



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

## **Exemplar for Internal Achievement Standard Technology Level 2**

This exemplar supports assessment against:

**Achievement Standard 91346**

**Demonstrate understanding of advanced concepts used to make textile products**

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	<p>For Excellence, the student needs to demonstrate comprehensive understanding of advanced concepts used to make textile products.</p> <p>This involves discussing why particular materials and construction techniques are used to create high-quality special features in textile products.</p> <p>This student has discussed how the construction of high quality special feature seams will differ depending on the type of fabric and the desired finished effect. The focus is on French and lapped seams.</p> <p>The discussion of French seams included how they are constructed (2), when they are used, and how they contribute to a high quality finish (3). The student discussed the use of French seams in garments where the fabric is delicate, sheer, and/or frays easily, when the inside of the garment can be on show, and when the garment might be washed a lot.</p> <p>In contrast, the student discussed how lapped seams are ideal for bulky fabrics that do not fray (4). The student explains how they are constructed when using leather or suede (5). The discussion carries on with general construction methods (6) and variations of the seam to suit particular parts or types of garments (7) (8) (9) (10).</p> <p>For a more secure Excellence, the student could have compared and contrasted the two different types of seams more explicitly. That is, instead of the discussion being about one seam and then the other, the two seams could have been compared and contrasted while focussing on a range of fabric types, parts of garments, and purposes of garments.</p>

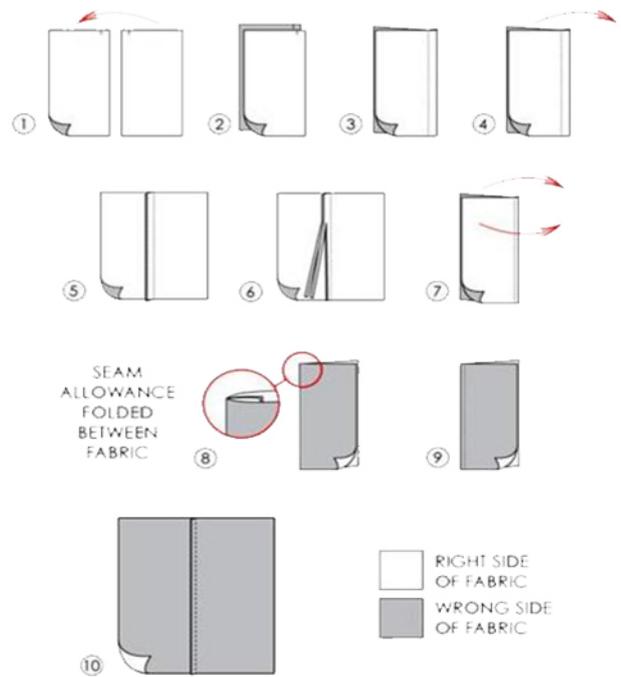
**[1]** The most common sort of seam that is used is a plain seam.

This plain seam can be made into a special feature by inserting piping or cording into the seam. This is an embellishment that defines the edges or style lines of a garment. It is more commonly used on upholstery and pillows, but also used on garments.

**[2]** In a **French seam**, the raw edges of the fabric are fully enclosed for a neat finish. The seam is first sewn with wrong sides together, then the seam allowances are trimmed and pressed (or you could over-lock close to the edge instead - the seam would not need trimming them). A second seam is sewn with right sides together, enclosing the raw edges of the original seam.

**[3]** This sort of seam will be used on delicate fabric that easily frays or on sheer fabrics (where the inside finish will be noticed from the outside of the garment). It provides a clean, finished high quality/professional look on the inside of a garment and stops the garment from ending up with frayed seams. Because the seam is entirely concealed, this seam can be used when threads would distract from the integrity of the design.

It is often used on light women's shirts (eg muslin) and lingerie (eg silk). It is also a good seam for delicate skin, as there are no irritating frayed edges or trailing threads - particularly so for garments worn close to the skin.



A French seam is also good for garments where the seams are going to be exposed, like an unlined jacket.

French seams are also practical for garments that are going to get washed a lot.

**[4]** In a **lapped seam**, the two layers overlap with the wrong side of the top layer laid against the right side of the lower layer. Lapped seams are typically used for bulky materials that do not fray, such as leather, suede, felt, fleece and heavy wools. The finished effect is a clean, flat seam with an exposed raw edge that creates a style that is modern and organic.



**[5]** For leather and suede, use a leather needle, a slightly longer stitch (shorter stitch for finer fabric) and polyester thread. Sew with a roller or walking foot that won't stick to the fabric when sewing.

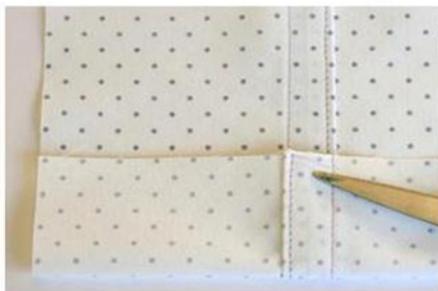
Press leather and suede with a dry iron and use brown wrapping paper as a pressing cloth. Use a steam iron for most other fabrics.

**[6]** All the pieces should be cut to the 1.5cm seam allowance.

The outside piece that will have the exposed seam should have most of the seam allowance trimmed back—use a rotary cutter and straight edge ruler. Now mark (with chalk a 1.5cm line on the wrong side of this same piece. Lap it over the under piece. Hold the two pieces in place with basting, glue stick or double sided basting tape. The lap will be edge stitched and possibly top stitched, both usually with a longer stitch (whatever looks best). The single stitch seam line will give a more clean modern look. The double stitched line is good for when a strong durable seam is needed.

**[7]** Alternatively, the piece that is going to sit on top is folded under on the seam allowance and then placed on top of the seam allowance strip marked on the under piece. This means that the raw edge is not exposed, so works well with less bulky fabrics (where three layers of fabric is OK). This can be used when sewing a plain seam is difficult eg a shirt yoke, V neck, or curved pieces or small areas in woven and knitted fabric.

**[8]** Another way of creating the lapped seam is to sew a plain seam, overlock one side to neaten it, trim back the other side, fold the over-locked side over the trimmed side. Top stitch on the outer side as desired (use the seam line as a guide). This is often used on outer garments like jackets, or on sportswear, or it is a version of a seam that is often found on jeans. It is used because of its strength.



**[9]** This is called a **turned lapped seam**. If it is edge and top stitched, then it will look identical on the inside as the outside, so is perfect for reversible garments. You can also layer two fabrics together, to get a different fabric on each side. This layering would end up with lots of layers of fabric in the seam, so definitely not good for thick fabrics.

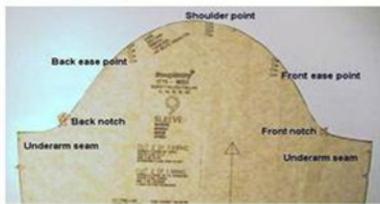


**[10]** Here is a turned lap seam has been used to attach the yoke to the body of the coat.

A flat lap seam (no turning under) was used down the middle of the yoke. This was to show off the effect of the unique salvaging.

	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to demonstrate in-depth understanding of advanced concepts used to make textile products.</p> <p>This involves explaining how the construction of special features changes when using different types of textile materials.</p> <p>This student has explained what a set-in sleeve is, and how it might lie flat or rise up, depending on the physical and functional attributes sought (1). The significance of notches was explained (2).</p> <p>An explanation was given for how the gathering/easing of the sleeve is done. This includes how the length of the stitch and the number of rows depends on the weight and texture of the fabric (3). Pinning was presented as an alternative to gathering (4).</p> <p>The student explained an alternative method for setting in the sleeve when working with fabrics that have little stretch (5). This included explaining why a second row of reinforcing stitches may be required (6).</p> <p>The student also gave an explanation for how the finishing techniques might change depending on the fabric. The explanation included pressing and trimming, and neatening raw edges (7).</p> <p>The student also explained how the construction of other special features changes when using different types of textile materials. The focus was on pockets.</p> <p>To reach Excellence, the student could have focussed more on different types of fabric, and how construction changes accordingly. A greater range of special features could have also been explored.</p>

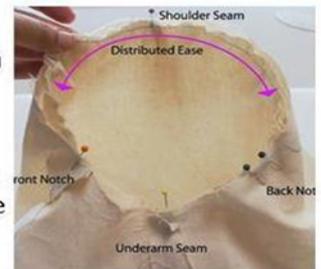
**[1]** A set-in sleeve is when the sleeve is at or near the natural edge of the shoulder. It is often used in coats and shirts because of its more professional and natural look. It can either lie flat, as it would in a man's formal suit jacket, or be gathered so it rises above the garment edge in a girly-type dress. Whatever way, the top of the sleeve piece is larger (wider) than the armhole opening (more so for the sleeve that rises). This is to give room for the garment to be fitted over the arm, and to allow for movement in the shoulder. A fabric that has stretch would not have that rise - unless it was for aesthetic purposes. The fabric plays a big part in inserting set-in sleeves. Fabrics that have stretch or give (eg all knits and many woollens and fleeces) are much easier to manage. Those with little stretch (eg hard cottons) are much harder to manage.



**[2]** It is important that the markings from the pattern are transferred to the fabric - as there is lots of lining up to do. A double notch is for the back of the sleeve, and a single notch for the front.

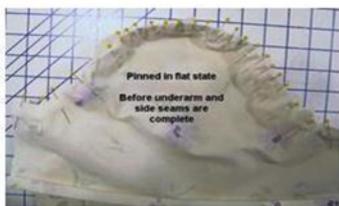
The top of the sleeve is gathered with long stitches (usually 2 rows) that are used to pull the fabric into small, evenly distributed puckers, which allow the top of the sleeve to fit to the armhole opening. These

stitches won't be seen, as they end up inside the seam (or they can be removed after the sleeve has been put in). These gathering stitches should be sewn with the right side of the sleeve facing up - the gathering is done from the inside of the sleeve and the bobbin stitches are easier to gather. The sleeve will be a better curved shape if it is first tightly gathered and then eased back out. This helps to retain the curve.



**[3]** The gathering stitch length depends on the weight and texture of the fabric. A stiffer fabric may require a slightly shorter stitch length - this will make smaller gathers and will make the fitting easier. A hard to handle fabric (eg tapestry) or a stiff fabric (eg heavy weight denim) will be easier to manage with a third row of gathering stitching. This third row will be outside the seam allowance and will help flatten the fabric for a bit more control. It is removed once the sleeve is set in.

After sewing the underarm seam of the sleeve, the seam should be pressed flat to meld the stitches, and then pressed open over a roll. The seam can be over-locked to finish. Some sleeves have two pieces (ie they are joined up down the length of the arm so there is an upper and a lower sleeve). Likewise, these pieces should be sewn together before the sleeve is set in. It may be easier to complete any cuffs etc before setting in the sleeve.



**[4]** Especially if there is not a lot of gathering to do (ie the sleeve is not a lot bigger), and for fabrics that have a lot of stretch, strategic pinning can work as well as gathering.

All these pins can make it hard to sew - hand basting first is a good idea. This also helps ease the fullness in place, so there are no unwanted tucks etc.

Another good trick is to do it in stages. That is, pin between two anchor points (underarm, shoulder point, front and back ease points), sew that section, then repeat for another of the 4 sections. Start

with the more difficult shoulder cap sections. If unwanted puckers do appear, a few stitches can be undone, the puckers can be sorted, and then re-sewn.

**[5]** When working with fabric with little stretch (eg hard cottons or shirting fabric), it can be easier to set the sleeve in before the garment side seams and sleeve underarm sleeves are sewn together (ie when the pieces are still flat). This is a good method too for when very little ease is required in the look of the finished garment ie for a business shirt.

**[6]** A second row of stitching (just inside the first row ie towards the raw edge) between the notches in the underarm area will reinforce that area that gets a lot of pressure. This is significant for a fabric that is more loosely woven with little stretch that might tear or pull easily.

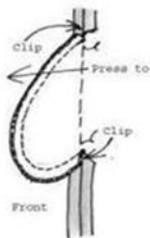
**[7]** The sleeve seam should be pressed flat with steam (if the fabric allows). Then turn the seam towards the cap and finger press or use a sleeve arm. This helps to retain the curved cap shape. Only trim the underarm seam - the rest of the seam supports the sleeve cap. This is especially significant for stiffer and thicker fabric. The raw edges can be finished. If a cap look is not wanted, for example on a man's business shirt, then all the seam should be trimmed back.

	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to demonstrate in-depth understanding of advanced concepts used to make textile products. This involves explaining how the construction of special features changes when using different types of textile materials.</p> <p>This student explained why in-seam pockets are inserted into garments (1) and how this is done (2). They explained how most fabrics benefit from the side seams being back stitched (3), and how top stitching (9) and the chosen fabric (11) can help achieve a quality finish.</p> <p>The particular construction techniques used to insert inseam pockets into a garment made out of a heavy fabric was explained. This included pressing open side seams to counteract the bulk (4), bar tacking on either side of the pocket opening (5), and using a lighter weight fabric for the pocket (6).</p> <p>Other types of textiles and suitable construction techniques were explained. This included adding stay tape to knitted stretch fabric to stabilise the pocket (7), and other stabilising and shaping techniques (11).</p> <p>The student also explained how the construction of other types of special features changes when using different types of textiles. The focus was on different types of pockets (e.g. welt, accordion and inverted pleat).</p> <p>For a more secure Merit, the student could have explained how the construction of a wider range of special features (i.e. beyond pockets) changes when using different types of textiles. This would have made it easier for the student to show the in-depth understanding required for this grade.</p>

## Constructing In-seam pockets

**[1]** These are pockets that are sewn into side seams on, for example, a skirt, dress, pants or a jacket. They are discrete (as you just see the opening in the seam) and are more for functional purposes.

**[2]** Mark 5cm below the waist...Mark the pocket opening (about 15cm for women)... Draw the pocket shape (check size with hand)...Allow a 1.5cm seam allowance... Place the pocket on the garment, right sides together and facing in...Match tailors tacks/notches... Pin in place. Stitch around all 4 pocket pieces (if having a pocket on either side)...better still, cut out the pockets as part of the garment pieces...



**[3]** Most fabrics will benefit from back stitching at the start of the seam on both sides of the pocket opening—this helps to stabilise the seam, which will get a lot of pressure on it with the hand going in and out.

**[4]** Heavyweight fabrics are more likely to require the body side seam to be pressed open (less bulk than it being pressed to one side). To achieve this, clip into the seam allowance of the back of the garment at a right angle, at the start and end of the pocket. This will allow the pocket to sit to the front and the rest of the garments seam allowance to be pressed open. The seam allowance of the body and pocket opening will need to be neatened before sewing together.

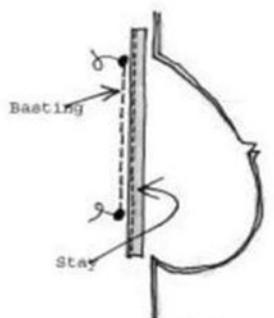
**[5]** If the fabric is a heavy weight, or the pocket is going to take a lot of stress and strain, each end of the pocket opening should be bar tacked across. That is, on the right side of the garment, sew 3 or 4 stitches forwards and backwards to secure both edges of the pocket opening. This is also good for ensuring the pocket permanently sits forward.



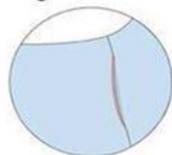
**[6]** A garment that is made out of a heavy weight fabric could have pockets made from a lighter weight fabric—to eliminate the bulk that pockets can cause. It should be complimentary, as it may be slightly visible. For design interest, fabrics with, for example, stripes or checks, the pocket could be cut on a different grain line.

Adding an extension to the seam (see diagram at top of page) is a good way of making sure that the different fabric pocket is not seen.

**[7]** Adding stay tape to an in-seam pocket will help to stabilise it. It is good for a knitted stretch fabric. It reduces the movement (when the hand etc is going in and out of the pocket), so the pocket area does not become misshapen. Sew the tape to the wrong side of the front pocket seam line.



**[8]** If the main garment was made from a lined sheer fabric, then it would be good to make the pockets out of the lining, so the pockets are not visible.



**[9]** Top stitching the pocket opening helps certain fabrics to lay flat and gives the garment a smarter finish.

**[10]** Pockets come in for a lot of wear and tear, so should be made out of a good quality complimentary fabric. For example, a fur coat might have velvet pockets.

**[11]** Fabrics that are not so firmly woven could be interfaced to help shape them. This interfacing might just be on the pocket bit or otherwise the interfacing could also be in the seam allowance. Lining also helps to shape the pocket. Sometimes cardboard templates are sewn into the hem of the pocket to help shape it.

	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to demonstrate understanding of advanced concepts used to make textile products.</p> <p>This involves:</p> <ul style="list-style-type: none"><li>• explaining how and why special features are used in textile products</li><li>• explaining how special features are constructed in a textile material</li><li>• explaining the requirements of quality finish of special features.</li></ul> <p>The student has explained how and why shirring is used in garments (1). Other special features that were explained include the back yoke and the front pockets that are common in jeans.</p> <p>How the fly front is constructed was explained through the use of photos and annotations (2). The student also explained how to construct the other special features that are seen in jeans.</p> <p>The student explained the requirements for ensuring a quality finish is achieved when inserting a fly front zip (3). An explanation is also given for how to achieve a quality finish for other special features of a pair of jeans.</p> <p>To reach Merit, the student would need to explain how the construction of special features changes when using different types of fabrics. This may be easier to achieve if the student had chosen special features that were not so ubiquitous to jeans (which are generally made from a similar type of fabric).</p>



**[1]** A fly front is often used in pants. They are mainly inserted in the front, and as well as for decorative purposes, they allow the wearer to get in and out of the pants. They are generally always used on men's pants (so its easy for them to pee). They are good for pants like jeans, which are generally not too high waisted. On high waisted pants, the fly opening would need to be long, and I think that looks a bit weird. Also, if you wanted to create an elegant



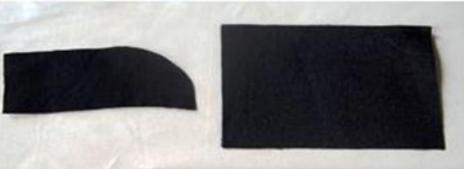
pair of pants, you possibly wouldn't choose this kind of zip. It's a bit of a more casual/boyish style. They are also sometimes used on coats, especially rain or wind jackets. The idea is that, as well as being decorative and a way of getting in and out of the coat, they are also good protection from wind, rain etc. In both cases, they are good for a woven fabric that has no stretch. That is, the garment can't be stretched to get in and out of it.

They are also good for more heavyweight fabric, like denim. This is because the zips themselves that are used tend to be more heavy weight.

The fly front is good too because it has a flap (made from a fold of fabric ) down one side which hides the zip.

It also has an under flap that helps to shield the zip from other garments that might be underneath (eg undies, a shirt) that could get stuck in the zip.

## [2] Inserting a fly front zip



Cut out the fly facing and fly shield. Iron the interfacing to the wrong side of each piece.



Fold wrong sides of front together. Iron flat.

Over lock around both pieces



Put fly facing right side down (straight side) on left front edge.

Stitch from top to start of crotch seam.

Trim back the fly facing seam.

Press fly facing away from pants



Lay the closed zip on the fly facing so that the bottom stop on the zip is almost 2cm from the bottom edge of the facing.

Using a zipper foot, baste along right edge of zip with the bottom edge of the zip turned up.

Sew the left side of the zip both along the outside edge and next to the teeth.





Turn fly facing to inside along the seam line. Press.  
Baste along the curved edge about 0.5cm in from edge.  
Turn pants right side out.  
Top stitch along the basted line



(or one line on either side), going from bottom to top.  
Remove basting threads.



Fold the right side of the pants under about 0.5cm.  
Pin and baste to zip.  
Close zip to make sure it all looks good ie even and the tops of the pants meet.



With the zip closed, position the fly shield from the inside of the pants, aligning the folded edge with the top stitching of the fly facing. Pin in place and flip pants to the right side. Baste along the zip through all layers. Remove pins, open zip and stitch along the zip.



Sew a bar tack across the bottom of the fly to catch both the fly facing and fly shield. With the zip open, stitch across each side of the zip tape. Trim off any excess zip so it is even with the top of the pants.

### [3] Requirements for a quality finish

Choosing a fly zip because it is the most appropriate zip/closure for the finished garment. This judgement should be based on the design of the garment, and the fabric type and weight.

The front flap should line up parallel with seams eg the crotch seam on a pair of jeans.

The front flap should be the same width all the way down.

Any fabric design (eg checks) should match up. The picture on the right shows how bad it looks when they don't match up.



The fabric pieces should be well pressed

The zip should match the length of the fly front.

When the zip is closed, the fabric should be sitting flat (ie not puchering, pulling etc)

Top stitching should be straight and, if there are two lines, evenly spaced.

Be firmly stitched just below the bottom opening of the zip

Have thread ends secure or cut off, so they don't get caught in the zip

The zip should be of a weight that suits the weight of the fabric

The colour of the zip should coordinate with the fabric eg either match it or provide an intended contrast

Use a zipper foot to sew close to the teeth

	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to demonstrate understanding of advanced concepts used to make textile products.</p> <p>This involves:</p> <ul style="list-style-type: none"><li>• explaining how and why special features are used in textile products</li><li>• explaining how special features are constructed in a textile material</li><li>• explaining the requirements of quality finish of special features.</li></ul> <p>The student has explained how and why shirring is used in garments (1). How and why other decorative special features such as embroidery and pin tucking were used was also explained.</p> <p>How shirring is constructed was explained (2). The student also explained how to construct the other special features that they have focussed on. This is mainly evidenced through text, with some photos included.</p> <p>The student explained the requirements for ensuring a quality finish is achieved when shirring (3). An explanation was also given for how to achieve a quality finish for other special decorative features.</p> <p>For a more secure Achieved, the student could have demonstrated their understanding of more advanced shirring special features (e.g. using cord elastic, using waffle, spaced, puffed, tucked etc). The explanations for constructing the special effects should be more detailed and precise than the example shown here.</p>

**[1]** Shirring is rows of elastic thread that are done to shape and decorate parts of garments, for example the yoke of a dress or the top of a full skirt.

It can be used instead of darts.

It works better on soft fabrics.

The best effects are gained from using fabric that is cut on the cross/bias, as this is the natural stretch of the fabric that will give the best effect.



**[2]** Use a good quality elastic thread

Hand wind it on to the bobbin without pulling or stretching the elastic.

Make the stitch length longer than normal (3.5—4).

For a top-loading bobbin, the thread must go through the thread-guide notch (orange arrow). This gives the tension (avoids squiggles on the back of the fabric).

Test the tension first. What you want is to, after sewing a section of shirring, have the fabric stretch back to its original width without sliding along the shirring.

If the stitches come out too tight (which they might do for lightweight fabrics like voile), you can loosen the bobbin screw slightly—just a 1/4 or 1/2 turn.



**[3]**

Practice on a piece of scrap fabric from the fabric you are using.

Work out how far apart you want the rows to get the desired effect.

This enables you to check that it is going to give the right effect, gather the right amount etc.

Your fabric will need to be about twice the desired final width before you start shirring.

Now do the real thing...it could be a good idea to mark the lines with a ruler and chalk first.

Sew a straight line (lock your first stitch). Have the fabric right side up so the elastic thread is on the inside of the garment.

Lift up the presser foot and needle, make a loop of elastic thread on the edge of the fabric by starting sewing again on the side that you finished on last time (sew the side seams or whatever to make sure the elastic is secure before you cut these loops off).

OR make sure you leave long ends that can be easily tied off. Forward and reverse several times to make sure the elastic is anchored - otherwise it can unravel easily. It is actually easier to shirr around a finished garment than to sew seams after shirring.

Once all the rows are sewn, give both sides a good iron with lots of steam. This helps gather the shirring even more.

If shirring around a neckline or on a sleeve, starting about 1/2 or 1 cm away from the edge will give a ruffle look finish.



	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to demonstrate understanding of advanced concepts used to make textile products.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• explaining how and why special features are used in textile products</li> <li>• explaining how special features are constructed in a textile material</li> <li>• explaining the requirements of quality finish of special features.</li> </ul> <p>The student has explained how and why welting (piping) is used in upholstery (1). An explanation is also given for how and why other special features such as zips under flaps and skirts on chairs are used.</p> <p>The student explains how welting is constructed (2). An explanation is given for how to construct the other special features that they have focussed on.</p> <p>The student touched on how to ensure a quality finish to welting (3) and other special features.</p> <p>To reach Achieved, the student could have explained other aspects of inserting the welting, for example how to go around corners, make curves, and join the ends.</p> <p>Other requirements of a quality finish should have also been explained. This could include how to make the bias joins as invisible as possible, and highlighting the need to ensure that the stitching done to encase the cord is not visible after sewing the welting into the seam.</p>

[1] How and why piping/welting is used in upholstery

Piping/welting is fabric-covered cord. The fabric is generally cut on the bias. Strips are sewn together into one long skinny piece. The cord is sewn into the fabric. It is then sewn into seams to give a rounded raised hard finish.

It helps to smarten up the edges. It makes upholstery look much more professional.

It can be used as a contrasting colour for effect (like the white piping in the picture, contrasting with the blue couch).

It also helps to give a more formal effect.

It also helps to define the shape of the object being upholstered (like the round bolster in the picture)

It is also good for helping to strengthen a seam (imagine kids jumping on a couch).

Welting is often used on cushions. They are called the 'waterfall' style cushion, as the top edge of the cushion fabric waterfalls over the edge.

Welting also helps to waterproof the seams on outdoor furniture (especially if the cord used is a plastic).



[2] How piping/welting is constructed in a textile material

For upholstery, choose a stiff cord and decide whether you want it to be cotton, polyester, plastic, foam etc and what size you want it.

Cutting the fabric on the bias (45 degree angle) allows it to stretch. Or you can use straight lines, especially if the fabric has some stretch in it. This uses less fabric.

The width of the fabric needs to be double the width of the cord plus double the seam allowance.



Fold the fabric back like in the picture. This will give a 45° angle. Press to get a crease. Cut strips to the desired width.

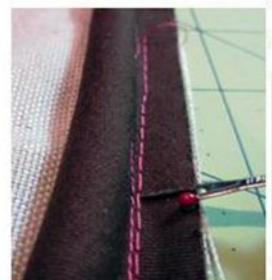
Overlap the strips like in the picture on the right. Sew down the chalk line.

Trim back the seam allowance and the tiny overlapping edges.



Place the cord in the centre of the strip.

Firmly wrap the fabric round the cord. Match the raw edges of the fabric to make a lip. Pin in place.



Sew with the cording pressed along the edge of the zipper foot.

[3] Keep an eye on cording behind—it sometimes twists. If so, roll between fingers to straighten it out.

Attach it to the right side of one piece (for example, of the cushion) that is going to be joined to another

piece (of the cushion). Baste it on (see the picture).

Place the two sides of the article (eg cushion) right sides together.

Sew around the edges again.

Turn the article right side out. The piping will pop out.

