PROTECTION CLOTH

The **Protection Cloth** is used at all times to protect the materials with which you are working from the dust and dirt of the school room. It also serves as a wrapper for work when the lesson is over. It is more serviceable than a bag, as it permits the keeping of the materials in an uncrumpled condition. It can be laundered.

The Protection Cloth is made from one yard of unbleached muslin and is hemmed at both ends and marked with the owner’s name or initials.

MUSLIN

**Muslin** is a plain woven fabric. The term is applied to almost any of the soft white cotton fabrics. It is put to a variety of uses. It derived its name from the city of Mosul, on the Tigris River, where it was first made.

Muslin is used in both the **bleached** and the **unbleached** state. The bleached muslin is used principally for underwear, bedding and aprons.

Unbleached muslin is used where a stronger material is required and where the question of whiteness is not an important factor.

The bleached muslin is white, having been subjected to a bleaching process.

The unbleached muslin does not pass through the stages of finishing that are used for the bleached muslin. After the unbleached muslin is boiled off it is dried, pressed, made up into **bolts**, and then shipped to market.

COTTON

Among all the materials which the skill of man has made into fabrics, cotton is perhaps the cheapest and the most extensively used.

Cotton is the white hairy covering of the cotton seed. It is called a surface covering to distinguish it from the bast, or stem fibers.

![Fig. 4. The Cotton Plant.](image)

Cotton grows between 35 degrees south latitude and 45 degrees north latitude.

The countries producing the cotton of today are Brazil, Egypt, India and the United States.

India is the oldest known cotton-producing country in the world.
In China cotton has been cultivated since the earliest times as a garden plant, yet the people never turned it to account until the end of the 13th century.

Cotton studied under the microscope reminds one of a twisted tubing. Before the fiber is ripe it has the appearance of tubing, but as it ripens it twists. The twist aids in the spinning properties and gives elasticity to the fabric.

There are many varieties of the cotton plant. The two commonly known in the United States are the Sea Island Cotton and the Upland Cotton. (See Bulletin 302, U. S. Dept. of Agriculture.)

The Sea Island Cotton grows on the islands off the southern United States, and is the long-fiber cotton.

The Upland Cotton grows on the uplands of our Southern States. It is the short-fiber cotton and is commonly known as "short staple" cotton.

The species grown here are shrubs and grow from three to six feet in height. The flower resembles the hollyhock. When it first opens, it is nearly white, changing in a few days to a pink, and as it dies off becomes a purplish hue.

All the flowers do not bloom at the same time. Those at the bottom of the plant open first.

It is no uncommon sight to see a plant with the bolls bursting, the flowers in bloom, and the buds just forming.

After the cotton picking begins it is kept up continuously until the Christmas holidays.

Ginning is the first process thru which the cotton passes after picking. The process separates the seeds from the fiber.

Until 1793 this work was done by hand and it was a very slow process, but with the invention of the cotton gin by Eli Whitney the work was made easier. Formerly one man could seed only one pound in a day by hand, but now he can attend three gins and clean four thousand pounds of cotton in one day.

When the seeds have been removed the cotton is made into bales of about five hundred pounds each. In baling it is pressed into shape by an hydraulic press, then wrapped in burlap, and strapped with iron bands. It is now ready for shipment as raw cotton.
When it reaches the factory, the bale is opened and the cotton sorted.

The **Breaking** and **Picking** process opens up the cotton and thus rids it of the sand, dead leaves and other dirt. It is then formed into a lap.

Two or more yarns are sometimes twisted together after the spinning, thus making the two or three-ply yarn.

If the yarn is to be dyed the bleaching may be omitted. The bleaching consists of scouring the yarn with a cold dilute bleaching powder, followed by an acid bath and thorough washing.

**WARP**

The warp threads, or ends, are the threads that extend **lengthwise** of any material. They are the strongest threads.

**WOOF**

The woof threads, which are also known as the **filling**, **weft** or **picks**, are the threads that are **interlaced** across the warp threads.

**SELVAGE**

The edge formed by the woof thread at either side of the cloth is the **selvage**. The term is a contraction of the words "self" and "edge."

Warp threads are the vertical ones shown here. Woof threads are those running left to right. Selvage is formed by the turn of Woof threads at each side.

![Fig. 6. Cotton Seed with fiber attached.](image)

![Fig. 7.](image)
WEAVING

The interlacing of the warp and woof threads is weaving. There are many ways of interlacing the threads, producing a plain or pattern weave. When the interlacing of the threads is regular, viz:—one thread over and one under, a plain weave is produced.

TO STRAIGHTEN CLOTH

There are three ways to straighten cloth:—(1) Draw a thread and cut in the space thus formed.

To straighten any kind of muslin, cut the selvage at one side, tear the cloth to the opposite selvage and cut the selvage. The selvage is cut because it is woven closer than the rest of the material and should not be torn, as the resistance might cause the material to split in the opposite direction and thus spoil the material. To guard against such an accident always cut the selvage at the point to be torn, then tear across the material to the opposite side and again cut.

Examine the muslin carefully and answer the following:—

What is its weave?
Indicate the selvage.
How was the selvage formed?
Grip the cloth with the thumb and first finger of each hand about six inches apart and pull tightly along the warp threads.
Repeat the same operation on the woof threads.
What difference did you observe?
Why this difference?
Observe the raw edges.
Do they look straight?
How can you determine whether or not they are straight?
If the torn edges are not straight, how may they be straightened?
Suppose the raw edges have a curved appearance, how could it be proven that they are straight?
Straighten both raw edges of the unbleached muslin. It is then ready for the laying of the hems.

THE HEM

A Hem is made by folding the raw edge of the material twice in the same direction and fastening same in that position. The first fold is nar-
row, the width depending on the weave of the material and its tendency to fray. The second fold is made the required width for the finished hem. This width depends on the place to be finished and protected by the hem. It varies according to the position and material, and the taste of the maker.

For the Protection Cloth, turn down one-fourth inch on the raw edge. Crease by putting the first finger of the right hand back of the edge being creased and scratch down with the thumb nail. The edge may be pinched into position also, but the creasing with the thumb is better.

NOTE—Never draw the edge to be creased over the edge of a table or machine. It stretches the edge of the material and it is almost impossible to get rid of the fullness thus formed.

The second fold is to be of the required width for the hem.

The width of the hem must be decided upon from two points of view, viz:—utility and appearance. The first point is governed by the material. In deciding upon the width for appearance the relation of the hem to the length of the cloth must be considered.

After the width of the hem has been decided, crease and pin, using not less than five pins; one at the center, one at each selvage and one on either side of the center, half way between the center and the selvage. Place each pin at right angles to the folded edge as shown in the illustration.

**TO THREAD THE NEEDLE**

It is better to thread the needle directly from the spool because of

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![Fig. 10. Pinning Hem.](image-url)

![Fig. 11. Putting Needle on Thread.](image-url)

![Fig. 12. Passing needle along thread.](image-url)
the twist in the thread which makes it liable to knot. Hold the thread near the end in the left hand. With the right hand put the needle on the thread.

Raise the thumb just enough to pass the needle along on the thread. Observe that the needle is in the right hand ready for use. Break off about 18 inches of thread. The width of the chest serves as a good measure for proper length of thread.

TO MAKE A KNOT

Place the thread, end downward toward the worker, over the first finger of the left hand.

Hold the crossed threads in position with left thumb.

Roll the end over the crossed thread with the thumb and first finger of the left hand, at the same time pull the thread slightly with the right hand, drawing the thread into the required knot.

BASTING

Basting is temporary stitching. It is used to hold two pieces of cloth in a required position and as a guide for permanent stitching.

Even Basting is used where two pieces of cloth are to be held firmly, as in the seams of a garment that is to be fitted. The stitches and spaces are of the same length.

Uneven Basting is used where materials are to be held together and no fitting is required. It is used as a guide for permanent stitching. The stitch may be long and the space short, or the stitch short and the space long. The stitches and spaces are uneven.

Vertical or Tailor's Basting is used when two pieces of material are to be held in position one above the other, as in basting a lining or an interlining. The stitch is a slanting stitch, but it gets its name from the fact that the needle is set at a vertical position. The work is kept flat on the table for this basting.

Start a basting with a knot on the front side of the goods and fasten it by taking two stitches in the same place.

When learning to baste, take one stitch at a time, later two or three stitches may be taken before removing the needle.

Place the Protection Cloth on the table with the bulk of the material
toward the worker, letting it fall in the lap.

Baste, with small, even basting, along the folded edge, which is held in position by pins.

**HEMMING**

The Hemming Stitch is a slanting stitch.

To fasten the thread when beginning the hem, slip the needle thru the folded edge of the hem and take a small stitch on the edge. Tuck the end of the thread in under the hem.

Hold the hem over the first finger of the left hand, the folded edge of the hem and the bulk of the material toward the right hand and dropping into the lap; the second finger of the left hand is slipped over the outside of the cloth and holds the material being hemmed in position.

Take up a few threads of the muslin and pass the needle thru the folded edge of the hem, slanting the needle slightly to the left shoulder.

Next, set the needle into the muslin opposite the thread in the folded edge, take up a few threads of the muslin and pass the needle thru the folded edge, thus forming the second stitch.

Proceed across the hem, keeping the slant of the stitch and the distance between the stitches uniform.

Make the stitches as small as possible.

No knots are used.

To end the thread, take two or three very small stitches in the same place.

Cut off the thread. Never bite the thread.

To start a new thread, slip the needle thru the folded edge of the the hem and back about two stitches. With the point of the needle tuck the end of the thread in between the hem and proceed with the hemming.

**THE CHAIN AND OUTLINE STITCHES**

The chain and outline stitches are used as decorative stitches in embroidery work and in marking linens and underwear.

The Protection Cloth is to be marked with the full name of the owner, so that it may be identified at a glance.

Thread a No. 5 needle with a thread of marking cotton.
CHAIN STITCH

The chain stitch resembles the links of a chain when finished. The thread is fastened by bringing it thru from the under side of the material and taking a small stitch.

Hold the thread to the left and in position with the left thumb, as shown in the illustration. (Fig. 16.) Insert the needle at exactly the same place where the thread comes out, and take a medium stitch, bringing the needle out over the loop thus formed.

To fasten the thread begin back about one-half inch on the line to be marked and put in two or three small running stitches, then turn the cloth and work from you.

NOTE—In the chain stitch the work is begun at the top and worked down; in the outline stitch, the operation is away from the worker.

Insert the needle on the line and take a short stitch on the line.

![Fig. 16. The Chain Stitch.](image)

![Fig. 17. The Outline Stitch.](image)

To make the next stitch, hold the thread in position with the left thumb as before and insert the needle into the loop, taking up a stitch and bringing the needle out over the thread, thus making another loop.

Continue in this way, trying to keep the stitches of equal length and not too loose.

As soon as a good chain stitch can be made practice the outline stitch.

OUTLINE STITCH

The outline stitch defines the line in embroidery or in marking household linens and underwear with letters.

Avoid the use of knots.

Set the needle in again, a stitch's length beyond, and on the line, keeping the thread to the same side of the needle each time. If at the start the thread is to the right side of the needle, continue so thru-out the entire line. The same is true if the thread is started on the left side of the needle.

Practice the outline stitch.

Now decide whether the chain or outline stitch is the one preferred for marking the Protection Cloth.

MARKING THE PROTECTION CLOTH

With pencil, write the full name at one end of the Protection Cloth, two inches from the edges, making
the capital letters of the name three-fourths of an inch high, and the small letters three-eighths of an inch in height.

Outline or chain stitch the name written.

**TERMS USED IN THE PROTECTION CLOTH LESSON**

unbleached  lengthwise
muslin  woof

cotton  weft
fabrics  selvage
Monsul  weave
manufactured  basting
material  hemming
bleaching  stitch
decorative
warp  balls
thread

**STUDENT'S RECORD**

This Record should be a full memorandum of the classroom work. It should show the points gained by the pupil in working out each problem.

The problems are based on a sequence of educational principles, and the Record should be an evidence of this.

It is not the plan of this course to have models of work perfected and mounted in a book for future reference. Such a plan would be a waste of time and energy. Often it is advisable to try a new stitch before putting it on the work one is doing. These practice pieces may be mounted in the note book.

Secure samples of different grades of muslin. Study the weave, the texture and the grade of yarn used in the making. These may be mounted with the width and price, also indicate any other data that may seem advisable.

Secure a piece of material with a selvage; mount and indicate the selvage; warp; woof.

Mount the piece showing the practice hem.

Mount the piece showing the practice outline and chain stitches.

Mount newspaper or magazine clippings referring to cotton, cotton manufacture, looms, etc.

The tests and examinations given from time to time by the teacher should be included in this Record.

**QUESTIONS AND SUGGESTIONS**

Why was cotton material chosen for the Protection Cloth?

Outline the steps thru which cotton passes in its manufacture.

Give a short sketch of the history of cotton.

Describe cotton as seen under the microscope.

Name five by-products of cotton.

What is Muslin?

Define warp; woof; selvage.

Define weaving.

How may cloth be straightened?

What is a hem?

Define basting.

Where is even basting used? Uneven basting? Vertical basting?

Name the decorative stitches learned.

Explain the following terms: combing; carding; drawing; roving.

How may cotton be bleached?

What can be said about cotton as an industry in the United States?

What is the appearance of the hemming stitch on the right side?

What two things must be observed while hemming?

What is the average width and cost of unbleached muslin?
HOME APPLICATION OF THE PROTECTION CLOTH PRINCIPLES

The following articles can be made from the knowledge gained thru the experiences in the Protection Cloth project.

The plain hand towel, dish towel, glass towel, dust cloth, bread cloth, card table cover and plain runner are all finished with the plain hem and may be marked with the chain or outline stitch, according to the desire of the maker.

The material for the hand towel, dish towel and glass towel is usually crash and can be bought under their separate names respectively. (Example: glass toweling; hand toweling.)

Cheese cloth is the material for dust cloths.

The bread cloths are usually made from an old and worn tablecloth. They are cut to size, hemmed and used to wrap fresh bread after baking.

The cover for the card table may be made of cotton Indianhead or linen. The figures are outlined or chain stitched.

The plain runner may be made of toweling or Art erash. It can be put to a variety of uses.