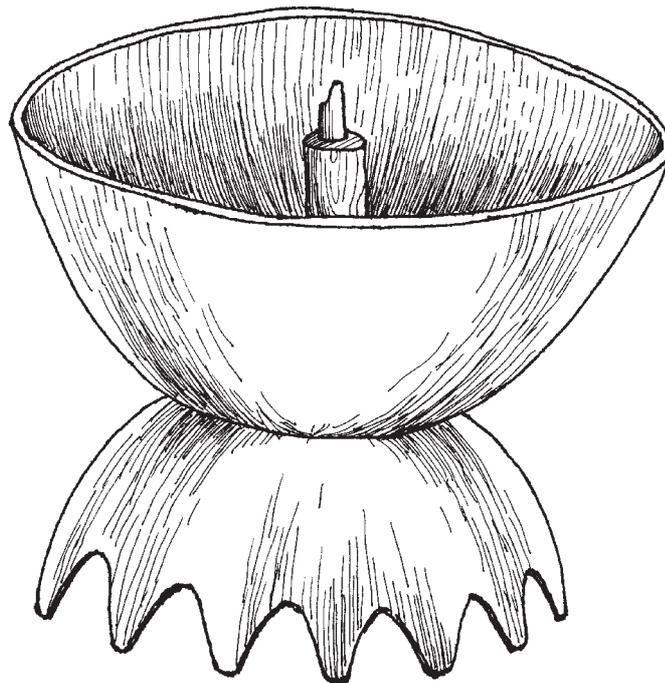
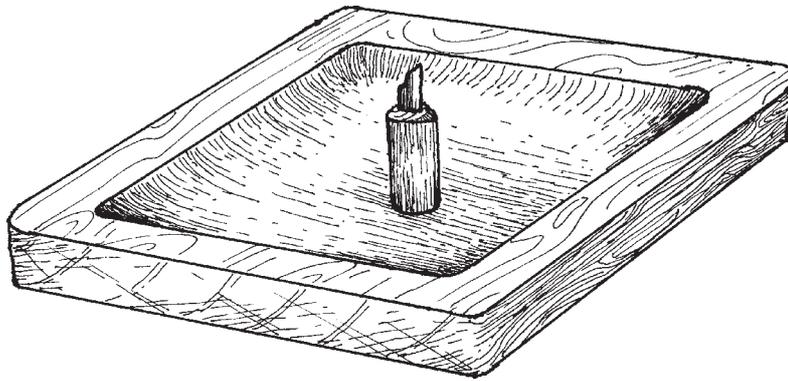
Manufacture

Students should follow their own drawing step by step of the to make the stand, with assistance from the teacher where they have not provided enough information to make the stand. It should be left to the student to find out that he/she has not enough information and to ask for assistance. The teacher should then ensure that the student write down the extra information and mention it in the evaluation.

Evaluation

Let the students check their own projects to see that:

- everything is complete and neatly finished.
- the materials used are the most suitable.
- the project looks like their final design solution drawing or not.
- that the project is functional.
- that they are satisfied with their stand.
- what changes might be required.
- that it meets the restrictions in the design brief.



Teaching Notes

Design Brief: Fish Scaler

Problem

Students will design and make a fish scaler (device to scale fish).

Restrictions

The device must not be able to rust.
The handle must be shaped to fit the hand easily.
It must be able to be hung up.

Investigation

Materials

New Zealand pine (Pinus Radiata), White Wood, Namalaus, Kauri, Nakatambol
Galvanised iron sheet
Galvanised nails

Processes

Marking and cutting the iron sheet
Marking and cutting the handle
Correct sandpaper use
Varnishing
Assembly methods

Tools

Tenon, Cross cut, Back saw, Coping
Files - Rasp, Triangular,
Bastard - use of handles, not placing one file over the top of another (this damages the teeth)
Sandpaper - coarse and fine - high number/fine, low number coarse.

Safety

Students must take care in cutting iron sheet - use of gloves, ensure that tools are sharp before using.

Solution

Students must produce a number of different ideas for shapes of handle, at least three.

One design must be then developed by drawing details of joints and assembly.

A final design drawing must be drawn, this can be a sketch or mechanical drawing in three dimensions, oblique or isometric.

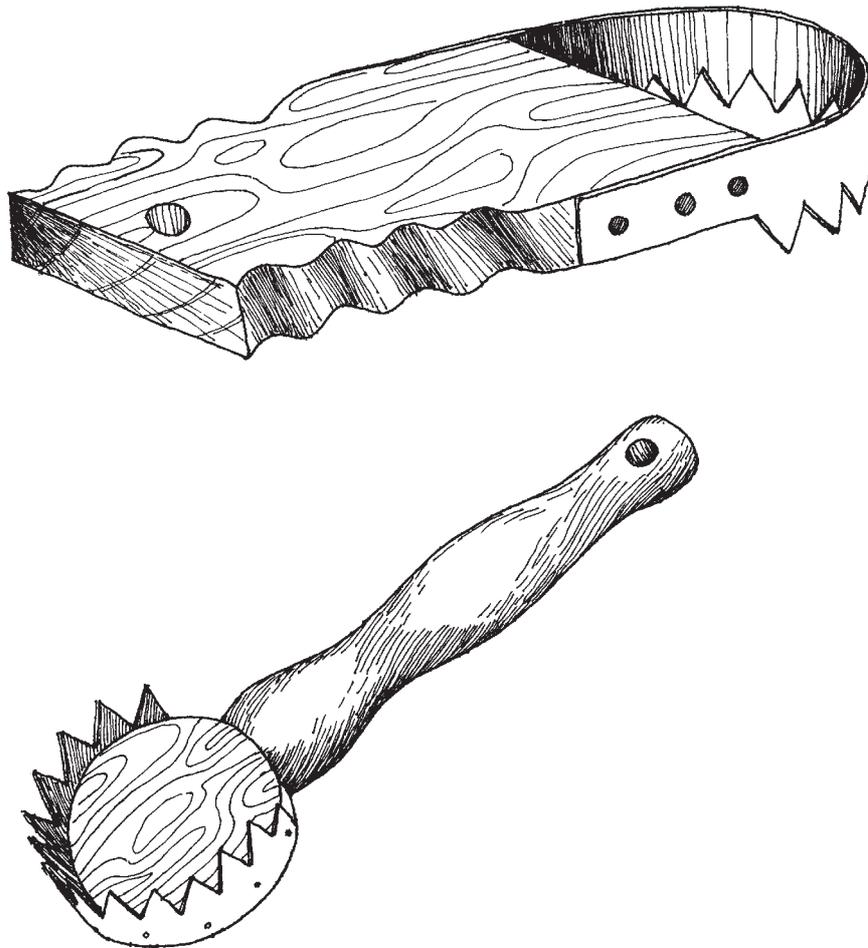
Manufacture

Students should be encouraged to produce a sequence of work list before beginning making their solution. This ensures that they have worked out what parts have to be made first to measure other components against.

This also ensures that there are less mistakes made in the manufacture.

Evaluation

Evaluation is an important part of the process. All students must evaluate their own work against the requirements of the design brief. In this brief the fish scaler must stay rust free, the handle must fit the hand and it must be able to be hung up. If their design does not include these features then they should give reasons why. They should also include information on what changes they would make if they were making the project again. i.e. What they have learnt from the process.



Teaching Notes

Design Brief: Necklace and Hairclip

Problem

Design and make a necklace and hair clip.

Restrictions

Use locally available materials. They should be attractive and easy to use. They should be light.

Investigation

Students should be encouraged to examine as wide a range of materials for this project as possible. A brainstorming session or even a walk around the school grounds looking for interesting materials would be a good idea.

Interesting seeds, shells, coconut shells or flowers which students could copy by making them in some other material.

Students should be introduced to the idea of processes being one of the most important parts of manufacturing and documenting them will help them become more efficient at both designing and carrying out their own projects.

A sound knowledge of tools is essential. In Year Seven identifying and describing what a tool does is a good level to reach. The students will gradually understand how each tool is used when documenting processes and how they can be used differently in different jobs.

Tools which are introduced in this project are:

- Hack and coping saws
- Files and rasps.
- Cutting knife.
- Sandpaper choice.

Safety should be investigated and explained as part of processes in this project.

Solution

The more design sketches that the students can make, the more they can see that design is about having choices. If the students are having some trouble coming up with more than 3 or 4 ideas then a brainstorm session with each student showing their ideas to the rest of the class and explaining them can get ideas flowing again.

Manufacture

Safe working practices must be encouraged.

A plan of work should be made before beginning.

Students should have their investigation notes handy to refer to when working and write down any things about the processes they discover during the making of their project.

Evaluation

Let the students check their own projects to see:

- that everything is complete and neatly finished.
- that the materials used are the most suitable.
- that the project looks like their final design solution drawing or not.
- that the project is functional.
- that they are satisfied with their necklaces and hairclips.
- what changes might be required.
- that it meets the restrictions in the design brief.



Teaching Notes

Design Brief: Cultural Design Pot Stand

Problem

Design and make a multi-functional pot stand using, cultural design elements.

Restrictions

The stand must be interlocking (fit together). Must use cultural patterns to give an interlocking pattern.

Investigation

Students should be encouraged to explore a wide range of possible cultural design that could fit one into the other.

If the students are shown the original design then it must be made clear that this is not one that they can use. They are to find their own design.

There should be a range of possible timbers provided to choose from. The teacher should make sure that at least one is of a grain which is *not* suitable so that they can find out the difference.

Solution

It is important that the investigation of a design has been carried out to give as many ideas as possible for the drawing section of this project.

Step by step working drawings of the process of making the stand should be made.

A final solution drawing in three dimension should be made so that it can be used to evaluate their ability to make what they design.

Manufacture

This project is one which encourages good practice in cutting, shaping, smoothing and finishing. Students should be expected to finish the work to a high standard.

Evaluation

This is an important part of developing critical appraisal of the students work. It is essential that the students answer all questions as fully as possible.



Machine Stitching

Students should be taught how to use a sewing machine before they work on Design Brief 7: Shoulder Bag.

You have to:

- demonstrate how to thread the sewing machine.
- demonstrate how to correctly thread the bobbin case.
- demonstrate how to insert the bobbin (or bobbin in bobbin case) into the sewing machine.
- demonstrate how to bring bottom machining thread up to top.
- demonstrate how to work the machine by actually machining on a piece of cloth, on figures that they have to follow, i.e. (___WO).
- hand them each a machine exercise work sheet and let them complete the tasks.
- check to make sure each task is completed correctly before, allowing them to put a tick in the box.

Machine Exercise, Worksheet

When you have completed a task, put a tick in the box on the right hand side.

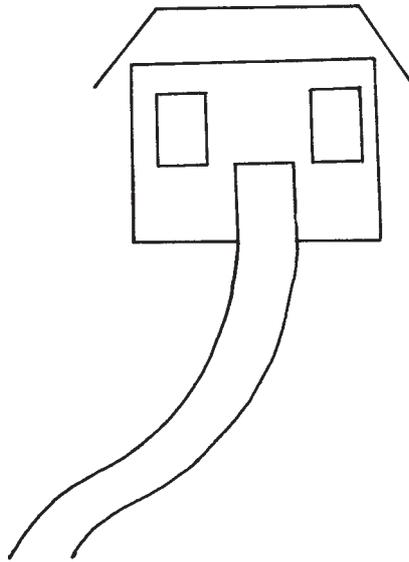
Task	Box	(to tick)
1.	Thread the machine correctly.	
2.	Thread the bobbin case correctly.	
3.	Insert bobbin or bobbin in bobbin case into the machine correctly.	
4.	Collect a piece of plain paper or cloth. Write the following figures on it: _____ W O	
5.	Machine or sew along the lines on each figure, as accurately as you can.	



Machine Exercise Test

Get students to complete the following tasks, individually:

- Threading the sewing machine.
- Threading the bobbin case.
- Setting up the machine to sew.
NB. At this stage check to make sure machine works all right.
- Draw the following picture on plain paper or cloth:



- Machine or stitch along lines on the picture.

Drivers Licence

<p>This licence is for</p> <p>who has successfully completed the necessary test and is now allowed to drive or use the sewing machines.</p> <p>Teacher's signature:.....</p>
--

NB. Check the student's work carefully and sign the above 'licence' only if he/she has completed the test successfully.

Teaching Notes

Design Brief: Toys

Problem

It's a small child's birthday. I would like to give him/her a gift but I have no vatuu, only scraps of cloth.

Restrictions

The amount of cloth should be less than 50 cm.

The toy must be stuffed and main features, eg. eyes and ears must be outlined.

Investigations

Materials

Cloth - cotton is best as it is cheap to buy and is easy to handle.

- i. Dyes easily.
- ii. It is not harmed by high temperatures.
- iii. It is easy to handle when sewing.
- iv. It is cheap to buy.
- v. It does not stretch.
- vi. It shrinks unless treated.

N.B. If a student decides to use other type of fabric eg. wool, silk, you should allow him to use it but guide him along to see why it might not be the best cloth to use.

Processes

For the body of toy:

- a. Stitches - tacking, running, back satin, chain, French knot, tailor tacking.

To outline features:

- b. Can use buttons, shells, seeds, etc. (NB. what ever you can find in your school).

Solution

- a. Draw design onto paper.
- b. Cut to separate the pattern pieces made.
- c. Place pattern pieces on cloth, pin and cut out.
- d. Proceed to sew the toy according to design.

Cost

Help them to work out the cost of the toy by supplying them with information on costs for amount of cloth, thread, labour, etc. that was used on the toys.

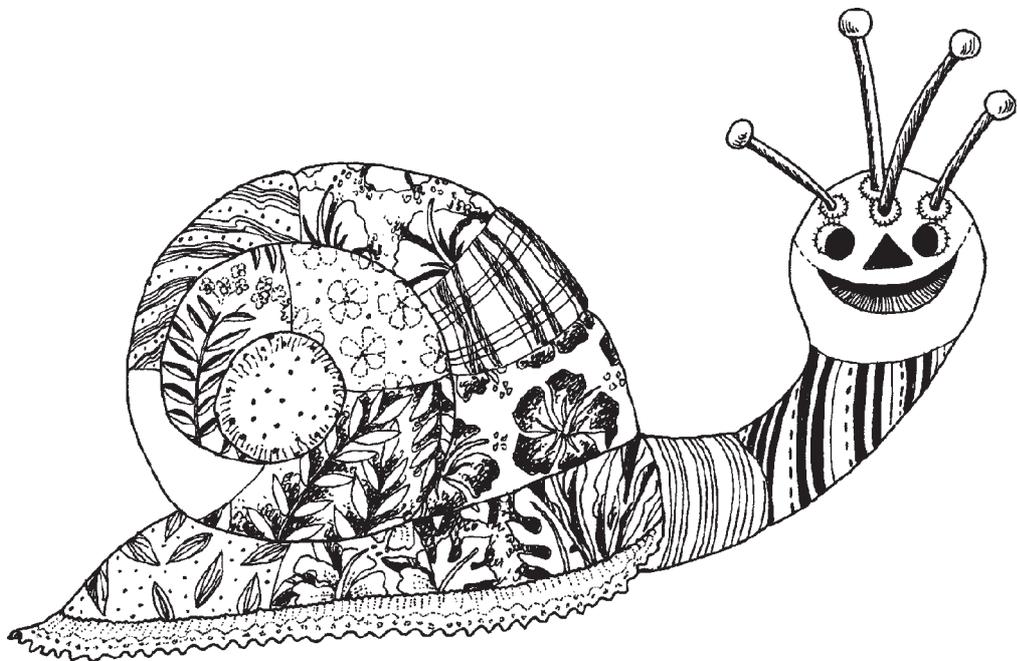
Manufacture

Help them to plan how to sew the toy they have designed.

Evaluation

Find out if:

- a. the toy is completed?
- b. Was it completed according to their original design?
- c. Find out if the student has on the toy all details illustrated in his/her design. If not, why not?
- d. Is she/he happy with the final product?



Teaching Notes

Design Brief: Handkerchief

Problem

Design a handkerchief which has embroidered decoration.

Restrictions

The approximate size should be 300mm x 200mm. Thread for sewing should be the same colour as the cloth. Thread for embroidering should be colourful.

Investigation

Materials

Provide a number of possible materials (samples only) and get the students to examine them using a plus, minus, interesting sheet to give reasons why they are or why they are not suitable for using as a handkerchief.

Processes

The students should be taken through the steps in doing a number of decorative stitches. They should then have to write down the process and stick their experimental piece beside the notes. They should then describe what makes it suitable or not for use in a handkerchief.

Take the students through a brainstorming session on what other processes will be part of making a handkerchief. They should then write this into their books.

Size

Get the students to bring in a range of handkerchiefs. Try to make (or buy) some in different sizes (without embroidery).

Brainstorm why men's handkerchiefs are usually bigger than women's. Students should then write their results in their book.

Tools

Get the students to look through their student's handbook to identify the tools they think will be used in their work. They should then draw and describe each one. Time should then be spent looking at which they have left out.

Tools should include:

- pair of scissors
- iron
- hand sewing needles
- tacking pins
- pencil
- tailor chalk
- ruler
- tape measure

Cost

Compare material prices to select the one which is within your budget. A brainstorm session will be a good way of doing this.

Safety

What safety factors do you have to consider when making a handkerchief? Why are they important in making this project? (The need to keep the handkerchief from being bled on should be something which is talked over to illustrate the need for a thimble.)

Solution

Draw at least three different design ideas for your handkerchief. Get the students to make each of these drawings at least quarter page size. Choose one design and draw details of your decoration stitches. These can be done from the investigative drawings.

Draw a coloured drawing of your final design. Provide colours if necessary.

Manufacture

Make your handkerchief following the processes you have investigated and using good safety precautions.

The students should:

- collect the materials needed for the task.
- collect the different threads required.
- select the correct tools.
- prepare the iron when required. (Remind them if necessary.)

Evaluation

Students should be encouraged to give full answers to all questions.

The future planning use of evaluation should be explained.

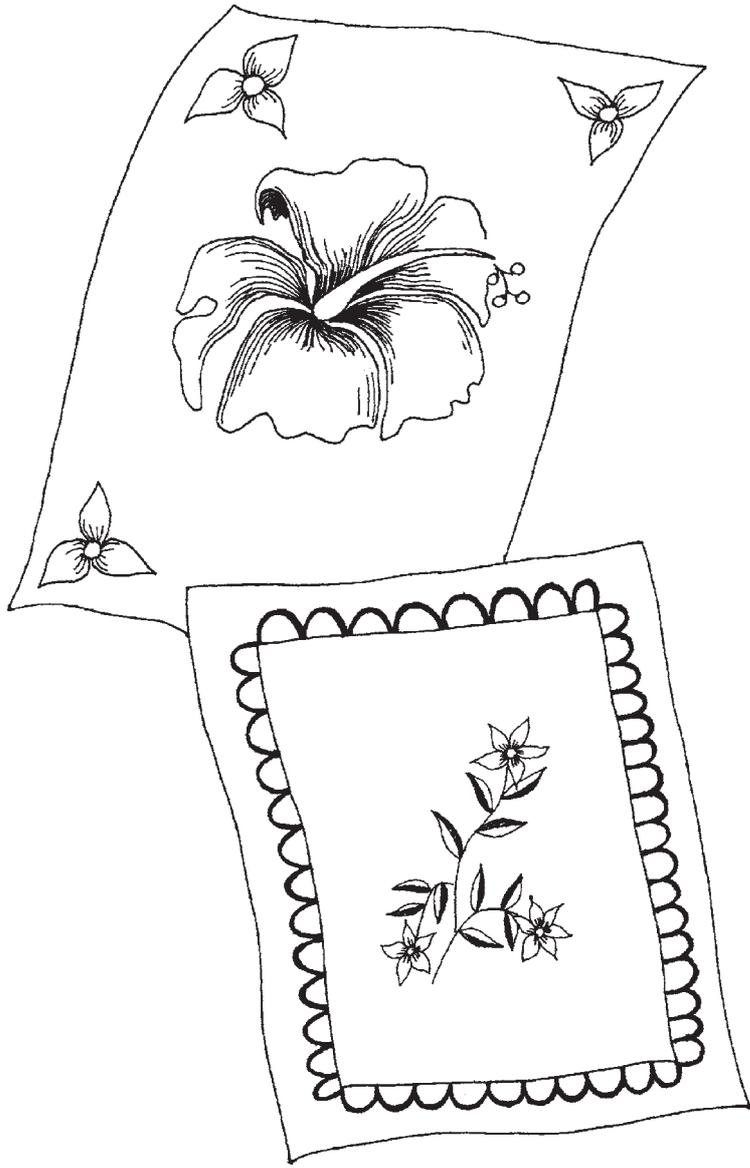
Does your handkerchief look like your design? If not, why not?

Have you followed the restrictions given above? If not, why not?

Does your handkerchief look good? What makes it look good?

Are there any changes you would make if you make another one?

Note: Hand Stitching: For information about the different stitches that may be used, see *Clothing and Textiles Year 7*.



Teaching Notes

Design Brief: A Snack for Morning Tea

Problem

You are preparing snacks for morning tea.

Restrictions

You have available to use the following ingredients - flour, raising agents, eggs, margarine, sugar, milk and dry coconuts, currants and peel.

Investigation

Equipment

Go through a kitchen unit and show to the children what equipment you have. Name each one and give the uses and ways to care for each one.

Discuss accidents - (causes and first aid treatments) that may occur due to careless use of kitchen equipment. Some common accidents are cuts, burns and electric shock).

Identify ones that they are likely to use when preparing their selected dish.

Ingredients

Give out the recipes, one at a time, and identify the ingredients and required amounts. Mention variations of dishes, and points such as using self raising flour instead of plain flour and baking powder or vice versa.

Time

Discuss each recipe in terms of preparation, cooking and cleaning up time.

Cost

Help the class to calculate the cost of the selected dish.

Health and Safety

Discuss rules such as:

- washing of hands before handling food
- not coughing over food
- keeping food covered
- using tea towels only for their specific purpose
- using clean equipment
- using a thick cloth when removing hot oven tray.

Solutions

Allow the students to read through all recipes. Help them to choose a suitable dish out of the options in the separate book.

Make sure the dish they select will require just the ingredients given at the beginning of this text under “Restrictions”, and no more.

Manufacture

Help each group to devise some kind of programme to help them to be more organised, e.g. If you have your class working in groups of four, you could plan their work program for 1 hour lesson in which they cook Rock Buns as follows:

Time	Student A	Student B	Student C	Student D
9.00 am to 9.05 am	Collect ingredients		Collect ingredients	
9.05 am to 9.20 am	Sift flour & baking powder into a bowl	Cut margarine into sieved flour until it resembles coarse bread-crumbs	Add sugar, currants and peel	Add egg and enough milk to form a stiff dough
9.20 am to 9.25 am	Grease baking tray	Put mixture in rocky heaps on a greased oven tray		
9.25 am to 9.35am	Do dishes		Sweep floor	Put cakes in oven to cook
9.35 am to 9.40 am	Wash tea towel	Wash oven tray	Make sure work area is neat	
9.40 am to 10.00 am	Evaluation of practical			

Evaluation

Each group should discuss the following points:

- if dish was cooked on time according to work plan. If not, why not?
- if dish is well cooked. If not, why not?
- if the texture of the cake is good. If not, why not?



Teaching Notes

Design Brief: A Traditional Dish

Problem

You are having a picnic by the river. Now you are hungry and need to cook your lunch.

Restrictions

The following are some foods you can use:
kumala, chicken, island cabbage, taro, fish, meat, Chinese cabbage, manioc, carrot, beans, yam.

- The dish must be balanced.
- The foods must be cooked together but without a pot.
- The dish must be cooked in 30 minutes.

Investigation

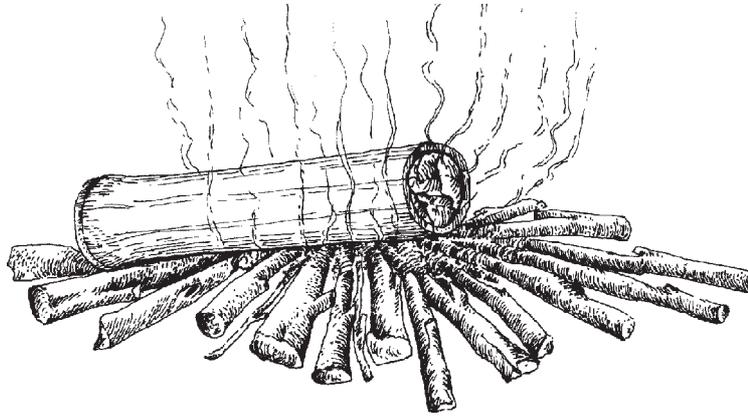
Cooking methods

Some methods that may be used here are:

- a. Prepare foods and cut into small pieces. Cover in leaves and cook over charcoal.
- b. Prepare foods and cut them into small pieces. Cover in leaves and bury parcel under soil. Make a fire on soil over parcel.



-
- c. Prepare foods and cut foods into small pieces.
 - d. Put into bamboo and cook over charcoal.



- N. B.
 - I. Do not overfill bamboo, make sure there is enough space at the mouth of bamboo to push leaves in which to act as stoppage.
 - ii. When cooking laplap (simboro) in bamboo, put mouth of bamboo over fire first or else food will “shoot” out of bamboo.

I. Material

Some examples they can use are leaves to wrap food up in, and also to use as stoppage on mouth of bamboo. They also need ropes to tie up parcels of food with, the limbs of the black palm to grate food with, and so on.

Health and Safety

Some points to be considered here are:

- a. parts of plants used. Be sure that the plants are not poisonous.
- b. Cuts - be careful when using the knife. Also when preparing the bamboo, be careful in case you cut yourself. Make sure to throw bamboo pieces well away or else someone steps on the sharp pieces.
- c. Be careful in case you are stung by insects, plants, etc.
- d. Fire - be careful in case you burn yourself when cooking, and also in case fire spreads and you cause a bush fire.

Solution

Help the students to work out how to cook their food. Direct them to make sure that their recipes are realistic and will work out, eg. Make sure foods are prepared into fine pieces and that the parcel of food are not too large, in case the food does not cook thoroughly.

Manufacture

Help students to produce a work plan to make sure each student participates in the practical and they work consistently.

Evaluation

Discuss with each group points like:

- a. Did everyone participate well in the practical? If not, why?
- b. Did they complete the practical according to the time plan? If not, why?
- c. Is the dish thoroughly cooked? If not, why?
- d. Do you like the taste? Why?
- e. Are they happy with your cooked dish? If not, why not?

* For further information, refer to pages 45-74 in Food, Drinks and Life, by the South Pacific Community Training Project.

Teaching Notes

Design Brief: Something for Lunch

Problem

You have to help cook lunch.

Restrictions

You have the following foods in your kitchen: fish, banana, manioc, potato, stew, chicken, bean, cabbage.

You have to cook only one dish

You have to use one cooking method that requires the use of water.

Investigation

Cooking methods

Some examples are boiling, stewing and steaming.

Definitions

Boiling

Cooking of food in liquid which is at boiling point, i.e. 100°C for water.

Stewing

Cooking of food in a little thickened liquid slowly.

Steaming

Cooking of food in steam or vapour from boiling liquid.

The two types of steaming are:

Direct steaming

Food in a well-covered bowl, or a parcel (using leaves or aluminium foil), in boiling liquid.

Indirect steaming

Food in a container, cooks in steam above boiling liquid.

Advantages and Disadvantages

Boiling

Advantages

Easy method of cooking. Food is tender and is easy to digest.

Disadvantages

Water-soluble nutrients are lost in cooking liquid.

Food may break up and go watery.

Stewing

Advantages

Food is tender and is easy to digest.

A balanced meal may be cooked in one pot.

Disadvantages

A long, slow method of cooking.

Some foodstuffs may break up and go watery.

Steaming

Advantages

Food is tender and is easy to digest.

Food nutrients are not lost as gravy is served as part of dish.

Disadvantages

Maybe uneconomical on fuel.

May be a long, slow method of cooking.

- Boiling - Suitable for maniac, rice, fish, crab, cabbage, beans, etc.
- Stewing - Suitable for stew, carrots, beans, potatoes, maniac, chicken etc.
- Steaming - Suitable for eggs, fish, rice, onions, tomatoes, beans, etc.

Help students to choose the best cooking methods for their selected food(s). Organise your class as for the previous lesson on cooking methods.

Tools

Organise your class as for lesson on dry methods of cooking.

Health and Safety

Discussion on same or similar points to these for dry cooking methods.

Solution

Discuss as for lesson on dry methods of cooking.

Manufacture

Organise your class as for lesson on dry methods of cooking.

Evaluation

As for Brief 10 on dry methods of cooking.



Teaching Notes

Design Brief: Washing a Dirty Shirt

Problem

You have to wash your dirty, coloured shirt.

Restriction

You have no washing machine.

Investigation

Agents

Some that may be used are soap, Omo, Cold Power, Fab, etc. Do not use detergents with too much builder, e.g. bleach, because the colour of the shirt might be affected.

Equipment

Some examples are:

Sink - to wash and rinse shirt in

Basin - to wash, rinse, carry water and wash in.

Bucket - to wash, rinse, carry water and soak and wash in.

Soft brush - scrub shirt if very dirty.

Pegs - to hold shirt onto clothes line.

Clothes line - to hang skirt on.

Cloth

Do not boil.

Do not scrub too harshly.

Do not bleach.

Do not hang out to dry in the sunshine.

Methods

Discuss various ways of washing this shirt, e.g. Soak before washing

Scrub vigorously with a hard brush Wash in very hot water Wash in cold, soapy water Soak in bleach Rinse in cold water Rinse in hot water Hang out to dry in the sunshine Hang out to dry in the shade.

Help students to identify the best methods to use.

Solution

Students draw up their plans of work following the decisions they made during their investigation.

Manufacture

Each student should bring to class a coloured, cotton shirt. It does not have to be a blue one but it must be cotton.

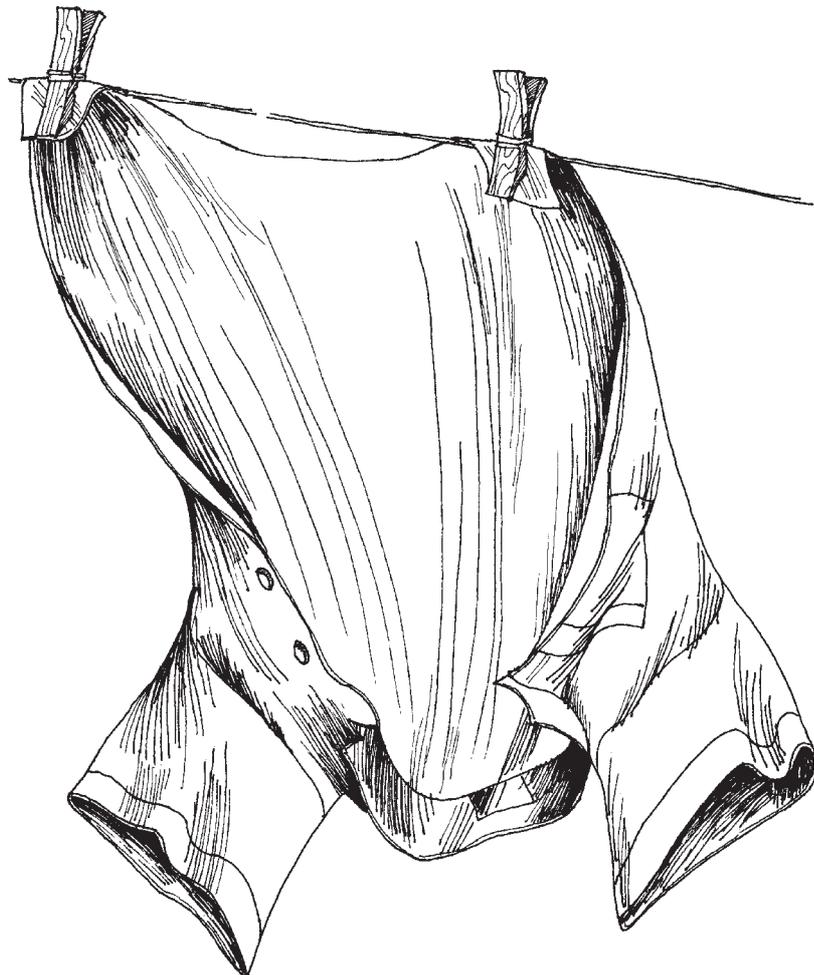
They should wash this in the lesson.

Evaluation

This is best done when the shirt is dry.

They can carefully examine the garment and state if they are happy with it. If they are not, they should explain why.

You could also help to examine the shirt, looking at such areas as the pockets, hem, etc. for dirt.



Design Brief: Pin Cushions

Problem

When pins are left lying on the table they might fall and students might step on them. Where would be the safest place to keep them?

Investigation

Cloth - Use scraps of cloth or re-cycle materials eg. old dresses, shirts, trousers, sheet-beds, and skirts.

Stuffing - can use kapok, sawdust, grass foam, coconut fibres, black palm fibres, etc.

Scissors - to cut material, thread, paper pattern.

Needle - handstitch eg. Tacking

Thread - to stitch the cushion

Pencil - to draw design on paper

Tape measure and ruler - to measure size of cushion.

Precautions

Concentrate on work or you might cut things out incorrectly.

When machining be careful that you don't run over pins or machine inaccurately.

Watch you hang stitching that they are straight not crooked.

Read instructions carefully making sure you understand what to do.

Solution

The students will:

- draw a range of design ideas
- be encouraged to experiment with pieces of cardboard and soft materials to get a range of ideas
- choose the best design and develop further giving details such as shape, size, etc.

Work Procedure

Work out how many separate pieces you will have.

Draw these pieces on paper separately and cut out.

Place the paper patterns onto cloth, pin and cut out.

Proceed to sew cushion according to design.

Manufacture

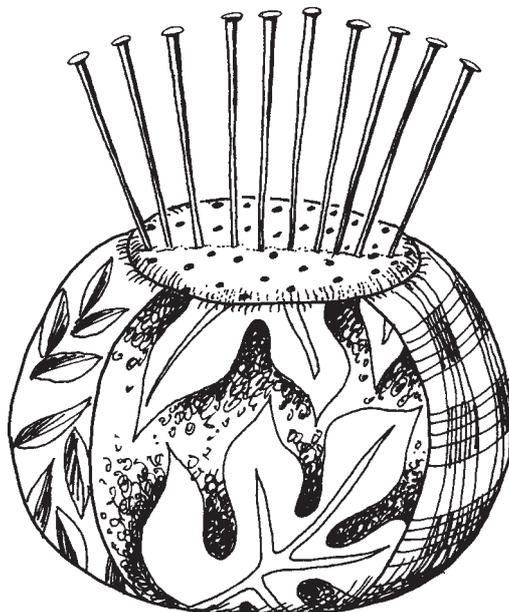
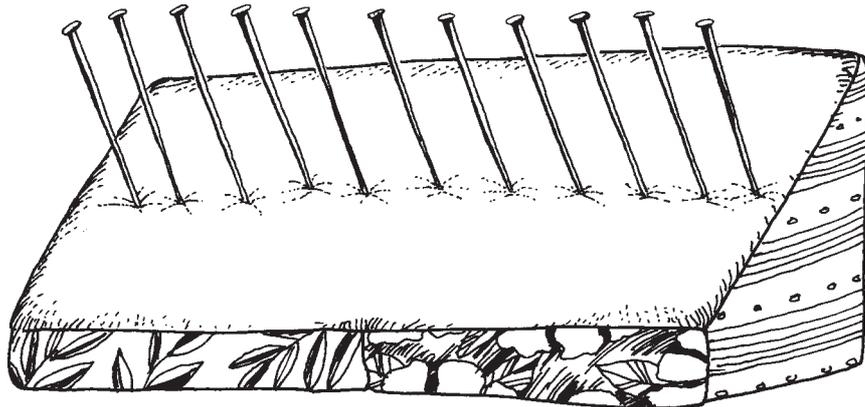
Help them to devise a simple time plan to use when making up the cushion. They have to make sure to have on their cushion the details they have on their final design of the cushion.

Cost

Help them to work out rough cost of the cushion by supplying them with information on costs of materials used eg. threads, cloth, etc.

Evaluation

Find out if cushion is completed according to plan. If not, why not? Are all details on design all on the final product? If not, why not? Are you happy with final product? If not, why? If yes, list down the reasons why you're happy.



Design Brief: Fishing Line Winder

Materials

Timber
Plastics

Material sizes

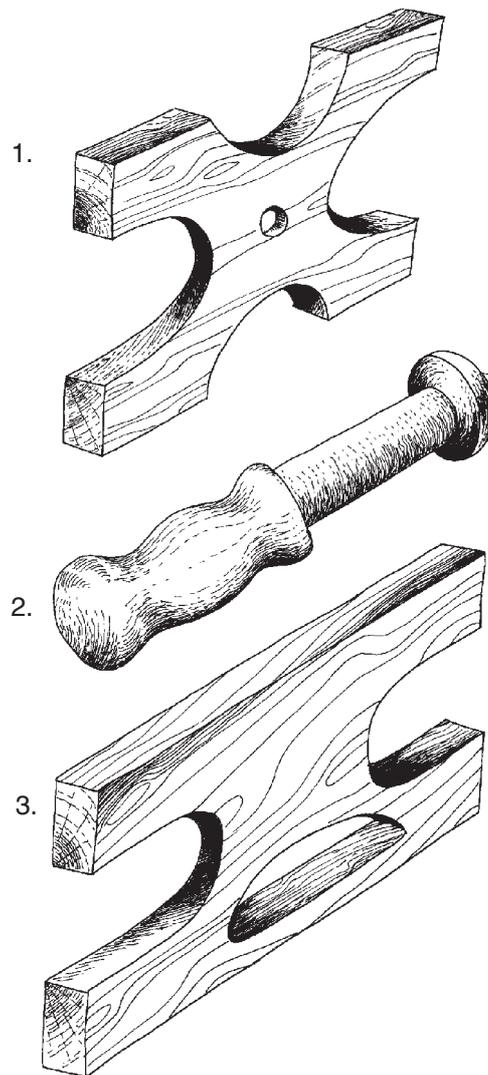
Can be decided but must be comfortable to use

Tools

Saw
Ruler
Hand planes
Spoke shave
Rasps and files
Hand drill and bits
Coping saw

Steps in to construction

1. Find a 100 x 30 timber and cut to required lengths.
2. Plane to sizes.
3. Cut and shape to details, including the boring of holes.
4. Glass paper to finish.
5. Apply coat of varnish.



Design Brief: Preparing and Drying of Pandanus Leaves

Problem

You have some green pandanus leaves. How can you get it ready for drying?

Restrictions

You have some green pandanus leaves.
You have to complete this activity in one lesson.

Investigation

Materials

Required materials will vary depending on the method you use. There are various ways for preparing and drying of pandanus leaves.

For the method I am going to describe, you will need: a big empty container, eg. an empty cabin biscuit tin, a sharp object, eg. a small knife, water and plenty of firewood or any other fuel.

Method

There are various ways for preparing and drying green pandanus leaves. Here is one way that you can use if you wish to:

- a. Get a container that is quite large, eg. an empty cabin biscuit tin. This is so that you can boil a big quantity of pandanus at one time.
 - b. Put water into the tin to about 4/5 full. Make a fire under the tin.
 - c. Prepare the pandanus leaves, by removing the leaf mid rib.
 - d. Grap several leaves, arrange them neatly, and roll them up. Secure the roll so it do not come undone.
 - e. Put rolls of pandanus leaves in water and bring to boil.
 - f. Boil for 5-10 minutes or until the bright green colour becomes a brownish green.
 - g. Remove rolls from hot water, unroll them and put them out to dry in the sun.
- N. B.
- a. Put pandanus indoors over night and when it rains.
 - b. Feel free to use any other method that you or the students know about, eg. the Penama method.

Safety and Health Hazard

- a. Be careful when preparing leaves or else you get pins or needles into your skin.
 - b. Be careful you might burn yourself while tending the fire and also when putting or removing leaf rolls from hot water.
- N. B. Demonstrate the preparation of leaves so students do not hurt themselves unnecessarily.

Solution

Help students organise themselves into several working groups. Help them to construct plans of work to follow in the practical activity.

Manufacture

Students follow their plans of work to complete the activity.

Evaluation

Find out if:

- a. each group followed their plans of work, if not, why.
- b. everyone worked well, if not, why.
- c. each group finished on time, if not, why.
- d. students had to change their plans of work during the practical activity. Give reasons.

Design Brief: Health and Hygiene

A practical unit in conjunction with personal hygiene (Health and Hygiene)

Problem

When I bath, I waste a lot of soap and I don't have a cloth washer.

Restriction

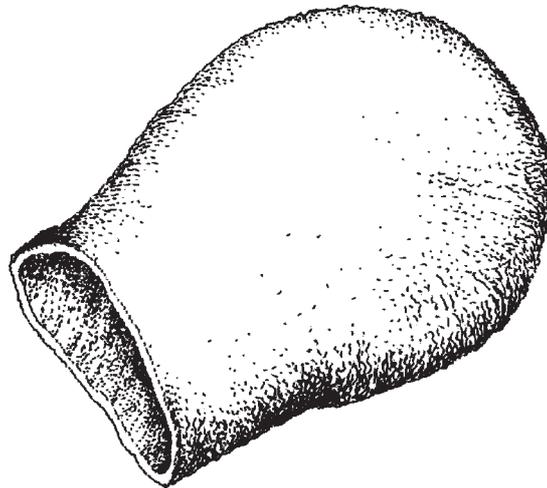
A small article *but* big enough for the hand and soap to slide in.

Investigation

Design
Fabric - thickness, suitability
Soap shapes
Soap lasting longer
Can be used to wash all over your body
How fabric can be sewn together (machine and hand)
Decorative design if required

Solution

Small hand washer/soap mitt.



Manufacture

1. Make pattern for design.
2. Use double layers (thickness)
3. Decorative stitches can be done if design requires it (machine or hand)
4. Sew together
5. Neaten edges

Evaluation

Can you hand fit in it?
Does it function correctly?
Are you happy with the design?
Would you change anything?

EVALUATION FORM

1. What do you think of the level of language?

too hard

correct

too easy

Tick the correct box.

2. What do you think of the activities?

a. too many

sufficient

not sufficient

b. too difficult

okay

too easy

Tick the correct box.

3. What do you think of the book set up?

4. Did you complete the given activities in the year? Give reasons for your answer.

5. Other suggestions/comments.