

Book 3

Year 9



Food and Textiles Technology

Design and Textiles

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GOVERNMENT OF SĀMOA
MINISTRY OF EDUCATION, SPORTS AND CULTURE

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| | |
|--------------------|--|
| Brenda Sio | Private Community Nutritionist |
| Pisia Soo | Aleipata Junior Secondary School (JSS) |
| Malepe Tia | National University of Sāmoa |
| Ana Peni | Savai'i Sisifo JSS |
| Malama Solomona | Mataaevave JSS |
| Faaiutava Andersen | Amoa Jss |
| Safenunuivao Taape | Vaimauga JSS |
| Isa Tuivaiti | SDA College |
| Tofi Tunufai | Falealili JSS |
| Me Etuale | Leiififi College |
| Faamoemoe Soti | C.D.U. |
| Original drawings: | Anna Egan-Reid Liam Gerrard |

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INTRODUCTION

Talofa,

If you are a Secondary School student studying Food and Textile Technology at Year 9, this book has been written for you.

It has been designed to give you information and an understanding of different topics that relate to Design and Textiles using soft materials.

The first part of this book focuses on the important role clothing plays in our 'Soifua Mālōlōina'. This will provide us with an opportunity to see that the clothes do not just provide us with physical protection. We explore the properties of natural fibres like cotton and pandanus and find out how these plants become fibres or yarn for 'soft materials'.

We will investigate the properties of cotton and look at the advantages and disadvantages of using natural fibres for clothing and household items in Sāmoa. When exploring the different ways that fibres and yarns are woven into fabric you will have the opportunity to use pandanus to carry out a design brief for an item suitable for a child that uses basic weaving.

There will be the opportunity to find out how the cotton fabric that we wear the most in Sāmoa is manufactured. There is a section on decorating cotton fabric by tie dyeing and block printing. You may be able to solve the design brief given at the end of the book with a fabric you have decorated by one of these methods.

The last section of the book covers the information you will need to successfully use a pattern to cut out fabric for a garment. The basic stitches that can be used to sew a textile item are described and there is an opportunity to use the sewing machine when carrying out the design brief at the end of the book.

Several additional ideas for weaving types of household items from pandanus have been included in the appendix at the back of this book. This will provide you with the information you may need to explore this aspect of soft materials further.

Each section in the book has a list of words at the top. The meanings of these words are given to you in the glossary at the back of the book. There are activities throughout the book that you can complete individually or in groups.

We hope you will experience new and exciting things as you journey through this book exploring more about textile technology.

Unit 1: CLOTHING AND OUR SOIFUA MĀLŌLŌINA

Words to learn:

Resources.

Modest.

Soifua mālōlōina.

Pandanus.

Physical appearance.

Emotional.

Protection.

Experience.

Uncomfortable.

Connected.

Clothing

In Food and Textile Technology Year 9 Book 2, we looked at the different resources that are available to people to help them meet their basic needs. ‘Time’ and ‘skills’ were two of the resources explored. In this book we are going to look at how we can use ‘time’ and ‘skills’ and natural fibre resources like cotton, pandanus and coconut to make items for the home. We will also be looking at how ‘natural fibre’ resources can be used to meet our clothing needs. We all must have clothing to satisfy our physical need for protection.

Our clothing is very important to our soifua mālōlōina. In Book 2 we discovered that our basic need for food was not just about satisfying the physical aspect of soifua mālōlōina. The same applies to our basic need for clothing. The clothes we wear do more than just meet our physical needs.

As well as protecting us from the heat and sometimes the cold, clothes can also make us feel good about ourselves. When we feel good about what we are wearing it strengthens the emotional aspect of our soifua mālōlōina. Our clothes often send a message to others about how we are feeling. Our clothes can also send a message to others about the things we value.

As teenagers we become more aware of our appearance. We become increasingly aware of the clothes we feel good in. We can increase our confidence by wearing what we feel are the right clothes for an event. Our clothes are not just giving us physical protection, they are enhancing the emotional aspect and social aspect of soifua mālōlōina. When we go out we usually want to wear similar clothes to our friends. The social aspect of our soifua mālōlōina may suffer if we are wearing something that is not seen as ‘cool’ by people our age. While we should not be too influenced by what our friends do or say, we often are. Understanding why we sometimes experience poor soifua mālōlōina and feel uncomfortable with people who are meant to be our friends helps us to cope better with the situation.

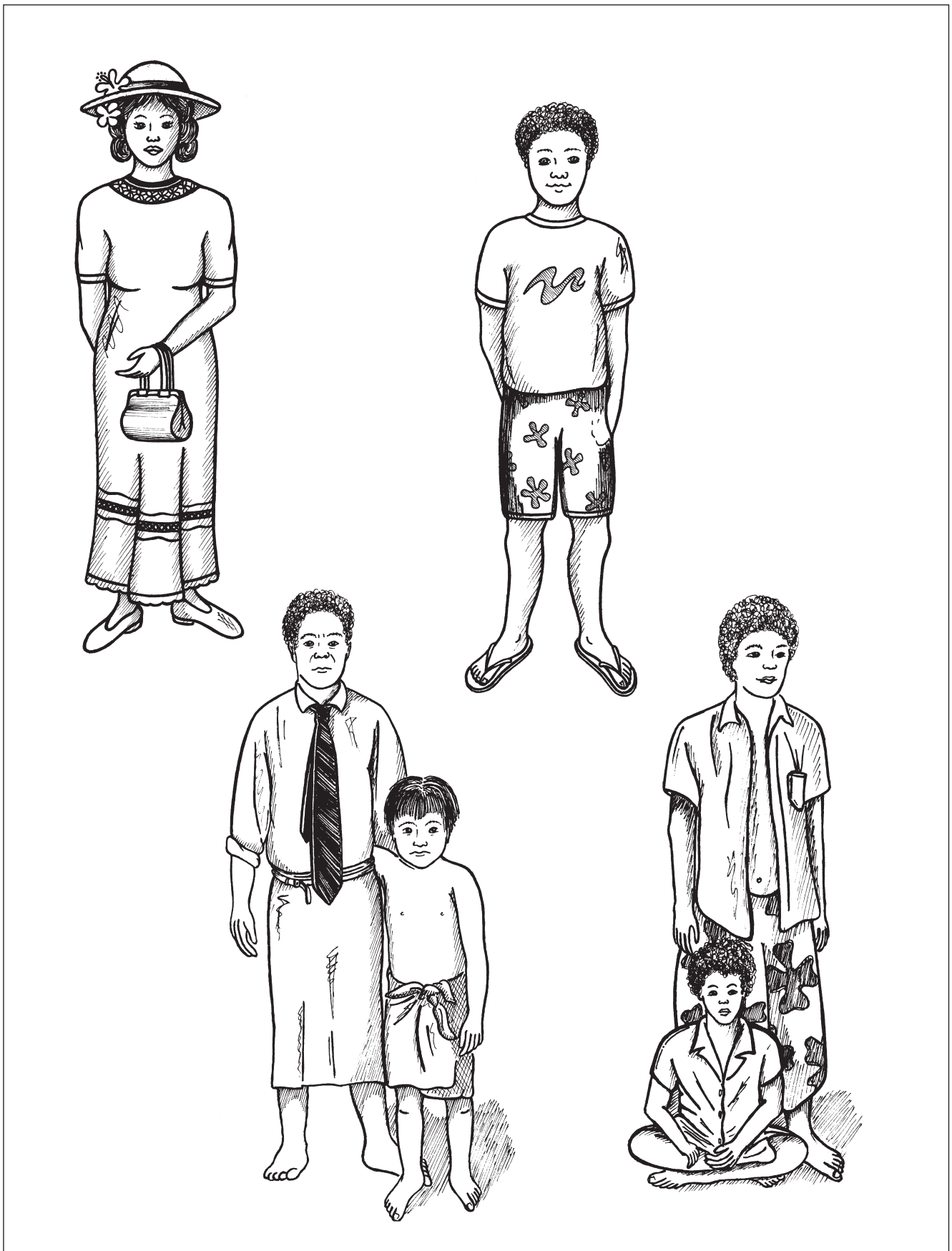


Diagram 1.1
Different types of clothes worn.

The spiritual aspects of our health and well-being, or soifua mālolōina, can also be strengthened by wearing the right type of clothing for a particular social gathering or celebration. Feeling connected to your surroundings or the people you are sharing time with, enhances your soifua mālolōina. Wearing your traditional clothing for performance is another example of how you will often enhance your spiritual aspect of soifua mālolōina. Wearing clothes that have special value and meaning for our people makes us feel connected to our culture. Feeling connected to our culture strengthens and enhances the spiritual aspect of our soifua mālolōina.

Activity 1

Clothes And Your Soifua Mālolōina

1. For this activity your teacher will divide you into groups. In your groups discuss how the clothes the people are wearing in the pictures on page 8 will affect their soifua mālolōina. Your teacher will ask each group to report back their findings.
2. Write a summary in your exercise book of what you learnt from doing the exercise above.
3. In your exercise book, write down the things you most like to wear. Then try to explain the effect your favourite clothes can have on your soifua mālolōina.
4. Often we have to share our clothing with others in the family. Write in your book about:
 - The good things you feel when you share your clothes with others.
 - The negative things you feel when having to share your clothing with others.
 - How is your soifua mālolōina affected by sharing your clothes?

What Clothes And Textile Items Are Made From

Words to learn:

Solution.

Fibres.

Yarns.

Bark.

Protection.

Problem.

Discover.

Temperatures.

Structures.

Process.

Spun.

From early civilisation, people have used technological practice to clothe themselves. This means that people have solved the problem of what to wear by first looking at the resources they had available to them. From history books we discover that the skins of animals were the first technological solution used to give protection to the body and keep out the cold. Through the ages, developments in textile technology have gradually helped people discover a variety of ways to use available resources to make fabrics that can protect the body from the sun's rays, the rain and cold temperatures.

In Sāmoa, the available raw material is not animal fibre. Countries on the other side of the world produce a yarn called wool, from sheep, to protect people from the cold. Our ancestors used technological practice to develop fabric from the vegetable fibre available in Sāmoa. A different type of fabric was needed for clothing here. It had to give the body protection from the sun and rain. Keeping the body warm was not a problem that needed to be solved in textile technology in Sāmoa. One of the earliest solutions found for fibre in Sāmoa was the soft bark from trees.

Did you know?

Fibres are the raw material of textiles. They are hair-like structures that are spun into yarns. Sometimes the fibres are from animal hair like wool. The sheep has to be sheared to remove its thick coat of curly hair which is known as a fleece. The short curly hairs are twisted into yarn and then woven or knitted into fabrics.

In Sāmoa, the fibres taken from tree bark were not spun. Instead, they were pounded to make them soft and flexible. The pieces of bark were then glued together, using natural starchy glue, to make a strong paper-like fabric. The same process is used today in the preparation of siapo.

Textile technology is all about using the fibres available to produce yarns which can then be made into fabrics, adding colours and then turning the fabrics into finished products. Textiles are used today for a range of household items, not just for our clothing.

Did you know?

In Sāmoa, leaves from the coconut, ti and pandanus were the first raw materials available for clothing.

In the early days the malo was worn by males. This was a narrow belt woven from bark and worn around the body, passing between the thighs. The titi, a skirt made of ti leaves, was worn by females and males. The titi pala, made of fau fibre, was blackened with mud and smoke. The titi for men was about 30 cm deep and 30 cm wide and was worn in front. The lavalava, made of siapo from U'a (paper Mulberry), was worn only by a few unmarried females of the highest order.

Activity 2 Technological Solutions

1. In your exercise book, copy down the following statements and complete the sentence using the text on page 10 to help you.
 - a. The technological solution used for clothing in cold climates in early civilization was _____.
 - b. In Sāmoa the technological solution to clothing was _____.
 - c. The reason for this was _____.
 - d. Wool fibre would never have been a technological solution for Sāmoa because _____.
2. Your teacher will put you into small groups and give you one of the following terms:
 - Technological practice.
 - Textile technology.
 - Technological solution.
 - a. Discuss in your group what you think the term you have been given means.
 - b. Write a simple definition, in large letters, to go on the classroom wall to help other people in your class understand the term you have been given.

(Your teacher will give each group time to report back to the class.)

Cotton Fibre Becomes Cotton Yarn

Words to learn:

Observe.

Developments.

Harvested.

Organises.

Filaments.

Bobbins.

Atoms.

Polymers.

Cellulose.

In this section we will aim to understand how technology works to produce yarns from natural fibres. We will look at how the cotton boll, grown on the cotton bush in countries like America and India, becomes the fabric we buy by the yard in Sāmoa. The cotton boll starts off life looking like a white fluffy ball, very similar to the cotton wool ball used in hospitals and sometimes found in first aid kits.

If we were lucky enough to have a cotton boll in class we would be able to pick off all the individual short fibres from the stem of the boll. The first thing we would notice would be little, short, fluffy fibres settling everywhere and the tiny black seeds of the cotton boll falling out. We would probably make quite a mess!

We might also start to wonder how all those short bits of fibre get stuck together to make the continuous yarn or thread that we see on a reel of cotton used for sewing.

Question: How did the cotton boll become a reel of cotton?

Answer: By using technological practice, of course!

The first thing we would observe would have be that cotton in its raw state is made up of short, wavy fibres which would somehow have to be joined together to make a long continuous yarn. This is all done using the latest developments in technology. The flow diagram opposite explains the process in detail, starting with the cotton bolls being harvested and ending with the cotton yarn being produced.

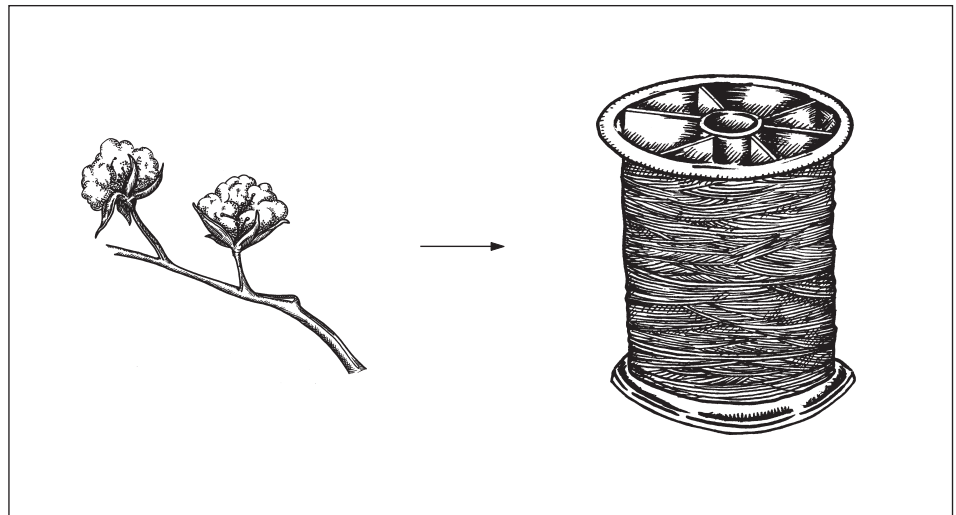
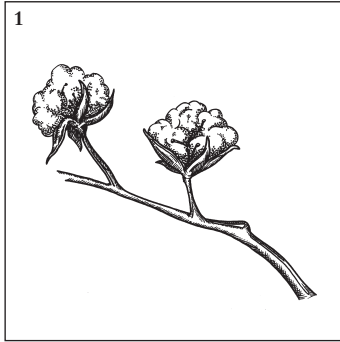
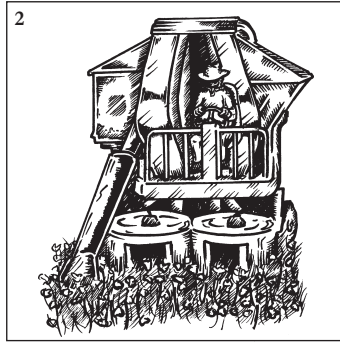


Diagram 1.2
Cotton bolls to yarn.

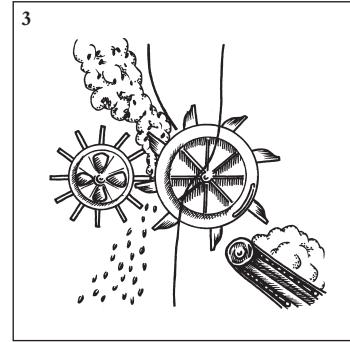
THE PROCESS OF MAKING COTTON THREAD



1. **Mature cotton:** Bolls are grown on a cotton bush.

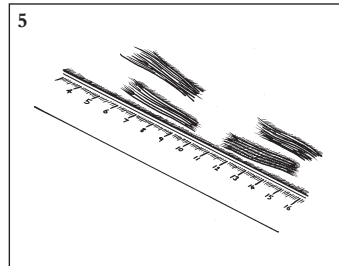
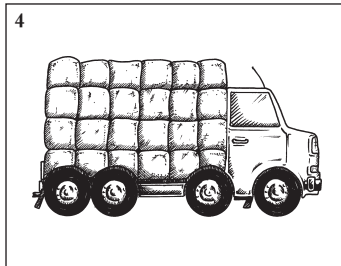


2. **Harvesting:** Cotton is harvested by mechanical suction from a huge tractor.

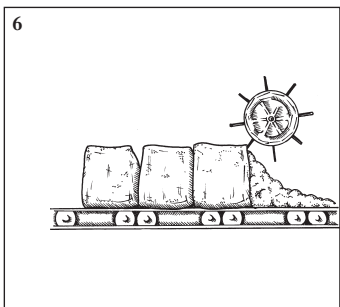


3. **Ginning:** Fibres are drawn through a grid by a saw-toothed wheel. The seeds fall below.

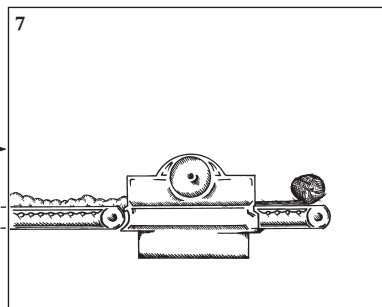
4. **Transport:** Ginned, baled cotton is transported from the area to the mill.



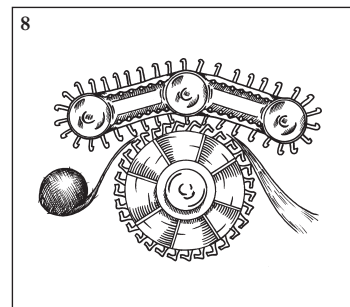
5. **Grading:** Fibres are graded according to length, colour and soundness.



6. **Opening:** The compressed fibres from bales are opened.

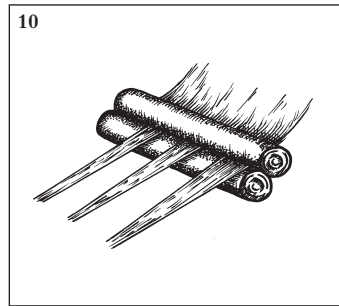
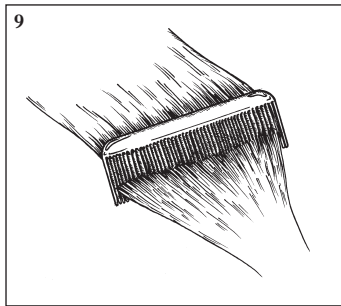


7. **Dusting and blending:** Fibres are blended for more efficient carding.



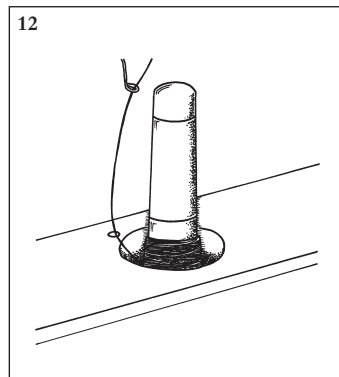
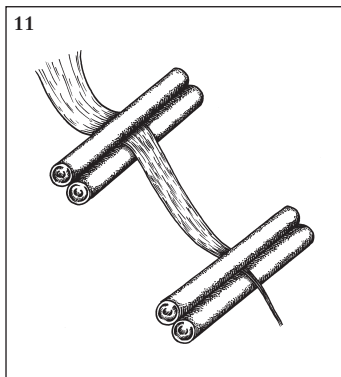
8. **Carding:** The fibres are teased apart by wire-toothed rollers.

9. **Combing:** Long fibres are pulled together and laid parallel to form slivers.



10. **Condensing:** Slivers of cotton fibre are pushed together.

11. **Drawing:** Of condensed slivers to reduce thickness to that required in final yarn. The fast rollers draw out the yarn. The fibres are pulled out and compressed to make thin threads.



12. **Spinning:** The insertion of twist. Strands of fibres are twisted to make the yarn.

In summary, after harvesting the cotton bolls, a ginning machine separates the cotton fibres from the stem and seeds of the cotton boll. The cotton fibres are placed in big bales and taken to a cotton mill. The cotton fibres then go through a grading process which organises the cotton fibres into groups of equal length. Once the fibres have been organised into similar lengths they are put through a carding process. This pulls the fibres apart and straightens them.

The cotton fibres are then put through a combing process which removes the very short fibres and leaves the long fibres together. The fibres then undergo a condensing process which gathers the separate fibres into longer slivers of fibres called filaments. These long slivers of fibres or filaments are then passed through rollers to push them together. Finally, the long fibres go through a spinning process which puts a twist in the filaments making them into a yarn. The more twist that is put into the filaments the stronger the yarn will be. The yarn that comes from the spinning process is then wound onto big bobbins ready for weaving. Cotton yarn is known as filament yarn because the yarn starts out as little short filaments or fibres.

The processes of turning other natural fibres into yarn all vary depending on the nature of the fibre. However, all fibres are made from long lines of atoms called polymers. Cotton and other plant fibres like coconut and pandanus are made from polymers called cellulose. Cellulose polymers occur naturally because they are made from plants.

Activity 3

Making Fibres

1. The teacher will divide your class into eight groups. Each group will be given a card with one of the following terms written on it:

| | | |
|----------|------------|------------|
| spinning | combing | grading |
| drawing | harvesting | condensing |
| ginning | carding | |

 - a. Discuss in your group what happens to the cotton fibre during the process written on your card. Be ready to explain it to the rest of the class.
 - b. Your teacher will ask you to put your group into a continuum down the length of the classroom according to the order your process belongs in the stage of turning cotton fibre into cotton yarn.
2. To help understand how fibres are spun into yarn carry out the following experiment. Your teacher will give you a cotton ball. Put the cotton ball in your left hand. Pinch a few fibres between the thumb and forefinger of your right hand — pull the threads out while twisting them at the same time. Lower your thumb and forefinger to the base of the twisted strand, and repeat the pull-and-twist action. Write down in your exercise book what you have seen happening.

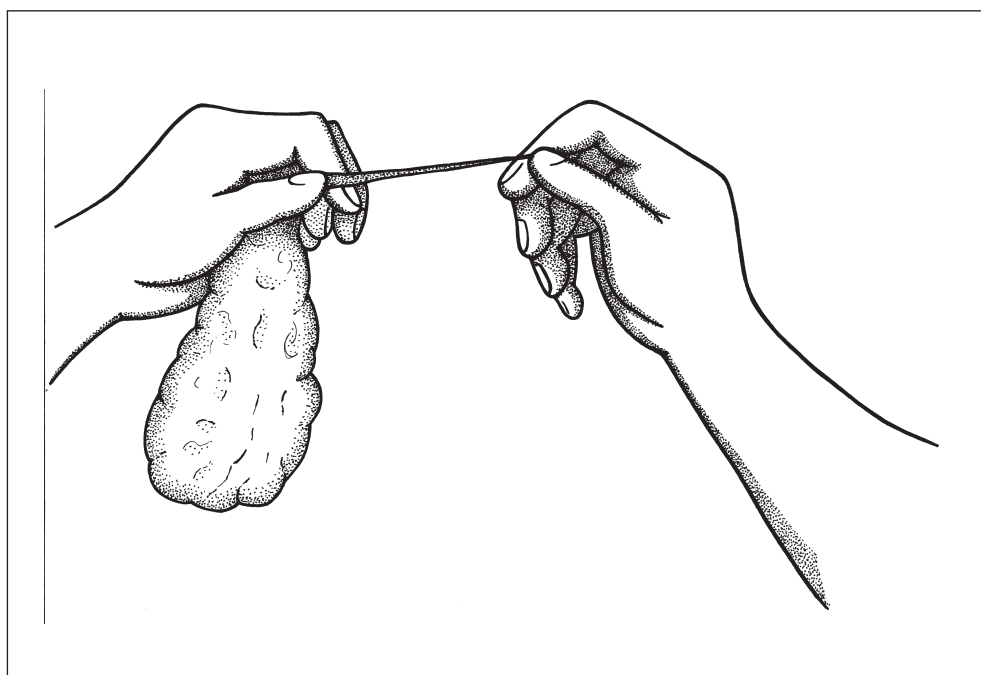


Diagram 1.3
Twisting cotton fibres.

Properties Of Fibres

The manufacturers of fabrics look for certain qualities and properties in the fibres so that their products will, in turn, have these qualities and properties.

Here are the meanings of some of the terms used to describe the qualities of different fibres, yarns or fabrics.

- **Tensile strength** — describes how much stretch, in relation to weight, a fibre has before it breaks.
- **Pliability** — describes how the fibre can bend and take on different shapes.
- **Elasticity** — shows how the fibre can stretch and regain shape again.
- **Absorbency** — describes how the fibre can hold moisture: *e.g. Sweat, so the wearer does not feel hot and sticky.*
- **Porosity** (Porousness) — describes if the fibre can shed water or moisture and let air through.
- **Dyeability** — describes if a fibre to accept colour and patterns when dyed.
- **Smoothness** — describes the appearance and touch of a fibre.
- **Ease of laundering** — describes how easy it is to wash and dry the fibre.
- **Economical** — describes the cost involved in making the fibre.

Other Plant Fibres Used For Textiles In Sāmoa

Words to learn:

Qualities.

Coarsest.

Finest.

Bundle.

Preparation.

Product.

Property.

Like cotton, coconut and pandanus are made from cellulose polymers because they come from plants, giving these three fibres similar qualities. The following are all made from pandanus which is used to make household items like mats and baskets.

Laupaogo — the heaviest and coarsest type of pandanus used for making mats for the floor.

Laufala — used for making finer mats, sleeping mats and baskets.

Lau'ie — is the finest pandanus and therefore it is used to make the softest and finest mats.

Pandanus Leaves Become Fibre For Weaving A Mat

Read steps 1–8 below. They tell you how to make pandanus fibre from pandanus leaves.

1. Matured leaves are cut from the tree.
2. The spikes or sharp edges on both sides of the leaves are removed.
3. 15–20 leaves are rolled into one bundle and tied.
4. A pot of water is boiled.
5. Three or four bundles are put in the boiling water.
6. The bundles are boiled for 15–20 minutes.
7. The bundles are untied and spread out in the sun for two weeks.
8. When properly dried, the leaves are straightened and rolled into bundles again, and tied.
9. The bundles of pandanus are now ready to be woven into a wide range of household items.

Coconut Fibre Becomes Coconut Yarn

In the Pacific, the coconut tree is often referred to as the tree of life, because all of its parts, from the roots to the leaves and fruit, can be used in our daily living. Increasingly, coconut is being used in food preparation and cooking but originally the coconut played a role that was just as important in the production of fibre.

When we look at how coconut is made into fibre we will see that the technological process used is far more labour intensive than the heavy machinery used to produce cotton yarn.

Here are the steps in coconut fibre production:

1. Pick green coconuts from the tree.
2. Husk and put all the husks into a coconut leaf woven basket.
3. Put the basket into the sea and cover with heavy rocks to avoid floating.
4. Remove from the sea and beat the husks with a club to make the yarns.
5. Leave the husks for three or four weeks until the fibres are loose.
6. Shake the husks well to clean off the mud and tear off the skin and front of the husks.
7. Dry the fibres well in the sun.
8. When dry, pinch off fibres to form yarns by rolling down the knee.
9. After making yarns from one bunch of fibre, start weaving the sinnet by using the yarns you made.

Activity 4

Comparing Fibres

1. Your teacher will put you into groups to explore the properties of coconut fibre. Refer to the properties of cotton fibre and compare with coconut fibre. In your group, record how well cotton and coconut fibres rate on a scale of 1–10 for each of the properties listed on page 14.
2. Make a list in your exercise book of the properties that are lacking in cotton fibre and coconut fibre.
3. Make a list in your book of all the uses that can be made of coconut fibre.

Advantages And Disadvantages Of Natural Fibres

Words to learn:

Absorbent.

Sticky.

Moisture.

Popular.

Dissolve.

Shrink proof.

Uncomfortable.

Conductor.

Resistant.

Snip.

Cotton, pandanus and coconut are all used for clothing and household items in Sāmoa. These fibres are best suited to the hot climate. They are absorbent, allowing your skin to breathe so you do not feel hot, sticky and uncomfortable. Today cotton is the most popular fibre for clothing in Sāmoa because of the properties described next.

| The good properties of cotton fibre | Why this property is useful |
|---|--|
| <p>It is pleasant to wear and keeps you cool in hot weather.</p> <p>You don't feel so hot and sticky when you are wearing cotton clothing. This makes cotton fabric very popular for clothing for people living in hot climates.</p> <p>Easy to dye.</p> <p>Easy to wash.</p> <p>Cotton fabric can be treated to make it: Crease resistant. Shrink proof. Have a glazed surface. Flame proof.</p> | <p>This lets your body heat escape because it is a good conductor of heat. This means it allows air to pass through easily.</p> <p>This means that the fabric absorbs water and moisture easily.</p> <p>The fabric can be coloured and made attractive.</p> <p>Although most washing is done in cold water, cotton can be washed in hot water without spoiling the fibres. Cotton becomes stronger when wet.</p> |
| The poor qualities of cotton fabric | Why this property is not useful |
| <p>It lacks elasticity.</p> <p>It is made from natural plant fibre.</p> | <p>Easily wrinkled so it needs ironing with a hot iron to remove creases after washing.</p> <p>Unbleached cotton fabrics (<i>e.g. Calico</i>) go mouldy in damp, humid conditions.</p> |

Activity 5 **General Properties Of Cotton**

1. Make a list of as many things as you can that are made of cotton.
2. Give three different reasons for cotton fabric being suitable for clothing in Sāmoa.
3. Why do cotton sheets make ideal bed linen in Sāmoa?
4. Suggest one reason for cotton not being 100% suitable for clothing and household items.
5. Experiment to test the strength of plain woven cotton fabric. Your teacher will help you carry out the following experiment and write up the results in your book.

Method

Your teacher will give you two squares of cotton fabric made from plain weave.

Put a small snip in the edge in the middle of the first sample. Having made the snip then using both hands rip the square of cotton fabric in half. Record how easy or how difficult it is to rip the cotton squares.

Repeat with the second sample of fabric after wetting it thoroughly in water.

Result

Which sample was the most difficult to tear in half?

Conclusion

What did you learn from this experiment?

Constructing Cotton Woven Fabric For Clothing

Words to learn:**Magnifying.****Interlacing.****Diagonally.****Did you know?**

That the mats you use at home are woven using the same plain weaving technique that is used to make most cotton fabrics?

The fabric sample you used to test the wet and dry strength of cotton was a sample of plain weaving. However, you would have needed a magnifying glass to see the fibres as they are shown in the diagram below:

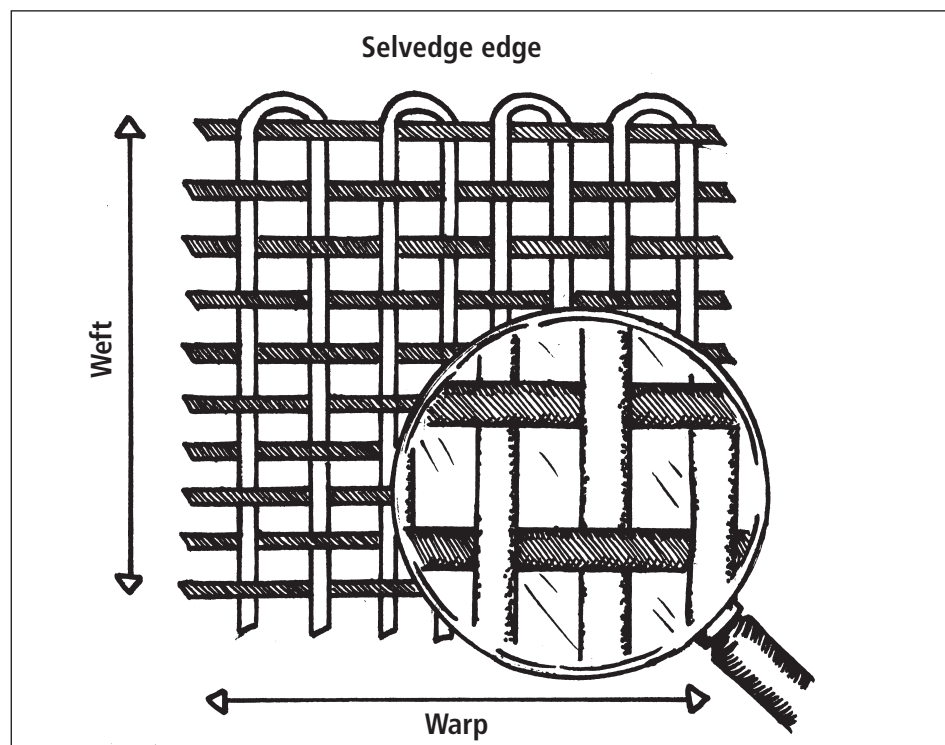


Diagram 1.4

Cotton fabric — magnified.

Weaving is the interlacing and crossing of fibres over and under each other. This can clearly be seen in the diagram on the last page. Every weft yarn passes over and under every second warp yarn. The process of repeated interlacing of two or more sets of yarns produces a good, reasonably strong, smooth and firm fabric or textile item. In order to make a good cloth, it is important that the yarns lie close to one another. This is done by ‘beating up’ the weft yarns. This means the weft yarns are pushed together as closely as possible. You will do this when you have a go at weaving.

The sets of yarns used in weaving are given different names. **Warp** is the set of yarns that runs lengthwise parallel to the straight grain and selvedge of fabrics. **Weft** is the set of yarns that runs crosswise. The warp and weft yarns cross each other at right angles. The **straight grain** of the fabric is a way of describing how the warp threads run at right angles to the weft threads. The straight grain of the fabric always runs parallel to the **selvedge** edge.

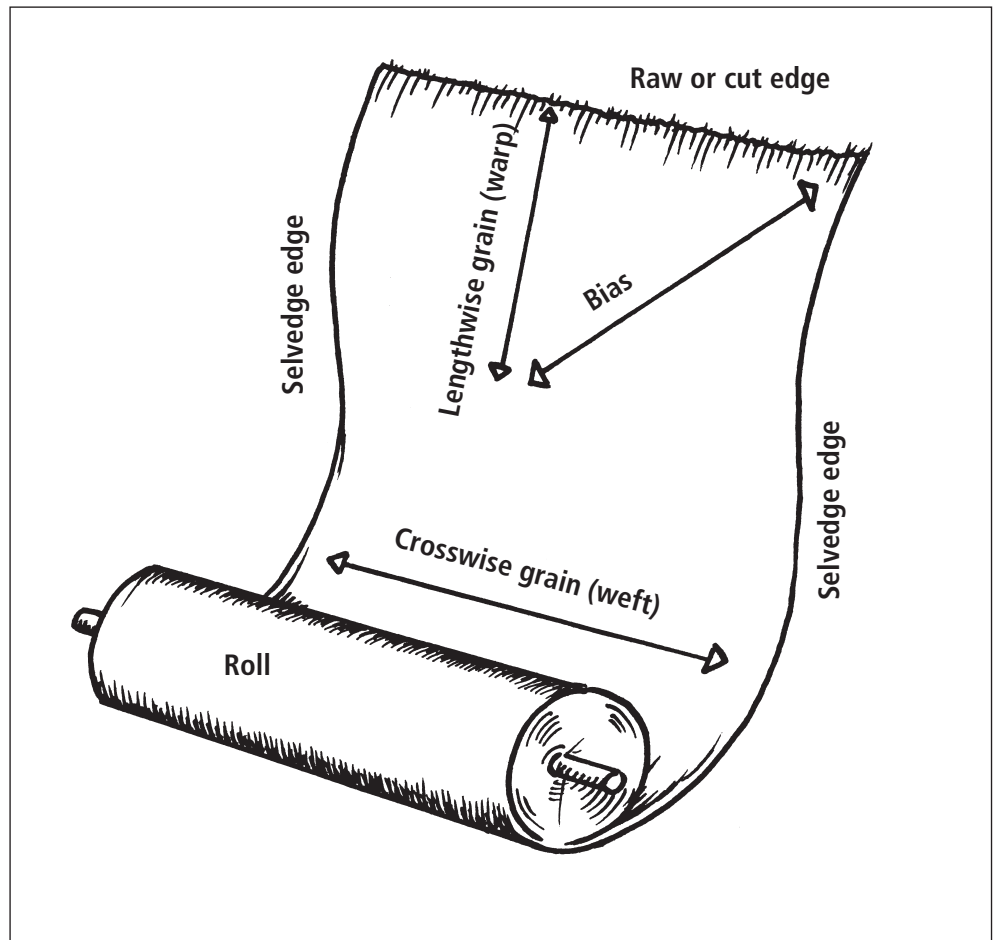


Diagram 1.5
Attributes of a roll of fabric.

The straight grain determines the hang of the fabric. The give or stretch of the fabric occurs at a 45 degree angle. This is called the **bias**.

While the examples of plain weaving we see every day in our woven baskets and mats may be made of coconut and pandanus leaves rather than cotton, the method of construction is the same.

Activity 6**Mix And Match**

1. Complete the quiz below by copying the 'mix and match' into your exercise book. Match the words with their correct definitions. Your teacher may make this into an activity game for you to do with a classmate.

vertical raw bias warp
selvedge horizontal weft

- a. _____ threads run down the fabric.
- b. _____ threads run across the fabric.
- c. _____ or warp threads run parallel to the selvedge edge of the fabric.
- d. _____ or weft threads run at right angles to the warp threads.
- e. _____ is the term used to describe the amount of stretch a fabric has when it is pulled diagonally at a 45 degree angle.
- f. _____ is the name given to the neat edge that does not fray down the side of the length of the fabric.
- g. _____ is the name given to the edge of the fabric which frays or unravels.

Activity 7**Paper Weaving**

1. Follow the instructions below to complete some paper weaving, showing that you understand the weaving process. Your teacher will give you paper squares in two different colours. You will use the instructions below to create a plain woven square.
- a. Cut the first square into strips that are 1/2 inch wide.
 - b. Cut the second square into strips that are 1/2 inch wide but do not cut to the edge of the paper. Leave one inch uncut at the end.
 - c. The square that you have left uncut at the end represents the warp threads in a piece of weaving.
 - d. The strips of paper you have cut from the first square of paper represent the weft threads. Use the weft threads (cut up strips of paper) to weave under and over each warp thread.
 - e. Use a ruler to pick up the warp threads that are lying under the weft threads.
 - f. Then place your second weft thread between the warp threads. See the diagram on the next page.

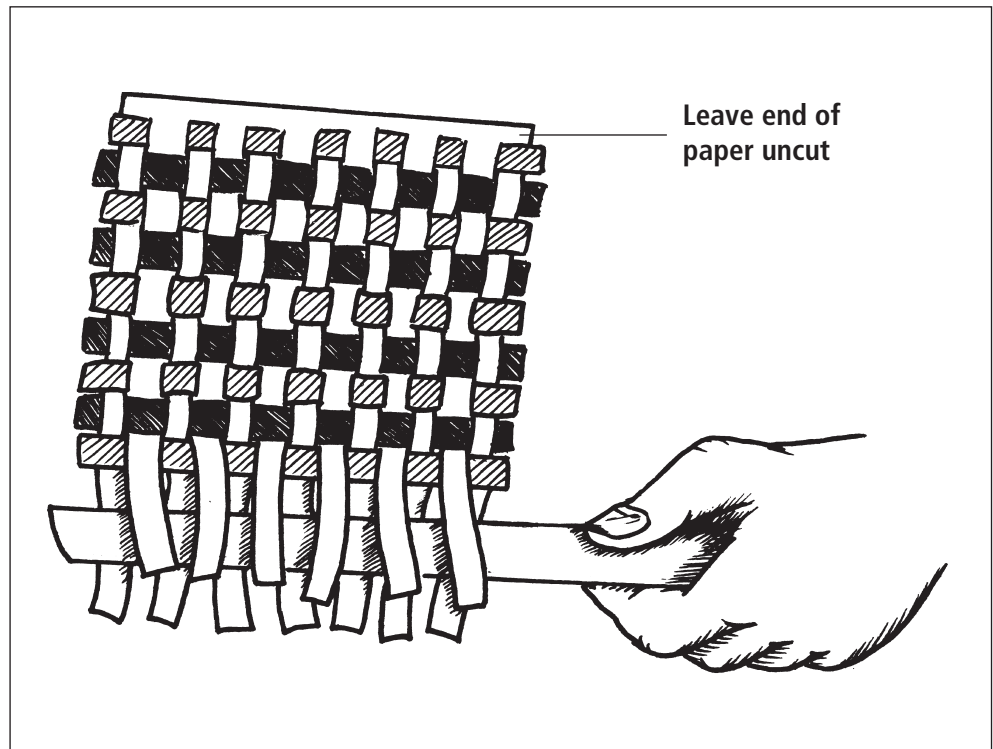


Diagram 1.6
Paper weaving.

- g. Repeat until you have used up all your paper strips and have a woven square of paper.
 - h. Now you will see how the warp and weft threads interlace. When you have completed your sample attach it to your book and label the diagram.
2. If you are able to collect some empty rice bags and coloured wool you will be able to experiment further with different types of weaves. Your teacher may give you a design brief to complete which requires you to make an item using a piece of fabric you have woven from a rice bag and coloured wool.

Activity 8

Woven Fabric

1. Cut a 10 cm square of material — make sure it has a selvedge edge.
 - a. Pull a thread gently along the straight grain (parallel with the selvedge) in the lengthwise direction. What is this thread called?
 - b. Pull gently at right angles to the selvedge (across the straight grain). What is this thread called?
 - c. The tightly woven edges of fabric are called what?
 - d. The cut edge of the fabric with fraying thread is called what?
 - e. Stick a sample of plain woven fabric in your exercise book and label all the parts you have just identified.

Comparing Different Weaves

Words to learn:
Explored.
Checkerboard.
Fit for the purpose.
Decorative.
Miniature.
Denim.
Complex.
Loops.
Zigzag.
Fray.
Unravel.

The most common weave used in household items is the **plain weave**. You have just **explored** this using paper and possibly tried it with a rice sack and coloured wool. A plain weave creates a **miniature checkerboard** effect, which can be seen below:

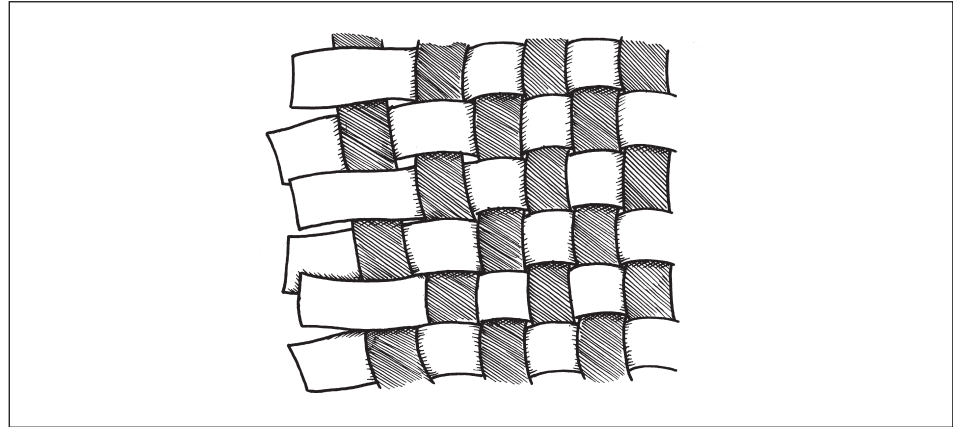


Diagram 1.7
Plain weave.

Although it is not as strong as the twill weave it produces a fabric or textile item that is **fit for the purpose** intended.

The twill weave is more **decorative** and produces a fabric which is much stronger. The pattern moves in a diagonal direction. It can also be woven to form a **zigzag** pattern called herringbone. An excellent example of the twill weave is **denim** fabric which is used to make our blue jeans, shorts and other work clothes that need to be hard-wearing.

See if you can work out how this happens by doing some more paper weaving. You could experiment with twill weaving when you make a household item later in this book.

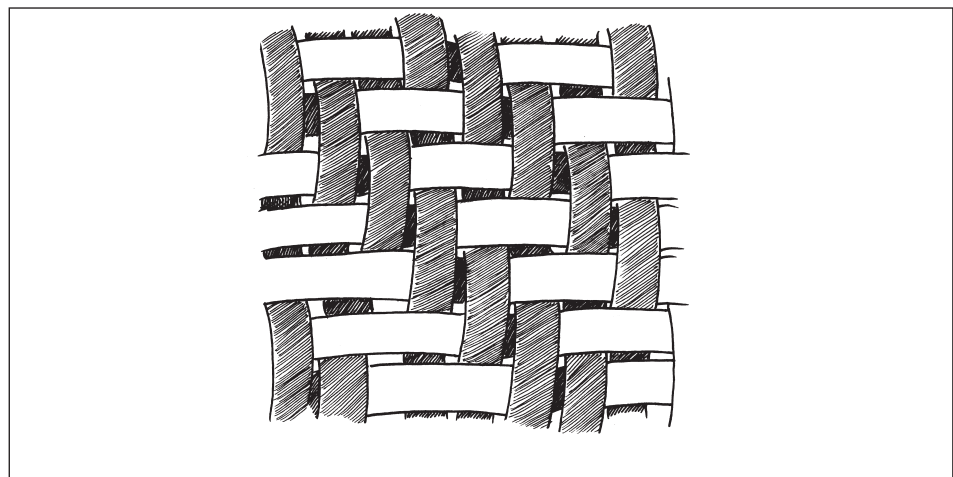


Diagram 1.8
Twill weave.

Did you know?

There are many different names and patterns for weaves but they all have **weft** and **warp** yarns?

Two other weaves, which can also be used to create different looks, are satin and hopsack weave, illustrated below. The satin weave produces a smooth and shiny surface. This is due to the warp yarns passing over a number of weft yarns and under only one of them. This makes a pretty but rather weak fabric that snags easily. Satin fabrics are usually made from man-made fibres that we will investigate next year.

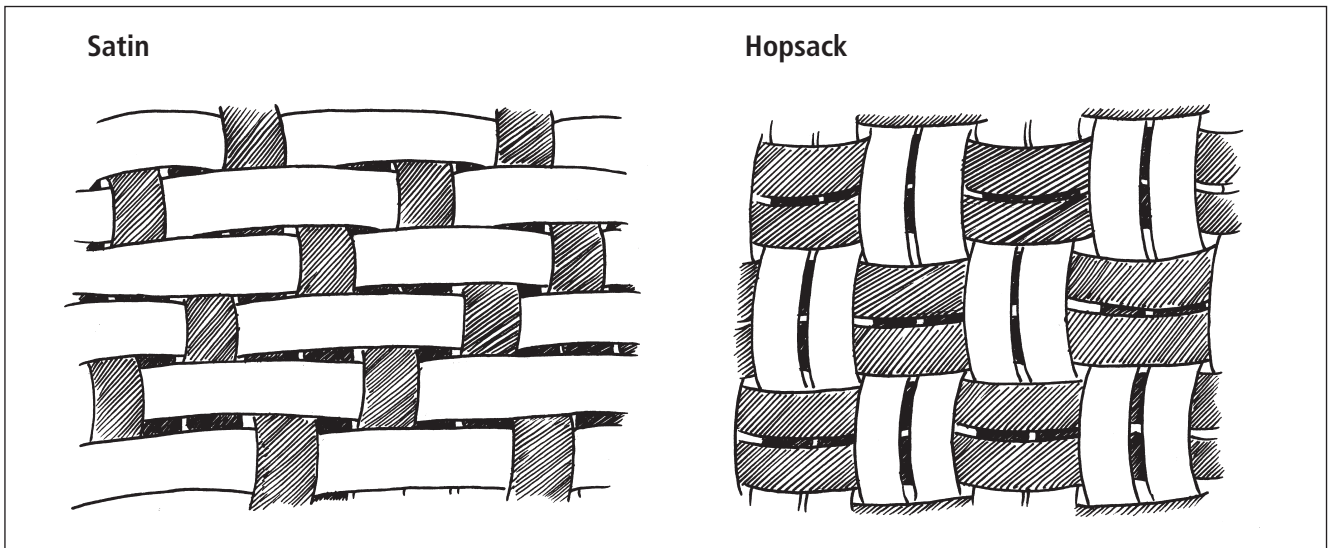


Diagram 1.9
Satin and hopsack weaves.

The satin and hopsack are two more weaves that you could experiment with when you create an item for the home.

One weave that you will not be able to experiment with is the terry or velvet weave. This is a complex weave that has an extra set of warp threads. This extra set of warp threads is made into **loops** along the surface of the plain weave. The loops create a 'pile' or 'nap' which make a fluffy surface on the top of the woven fabric. The best example of a fabric with a terry weave is towelling. Every time we use a towel it is the extra set of warp threads that makes it absorbent.

Activity 9**Examining Different Weaves**

1. See if you can find samples of fabrics constructed from the twill weave and terry weave to put in your exercise book. Remember to label your samples.
2. The best way to explore the properties of weaving is to take part in this activity.

Your teacher will give you a design brief to work with.

The brief will require you to use local resources (*e.g. Coconut leaf or pandanus*) to make a household woven item for a child under five.

To get you started:

- Explore the items that are needed by children under five years.
- Work out which items could be made by weaving.
- Your teacher may help you explore laying out your yarns to make an item, *e.g. Small food plate (mailo)* to serve food on (using the coconut leaf) or a baby's sleeping mat 24 by 36 inches (using pandanus leaves).
- Sketch your ideas in your book and write about the aspect of the designs you like and dislike, giving reasons.
- Carry out some trial samples using different fibres and weaves before you start.

Having completed the construction of your household item you will need to evaluate:

- The process you used and the result you achieved.
- Anything you would do differently if you used the design brief again.

Making Woven Cotton Fabric On A Large Scale

Words to learn:

Computerised.

Loom.

Manufacturing.

Faults.

Impurities.

Scouring.

Household.

To produce fabric in bulk it is necessary to use a loom. An electric computerised loom would be used in a manufacturing mill producing many yards of fabric in an hour. After weaving, the fabric is checked to ensure there are no faults such as knots or loose threads. Fabrics at this stage are called greige or grey goods.

At this stage the fabric still has a lot of impurities and oil in it. It has to undergo a scouring process next, which prepares the fabric for dyeing.

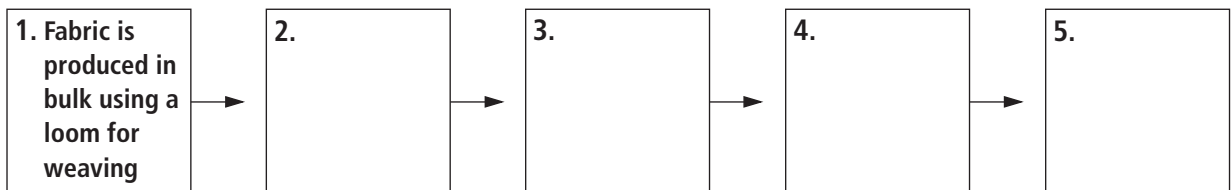
Did you know?

That fabrics have difficulty absorbing dye if there is any oil or grease on the fabric surface?

After the fabric has been scoured it is ready for dyeing or printing. Finally, the fabric undergoes finishing. As the name suggests, this means that the fabric is made ready for sale. Depending on the weight and type of fabric produced it may be used for household items like curtains, bedding, table cloths or clothing.

Preparing Fabric

1. Read the text above.
2. Draw a diagram like the one on page 13 that shows the process used to make fabric ready for customers. To do this, fill in each box with a sentence. The first one has been done for you.



Exploring Knitted Fabrics

Words to learn:

Underwear.

Bathers.

Comfortable.

Complicated.

Firmer.

Most of the fabrics we use today are constructed by weaving, knitting or bonding. The bonding technique will be investigated next year. Knitting has a looped structure unlike weaving where the yarns remain almost straight. For thousands of years, cloth was formed mainly by weaving. Knitting was not developed until about 400 years ago. Imagine the clothes we like to wear today that have some stretch in them (*e.g. Underwear, bathers, T-shirts*) being made out of woven fabrics that had little stretch. To give the garments shape they would have needed many seams and darts which would have made the garments bulky to wear. The development of knit fabric has enabled fashion designers to create garments which are far more comfortable to wear.



Diagram 1.10
Comfortable knit-wear.

Knitted fabric is made by looping one or more threads together. You may have done some knitting before. If you have, you will have observed how much more stretch a knit fabric has over a woven fabric. A knitted fabric is made on large complicated machines.

Weft knitting is when the yarn runs across the fabric making loops with the row underneath. This weft type of knitting is the type that hand knitters call stocking stitch — they do one row plain and one row purl. It is often the type of knit fabric that is used for T-shirts. It produces a fabric called single jersey.

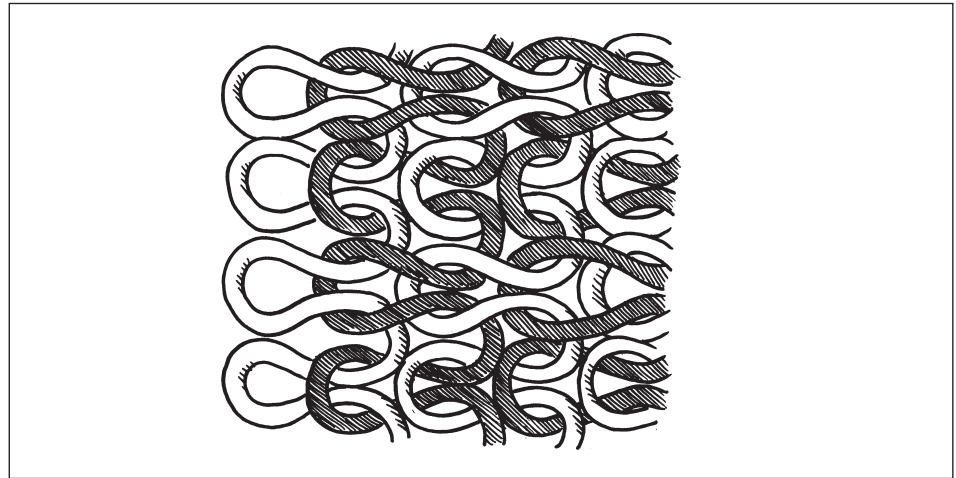


Diagram 1.11
Weft knit.

Rib knit or **ribbing** is a much firmer type of knit fabric. Both sides of the knit fabric look the same with the ribs of plain and purl stitch running up the fabric. It is a very elastic knit fabric which goes back into shape very easily after being stretched. It is often used on waistbands, neck bands and cuffs where the fabric has to stretch to allow a larger part of the body to pass through.

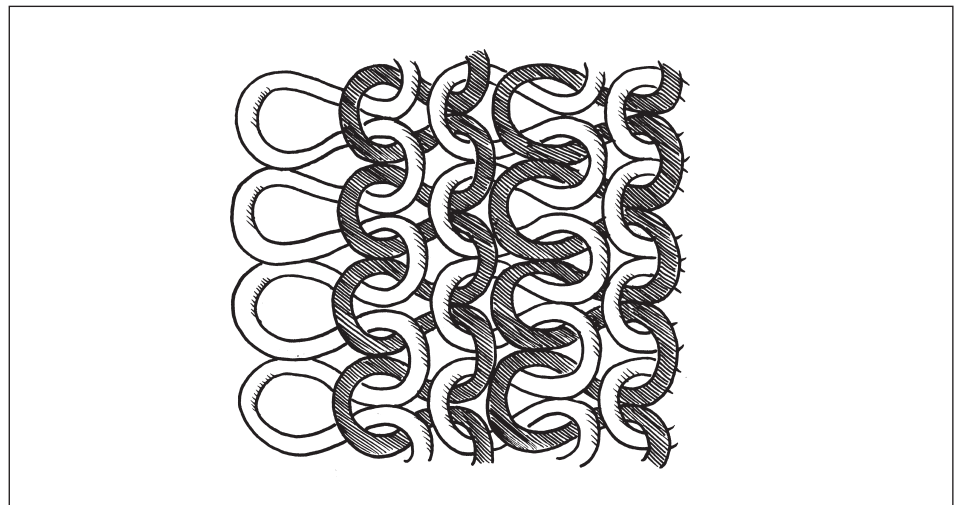


Diagram 1.12
Rib knit.

Double jersey as the name suggests, is made using two sets of needles, each with its own supply of yarn. This makes a knit fabric which is twice as thick as single jersey. It has less stretch than single jersey, being a much firmer fabric because of the two layers.

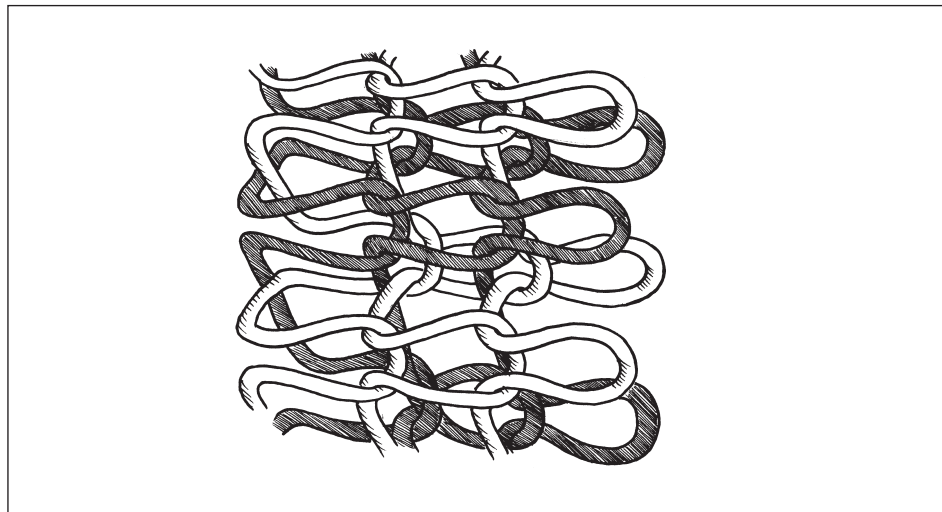


Diagram 1.13
Double jersey knit.

Warp knitting can only be produced on a knitting machine. The yarns run up the fabric like the 'warp' threads run up woven fabric. It can be made into very fine knit fabric which is firm and only slightly stretchy. One of the advantages of this type of knit is that it does not ladder.

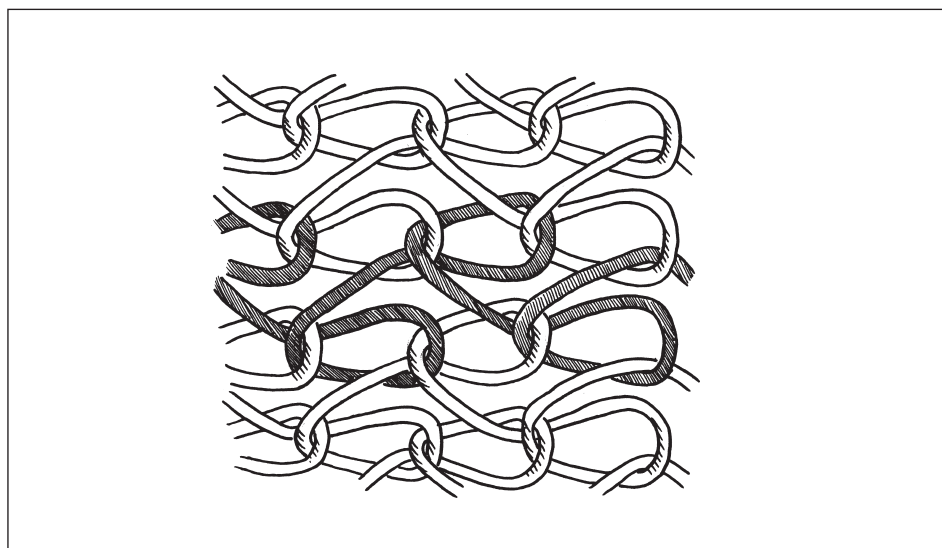


Diagram 1.14
Warp knit.

Comparing Characteristics Of Woven And Knit Fabric

| Characteristics of woven fabrics | Characteristics of knit fabrics |
|--|---|
| Two yarns which weave backwards and forwards through each other to construct the fabric. | One yarn which is looped backwards and forwards to construct the fabric. |
| The edge of the fabric frays. | The edge of the fabric unravels. |
| The fabric has little stretch unless cut on the bias grain. | The fabric stretches, particularly when weft knitted. |
| Woven fabrics have yarns arranged close together so the air cannot easily pass through. | Knit fabrics have gaps between the loops which allow air to pass through more easily. |

When we took a look at woven fabrics we experimented with some paper weaving to understand how the weaving process was carried out. To understand the characteristics of knitting it is best to try some basic plain knitting. Ask if there is someone in your family who can teach you to knit. Your teacher may be able to show you how to get started.

To be able to knit you need two knitting needles and some yarn. The most commonly used fibre for domestic knitting, in many overseas countries, is wool. Wool is a natural fibre and therefore has some similar properties to cotton, pandanus and coconut. We have not focused on wool fibre in this book because it is rarely used in Sāmoa.

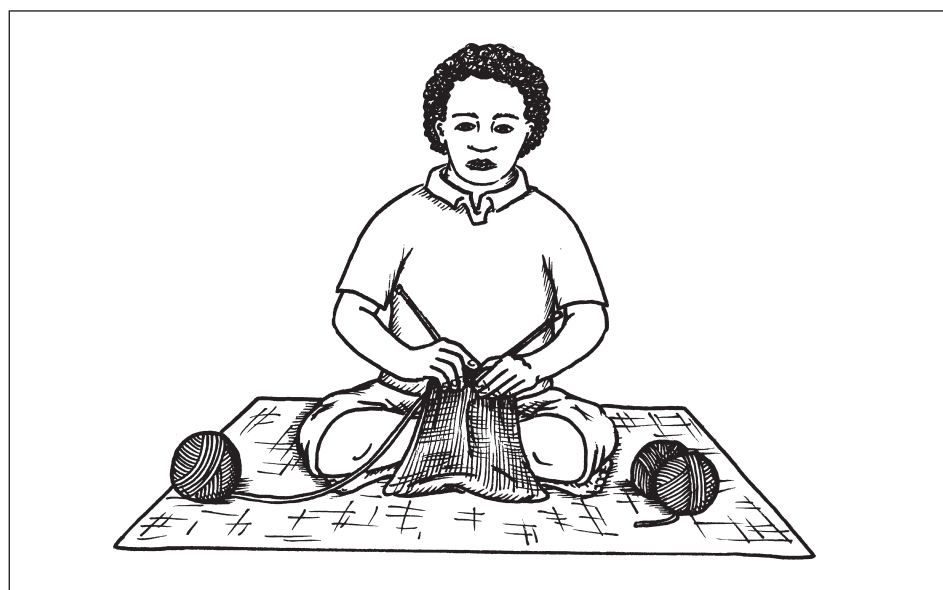


Diagram 1.15

Learning to knit takes a lot of practice.

It is used mainly for garments, blankets and carpets to keep people who live in cold climates warm. The knit fabric we use in Sāmoa is mainly made from cotton yarn or man-made yarns like nylon or polyester. We will explore man-made fibres in Year 10.

Activity 10

Examining Different Fabrics

You will need two small pieces of fabric about four inches square. One should be woven and the other knitted. Look at both fabrics through the magnifying glass, if there is one available to use. Gently unravel each of the fabrics. Observe how the fabric has been formed while you are doing this.

1. Hold each sample firmly and stretch it. Now, answer the following questions in your exercise book.
 - a. How are the threads in each fabric arranged?
 - b. Which fabric unravels more easily?
 - c. Which fabric stretches more?
2. Discuss the answers to the following questions with others in your group.
 - a. How does stretch affect the type of clothing made from a fabric?
 - b. How could the construction of a fabric affect the way a garment is washed or cleaned ?
 - c. In what ways have knitted fabrics changed fashion design?
 - d. Why are knit fabrics often easier to care for?

Putting Colour And Decoration Onto Fabric

Words to learn:
Structural decoration.
Surface decoration.
Matter.
Penetrate.

In the last section we discovered how colour and pattern can be put into a fabric by using different types of weaves or knitting stitches. When the pattern is built into the woven or knitted fabric it is called structural decoration.

The other type of decoration we use is called surface decoration. In this section we will explore how these methods of surface decoration can be used. We will explore simple techniques of block and resist printing: *e.g. Tie and dye and vegetable prints*. We will discover why these methods are suitable for natural fabrics like cotton, pandanus and coconut.

Life would be very drab without colour in fabrics. Natural fibres come in a range of whites, creams, greys, browns and occasionally black. We rely on dyes to give us variety and to give us the opportunity to express ourselves in colour choices.

Dyes are colouring matter which will penetrate fibres and stay there. Natural dyes have traditionally been made from plant and animal materials, such as oa, lama, mangroves, loa and ano, giving a range of soft colours.

Tie And Dye

Words to learn:

Resist.

Creative.

Solution.

Instructions.

Excess.

Varied.

Applied.

Surplus.

This is one of the earliest methods used to decorate plain fabric. It has always been a traditional method of dyeing fabric in India and other Asian countries. It is often known as resist printing. This is because string or rubber bands are tied tightly round the fabric and when the fabric is dipped into dye the fabric resists absorbing the dye in the places that are covered with string or rubber bands.

Another type of resist printing which also comes from Asia is Batik. With this method of dyeing wax is applied to the fabric before putting it into dye. The wax stops the dye from being absorbed by the cotton fabric. Very creative effects can be achieved by using the two different methods together.

The tie-and-dye process

- Tie up the fabric with string or rubber bands as tightly as possible. Here are some ways of tying up your fabric.

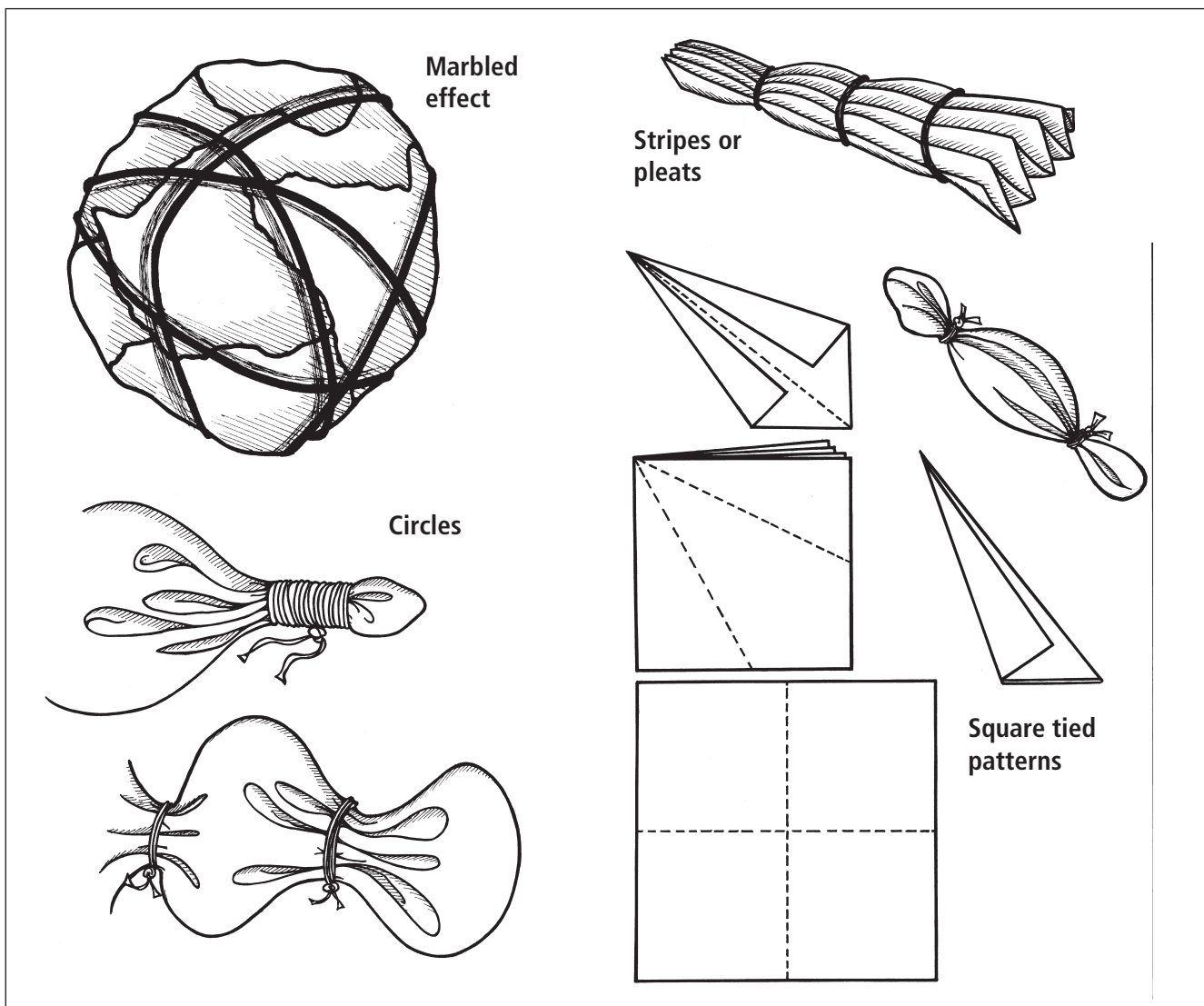


Diagram 1.16
Tie-and-dye — different patterns.

- Mix up the dye solution according to the instructions on the container. Be careful not to get any dye on your hands or clothes. Wearing rubber gloves and a plastic apron is the best way to protect your clothes.
- Wet the tied fabric in a bowl of water and then squeeze out any surplus moisture.
- Put the tied-up fabric in the dye solution and leave it to soak for about 15–20 minutes until it has a good colour
- Rinse in cold water to remove excess dye and leave to dry before removing the string or rubber bands.
- Iron the fabric to remove the creases that have been caused by the tying-up process.
- To create a more varied print you can repeat the whole process again, this time using a different coloured dye. You will create a fabric that has three rather than two colours in it.

Activity 11

Vegetable Prints

To make your vegetable print design you will need to use a hard vegetable. Potato or taro that can be carved on the cut surface — without causing the vegetable to fall apart — would be the most suitable. Follow the steps below to create your vegetable stencil.

Did you know?

You can create a very expensive and original piece of clothing by using very simple local materials to print or paint your fabric first: *e.g. Raw potatoes, banana stem, raw taro and raw taamu, green pawpaw and different types of leaves.*

1. Cut the raw potato in half.
2. Carve a design on each flat half of the vegetable. This will give you two different designs that you can place on your fabric. (Remember to use a cotton fabric to print your design on.)
3. Place the carved vegetable into the paint that has already been mixed in a container. (An ice-cream box makes an ideal container.)
4. Press the potato half onto the fabric in whatever arrangement you want.
5. It is wise to plan how you will arrange your design before you start.
6. You could use calico to print your design on or a plain coloured cotton fabric.

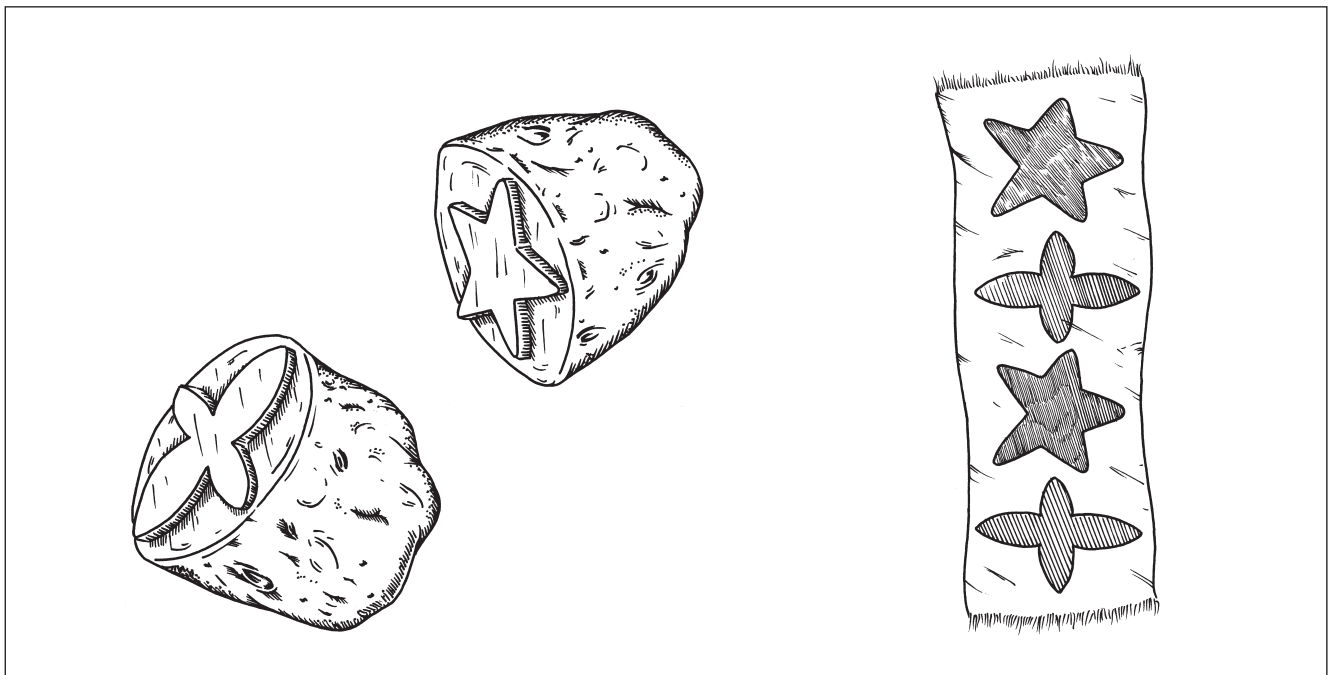


Diagram 1.17
Making a vegetable print.

You could follow the same steps when using banana stem or taamu. If you used half an under-ripe pawpaw you would not need to curve the surface. You would just remove the seeds from the middle.

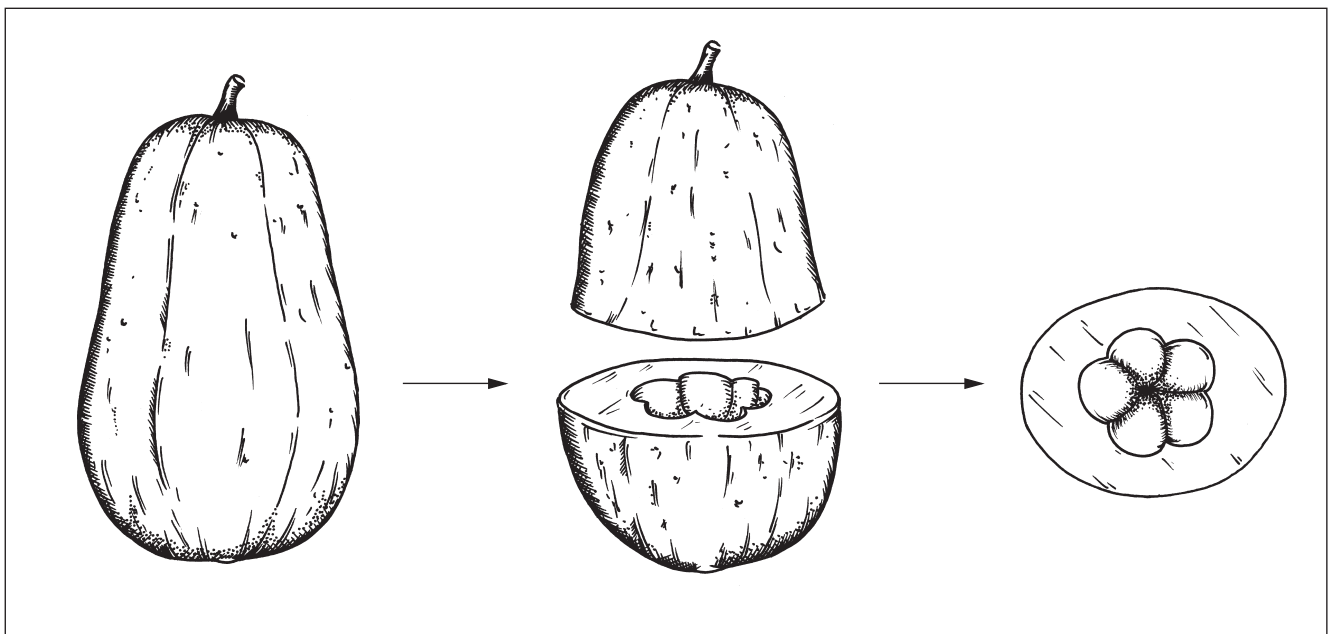


Diagram 1.18
Using a pawpaw as a stamp for a vegetable print.

You can also create interesting designs using different types of leaves

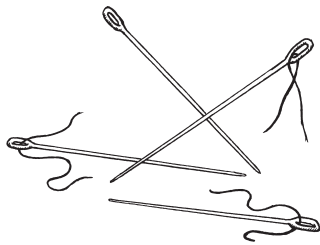
Sewing Equipment

Before you can start to create items with fabric you need certain basic equipment. The technological tools that we use to create clothing and items for the home have become more sophisticated over the centuries. This means that:

- It is cheaper to do your own sewing than to buy clothing and household items.
- You can make exactly what you need. You can choose the fabric you like, the colour you like and make it to fit the person or room exactly.
- You get the pleasure and satisfaction of making something attractive and useful.

Before you begin sewing, knowing what equipment is needed, how to use it and what it is used for, will help you carry out practical work more successfully.

Some items or equipment that you are most likely to use are listed on the following pages. As you develop your skills, you will want to use a greater variety of special items.



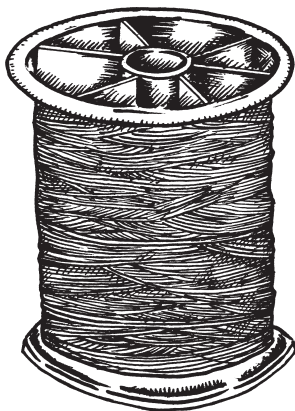
Pins and needles

Pins and needles are made from stainless steel and should not be rusty. Rust will stain the fabric and make it difficult for the pin or needle to pass through it. Rust frequently occurs because of the hot, humid, tropical climate of Sāmoa. Pins are used to hold pieces of fabric together until you cut or sew them.

Needles are used to take thread in and out of the fabric. Choose needles with eyes large enough for you to thread them easily. However, you need to take into consideration that it is difficult to make small hand stitches with a thick needle.

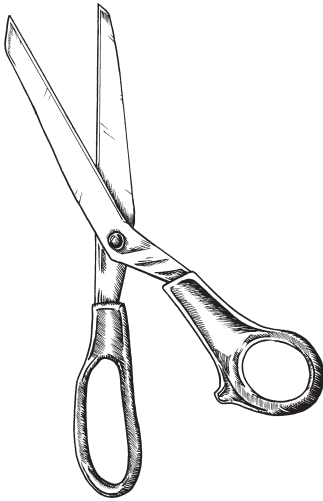
Did you know?

Early civilizations created needles from animal bones that were shaped and sharpened using stones.



Sewing thread

Sewing thread is bought on reels or spools. Thread may be made from spun cotton or synthetic fibres. Tropical climates can cause thread to rot so do not buy old stock in shops. Always try to sew fabric with thread of a matching or similar colour. Embroidery thread is bought in skeins and is used to sew decorative finishes on clothes and household articles.



Scissors

Cheap and expensive scissors are available in Sāmoa. Buy a pair as good as you can afford. A good pair of scissors will cut fabric from the point where the blades are joined, to the tips of the blades in one action. Do not use your fabric scissors to cut hair, paper or string as this will make them blunt quickly.

A tape measure

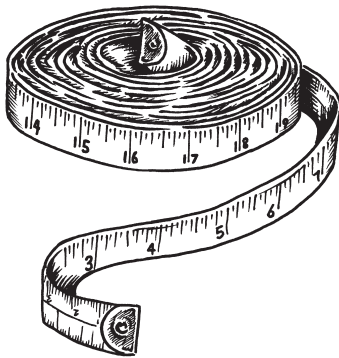
A tape measure is used for measuring the body and for measuring out the amount of fabric required for an item being made. You need to take body measurements to make clothes and a tape measure can bend around the curves of the body.

A thread unpicker

A thread unpicker is useful for unpicking stitches if something is sewn wrongly. It consists of a small metal cutter at the end of a short handle.

A tracing wheel

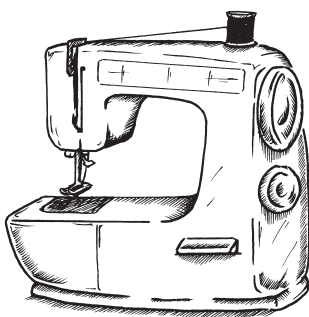
A tracing wheel consists of a small spiked wheel at the end of a short handle. It is used to transfer markings from a pattern onto fabric, so that you know where to sew.



A sewing machine

There are different types of sewing machines. A hand machine has a handle, which is turned to operate the machine. The hand machine is popular in Sāmoa for these reasons:

- It is the cheapest kind of sewing machine.
- It is portable. It can be carried around easily.
- It does not need electricity.
- It can be used on the floor of a village house just as easily as it can be used on a table.



The advantages of sewing machines are:

- They sew small, even, strong stitches.
- They are much faster than sewing by hand.

Activity 12**Investigating Sewing Machine Parts**

Your teacher will give you one of the following sewing machine parts to investigate:

| | | | |
|------------------|---------------|--------------|-----------------|
| handle | wheel | spool pin | guide |
| take-up lever | tension knob | foot lever | needle |
| teeth | bobbin case | bobbin | tooth regulator |
| stitch regulator | bobbin winder | needle clamp | pressure foot |

- You need to find out what it will do and be ready to describe the purpose of the part you have been given to others in your group.

Basic Stitches

Many people in Sāmoa cannot afford to buy a sewing machine, so it is good to learn to sew by hand. You can make clothes for the family and sew things for the home by hand. The following are the most common types of hand stitches.

The Tacking Stitch

Tacking is used to hold two or more pieces of material together temporarily. After a stronger permanent stitch is made, the tacking is pulled out.

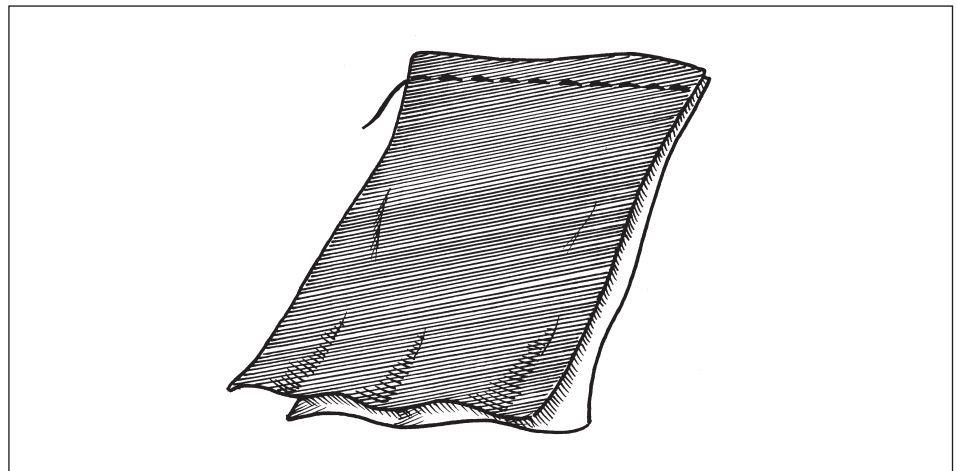


Diagram 1.19
The tacking stitch.

How to do tacking

1. Take a thread about 50cm long. Thread it through the eye of a needle. Make a knot at one end.
2. Make tacking stitches by going in and out of the fabric at distances of about 1cm apart.
3. Finish with a cross stitch which can be taken out easily.

The Running Stitch

The running stitch is used where gathering is required, such as gathering the top of the skirt into a band or easing a sleeve into an armhole.

How to do a running stitch

1. Begin by doing a double stitch, that is doing a stitch over and over in the one spot.
2. Make running stitches by going in and out of the fabric at distances about four threads (2 mm) apart
3. Finish with a double stitch or let the thread hang loose, so that you can pull it when you gather in the fabric.

The Backstitch

The backstitch is a very strong stitch. It is the most common stitch used when sewing garments by hand. It is used on a garment when you would otherwise use machine stitch.

How to do the backstitch

1. Begin with a double stitch.
2. Take the needle under about four threads and pull the needle through the fabric.
3. Return to the end of the previous stitch and take the needle under about eight threads.
4. Continue in this way. Return back over four threads each time and then come forward under about eight threads.
5. Finish with a double stitch. The stitches should be about 2 mm long.

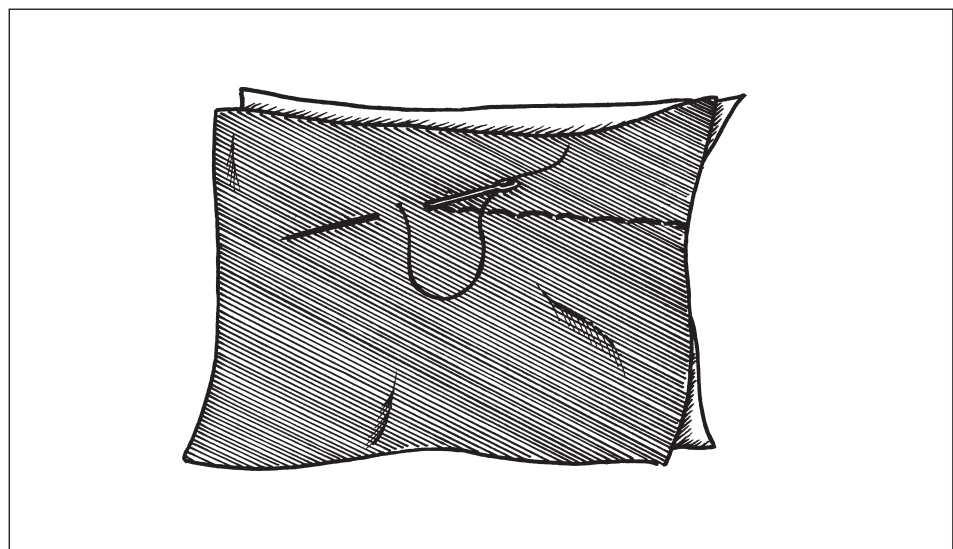


Diagram 1.20
The backstitch.

Hems

- A curved hem is used on garments with curved edges such as flared or circular skirts.
- The width of a hem can vary from 1 cm to 4 cm and should be even throughout.
- A well-worked hem should have no stitches showing on the right side of the garment.

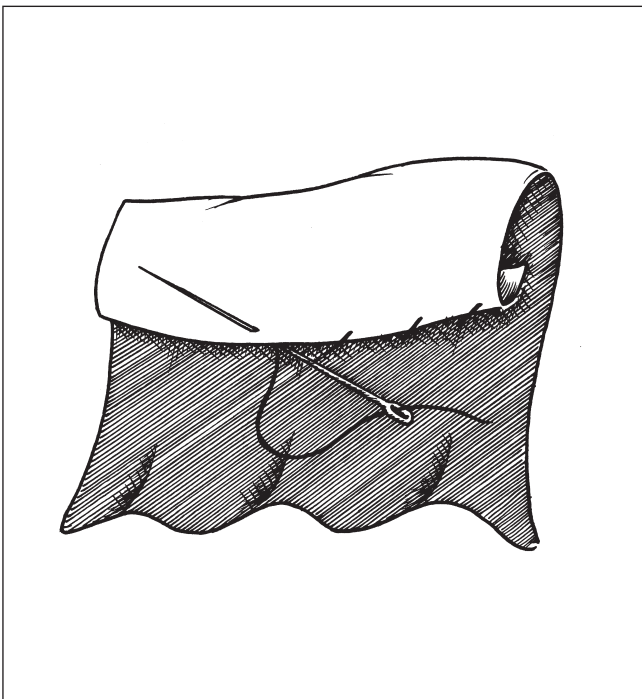
The two most common types of hems

The first of the common types of hems is **close hemming**, which is a close, slanted stitch used to hold down a folded edge. It is a strong stitch. It can be used on waistbands and collars.

How to make a close hem

1. Begin by securing the thread on the wrong side at the lower edge.
2. Hold the thread down along this edge.
3. Insert the needle through the front of the garment to the back side of the stitch.
4. Bring the needle out at the bottom edge keeping the thread behind the needle.
5. Pull the needle down and tighten the thread forming a stitch along the edge. Repeat the stitch again and again.

The second common type, **slip hemming**, is used to hold down long folded edges where strength is not needed. It is used on the hems of curtains and dresses.



How to make a slip hem

1. Begin with a double stitch on the edge of the hem.
2. Slip the needle and thread through the folded edge for 1cm.
3. Pull the needle through the fabric and make a hem stitch by picking up a thread from the single fabric just below the folded edge and then passing the needle through the folded edge.
4. Continue in this way with a slip of 1cm and a hem stitch.
5. Finish with a double stitch.

Diagram 1.21
The slip hem.

Selecting A Pattern For A Textile Item

The first thing to do when using any pattern is to decide if the pattern meets your needs and individual requirements. You may need to make simple style changes: *e.g. Use a waistband for shorts instead of a casing.*



Diagram 1.22

You must decide if you want to make changes to the pattern you are using.

Laying The Pattern On The Fabric

Words to learn:

Drafted.

Requirements.

Casing.

If the pattern has been drafted rather than bought at a shop, there will be no layout sheet. In Sāmoa, we often use patterns like this. It is important that we understand how the pieces should be placed on the fabric ensuring that we use every little bit of fabric so that we don't waste any.

To prepare the fabric:

- Gently pull the fabric down the length of the grain, laying it flat on a table or floor.
- Pin the selvedge edges together to make sure that the fabric is straight. Remember the lengthwise and crosswise threads run exactly at right angles to each other.
- Make sure the garment is cut correctly on the grain. Garments cut correctly hang well and keep their shape. If the crosswise yarn curves toward the fabric's centre, the fabric is off grain.

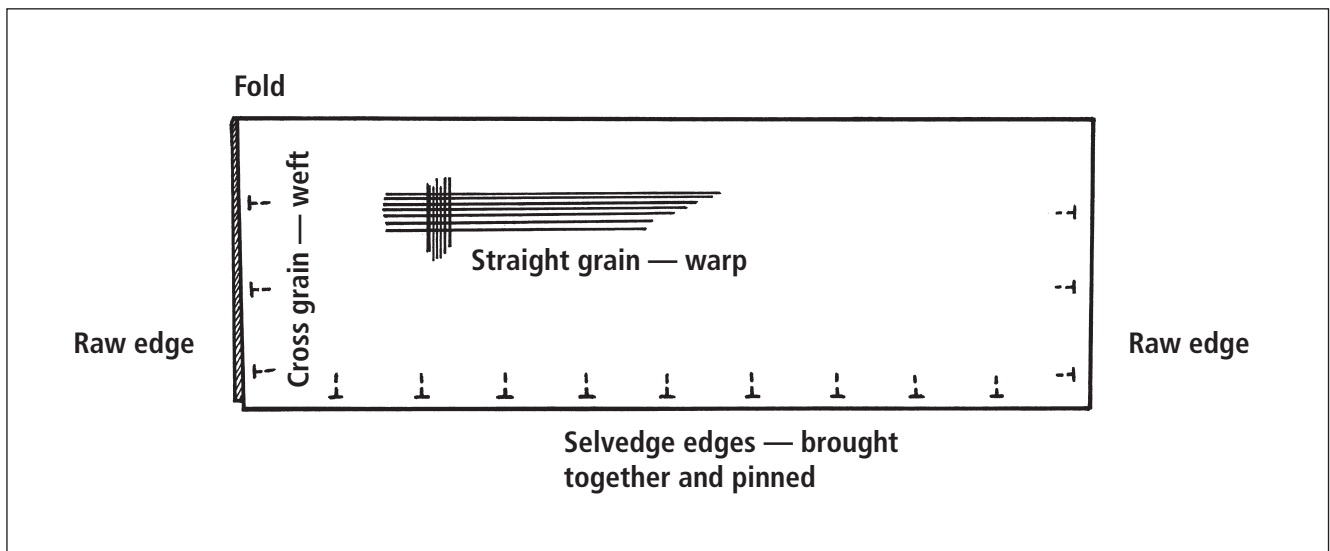


Diagram 1.23
Fabric folded in half.

Usually, pattern pieces are cut on double thickness of fabric. This is because it is either a half-piece, such as the back, or because two pieces are needed: *e.g. Sleeves.*

When only one piece of a pattern is required (*e.g. A waistband*) it should be cut on single material.

Did you know?

Fabrics come in three widths? They are: 36 inches /90cm, 45 inches/ 115cm and 60 inches/150cm. As a general rule the wider the fabric, the less you will need to buy.

The layout below shows how the pattern pieces for the top of a puletasi could be placed on fabric that is 45inch or 115cm wide.

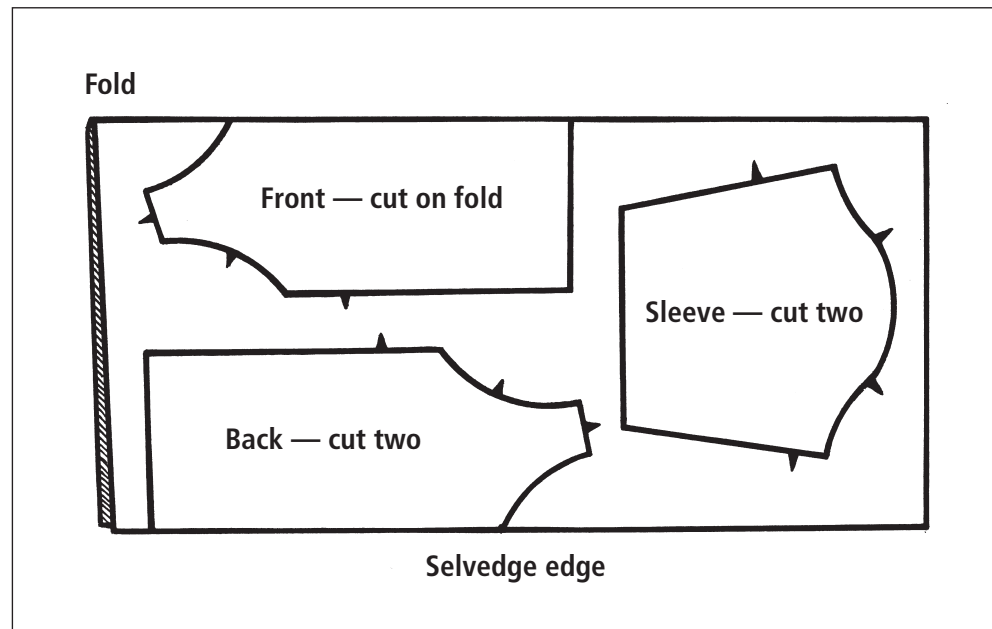


Diagram 1.24
Laying out your pattern on fabric.

When positioning the pattern pieces on the fabric, start with the largest pieces first. Then fit the smaller pieces around them.

Now look at how the same pattern pieces would need to be placed on fabric that was only 36inches/90cms wide.

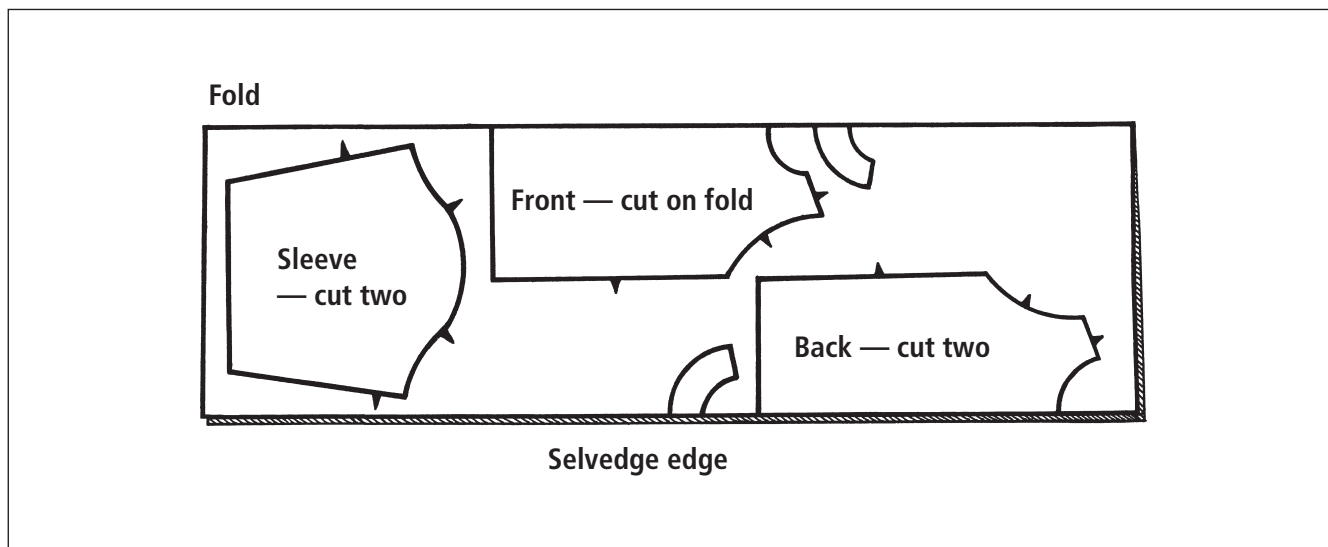


Diagram 1.25
Laying out your pattern on a different size fabric.

Pinning The Pattern To The Fabric

Words to learn:

Assemble.

Facings.

Grainline.

Interfacing.

Evaluation.

Identify.

- Assemble all pieces needed for your view.
- Cut apart small pieces, such as facings and pockets.
- Do not trim the extra margin that surrounds cutting lines, this is useful for alterations.
- Check how many times each piece is to be cut.
- Press pattern pieces with warm iron if wrinkled, otherwise smooth with hands.
- Alter pattern if necessary.
- Check overall garment length.
- Consider possible style changes.

Having decided how to position your pattern pieces on the fabric, the next step is checking that each pattern piece is pinned on the straight grain. To do this you will need to:

- Place a pin through one end of the grain line arrow and the fabric.
- Measure the distance from the straight grain arrow to the selvedge edge.
- Measure from the other end of the grain line arrow to the selvedge edge, adjusting the paper pattern on the fabric if necessary. The distance between both ends of the grain line arrow and the selvedge edge should be the same.

This process is shown in the diagram below. The same process of pinning pattern pieces on the straight grain needs to be repeated for each pattern piece.

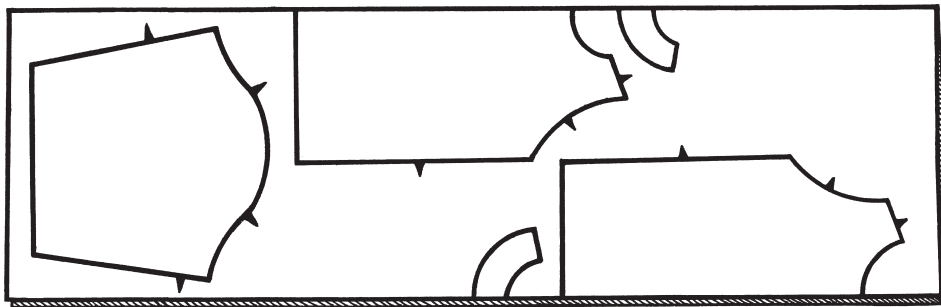


Diagram 1.26

The process of placing your pattern.

If you have a pattern piece which needs to be cut on the fold you do not need to measure from the grain line to the selvedge because the folded edge will be running parallel to the selvedge. This means the folded edge is on the straight grain because you have prepared your fabric correctly for cutting out using the method described on page 39.

Having secured the pattern pieces to each end of the grain line arrows you should then place a few more pins with their points facing inwards to secure corners and notches. Try to avoid using too many pins as this can distort the fabric and make it difficult to cut accurately.

Before starting to cut out pattern pieces, re-check your placements. Cutting is a crucial step, not to be done in haste.

Activity 13

Basic Cutting

The general order of cutting is from left to right and fold to selvedges. A firm hand on the pattern while cutting should give help to control fabric and stop it from moving. When cutting, always keep the fabric flat on the cutting surface and use sharp scissors.

If the garment requires some pattern pieces to be interfaced remove the pattern and re-pin each pattern piece to the interfacing.

1. Why should you place pins in the fabric with their points facing inwards?
2. Why should you only use a small number of pins when placing the pattern on the fabric?
3. Why is it important to use rust-free pins and sharp scissors when cutting out fabric?
4. Working with another student, take it in turns to pin a pattern piece onto the straight grain of a fabric sample. Check each other's work. Your teacher will supply you with a pattern piece, fabric, tape measure and pins.
5. Working with a group of three or four students explore the fabric which is used to interface a garment. Look closely at a piece of interfacing and discuss with a friend how the fabric has been made? Does it have a weave?
6. What fibre could have been used to make it?
7. Why do some pattern pieces have interfacing ironed-on or sewn on to them?
8. Discuss, in a small group, the advantages and disadvantages of using ironed-on interfacing. Handling the interfacing should give you some clues about how it has been made.

Copy and complete (by ticking the yes/no column) the table below in your exercise book.

| Process | Checks | Yes | No |
|----------------|--|-----|----|
| Layout | Is the fabric ironed? | | |
| | Is the fabric folded on the grain line? | | |
| | Do pattern pieces match the grain line? | | |
| | Are the pattern pieces correctly pinned out? | | |
| | Are the pattern pieces laid out in one direction? | | |
| Pinning | Are the pins correctly placed with points facing inwards? | | |
| | Are the pins placed on the grain line, fold line, corners and notches? | | |
| Cutting | Is the fabric cut from left to right? | | |
| | Are the notches cut out correctly? | | |
| | Is the interfacing cut out correctly? | | |

Meeting The Requirements Of A Design Brief

Words to learn:

Design brief.

Recycled.

Adaptations.

Fastenings.

Notches.

Construct.

Layout sheet.

Your teacher will give you a design brief. Use the basic techniques and processes you have learned to make an item of clothing.

Points to consider before you choose your garment. Have you:

- Saved enough money to buy the fabric needed?
- Any old clean material that can be recycled?
- Thought about the cost, time, and skill required to make your chosen practical project?
- Thought about any ideas for adaptations that could make the garment unique to you?
- Thought about the end use of the product, so that you select the best finishes to use?

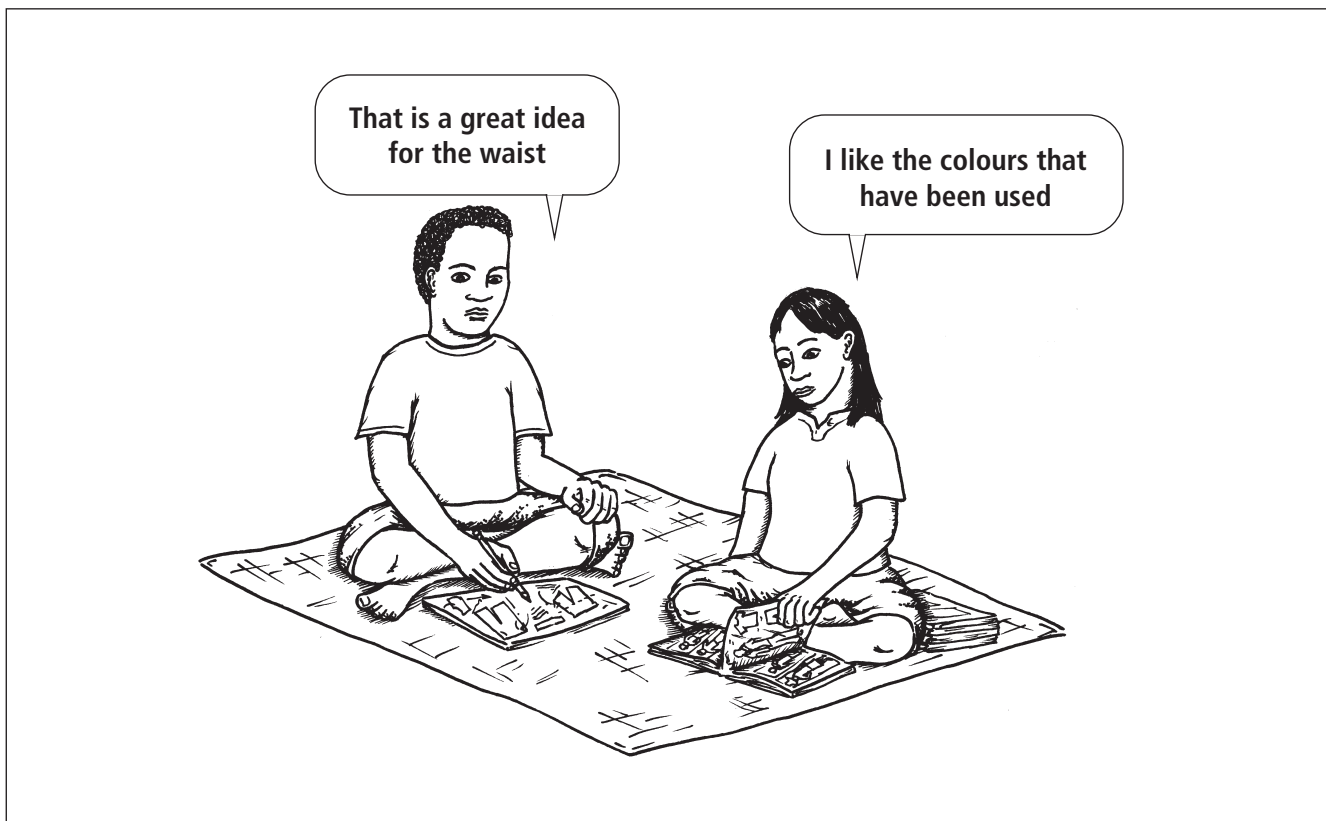


Diagram 1.27
Considering a design brief.

This practical project will involve:

- Cutting out a pattern on the straight grain.
- Matching notches.
- Pinning and tacking seams together.
- Using a sewing machine to construct open-machined seams.
- Using hand stitching to complete a hem.

Here are some steps you will use to construct your garment once you have cut out your fabric. It is important to follow each stage in the instruction sheet provided. If you do not have an instruction sheet your teacher will help you.

- Match any notches on the fabric and join the pieces together by placing pins horizontal on the seam line: *e.g. 1.5 cms or 5/8 inch from the raw edge.*
- Tack down the seam line.
- Use a plain seam to join the pieces of pattern together. To do this you need to place the edges together. The right sides of the fabric should be facing. Machine stitch beside the tacking stitches. Remove the tacking and press the seam open. Turn under 0.5 cm or 1/4 inch and machine close to the folded edge. The hem of your practical project should be slip stitched to practise the technique described on page 46.

The diagram below will help you work through the process of joining seams by machine. When you have completed your design brief you will need to carry out an evaluation.

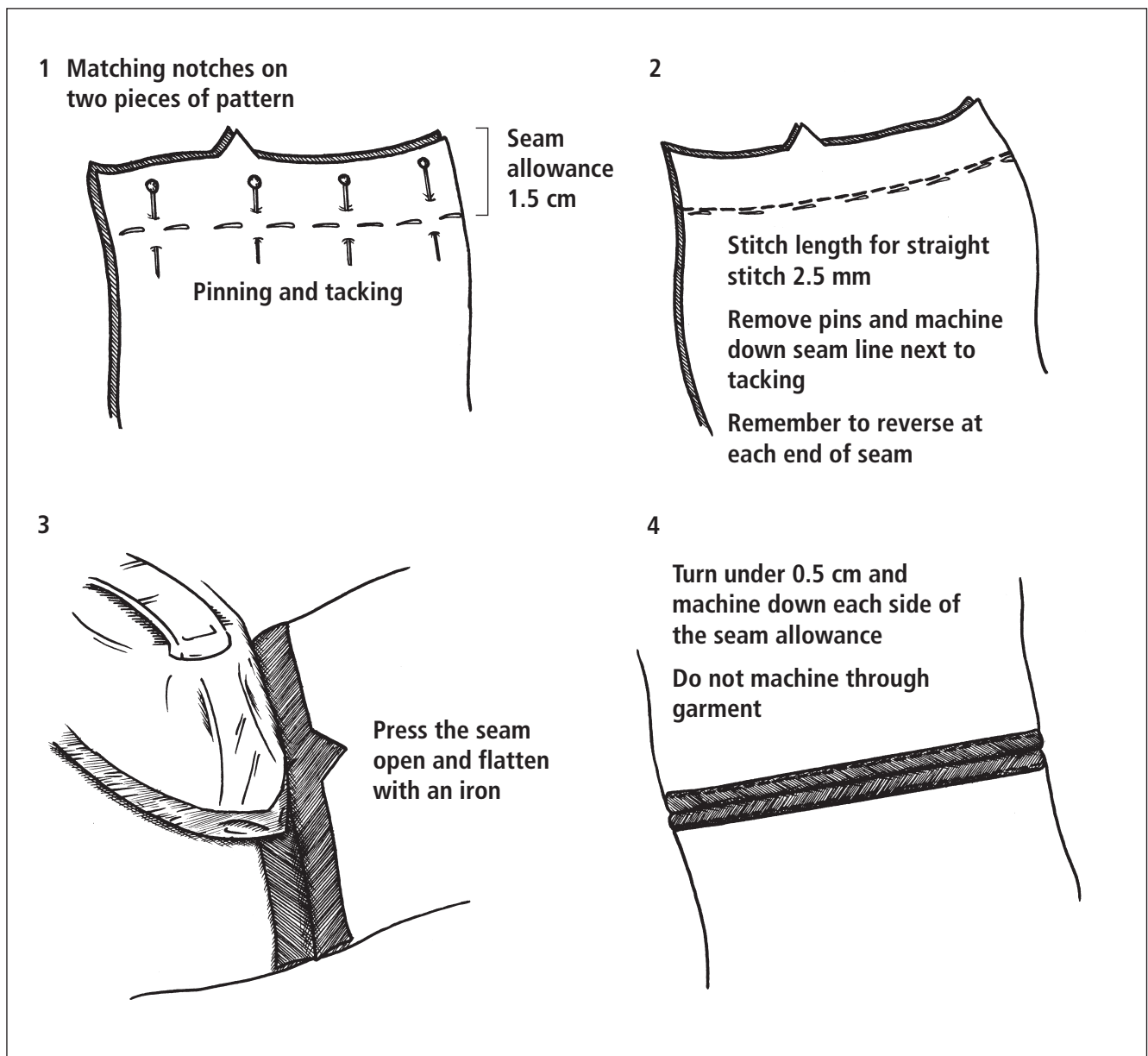


Diagram 1.28
The process of joining seams.

| Please tick the appropriate box under 'yes' or 'no' | | | |
|---|--|-----|----|
| | | Yes | No |
| Exploring ideas | Was enough time spent exploring ideas that would meet the design brief? | | |
| Layout | Was the fabric correctly prepared for layout. Was the fabric fold on grain line? Did the pattern pieces match the grain line? | | |
| Cutting | Were the pattern pieces suitably placed and pinned on the fabric? | | |
| | Was the fabric cut from left to right? Were the notches cut out correctly? | | |
| Preparing seams for machining | Were seams correctly pinned and tacked before machining? | | |
| Neatening | Were the seams correctly neatened? | | |
| Fastenings | Were suitable fastenings used on the garment? | | |
| Hem | Was the hem stitched so it was invisible on the right side of the garment? | | |

Activity 14

Evaluation

Check your garment and note down your answers to the following points in your exercise book:

1. What skills are you now good at?
2. What skills need to be improved?
3. Are you happy with your finished article?
4. If you were to make your garment again what changes would/could you make?

APPENDIX I: WEAVING

Polasisi (Blinds For The Sāmoan Fale)

There are many uses for the coconut tree. The leaves are very useful for making things such as polasisi, polavai, food plates, and hats. Polasisi are used as protection from rain or sun. Below are some instructions that may be helpful to follow in the future if you want to experiment with traditional crafts.

How to make Polasisi

1. Cut leaves from the tree.
2. Spread them out in the sun to dry for two days.
3. Measure the distance from one post of a Sāmoan fale to another.
4. Cut the coconut leaf in half lengthwise, approximately 120 cm.
5. Shave the stem with a knife to smooth it for making the base.
6. Put together the two halves so that the leaves from one face up, the other face down.
7. Then weave the base using the twill weave, beginning at the end of the base.
8. Continue to weave, until the blind is approximately 50 cm deep.
9. Leave 30 cm at the end of each single leaf. Plait this so that the blind does not unravel. Tie the ends with a knot.

To hang your blinds

You will need three pieces of string or afa (sinnet, approximately 50 cm long).

1. Tie the three pieces of sinnet along the 'amopou' of the Sāmoan fale.
2. One on the right side, one in the middle and one on left side.
3. Tie the first blind by pulling the afa/sinnet through the base end and the plaited end facing down.
4. Tie the second blind by pulling the sinnet through the plaited end.
5. Continue until you finish six or seven blinds.
6. Then use the middle afa to tie them up together.
7. When it rains or the sun gets too bright you can let the blinds down.

How to make Polavai

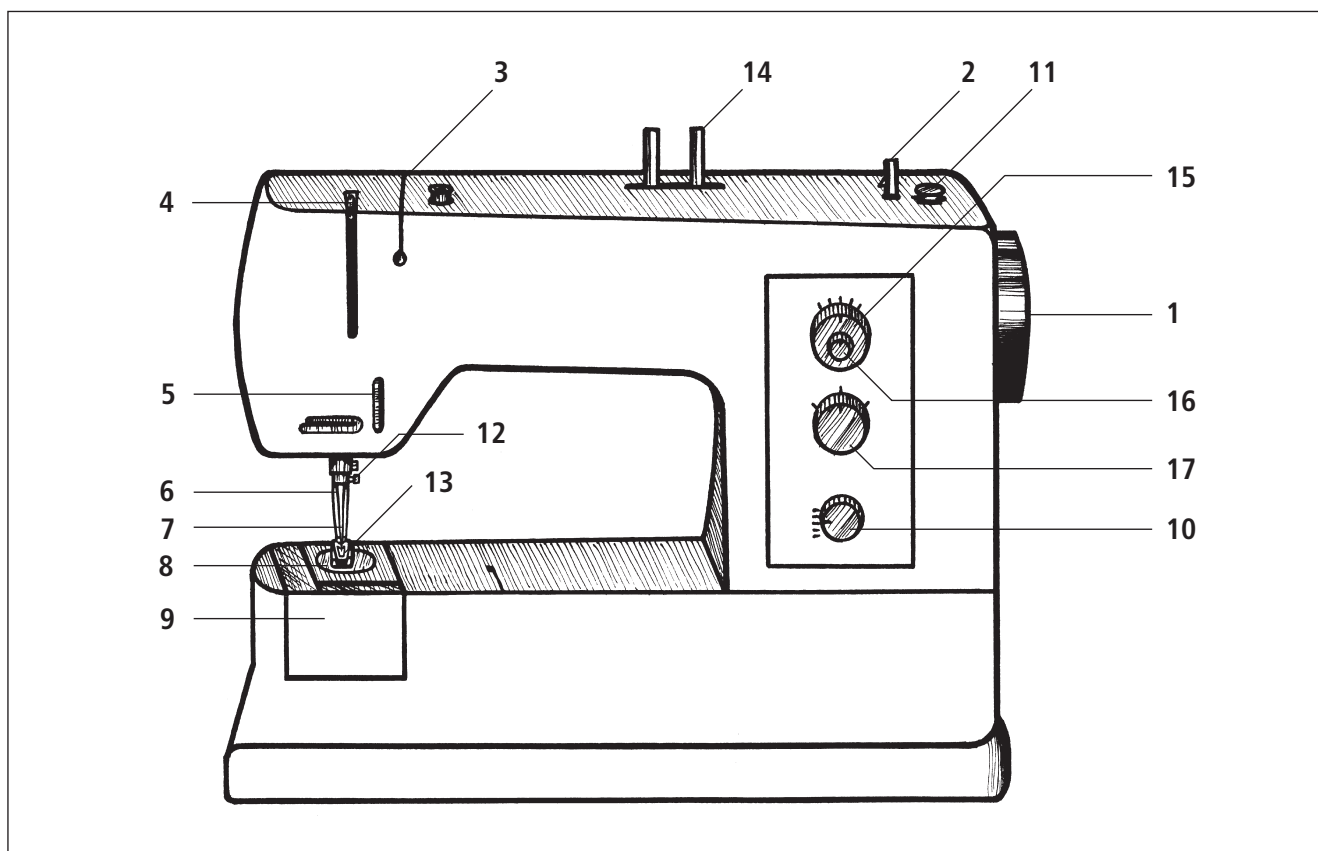
Polavai is a type of woven earth floor cover made of coconut leaves. It is used as a first layer to cover the floor when a new Sāmoan fale'o is built. It is good to cover the dirt floor of a village fale with polavai then the second layer with mats (papa). The skills used in making polasisi are also used in polavai, but polavai weaving is coarser.

1. Cut two leaves from the tree.
2. Remove the thinner layers from the stem on both sides.
3. Bind the two layers together, approximately 180 cm long.
4. Do the same with the other leaf.
5. Turn the right side up of the first bundle.
6. Turn the left side down of the second bundle.
7. Start to weave the base using the twill weave.
8. Start to weave one side first using the plain weave then plait it. Tie the ends with a knot.
9. Then do the same with the second side.
10. Put it out in the sun to dry.
11. Use it to cover the dirt floor of the fale.

Other household items like mailo, ili, mats and serviette rings can also be woven using twill weave or satin weave.

Parts And Functions Of A Sewing Machine

| Part | Function |
|---------------------------|--|
| 1. Handwheel | Raises and lowers the needle. |
| 2. Spool pin | Holds the reel of thread. |
| 3. Guide | Guides the thread in the right direction. |
| 4. Take-up lever | Takes up more thread from the reel after each stitch is made. |
| 5. Tension knob | Controls the tightness of the upper thread. |
| 6. Foot lever | Raises and lowers the pressure foot. |
| 7. Needle | Takes the thread in and out of the fabric. |
| 8. Teeth | Moves the fabric along after each stitch. |
| 9. Bobbin case | Holds the bobbin, which holds the lower thread and controls its tension. |
| 10. Stitch regulator | Controls the length and direction of the stitches. |
| 11. Bobbin winder | Winds the thread onto the bobbin. |
| 12. Needle clamp | Holds the needle firmly in position. |
| 13. Pressure foot | Presses the fabric against the teeth. |
| 14. Stitch type selector | Lets you select plain or fancy stitching. |
| 15. Stitch adjusting knob | Lets you choose between stright and zig-zag stitching. |
| 16. Needle positioner | Moves the needle from centre to left or right. |
| 17. Button hole adjustor | Allows you to change the length of a button hole. |



YEAR 9 GLOSSARY

| Word/phrase | Meaning |
|----------------------------|--|
| Absorbent | Able to soak up liquid. |
| Adaptations | Changes made to the original of something. For example, you might make adaptations to a pattern to change the shape. |
| Applied | Put on; spread over. |
| Atoms | The smallest parts of any form of matter. |
| Bark | The outside part of a tree trunk or branch. |
| Bathers | Clothes for going swimming. |
| Bobbins | Reels for holding thread. |
| Bundle | A bunch of things, usually tied together. |
| Casing | Folding over the edge of a garment wide enough to make a turning through which elastic can be threaded. |
| Cellulose | Plant fibres. |
| Checkerboard | A criss-cross pattern like the one on a draughts board. |
| Coarsest | Roughest, stiffest. |
| Comfortable | At ease, relaxed, happy. |
| Complex | Complicated, difficult. |
| Complicated | Difficult, complex. |
| Computerised | Done by a computer. |
| Conductor (of heat) | Material that lets heat through. |
| Connected | Joined, linked, related. |
| Construct | Build, fit together. |
| Creative | Original, imaginative, artistic. |
| Decorative | Pretty, attractive, ornamental. |
| Delicate | Fine, fragile, easily broken. |
| Denim | Hard wearing cotton fabric used for jeans. |
| Design brief | Instructions about the product you have to make. |
| Developments | Improvements, advances. |
| Diagonally | Crosswise, on an angle or slant. |
| Discover | Find out. |
| Dissolve | Melt. |
| Drafted | Designed, drawn by hand. |
| Emotional | To do with your feelings. |
| Enhancing | Improving, helping. |

YEAR 9 GLOSSARY

| Word/phrase | Meaning |
|----------------------------|---|
| Evaluation | Assessment, judgement about how well something worked. |
| Excess | Extra, unwanted or not needed. |
| Experience | Feel; take part in. |
| Fastenings | Ways of tying a garment, such as buckles, buttons and hooks. |
| Faults | Things that are wrong, flaws. |
| Fibres | Threads; strands of plants that can be woven into threads. |
| Filaments | Threads, strands, strings, fibres. |
| Finest | Softest, most delicate. |
| Firmer | Harder, stiffer. |
| Fit for the purpose | Does what it is meant to do; serves the purpose; does the job. |
| Harvested | Gathered, picked. |
| Household | Used around the home, domestic; |
| Impurities | Dirt; things that pollute or contaminate. |
| Interlacing | Connecting, intertwining. |
| Layout sheet | Pattern or information sheet telling you how to make the garment. |
| Loom | A machine for weaving thread into fabric. |
| Loops | Circles of fibre in a fabric. |
| Magnifying | Making bigger, enlarging. |
| Manufacturing | Making (by machine); production in a factory. |
| Matter | Substance, material, stuff. |
| Miniature | Tiny, little, very small. |
| Moisture | Damp or wetness. |
| Notches | Points that stick out on the side of a paper pattern that show where you have to match seams. |
| Observe | Look at, see, notice. |
| Organises | Sorts, arranges. |
| Penetrate | Soak into. |
| Physical appearance | What something looks like. |
| Polymers | Long lines of atoms that make up fibres. |
| Popular | Well-liked, common, accepted, widespread. |
| Preparation | Getting ready. |
| Problem | Difficulty, challenge. |

YEAR 9 GLOSSARY

| Word/phrase | Meaning |
|------------------------------|---|
| Process | Method, way of doing something. |
| Product | Something that has been made or produced. |
| Property | Feature, quality, characteristic. |
| Protection | Shelter, defence. |
| Qualities | Features, properties, characteristics. |
| Recycled | Able to be used again, sometimes in a different way. |
| Requirements | Needs; what has to be done. |
| Resists | Prevents something from happening; fights against it. |
| Resistant | Not affected by something. |
| Resources | Things that are available to be used. |
| Scouring | Cleaning something by rubbing another material against it. |
| Shrink proof | Will not get smaller if wet. |
| Soifua mālōlōina | Your health and well-being. |
| Solution | An answer to a problem <i>or</i> a liquid that has had something dissolved in it. |
| Spun | Twisted. |
| Sticky | Humid, muggy. |
| Structural decoration | When a pattern is built into a woven or knitted fabric. |
| Structures | Forms or arrangements. |
| Surface decoration | Adding a pattern e.g. by tie and dye. |
| Surplus | Extra, not needed. |
| Temperatures | How hot or cold something is. |
| Uncomfortable | Embarrassed, not at ease or relaxed. |
| Underwear | Clothes worn underneath other clothes. |
| Varied | Mixed, different. |
| Yarns | Threads, fibres. |
| Zigzag | A pattern that goes from side to side on an angle. |

