

HSC 2002 – Textiles and Design

Major Textiles Project

TEXTILE ITEM/S FOCUS AREA: Apparel
Exemplar
Sample 2





Continuous movement of the wave

The natural life forms

DESIGN INSPIRATION

My main source of inspiration for my Major Textiles Project is the marine environment. The following elements all combine to create an environment which is unpredictable, relaxed, interesting and exciting. It is an environment which I love and in turn has influenced all aspects of my design. These elements include:

* **The colours:** It is the strong and vibrant colours that create a calm and passive beach environment that has strongly influenced me. It is the attractive blues such as the aquamarine, the sky blue, the ultramarine, the light blues and the blue greens that combine to create the sea and surf. The golden yellow of the sand completes this picture of the beach, a replication of the 'sand and the shore'.

* **The textures:** The soft texture of the golden sand on your feet as you walk across the beach, and the cool, crisp feeling of the water as you touch it with your finger tips, emphasises this feeling of total relaxation and comfort in the natural environment. It is the way that I feel when I am surrounded by these soft and natural elements that has inspired me.

* **The shapes:** The fascinating shapes of the marine environment are representations of natural life forms. It is shapes such as the star of the starfish, the round, spiral and cone shapes of a sea shell, and the intriguing shapes of the coral which lives in the deep blue sea that I really like.

* **The sea-animals:** It was the marine wildlife such as the fish, the dolphins, the seals and the whales that influenced my need to look at the rhythms of natural life and to look at the way that living things move in the natural environment.

* **The waves:** It is the textures of the waves as they break on the shore as well as the harmony created by their free flowing and continuous movement/motion that appealed to me.

Blue's

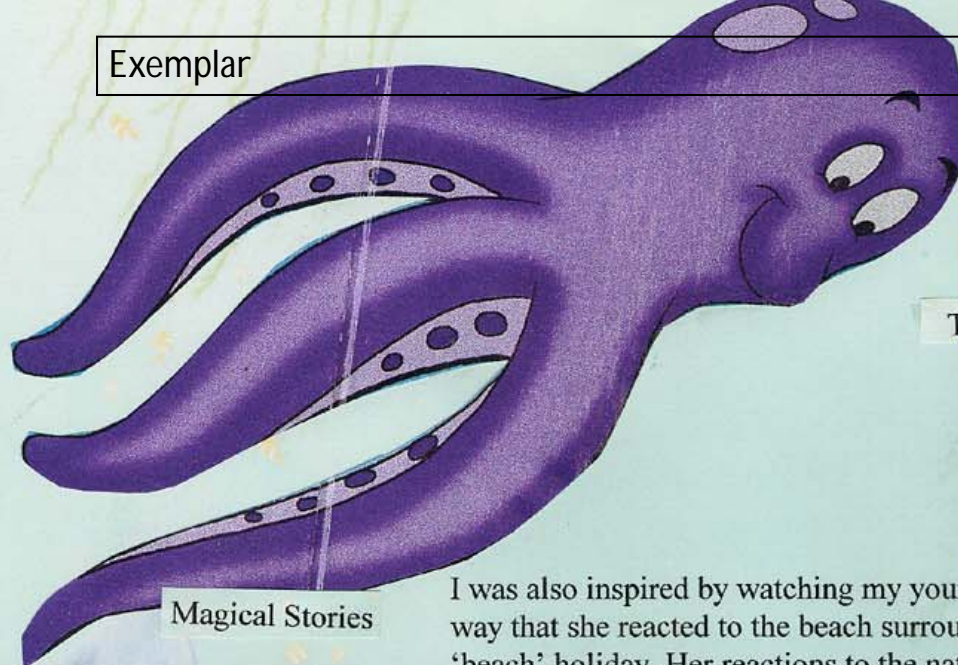
Soft texture of the sand

The fascinating shapes

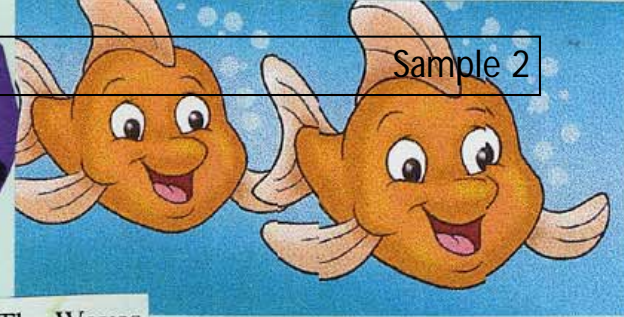
The vibrant colours

Crisp water

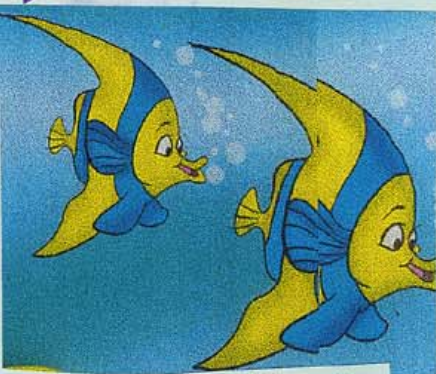
Yellow's



Magical Stories



The Waves



Simple Silhouettes



Fresh and Exciting

I was also inspired by watching my young cousin and the way that she reacted to the beach surroundings on a recent 'beach' holiday. Her reactions to the natural features such as the waves and the sand created a feeling of excitement and combined with her natural curiosity further more inspired me to use the beach in my designs.

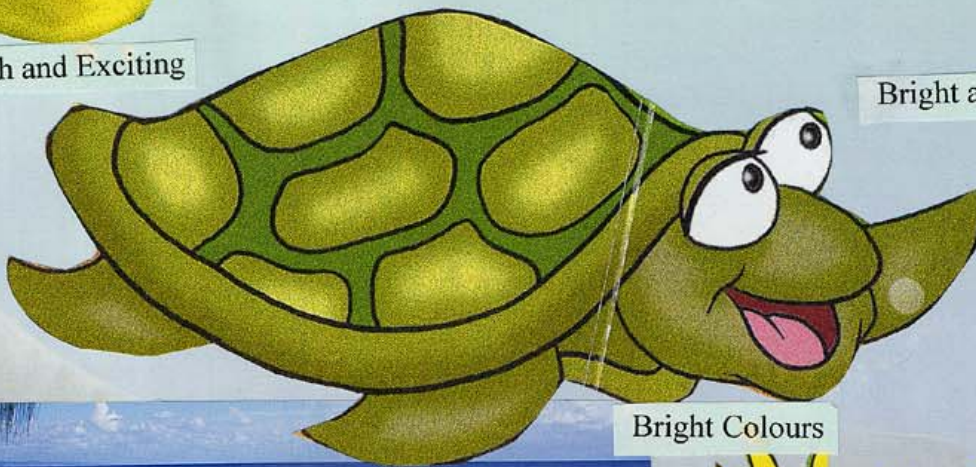
My young cousin had a collection of children's story books with her and whilst looking through those I was impressed by the simple silhouettes that obviously appeal to younger children.

The bright and lively pictures from 'under the sea' stories were fresh and exciting and I thought the designs might be a useful way to decorate my own garments. The most interesting aspect of the children's story books, was their ability to capture the attention of the young child. The pictures in these books were simple yet effective in creating a magical scene. It is the brightly coloured sea creatures in the book 'Who Swims' that inspired me to decorate my garment with similar shapes and pictures.

Natural Features



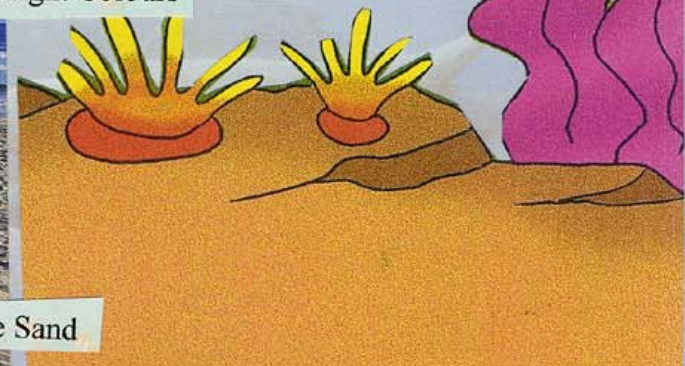
Bright and Lively Pictures



Bright Colours



The Sand





Adult resort wear



Comfortable styles

I also liked the idea of designing specialised outfits for children and a range of resort wear seemed like a good idea. I have noticed that families now have fewer children and parents have more money, and are able to afford to take their children to exotic locations and a range of resort wear seemed appropriate. In recent times people appear to be interested in dressing their children in higher quality and more up market clothing. There seemed to be a 'niche' market for children's resort wear that is associated with the marine environment. Because of this I was inspired to create a range which specialised in the apparel area for the younger generation. I was initially inspired by adult's resort wear, but decided to manipulate their resort wear into a more adequate and conventional range for a child in both feel and mood. Designing a comfortable and contemporary outfit in this target area really appealed to me.

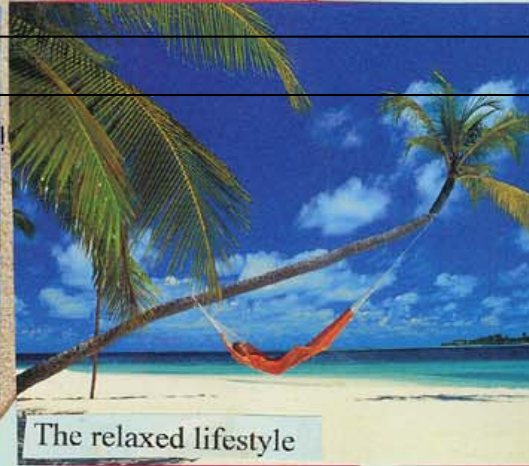
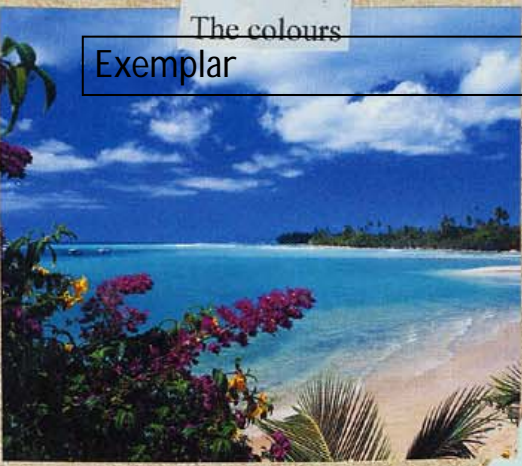


Specialised kids clothing



Upper market clothing





The relaxed lifestyle

Kids and the marine environment

The texture of the sand

I decided to use apparel as my focus area because I felt that apparel could best combine all of my inspirations. The idea of combining the way we dress with the mood set by the marine environment was important and apparel allowed me to do this.

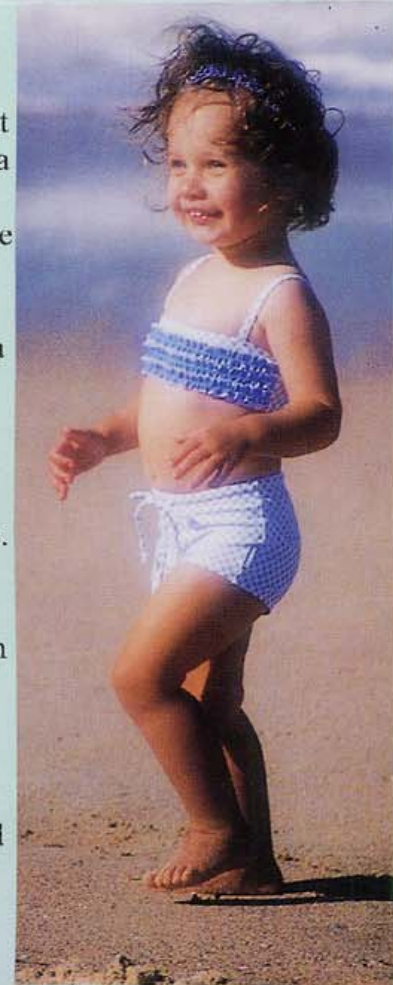
I feel that the mood that the marine environment creates, which I was inspired by, could be best expressed through a child's outfit. Both the marine environment and children portray similar qualities of a carefree nature. The marine environment resembles freedom and fun.

I also liked the idea of the natural environment being used with a range of natural and environmentally friendly fibres. The two seemed to go well together.

I used a contemporary focus for my inspiration. All of the following exhibiting a strong contemporary focus based on today's trends, styling and lifestyle:

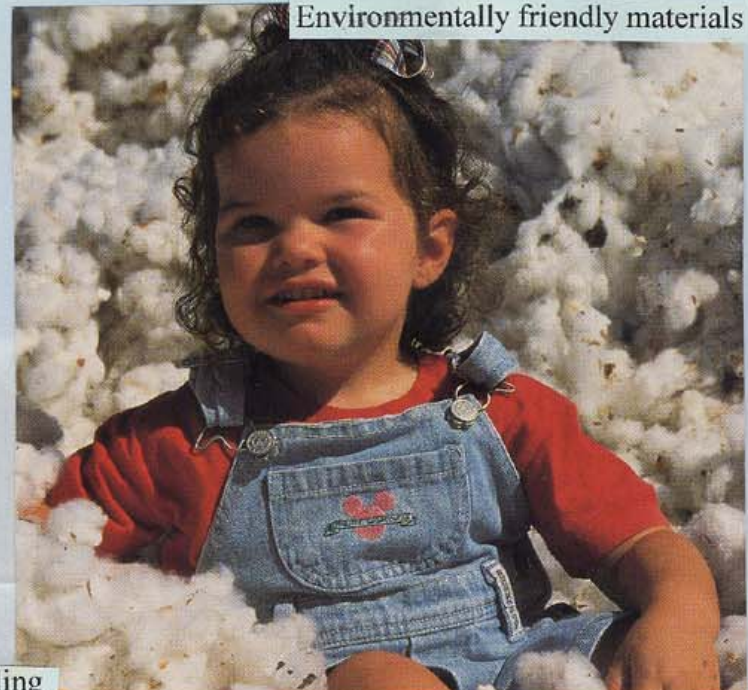
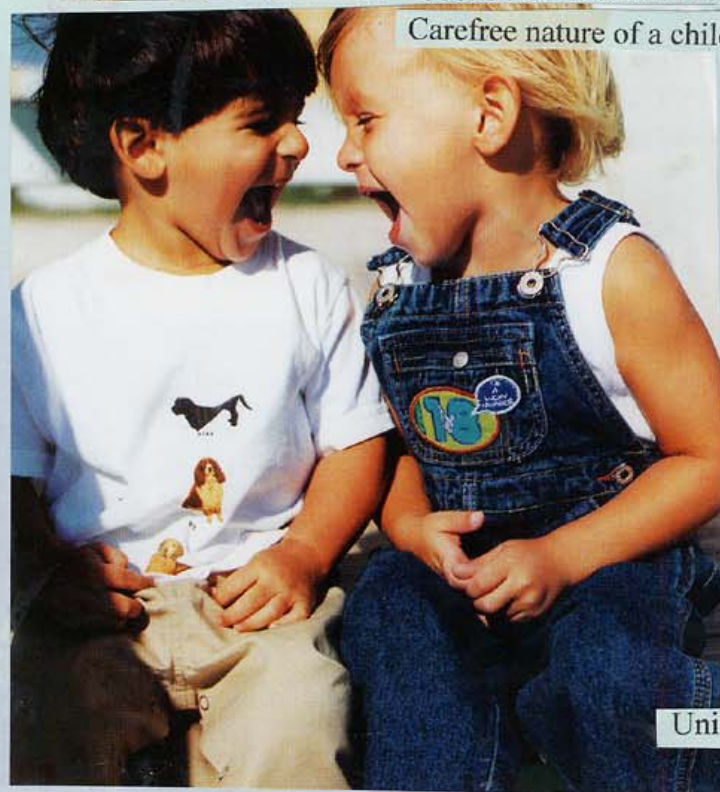
- * the use of environmentally friendly materials
- * the use of 'high tech' plastic materials
- * the unisex styling

Therefore resort wear, using all of the inspirations, seemed an ideal choice. I looked at colours, textures and shapes to create my garments and the simple pictures of children's books also became a focal point of my designs.



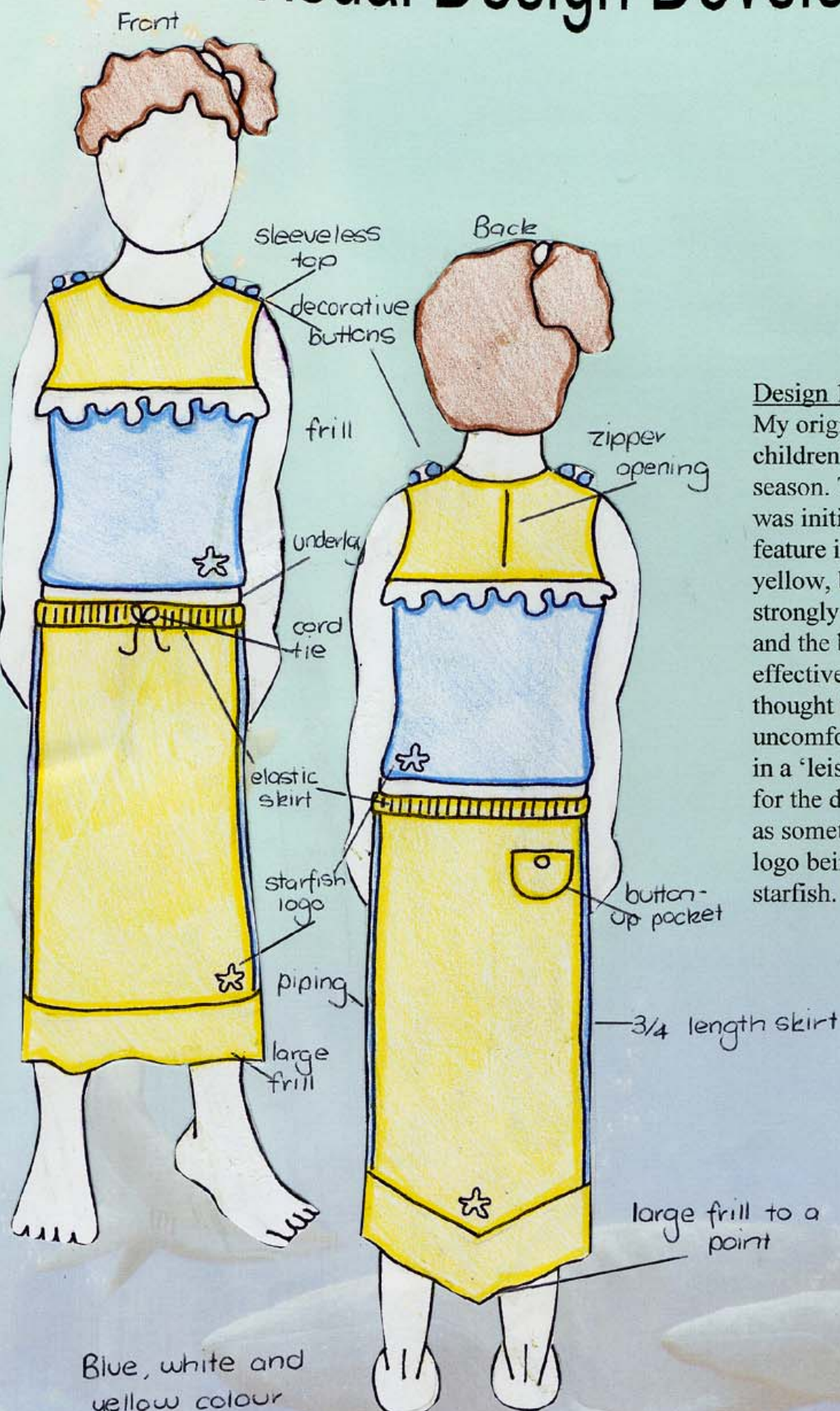
Carefree nature of a child

Environmentally friendly materials



Unisex styling

Visual Design Development

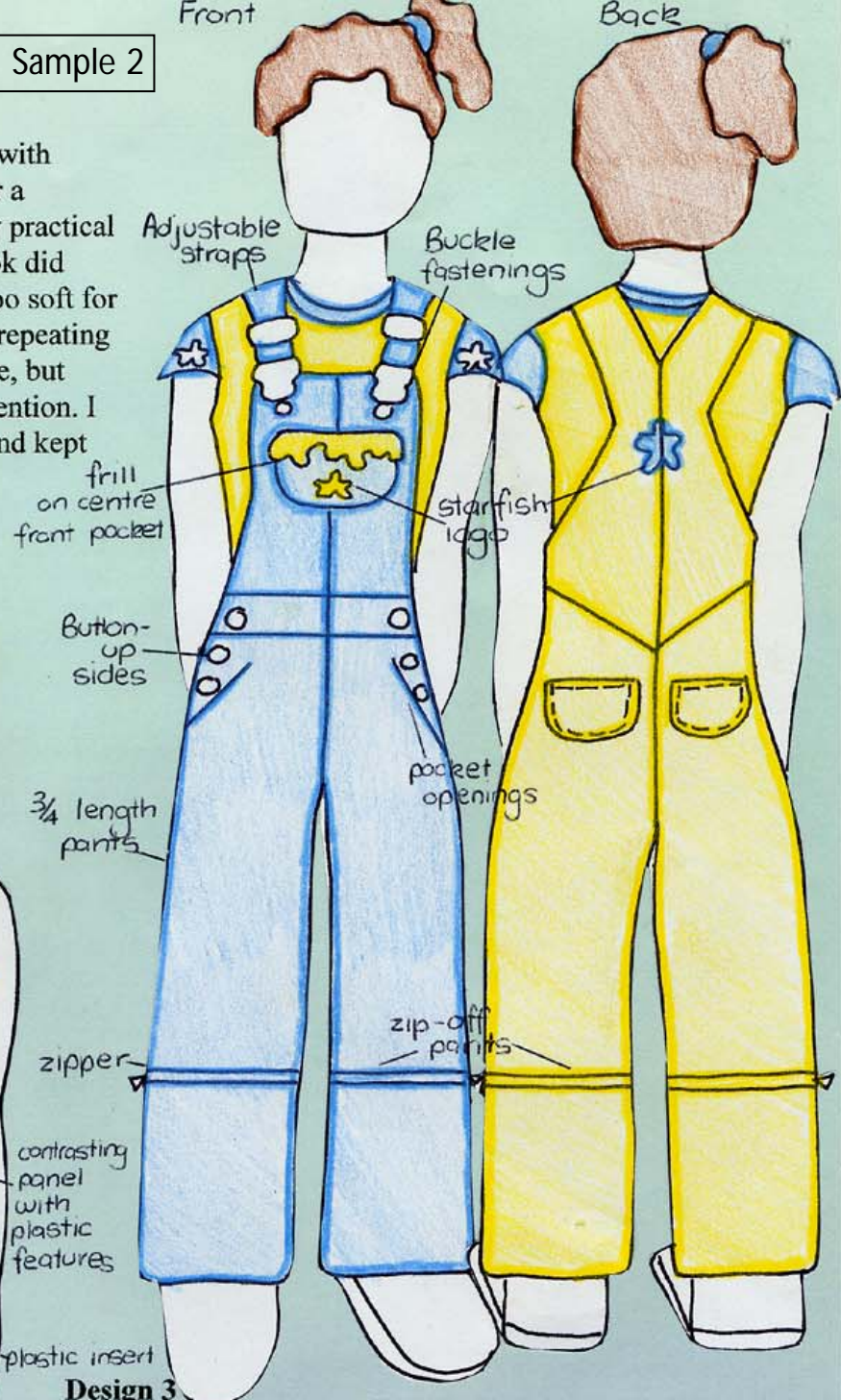
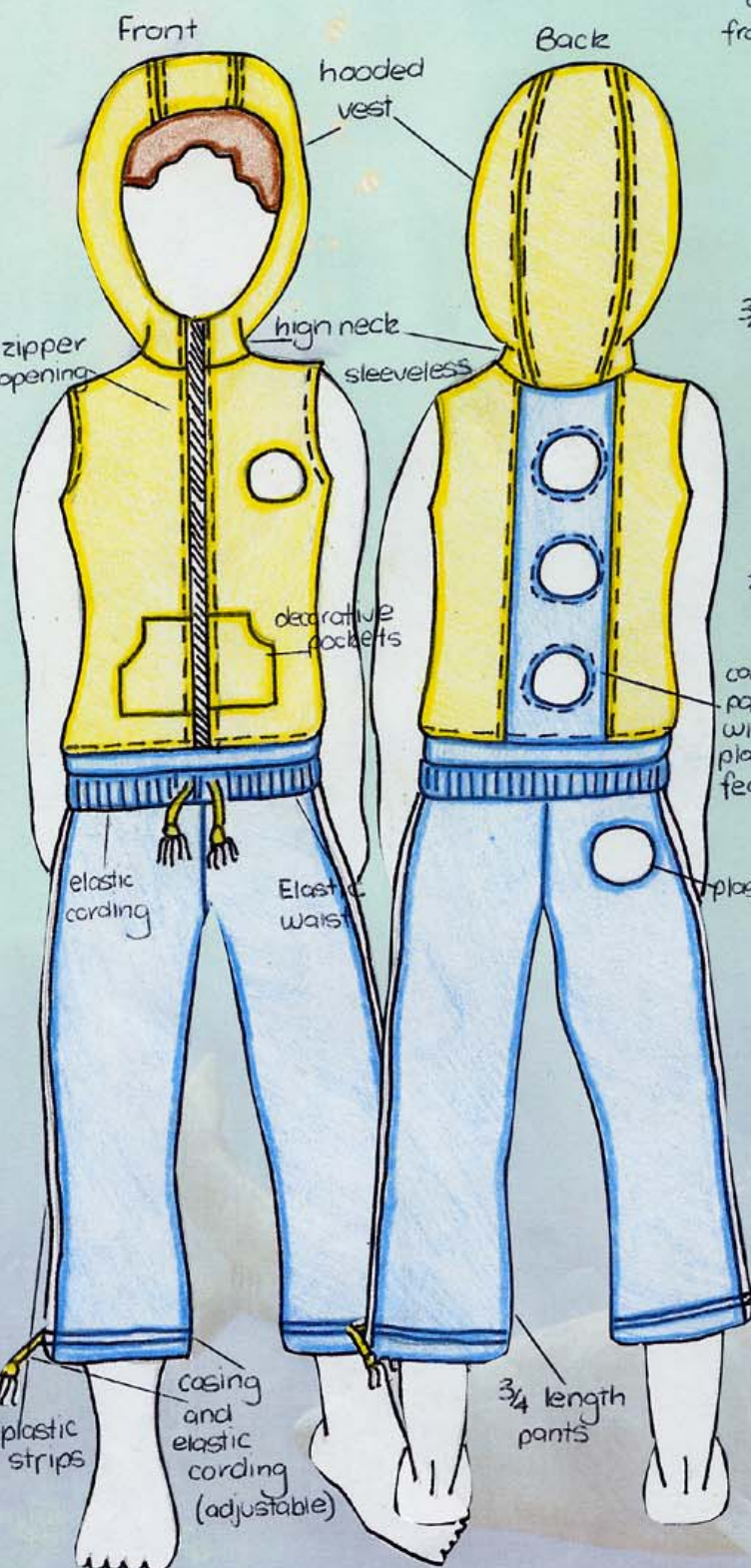


Design 1

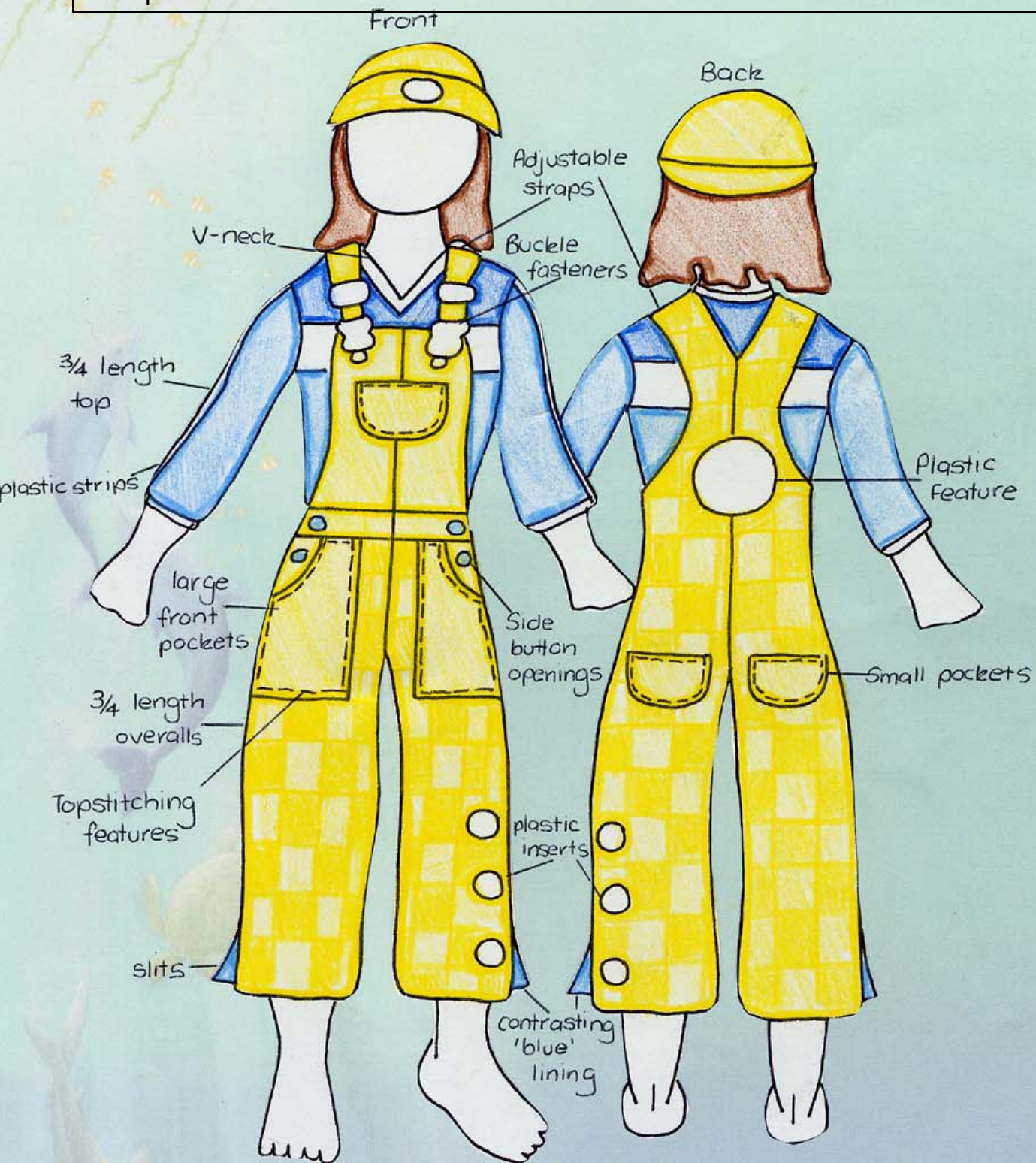
My original idea was to create a children's wear range for the summer season. The frill resembles a wave and was initially meant to be a continuing feature in the range. The colours yellow, blue and white were used to strongly represent the beach lifestyle and the blue and yellow were an effective contrast. After evaluating I thought the skirt style might be uncomfortable for a young girl to wear in a 'leisure' situation. I thought a logo for the design might be appropriate and as something of interest to a child, this logo being a machine embroidered starfish.

Design 2

I decided to experiment with combining the frill with overalls, which are a more appropriate styling for a child's leisure outfit. I placed the frill on the only practical area which was on the pocket of the bib. This look did not particularly appeal to me as the frill looked too soft for the styling of the overalls. I initially intended on repeating the starfish symbol as a logo throughout the range, but thought the shape looked too boring to attract attention. I liked the zip-off pants and the length they gave and kept this idea in mind.

**Design 3**

As a variation on the overalls and a compromise between those and the skirt, I tried the idea of pull on pants with a zip up vest and hood. These would be comfortable for the child and easy to pull on and off. But on reflection I thought that maybe a long sleeve top would be better for cooler days or nights. As a more unusual form of decoration I tried out circular plastic inserts in both the top and pants. I felt that the plastic inserts would give the garments a more modern and contemporary appearance and I could paint a picture that would be very exciting for a child. I introduced topstitching and found that this look appealed to me because it added strong emphasis to the design lines.

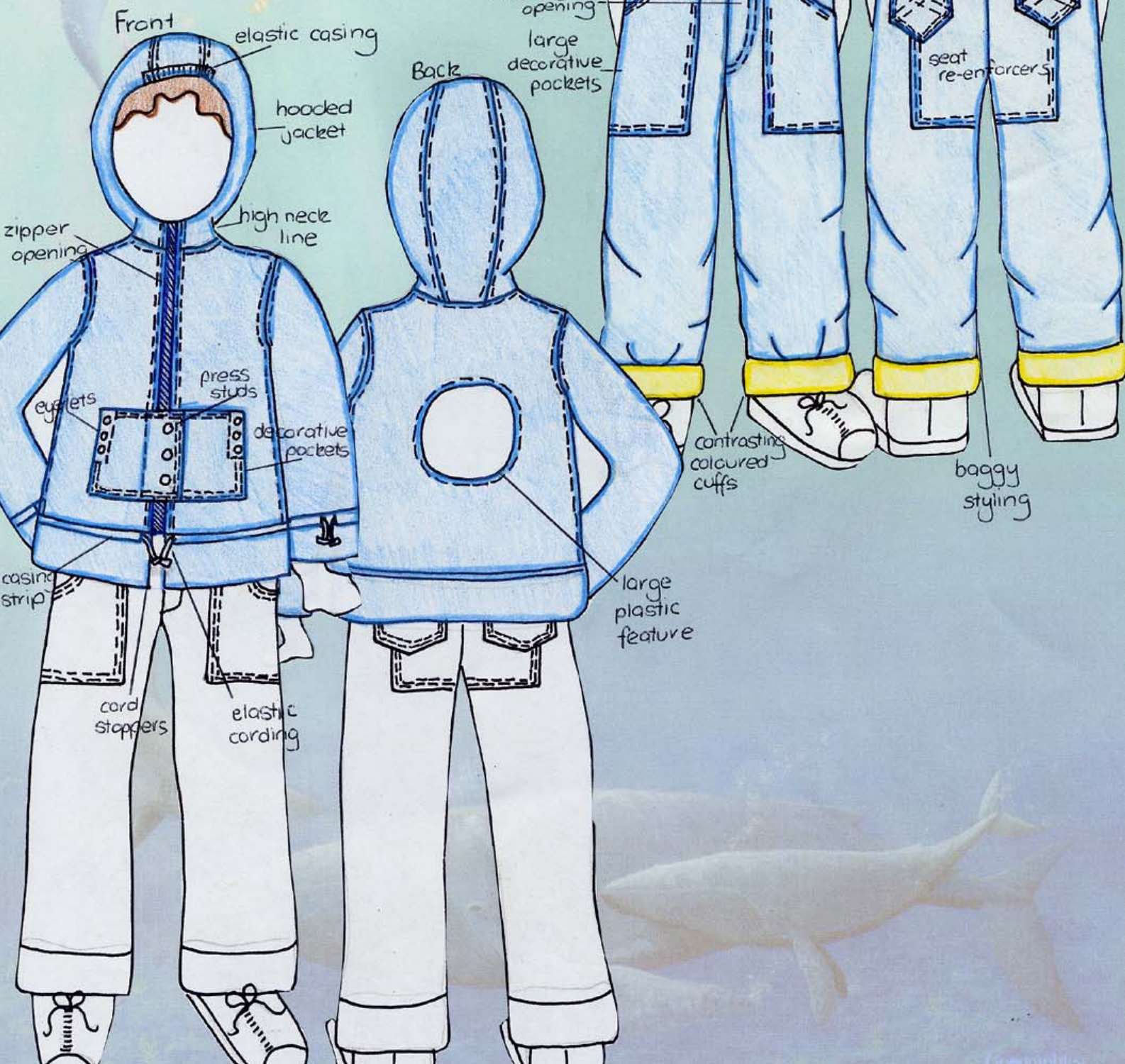


Design 4

With the idea of making overalls still in my mind I designed a pair that were $\frac{3}{4}$ in length, still considering the idea of making summer looking clothes but for the cooler days. In this design I used the yellow as the main colour, but I found that I much preferred the blue as the main colour and yellow as the background colour because the yellow is too strong and advancing. The slits on the pants were designed to show the inner blue lining and to complement the blue in the top. I continued trying to place the plastic inserts in interesting ways. Here they are positioned on the lower leg and the upper back, but are not noticeable.

Final Design

The design I finally decided on for my MTP is a pair of overalls and a matching hooded jacket. I found that the plastic inserts were the best and most aesthetically pleasing form of decoration as they were innovative and interesting and their placement makes them obvious and a focal point of the outfit. Keeping the colour theme, the blue is used as the feature colour and the yellow has become the lining in the jacket. This allows the design to keep its marine feel about it. The long length of the pants and jacket, as well as the hood, offer protection from the cold and this was the idea that I particularly liked.



Functional Analysis

- * The baggy styling of the range makes the clothing suitable to the natural body proportions of the young child, allowing easy and free movement meaning it is comfortable to wear
- * There is extra room for growth
- * The linen fabric used is tough and durable due to its high abrasion resistance meaning that it is going to last longer and is suitable to the rough play of the child
- * The fabric/clothing is easy to wash, dry and iron
- * Has good moisture absorbency meaning it can absorb moisture and dry quickly rather than the moisture dripping down the body
- * Linen is a good conductor of heat making it suitable for a summer range as the heat is taken away from the body making the child cooler
- * The press studs are easy to do up and take apart in the case of an emergency
- * The pull on styling of the overalls, the front buckle fastenings and the side press studs make it easy for the young child to dress themselves.
- * The styling is appropriate for playing activities
- * The adjustable waist line and wrist of the jacket will prevent wind and cool air entering and will also give a fitted styling making the garments safer
- * The cellulose fibre is low irritant and is appropriate for the sensitive skin of the young child
- * The full length sleeves and long styling of the overalls makes these garments appropriate for cooler days and nights as well as the hot summer conditions
- * It has good resistance against sunlight, offering protection against harmful UV rays

Aesthetic Analysis

Elements

Colour: The colours that I have chosen for my designs are directly related to the beach, mainly blues and yellows. As the blue is a cool colour and yellow is a warm colour, an immediate contrast is created. The aquamarine blue colour signifies a calm and passive nature and appears to somewhat recede and become more distant. The yellow that 'peeps' out in the lining is warm, lively and youthful. The colours of the 'sea patterns' on the plastic inserts are bold, cheerful and eye catching and would appeal to a child.

Line: There are a variety of line types, both straight and curved. A contrast is therefore seen as the curved interior lines that create the circular plastic inserts are compared to that of the defining lines of the topstitching which highlight the edges of the garment and add extra detail to the pockets. The topstitching combines with the edges, side seams, shoulder lines, waist line and hem line to create a series of bold lines that create the silhouette of the design.

Direction: A contrast is evident between the horizontal and vertical lines that combine to create the silhouette shape of these garments. The contrasting direction of line gives a busy and lively appearance, leading to lots of visual impact for the eye to focus on. It is the oblique and diagonal lines that are seen within the jacket and overalls, that create a flattering and eye catching appearance and contrast.

Shape: The series of geometric shapes such as triangles and rectangles created in this garment, suggest order and slight conservatism, this being appropriate for the young age group. These shapes also add detail and interest. The simple shapes show the child-like approach being taken to create these items and the rounded lines that form the circular shapes give a softer look to the design.

Texture: Contrasting textual surfaces are seen in the garment between the plastic surface and the linen, created by the tactile feel of each material. The linen gives a moderately crisp texture which

stands away from the body and appears relatively flat. The plastic gives a smooth and glossy texture that creates a contemporary and innovative finish. The texture is also visual and is therefore interesting to look at. Both textures creating a comfortable wearing environment against the child's skin, due to their smooth composites.

Principles

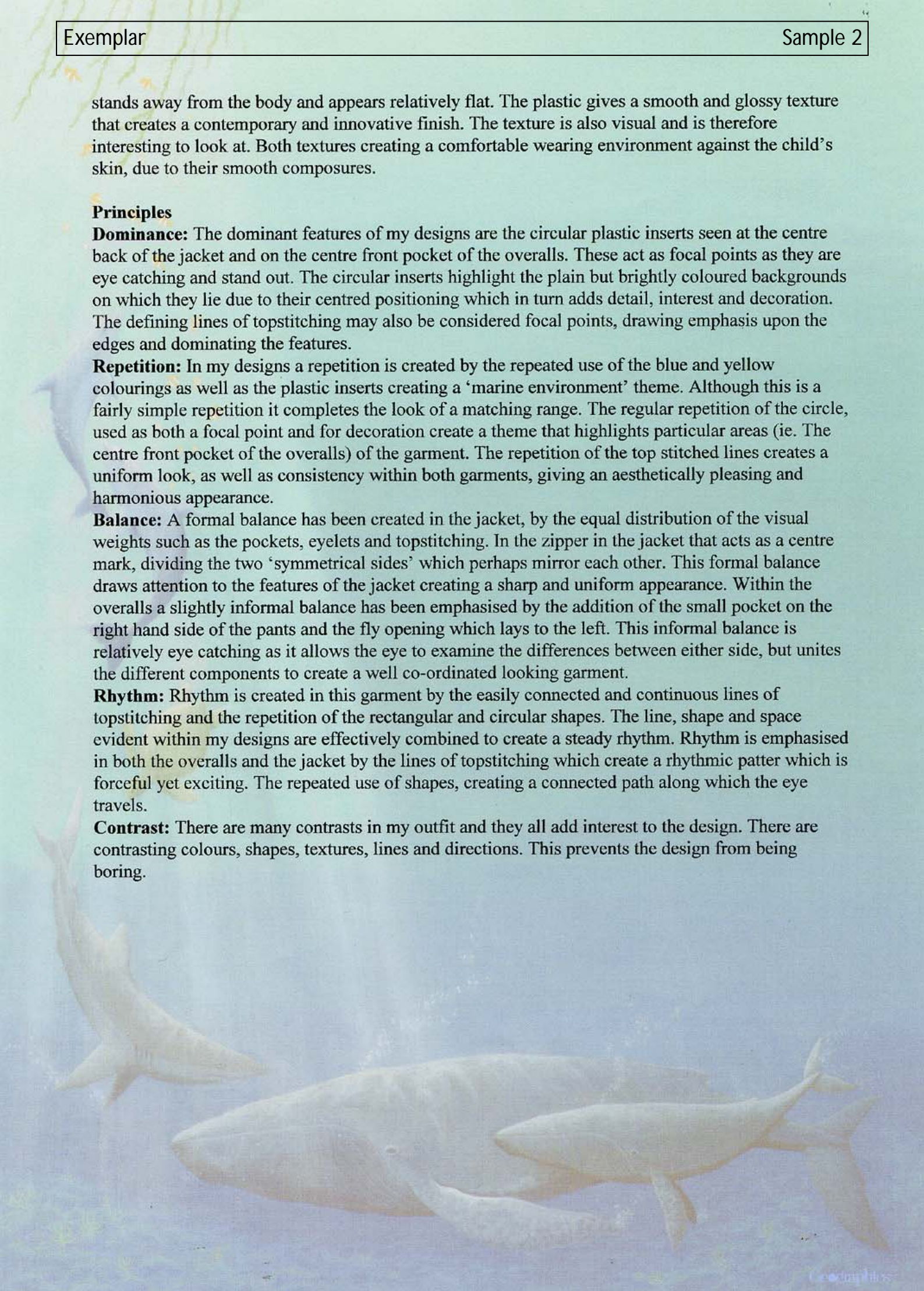
Dominance: The dominant features of my designs are the circular plastic inserts seen at the centre back of the jacket and on the centre front pocket of the overalls. These act as focal points as they are eye catching and stand out. The circular inserts highlight the plain but brightly coloured backgrounds on which they lie due to their centred positioning which in turn adds detail, interest and decoration. The defining lines of topstitching may also be considered focal points, drawing emphasis upon the edges and dominating the features.

Repetition: In my designs a repetition is created by the repeated use of the blue and yellow colourings as well as the plastic inserts creating a 'marine environment' theme. Although this is a fairly simple repetition it completes the look of a matching range. The regular repetition of the circle, used as both a focal point and for decoration create a theme that highlights particular areas (ie. The centre front pocket of the overalls) of the garment. The repetition of the top stitched lines creates a uniform look, as well as consistency within both garments, giving an aesthetically pleasing and harmonious appearance.

Balance: A formal balance has been created in the jacket, by the equal distribution of the visual weights such as the pockets, eyelets and topstitching. In the zipper in the jacket that acts as a centre mark, dividing the two 'symmetrical sides' which perhaps mirror each other. This formal balance draws attention to the features of the jacket creating a sharp and uniform appearance. Within the overalls a slightly informal balance has been emphasised by the addition of the small pocket on the right hand side of the pants and the fly opening which lays to the left. This informal balance is relatively eye catching as it allows the eye to examine the differences between either side, but unites the different components to create a well co-ordinated looking garment.

Rhythm: Rhythm is created in this garment by the easily connected and continuous lines of topstitching and the repetition of the rectangular and circular shapes. The line, shape and space evident within my designs are effectively combined to create a steady rhythm. Rhythm is emphasised in both the overalls and the jacket by the lines of topstitching which create a rhythmic pattern which is forceful yet exciting. The repeated use of shapes, creating a connected path along which the eye travels.

Contrast: There are many contrasts in my outfit and they all add interest to the design. There are contrasting colours, shapes, textures, lines and directions. This prevents the design from being boring.





Manufacturing Specification

Description

A fun two piece 'resort' outfit consisting of a jacket and overalls. The overalls are loose fitting, long legged and have a number of decorative pockets, side button fastenings, decorated bib and straps with suspender fasteners. A matching jacket which is fully lined features fun plastic inserts, adjustable elastic cording with cord stoppers around wrist and waist, hood with elastic casing, large front decorative pocket with decorative eyelets, front zipper opening and full lengthed sleeves. Topstitching featuring on both garments.

Jacket

- * Pattern: Butterick 6608
- * Size: 7

Pattern Modifications

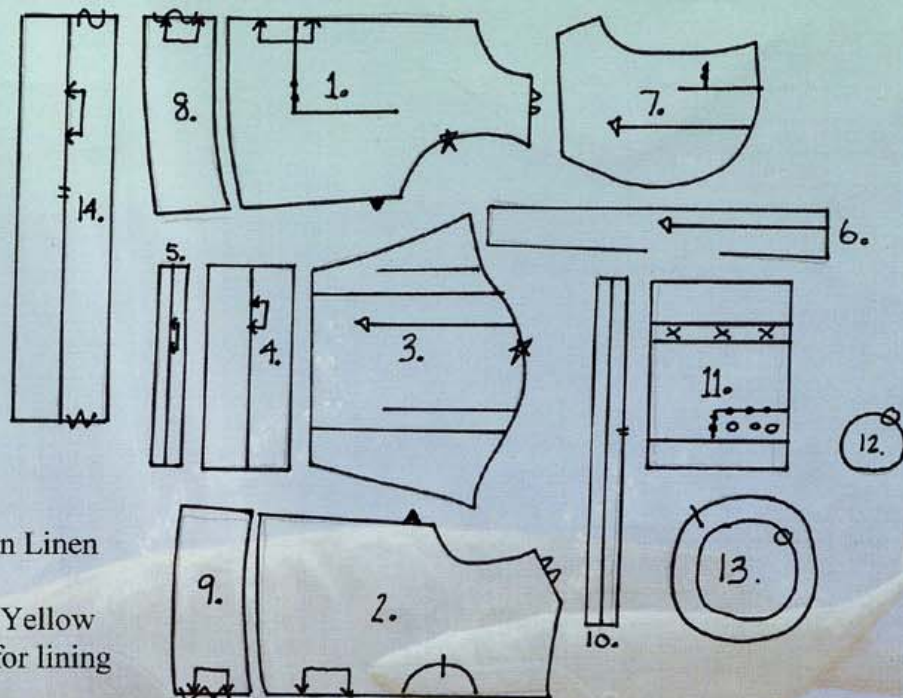
- * The front button opening was changed to an open ended zipper at the centre front of the jacket
- * Casing strips were added to the wrist bands and lower waist bands to allow for adjustable, elastic cording and cord stoppers
- * Added front pockets with eyelet trim and press stud feature over lower half of zipper
- * Elastic was placed in the front of the hood to allow the hood to sit better on the head
- * Added decorative plastic feature to back of the jacket

Pattern Pieces

1. Front (cut 2)
2. Back (cut 1)
3. Sleeve (cut 2)
4. Band/Sleeve (cut 2)
5. Casing Strip (cut 2)
6. Centre Hood (cut 1)
7. Side Hood (cut 2)
8. Front Band (cut 4)
9. Back Band (cut 2)
10. Casing Strip (cut 1)
11. Pocket (cut 2)
12. Back Circle (cut 2)
13. Facing/Back (cut 1)
14. Band/Hem (cut 1)

* 1.5cm seam allowance on all pattern pieces

←-----> Grain Line



- * Cut all pieces in Blue Cayman Linen Cotton
- * Cut pieces 1,2,3,4,6 and 7 in Yellow Cayman Linen Cotton as well for lining

Overalls

- * Pattern: Burda 2752
- * Size: 7

Pattern Modifications

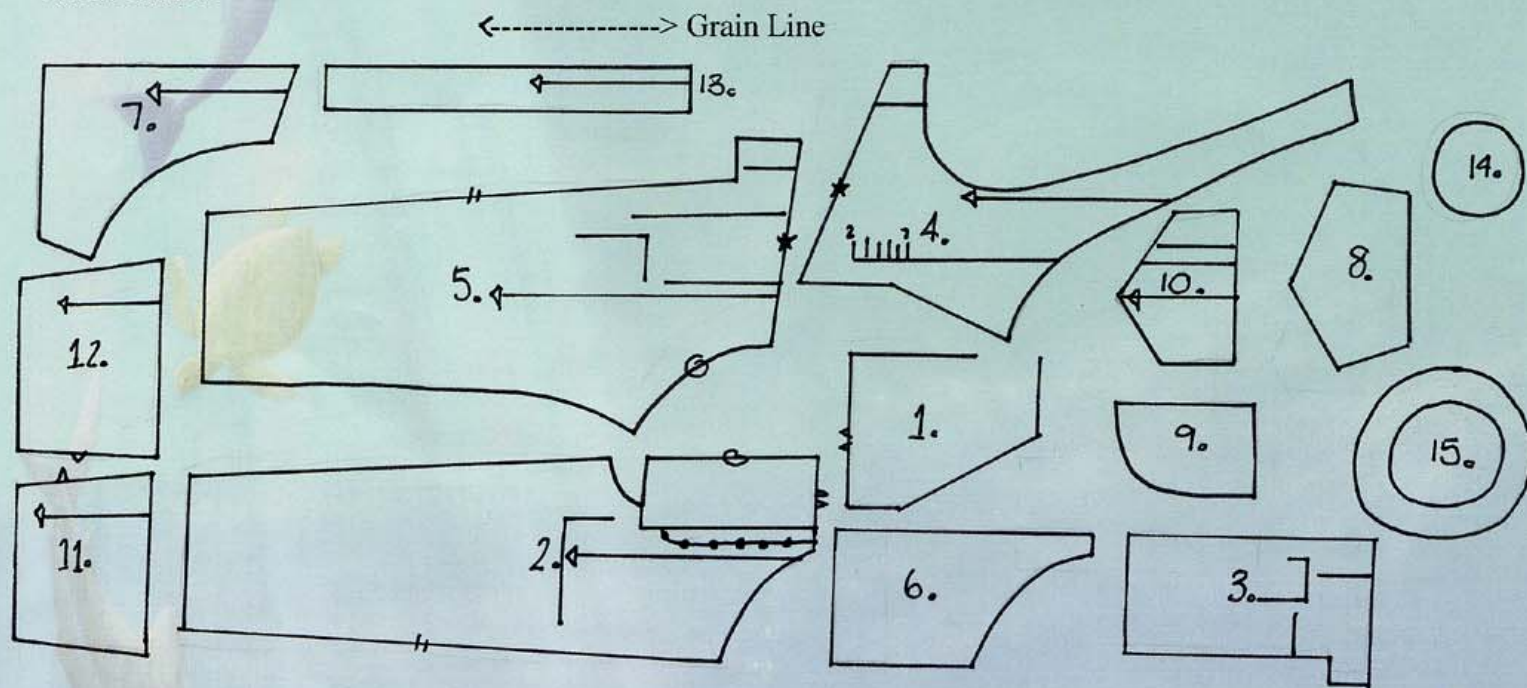
- * Added plastic feature into centre front pocket on bib
- * Lower hem of overalls rolled over and stitched to expose contrasting coloured cuffs
- * Press studs used instead of buttons on side openings

Pattern Pieces

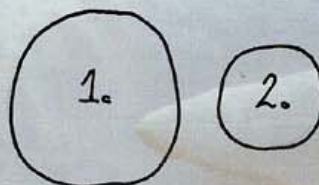
- | | |
|-------------------------------|-------------------------------|
| 1. Bib (cut 2) | 9. Small Right Pocket (cut 1) |
| 2. Front Pant (cut 2) | 10. Back Pocket (cut 2) |
| 3. Hip Yoke (cut 2) | 11. Front Pant Facing (cut 2) |
| 4. Back (cut 2) | 12. Back Pant Facing (cut 2) |
| 5. Back Pant (cut 2) | 13. Belt Loop Strip (cut 1) |
| 6. Front Pocket (cut 2) | 14. Front Circle (cut 1) |
| 7. Seat Reinforcement (cut 2) | 15. Facing Circle (cut 1) |
| 8. Top Pocket (cut 2) | |

* 1.5cm seam allowance on all pattern pieces

* All cut from Blue Cayman Linen Cotton, excluding pieces 4, 11 and 12 which are cut from Yellow Cayman Linen Cotton

**Plastic Pieces**

1. Back/Jacket Circle Insert (cut 1)
2. Overalls/Front Pocket Insert (cut 1)



Cost List

Item	Quantity	Price
Blue Cayman Linen Cotton	4.5 metres	\$31.45
Yellow Cayman Linen Cotton	2.5 metres	\$17.47
Blue Mettler Thread (890, No.100 - 100m)	3	\$8.25
Top Stitching Thread - Guterman CA02776 - 500m (547 yards)	1	\$7.45
Butterick 6608 (pattern)	1	\$10.95
Burda 2752 (pattern)	1	\$10.95
Jo Sonjaire Paints - Water Colour Paints	4 tubes	\$16.00
Clear PVC thick plastic	50cm	\$5.45
Jo Sonjaire Paint - plastic paint medium	1	\$6.75
Open Ended Zipper - 45cm (18")	1	\$1.60
Elastic - 1cm thick	15cm	\$1.50
Eyelets with Tool - 25 pack	6 eyelets	\$1.20
Elastic Cording with Spring Toggles - 1.5m elastic cording - 2 cord stoppers	2 packets	\$6.80
Spring Toggles - 2 pack	1 packet	\$3.00
Bib'n'Brace - 2 pack	1 packet	\$5.40

Total Amount: \$134.22

Care Label

SAND STOMPERS

size 7
Made in Australia

60% Cotton / 40% Linen



Warm Machine Wash



Line dry inside out



Hot, steam iron

Do not iron plastic

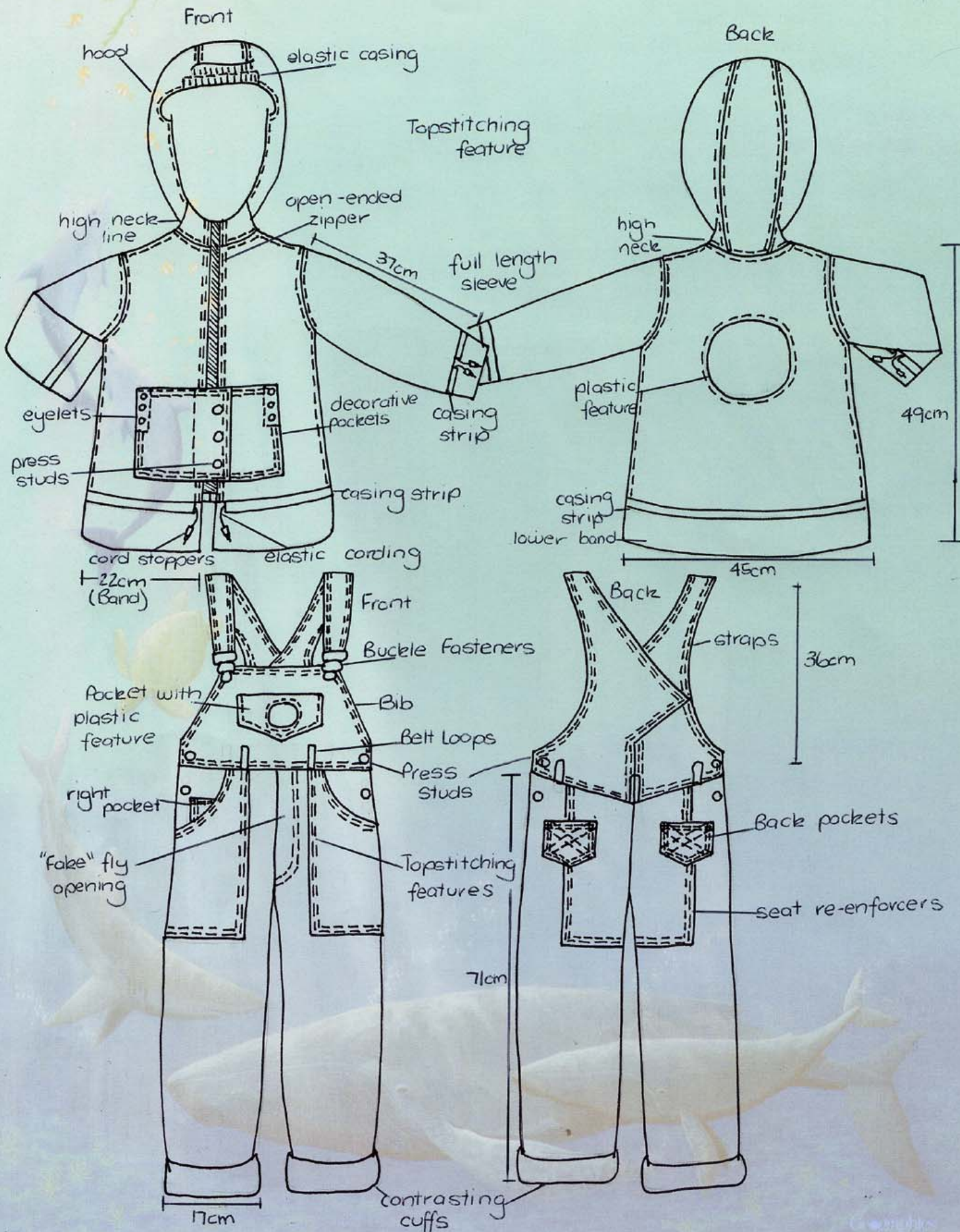
Blue Cayman Linen Cotton

Yellow Cayman Linen Cotton

PVC (thick) Plastic



Production Drawings

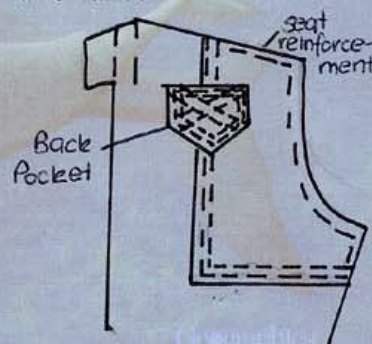
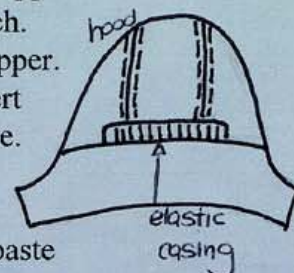
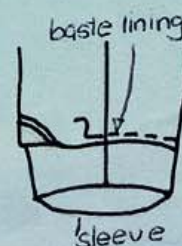
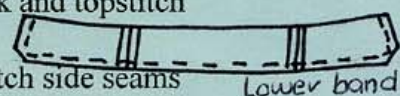
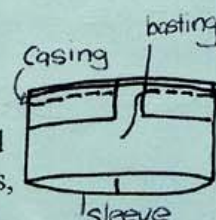
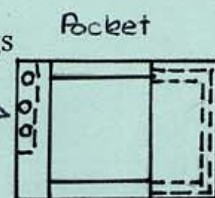


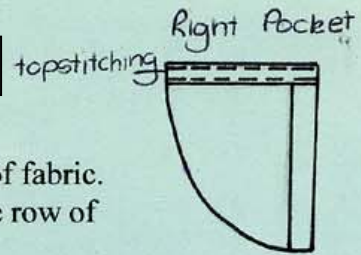
Construction Steps**Jacket:**

1. Turn facings outward and pin. Stitch upper and lower edges. Trim corners diagonally. Baste facings and allowances at upper and lower edges to inside, press. Topstitch pocket opening edges. Attach 3 eyelets at equal intervals. Double row of topstitching close to front, upper and lower edges.
2. Baste pockets to fronts matching at placement lines and stitch lengthwise. Double row of topstitching close to remaining edges (excluding pocket opening edges).
3. **Shoulder Seams:** Lay fronts right sides together with back and stitch shoulder seams. Trim allowances and press towards back. Topstitch close to seams.
4. **Sleeves:** Baste bands to sleeve and stitch close to edges.
5. **Attach Sleeves:** Pin right-sides together at armhole-edge. Match cross mark at sleeve cap with shoulder seam. Baste and stitch sleeves. Trim allowances and press towards front and back.
6. **Sleeves and Side Seams:** Lay front and back right sides together. Fold sleeves lengthwise. Baste sleeves and side seams. Trim allowances and press to one side of the sleeve.
7. **Sleeve Bands:** Stitch, leaving normal seam allowance pressed open. Fold sleeve band wrong sides facing in. Pin raw edges together. Press ends of casing strip to wrong side. Wrong sides facing in, fold on FOLD LINE. Baste raw edges to sleeve band matching ends with cross marks. By matching seams, baste sleeve band with lower edge of sleeve, right sides together. Press allowances towards sleeves.
8. **Hood:** Baste side and centre hood pieces together and stitch. Trim and press seam toward centre hood piece. Topstitch either side of seam (0.5cm) wide, catching allowances. Baste hood right sides together with shoulder seams and stitch. Trim allowances, clip curves and press allowances down. Double line of topstitching.
9. Paint design on plastic.
10. Pin facing right sides together with back. Stitch. Cut out back along edge of facing. Trim allowance and clip curves. Turn facing to inside. Baste edge, press. Lay plastic on back and topstitch around circle, close to edge.
11. **Lower Band:** Lay two front bands, each right sides together with a back band. Stitch side seams and press open. Lay band pieces right sides facing. Stitch front and lower edges, trim allowances and trim corners diagonally. Turn right side out, baste edges and press. Double line of topstitching. Pin open edges together.
12. **Lower Casing:** Press casing ends inwards and fold in half on placement line. Baste casing to lower band matching ends with cross marks. Baste band right side together with lower edge of jacket.
13. **Lining:** Construct lining in same manner as jacket of top fabric. Press allowance at lower edges of sleeves and at front edges of jacket, including edges of hood to inside.
14. **Zipper:** Baste zipper to jacket then topstitch double row of topstitching catching jacket and zipper.
15. **Attach Lining:** Match to jacket at seams, pin right sides together. Baste hood edges and stitch. Trim allowances and clip curves. Hand sew lining to jacket catching lower bands, sleeves and zipper.
16. **Elastic Casing/Hood:** Topstitch hood as marked at front edge for elastic casing (7/8z"). Insert piece of elastic which is somewhat shorter. Stretch elastic and stitch ends at cross marks to secure.
17. Thread elastic cording through casing and add cord stoppers to the ends.

Overalls:

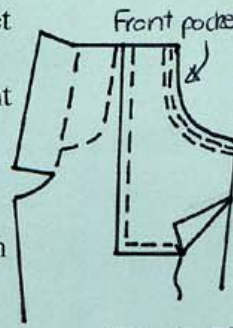
1. **Seat Reinforcement:** Finish allowance at side and lower edges, turn to wrong side of fabric, baste and press. Baste each piece to matching back pant piece. Double row of topstitching.
2. **Back Pockets:** Press allowance at upper edge to wrong side, turn under and baste. Double row of topstitching. Stitch crisscross across pocket. Press side and lower edges to wrong side seam allowance and stitch pockets to back pant pieces.





3. **Right Pocket:** Tack remaining edges. Press upper and lower edges to the wrong side of fabric. Double row of topstitching. Pin pocket to right hip yoke piece at placement lines. Double row of topstitching close to edge.

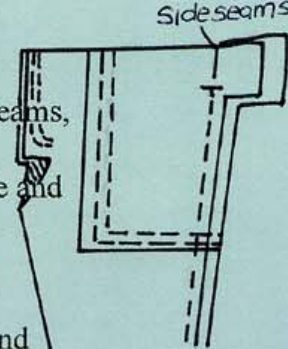
4. **Front Pocket:** Finish allowance at front and lower edges, turn to inside and baste, press. Pin pocket to front pant piece, both wrong side up. Stitch pocket opening edges together. Trim seam allowance, clip curves. Turn pocket to right side of the pant piece and baste. Double row of topstitching. Pin front pant piece to hip yoke piece. Baste, slightly push up pocket edge. Baste hip yoke to front pant piece. From right side of the fabric, stitch pocket in place, close front and bottom edges and stitch again.



5. **Front Zipper Opening:** Finish allowances at centre front seam and on slit opening facings. Lay front pant pieces right sides together. Pin slit opening closed matching centre. Stitch centre seam from slit mark for approx. 2". Secure ends of stitching. Clip seam allowance on right pant piece at end of underlap close to stitching. Press facings towards left pant piece up to clipping.

6. Topstitch left front pant piece at marked stitching lines, catching facings. Baste upper edges together. Remove basting from slit opening.

7. **Side Seams:** Lay front pant pieces right sides together with back pant pieces. Baste side seams, also basting side slits. Stitch side seams to horizontal marks. Secure ends of stitching.



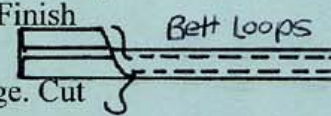
8. Trim allowances and press towards front pant pieces. Turn facing on back piece to inside, baste and press. Without catching front pant piece stitch bottom edges of facing together.

9. Double row of topstitching close to side seams, and also close to front closure edges, without catching back pant piece.

10. **Inner Leg Seams:** Right sides facing together stitch inner leg seam. Finish seam allowance and press open.

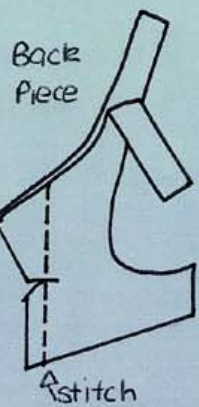
11. **Centre Seam:** Matching inner leg seams, stitch remainder of front and back centre seam. Finish seam allowance and press open from back edge to beginning of curve.

12. **Belt Loops:** Press lengthwise to centre, then in half length wise. Topstitch along folded edge. Cut into 5 pieces. Baste loops to overalls and stitch along top and bottom edges.



13. **Pocket:** Insert plastic piece like stated in point 10 in the jacket construction steps. Lay pockets right sides together and stitch edges leaving 8cm open to pull through. Flip through and stitch to one bib piece. Hand sew gap up.

14. **Bib:** Press bottom edges of bib piece without pocket upwards to wrong side of fabric. Pin bib right sides together and stitch edges, trim seam allowances and trim corners diagonally. Turn bib right side out, baste and press.



15. Attach bib to pants, right sides together, stitch and trim allowances. Turn under inner edge of bib, and baste. Double row of topstitching close to edges of bib.

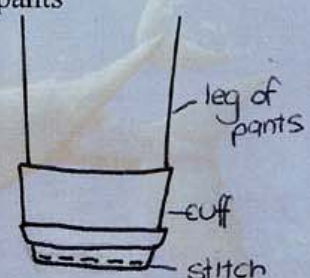
16. **Back Pieces:** Lay back pieces together, stitching seam from horizontal mark to lower edges. Clip seam at horizontal mark close to last stitch. Press seam allowance open, and seam allowance at bottom edge of one piece to wrong side.

17. With back pieces right sides facing, baste edges and stitch. Trim allowances, corners diagonally and clip curves.

18. Turn right way out. Double row of topstitching on both straps, catching the two together as you topstitch left on top of right. Attach suspender fasteners to front end of suspenders and overalls.

19. **Cuff:** Lay front and back pieces right sides together and stitch. Fold cuff in half and pin to hem line (raw edges meeting). Stitch along bottom catching only the back half of the cuff. Trim allowance and clip. Press other cuff edge under and baste to attachment line. Hand sew cuff to trouser pants catching in the seam.

20. Add in press studs to both sides of overall openings.





Investigation, Experimentation and Evaluation

Fabric Testing

The properties that I desired in my fabric were:

- * Abrasion Resistance/Durability
- * Good moisture absorbency
- * Good Handle - Low Irritation
- * Easy to wash because children get dirty often
- * Flammability
- * Good Heat Conductivity

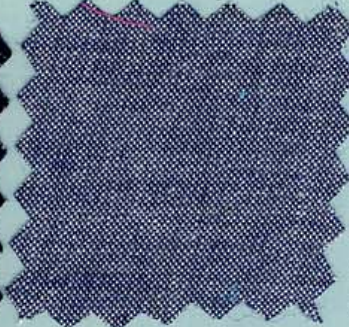
I looked at a range of fabrics, those being:

Cayman Linen Cotton

Polyester/Cotton

Denim

Chambray



I conducted the following experiments to see which fabrics gave the best qualities in relation to the functions I desired.

Abrasion Resistance

Aim: To test the resistance or durability of certain fabrics against abrasion and in turn find the most suitable for this purpose.

Method: Place the sample on a firm board, using strong tape to hold it into position. There must be an exposed area approximately 10cm*20cm. Take a piece of sand paper and stroke the fabric sample at uniform pressure and at a standard stroke, making a note of the amount of strokes and pressure required to wear away the fabric. The less damage that occurs, the better abrasion resistance the fabric has.

Results:

Fabric	Damage
Cayman Linen Cotton	Due to the excess rubbing on the surface some fibres were raised and broken on the surface, but only minimal damage occurred.
Denim	Little damage occurred to the denim. There was no distortion or deformity within the fabric. The surface fibres rubbed up only slightly.

Polyester/Cotton	The fibres started to raise on the surface of the fabric but no holes or gaps formed in the fabric. There was a slight loss of colour as the fabric was rubbed.
Chambray	The fibres began to loosen and weaken and holes began to form. The fabric warped slightly out of shape and there was some pulling of the yarns.

Conclusion: Denim was clearly the strongest fabric, but the Cayman Linen Cotton also had a high abrasion resistance, due to the little damage that occurred to each surface when rubbed by the sand paper. The chambray can be classified as having the least abrasion resistance as it received the highest amount of damage.

Absorbency

Aim: To test the absorption rates of fabrics, and find which fabric has the fastest absorption rate.

Method: Stretch fabric pieces of equal size into embroidery hoops. Using an eye dropper 1cm above the fabric, place a drop of water on the fabric and time how long it takes for the water to be absorbed. Add a second and third drop, timing the rate of absorption for each fibre by adding the three absorption times and dividing your answer by three. The lower average time indicates a faster absorption rate.

Results:

Fabric	1st Drop	2nd Drop	3rd Drop	Absorption
Cayman Linen Cotton	1 min 10 secs	45 secs	40 secs	51.6 secs
Polyester/Cotton	4 mins 7 secs	3 mins 45 secs	3 mins 20 secs	3.73 mins
Denim	50 secs	40 secs	35 secs	41.6 secs
Chambray	2 mins 55 secs	1 min 55 secs	1 min 20 secs	2.05 mins

Conclusion: The Denim and Cayman Linen Cotton clearly have the fastest absorption rates. The Denim was slightly faster than that of the Cayman Linen Cotton and the Polyester/Cotton had the slowest absorption rate of all 4 fabrics. Therefore either the Denim or Cayman Linen Cotton would be best suited to this purpose.

Handle

Aim: To test the feel of the different fabrics against the skin and as a result find the smoothest and most low-irritant fabric.

Method: Taking a sample of each fabric, rub the sample against the inside of the wrist of several people, where the skin is very sensitive. Ask 10 people to make judgements about the feel of the fabric against the skin for each of the following words: soft, stiff, smooth, harsh or slippery. A conclusion should be made on the overall handle of the fabric in relation to the judgements made by the people.

Results:

Feel of Fabric	Cayman Linen Cotton	Polyester/Cotton	Denim	Chambray
Soft	9/10	9/10	1/10	7/10
Stiff	1/10	1/10	9/10	2/10
Smooth	8/10	9/10	2/10	5/10
Harsh	0/10	0/10	7/10	1/10
Slippery	5/10	8/10	2/10	3/10

Conclusion: I found from the above experiment that both the Polyester/Cotton and the Cayman Linen Cotton have the smoothest and softest feel on the skin and that the Denim has a much stiffer and harsher feel on the skin. Therefore either the Polyester/Cotton or the Cayman Linen Cotton would be the best choices of fabric for the property of handle.

Washability

Aim: To test the ability of a fabric to be subject to constant washing without wrecking its appearance and structure.

Method: Take two samples of each fabric, one being a control sample and the other the testing sample. Individually place a sample of the fabric in the washing machine and set it to a warm (40 degree Celsius wash). Wash each sample several times (roughly 5-10 times) allowing the sample to completely dry before washing it again. By comparison with the control fabric, note any changes that have occurred to the fabric sample.

Results:

Fabric	Changes to Fabric
Cayman Linen Cotton	Only slight changes occurred to the fabric when washed. Slight creasing occurred and there was a little shrinkage.
Polyester/Cotton	There was a slight loss in colour evident in the fabric after it was washed several times.
Denim	The material stiffened slightly and shrunk when it was washed. I also found that some colour ran out of the fabric.
Chambray	The material crushed a lot during the washing process and slightly faded.

Conclusion: The Polyester/Cotton has the best washing properties, followed by the Cayman Linen Cotton, and therefore either of these fabrics would be appropriate for a child's outfit as they are easy





to wash and clean.

Flammability

Aim: To test how long it takes for each fabric to ignite and burn and determine which fabric has the best 'fire resistant' properties.

Method: Hang a strip of fabric (5cm*20cm) from a clamp on a retort stand. Place sand below the stand to catch any residue. Time how long it takes for the strip of fabric to ignite, then how long it takes to burn. Highly flammable fibres will readily ignite near source of flame and continue to burn once the source is removed.

Results:

Fabric	Time taken to Ignite	Time taken to Burn	Fabric Sample
Linen	3.5 secs	5 secs	
Polyester/Cotton	5 secs	6 secs	
Denim	4 secs	6 secs	
Chambray	3 secs	4 secs	

Conclusion: All of the fabrics tested above ignited and burned fairly quickly. The Polyester/Cotton was the slowest to catch a light and the chambray was the quickest. But due to the nature in which the Polyester/Cotton burns (it melts), the fabric is somewhat unsuitable for the child age group. Therefore the Denim or Cayman Linen Cotton would be the more appropriate choices.

Heat Conductivity

Aim: To test the heat conductivity of each fabric.

Method: Take a fabric sample and wrap it around an empty can. Fill the can with hot water. Place your hands over the fabric and observe the amount of heat escaping. Select one of the following phrases: poor, fair, good, very good, which you feel is most suitable for the fabric. Those fabrics which allow more heat to escape are good conductors of heat and would be cooler to wear in summer.

Results:

Fabric	Poor	Fair	Good	Very Good
Cayman Linen Cotton				✓
Polyester/Cotton		✓		
Denim		✓		
Chambray			✓	

Conclusion: The Cayman Linen Cotton has the best heat conductivity as it allowed a lot of heat to escape the can and therefore would be the most appropriate choice when choosing a fabric that needs to have good heat conductivity.

Overall Conclusion

My final fabric choice was the Cayman Linen Cotton because it had the best combination of properties, shown by the above experiments. The advantages of this fabric clearly outweighed the disadvantages.

The advantages of the Cayman Linen Cotton are:

- * It has a very good heat conductivity, making it suitable for the hot summer climate
- * The soft and smooth handle of the fabric makes it comfortable and low irritant on the skin
- * It has good washability properties as it showed little change in structure during the washability test, meaning it will be easy to care for
- * It has a good absorption rate

The Cayman Linen Cotton was deficient in the area of flammability, as it was quick to ignite and burn. However I have compensated for this property in my pattern modifications. The firm fitting wrists and waist line will help prevent the material from being exposed to an open flame. Also, due to the fact that this fabric will be used for summer clothing it is unlikely that the child will come in contact with an open flame.

Fibre, Yarn and Fabric Analysis

The Cayman Linen/Cotton blend is a 60% cotton and 40% linen blend. The fibres used are cotton and linen and both are cellulose fibres and both have similar properties. The properties being:

- * They are strong and increase strength by 10% when the fibre is wet
- * They have very good heat conductivity properties meaning the fibres will keep the child cool
- * They are good moisture absorbers before the fabric feels damp
- * The crease resistance is relatively poor, however the fabric has not creased badly and the wrinkles fall out fairly easily
- * They have good resistance to the sunlight meaning the fabric will not decompose when exposed to UV rays and they will also give good protection against the UV rays
- * Due to the good to very good strength of these fibres, they also have good durability

The **yarn** type is a slub yarn which is characterised by randomly spaced thick, soft twisted portions in the yarn. These slubs are randomly spaced otherwise the effect is not achieved. This is a common effect yarn in cellulose fibres and gives a 'natural' loose spun look. It all contributes to the absorbency but can catch the dirt easily.

The **weave** is a plain weave. The plain weave is recognised by its chess or draught board-like yarn.

Some properties of plain weaves are:

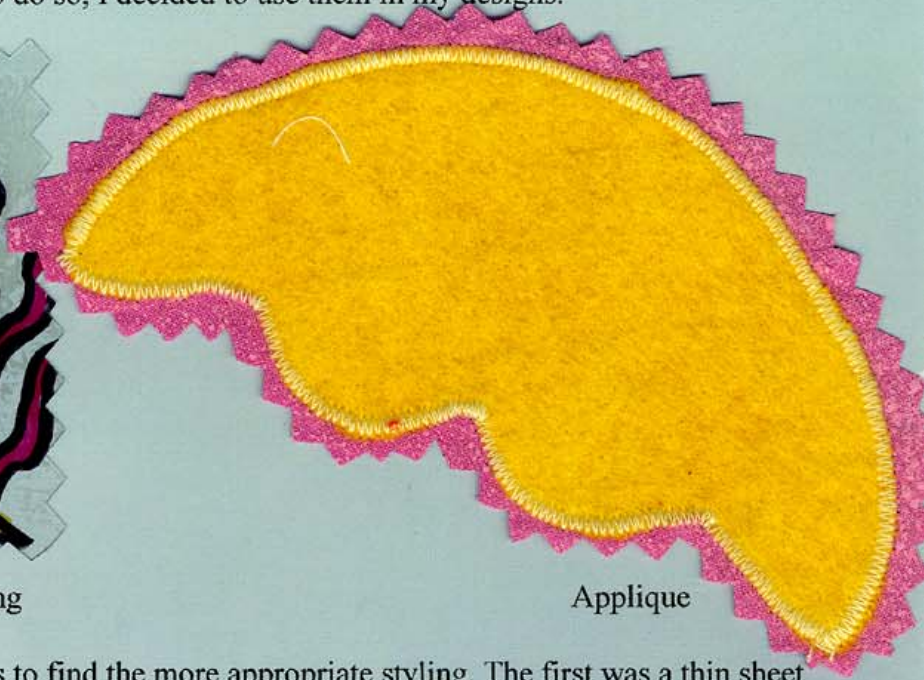
- * It is durable
- * It is the most comfortable weave for the summer season
- * The firmly woven structure gives a crisp, hard and cool handle
- * It soils most readily because of its porous structure which permits air to pass through and filter out and the airborne soil particles to be retained

Experimentation

Fabric Decoration: I tried out three different methods of fabric decoration, those being applique, machine embroidery and plastic inserts with hand painting. I found that the applique lacked creativity and that it was too dull as it blended in with the fabric. I was unable to find a suitable design for the machine embroidery that would be appropriate for the 'marine environment' theme that I had intended, so I decided against using it. The plastic inserts were the most eye catching and effective look as they gave a contemporary and innovative appearance, and the hand painting on them allowed me to do exactly the designs I wanted to do so, I decided to use them in my designs.



Plastic insert with hand painting



Applique

Plastic Types: I tested two plastic types to find the more appropriate styling. The first was a thin sheet of plastic, and the second was a thick PVC plastic. I found that the thin plastic crinkled and marked too easily and for this reason it was inappropriate. I also found that the plastic was not flexible enough to combine with fabric. The PVC plastic had a higher degree of flexibility, and a smoother and glossier appearance.



'Sheet' Plastic



PVC thick Plastic

Sizing of the Plastic: I experimented with three different sizes of the plastic 'circular' inserts. The 1st was 9.5cm wide in diameter, the 2nd was 12.5cm wide in diameter and the 3rd was 15cm wide in diameter. I found that the 9.5cm circle was too small for the back of the jacket but adequately suited the small pocket on the front of the overalls as it was large enough to draw attention to the pocket. I found that the 15cm circle was too large for the jacket and therefore the 12.5cm circle was the most appropriate, as it was eye catching and could act as a focal point.

* Circles not to scale



9.5cm Circular Plastic Insert



12.5cm Circular Plastic Insert



15cm Circular Plastic Insert

Topstitching: I experimented with the width, the kind of thread and the stitch length of the topstitching to combine the best qualities of each one.

I found the best thread for the topstitching by testing each thread on the Linen/Cotton fabric. I tested the contrasting 'Guterman Topstitching' thread, a contrasting navy thread and the ordinary 'Blue Mettler' thread that I used for all the inner stitching. I found that the contrasting threads worked best as the ordinary blue was not seen, and I also decided that the navy was a little too dark and heavy for the rest of the design. Therefore the 'Guterman Topstitching' thread was the most aesthetically pleasing.



Blue Mettler Thread

Guterman Topstitching Thread

Navy Thread

I tried to determine the best width for the topstitching by lining the seams and the edges of the fabric with different lines and markings on the machine. I felt that 1cm was too wide and that the topstitching needed to range somewhere between the 5mm and 7mm markings. I found that the best width was achieved by lining the edge/seam up with the right hand side of the foot and having the needle in position 5.



I tested the most appropriate stitch length by experimenting with all stitch length sizes between 2 and

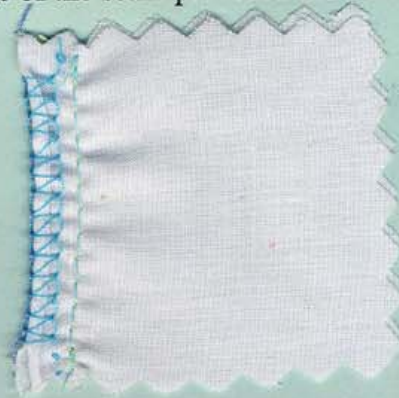
4. I felt that 2 was too small and that 4 was too large. I felt that stitch length 2.5 looked the best as it was neat but at the same time bold and stood out.



Seams: I experimented with two different seam types. I tested the Machine Fell Seam and the Flat Seam. I found that the Machine Fell Seam did not suit the styling of the clothing as it was too thick and bulky and for this reason the flat, open seam was more appropriate. This seam also needed adequate finishing and I found that over locking the edge of the seam provided the neatest finish.



Machine Fell Seam



Flat Seam with overlocking

Press Studs/Buttons: I wanted to make sure that the method I used to fasten the sides of the overalls and the front pocket of the jacket was the easiest for the young child to use and the quickest to get undone in the case of an emergency. I performed this by experimenting with my young cousin. We tested the time it took her to get out of a jacket that was done up by buttons as well as a jacket that was done up by press studs. We found that it was much quicker for her to remove the jacket with the press studs than the jacket with the buttons, as the press studs unclip easily, and it is because of this I chose the press studs.

Button Hole

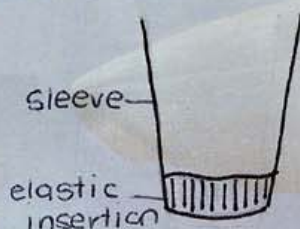


Press Stud



Adjustable Wrists: For safety reasons and for additional protection from the wind, I felt the need to have closed or firmer fitting wrists and an adjustable waist line. There were two methods which I tested to suit this function. Firstly I tested the elastic wrist but thought that the fabric was too heavy for the gather and so instead I designed an outer casing strip which was to be attached to the lower band of the wrist and waist. This allowed for the insertion of elastic cording and cord stoppers which gathered the fabric better and gave a more modern and contemporary finish the design.

Elastic



Casing Strip with elastic cording and cord stoppers

