

# LESSON ONE

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## ► Preparing to stitch

### Types of canvas

Canvas is characterized by its construction, its fiber type, and its mesh size. The mesh corresponds to the number of threads per inch. Most commonly, needlepoint is done on cotton canvas, although other types are occasionally seen. The main types of canvas construction are:

- Penelope – The vertical (warp) and horizontal (weft) elements of this canvas are paired, resulting in two sets of holes: smaller ones between each thread in a pair, larger ones between the pairs of threads.  
 Since both sets of holes can be used for stitching, a sample of Penelope actually has two mesh sizes: a nominal mesh, and a mesh twice that value. For example, a 10-mesh Penelope canvas could also be worked in the smaller holes as a 20-mesh canvas, even within the same project. Penelope is flatter and more flexible than mono canvas.
- Mono – In contrast to Penelope, mono canvas has a simple, plain weave employing single threads in both dimensions. The threads will move against one another, and as the sizing in a canvas breaks down with stitching, it becomes more flexible. This is the most common type of canvas found in the US, and it comes in a wide variety of mesh sizes and colors.
- Interlock – This is the most inflexible of canvas types, because the horizontal threads consist of a pair of threads that are twisted around the vertical threads at the intersections where they meet. It is available in a number of mesh sizes.

If you search the worldwide web using Google® Images and the terms “needlepoint canvas penelope”, “needlepoint canvas mono”, or “needlepoint canvas interlock”, you can see not only pictures of these types of canvas, but also the range of colors and mesh sizes in which they are available.

### Stretcher bars

Because the act of stitching can distort the canvas, it is best to work your project while it is stretched over a frame to maintain its shape. Your finisher will hold you in high esteem, because less blocking will be needed.

A common frame consists of wooden bars (stretcher bars) that are made to fit together. For any given piece of canvas, you'll need 2 pairs of stretcher bars with dimensions that match the canvas.

To assemble a set of stretcher bars, slide the ends of two bars together at a right angle so the tongue-and-groove cutouts mesh. Loosely assemble all four of the bars to make a very rough square/rectangle.

Use one hand to stand the frame up on a flat surface, and with the other hand hammer the top side to nest one bar in the others as tightly as possible. Rotating the frame 90 degrees each time, go all around the frame with the hammer.

Once the frame is assembled and tightened it will need to be squared. You can do this in one of two ways:

- Place the frame in the inside corner of a door frame and nudge the stitching frame so it rests securely against the top and side of the door frame.
- Measure diagonal distances across the frame and nudge the frame to make sure they're the same.

Assemble stretcher bars for both the design canvas and the doodle cloth before you start. The stitching frame should be used with a stitching stand or frameweight that holds the frame in place so that both hands are free for stitching.

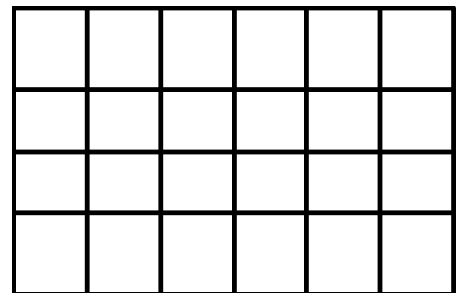
### Drawing the design grid on the canvas

First tape the canvas by folding a strip of masking or acid-free art tape over each edge. It's important to cover the canvas edges so your thread doesn't snag on it while stitching. If you'll be finishing the project soon, you can use masking tape. Otherwise, if there's a chance you'll store the project for some time, use acid-free tape from an art supply store or better yet, cover the edges with bias tape.

Using a permanent marker, mark one of the long, taped edges of your canvas as "TOP".

Next, use your hard pencil to draw the design grid on the canvas. The design consists of 24 blocks as shown at right:

- Each block is 29 canvas threads wide (for a total of 174 threads wide)
- The top and bottom rows of blocks are 32 canvas threads high
- The middle two rows of blocks are 26 canvas threads high (for a total of 116 threads high)



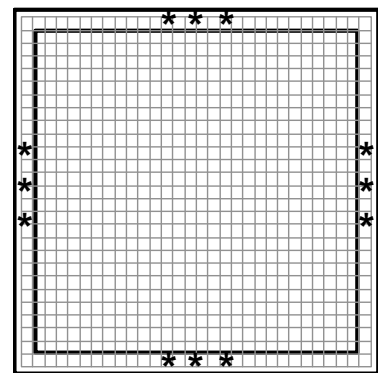
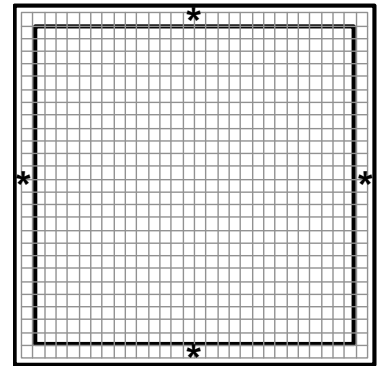
Start at the upper left corner, which should be positioned 2" from the top and 2" from the left edge of the canvas. Your pencil lines should be "in the trough" between canvas threads. Make sure you use a hard lead pencil, so the graphite doesn't flake off and discolor your yarn.

### Mounting the canvas on the stretcher bars

The taped canvas can be secured to the frame using staples or rust-free tacks. The directions that follow assume you've chosen staples, but they are equally suitable for tacks.

1. Lay the canvas on top of the frame and choose one edge of the canvas as the starting point ("north"). Align the edge of the canvas along the stretcher bar and place the first staple to attach the canvas in the center of that edge.

2. On the side of the canvas opposite this first staple (“south”), pull the canvas taut across the frame and place a staple through the canvas opposite the first staple. Be careful to position the canvas so it is square over the stretcher bars.
3. Rotate the canvas 90 degrees and repeat the same process, placing one staple in the center of the third edge (“east”) and a staple opposite it in the center of the fourth edge (“west”). As shown at right, you should now have four staples in place at the cardinal points (north, east, south, and west) of the frame.
4. Return to your starting point (the north staple) and work outward from it. Two inches to one side of the staple, pull the canvas as taut as you can and insert another staple. Cross to the opposite side (south), stretch and staple; then go back to the other side of your starting point (the north center staple) and do the same steps. There should now be three staples in both the north and south sides.
5. Go to the east position and repeat the actions in step 4 so that east and west each have three staples directly opposite one another. At this point, your canvas should look like the second diagram on the right.
6. Return to the north side, and continue the alternating process of stretching the canvas and placing staples two inches apart along each edge, progressing around the canvas until you are within 3 to 4 inches from the corners. At that point, pull the corner of canvas tightly toward the frame corner and staple.
7. Go back around the perimeter of the canvas and insert additional staples so that it is secured to the frame every 1”.



Both your design canvas and the doodle cloth should be taut on their respective frames. As you stitch, the canvas will stretch and may need to be taken off the frame and restretched. Never stitch on a canvas that isn’t taut, as this increases the likelihood of canvas distortion and the eventual need for blocking.

### ► How this instruction book and the canvas work together

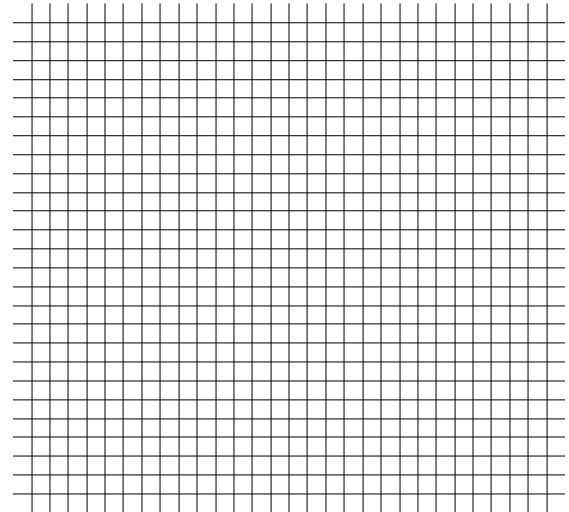
For each type of stitch in this project, you’ll first see a diagram of how the stitch is executed. Following that, you’ll see a grid like that at the right indicating the blocks in which the stitch is used.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24

Finally, you’ll see a detailed grid (similar to the one on the next page) that shows all the canvas threads of a block. Within this grid, the placement of the stitches will be shown.

These grids employ the following conventions:

- The lines in the grid represent threads *and not holes* of the canvas.
- The graphs show the placement of motifs within each design block. In some cases you will need to count threads to determine where to start your stitching within each block. You may find it useful to have a special counting aid, such as a pin with an enlarged head or a needle attached to a button that cannot pass through the holes of the canvas.
- When stitch paths are numbered, *the needle comes up from the back of the canvas at odd numbers (1,3,5, etc.) and goes down into the canvas at even numbers (2,4,6, etc.).*



The lines drawn on your canvas surround these grids. The diagrams will indicate how stitches are placed within each grid; generally, you will cover the lines on your canvas with stitches.

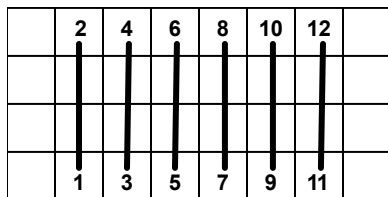
## ► Straight Gobelin Stitch I

**Design area:** *Geometric block A, white stripes*

**Thread:** *Pearl Cotton*      **Strands:** *1*

The Straight Gobelin Stitch is a straight, vertical stitch that can go over two or more threads. In this project, it spans 3 threads, and is used in the Geometric design block (see "A" in the design schematic on pg. 5). This stitch is good for almost any use and works with most types of thread. In this case it fits the shapes to be filled well.

"Gobelin" was the name of a French dyehouse and tapestry works established by the *Gobelin* family, in the 15th century. Over time, the word gobelin came to be synonymous with hand-embroidered tapestries.



The stitches are worked in horizontal rows, with each stitch parallel to the previous one, and immediately adjacent to it. As shown at left, each stitch is executed by coming up at base of stitch and going back into the canvas at the top of the stitch. This stitch can be worked from left to right as shown, or from right to left.

## Determining a stitching length

There are two fundamental factors that determine the length of thread with which to stitch:

- A stitcher's ability to control the thread so that it doesn't knot in the process of traveling through the canvas; and

- The robustness of the thread. Because canvas has a very open weave, it is treated with sizing to maintain its shape. Each time the yarn is drawn through the canvas, it rubs against the stiff canvas threads, resulting in wear.

To open a skein of pearl cotton, remove the two labels and cut through the circular skein at the knot. Next take the cut lengths of yarn and feed them back into the label that has the color number on it. The ends of the lengths can be braided together to keep the label on the cut skein. A suitable stitching length for pearl cotton is one-half of one of these cut lengths.

## Threading a needle

A primary goal in threading the needle should be to not damage the yarn. Common ways of threading a needle include:

### 1. Using a needle threader

Note that needle threaders commonly used for hand sewing are not strong enough to deal with most yarns used in needlepoint. You'll need one with a solid wire or metal loop that can withstand a strong pull.

- Place the loop of the needle threader through the eye of the tapestry needle.
- Insert the yarn into the loop that is poking through the eye of the needle.
- Hold on to the body of the needle threader with one hand and to the needle with the other. Pull the loop back through the eye of the needle until the end of the thread has come all the way through the eye.

### 2. Using a small piece of paper

- Cut a small piece of paper that when folded will slide through the eye of the needle.
- Put the end of the yarn on the paper; fold it, and insert into the eye.
- Pull the paper through the eye until the yarn end has traveled through it.

### 3. Looping the yarn

- Hold the needle in your dominant hand, drape the end of the yarn over the blunt end of the needle, and use the needle to pull the yarn taut.
- Hold the taut tip of yarn between the ends of the thumb and forefinger on your non-dominant hand so just enough is poking through that you can see it.
- Push the eye of the needle between your fingers and over the tip of yarn until enough gets through the eye that you can grab it and pull it through.

## Starting a thread

Once the needle is threaded, position the needle an inch or two from one end of the yarn. Tie a knot in the opposite end.

Your first action will be to put the needle through the canvas starting from the front. The exact position where you do this depends on whether you want to use a waste knot or an away knot.

A waste knot is one that is positioned so that your stitching will cover the tail of the thread as you put in your first few stitches. The knot can then be clipped. In this project, all of the work can be completed using waste knots.

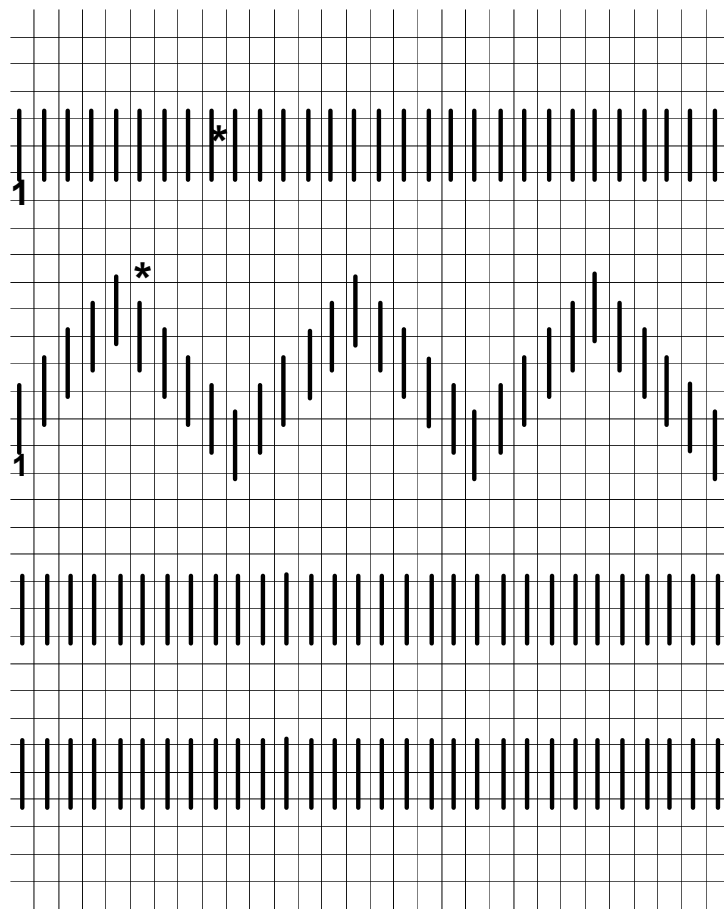
An away knot is placed 4" or 5" distant from the point where your stitches start (typically in the canvas margin) and outside the path to be stitched. Once the length of yarn has been stitched and the end buried (see "Ending a thread" below), the away knot is clipped and the starting tail of the thread is buried. Away knots are used when the shape of the design area makes it impossible to cover the thread end as you stitch.

### Beginning to stitch

The Straight Gobelin stitch is used in the Geometric blocks (numbers 2, 4, 6, 7, 9, 11, 14, 16, 18, 19, 21, 23 at right). This stitch is used in two different ways within the Geometric block: in the stripes, and in the zigzag motif.

	2		4		6
7		9		11	
	14		16		18
19		21		23	

Although the overall design on pg. 5 is shown with the longest dimension vertical, it will be easiest to stitch by rotating the canvas by 90 degrees so that the longest dimension of the project is against you and the edge marked "TOP" is away from you.



The first block in which you will work is in the lower left corner of the canvas (#19). The diagram at left shows the canvas threads in this block, and the placement of the Straight Gobelin stitches within the block.

To begin stitching the top stripe, put the needle into the canvas at "\*" to position your waste knot. This hole is 4 canvas threads below the line drawn on your canvas and 10 canvas threads to the left of the line that marks the left border of the block. Come back up again at 1. Then continue with the stitch sequence as shown earlier.

For the zigzag motif, the placement of the waste knot and first stitch are similarly marked by "\*" and "1" respectively in the diagram. In the zigzag, each stitch is offset by one thread up or down from the stitch next to it.

Once you've finished the diagrammed stitches in block #19, you can move to blocks 21 and 23.

Next stitch blocks 14, 16, and 18, but first examine the design schematic on pg. 5 closely. Note that not all of the Geometric blocks are the same – these in the interior rows are smaller. They lack the six horizontal canvas threads in the bottom of the diagram above.

Once you've worked blocks 14, 16, 18, 19, 21, and 23, you'll need to rotate the canvas by 180 degrees to work the Geometric blocks on the other side - #2, 4, 6, 7, 9, and 11.

### Ending a thread

Continue stitching until 3-5" of thread remains in the stitching length, and then weave 1" – 1.5" of the ending tail under the stitches you have just completed.

Try not to disrupt the tension in the stitches as you weave under them, and once the weaving is done, clip the tail closely so the back of your work will not be cluttered.

Try to bury the thread in the same area that it covers, especially when working with dark colors.

### Good stitching practices

- Always wash your hands before stitching, and do not eat or drink while stitching.
- Strive to come up in empty holes – those that are not already occupied – and go down in an occupied hole – one that already has yarn in it. You will be less likely to split the yarn that's already in place.
- Occasionally you will need to carry a yarn across the back of the canvas to move from one area to another. In these cases, don't carry the yarn more than 1.5".
- A word about etiquette: Never touch anyone else's work, no matter how much you want to. The textures of needlepoint are alluring, but the oils in your hands will act as a magnet for dirt and grime of all kinds.

### About Pearl Cotton and the basics of yarn construction

The first yarn you work with in this piece is pearl cotton, a loosely twisted yarn with high luster. It comes in 4 sizes: #3, #5, #8, and #12. Smaller numbers correspond to thicker yarn. It comes in a large number of colors and is widely available.

Yarns are constructed in a hierarchy. According to Jo Christensen<sup>1</sup> and *Fairchild's' Dictionary of Textiles*, raw fibers are spun into strands. Strands are twisted into plies, and plies can be combined to form a cord. While a "strand" is the smallest undividable component of a yarn, it is often not strong enough to stitch with. In the textile industry, a "ply" is the minimal stitchable component of a yarn.

In the world of stitchers, however, we use the term "ply" to describe what the industry calls a strand and vice versa. So the minimal unit of yarn with which we all stitch is, by common understanding, known as a strand.

<sup>1</sup> Christensen, Jo Ippolito. *The Needlepoint Book*. Fireside, New York, 1999, pg. 14.

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For this project, you will use pearl cotton directly as it comes off the purchased skein. Although you can see the twisted strands in pearl, it cannot be separated into plies that are strong enough for use in stitching.

Pearl cotton is a very soft yarn that wears faster than other more tightly woven yarns. As a result, shorter stitching lengths – no more than 18” – should be used. As you work with Pearl cotton, be sure to watch the wear on it, and if it becomes shredded and worn and loses its luster, tie off the length you’re working with and start with a new length of yarn.

## ► **Straight Gobelin Stitch II**

**Design area:** *Geometric block A, dark stripes*

**Thread:** *Paternayan, Dark maroon #900*      **Strands: 2**

The appearance of a stitch depends greatly on the properties of the yarn used – color, reflectivity, etc. In this section, you will work the Straight Gobelin stitch in Paternayan wool to create a visual effect that’s different from what you created with pearl cotton.

### About Paternayan wool

Paternayan is a brand of Persian yarn, and consists of *three* loosely twisted strands. Unlike pearl cotton, Paternayan is not highly reflective. When properly stitched, it yields a soft, uneven texture. It comes in a large number of colors and is widely available.

Paternayan is most commonly sold by the skein (approx. 172 yds) or the knot (10 lengths, approx 30” each, for a total of approx 8 yds).

The number of strands needed depends on the mesh of canvas one is using. For 10- or 12-count canvas, all three strands are used, while for 18-count, only one is needed. The 14-count canvas used in this project requires two strands for adequate coverage.

Each strand of Paternayan varies in thickness along its length. This variability is greatest for dark colors, but occurs across the entire range of colors. It is one of the factors that motivate the “stripping” of yarn described below.

Although Paternayan is a more robust thread than pearl cotton, it also exhibits wear during stitching. Many stitchers are comfortable stitching with long lengths of it; I prefer and recommend that students work with the standard 18” stitching length, particularly if one is working on a functional item such as a chair seat or pillow where even and complete coverage of the canvas with yarn is essential.

### Stripping the strands of a yarn

“Stripping” a yarn consists of separating its strands and recombining them. The reasons for doing this include:

- Yarn may be compressed after shipping and storing; stripping restores its loft.
- When stitching, you will work to stitch so that strands of thread lay parallel on the canvas. Stripping removes twists from the thread and make it easier to keep the strands parallel while stitching.

To strip Paternayan:

- Cut several 15-18” stitching lengths (if purchased by the “knot”, this is one-half of each cut length).
- Tap the end of the yarn with your finger to separate the strands.
- Holding the end of the yarn between thumb and forefinger of one hand, pull out one strand. Lay it on a surface in front of you. Shake the yarn to straighten it and pull out the next strand in the same way. Lay it parallel to the first, maintaining the orientation of the ends as they came off the skein. Continue to do this until all of the strands have been separated and are laying parallel to each other.
- Recombine pairs of strands so that the thicker strands are paired with thinner ones, or so that thick regions of one strand are complemented by the thin strands of another.
- Some people claim to be able to detect a nap in Paternayan. It is difficult to do so, but if you do, knot the stitching length so the yarn is pulled through the canvas *with* the nap to minimize wear on the yarn while stitching.

### Why and how to lay strands of a yarn

Laying a yarn is the process of ensuring that the strands of a yarn lie parallel to one another on the canvas and are not twisted around each other.

There are a number of reasons for laying stitches, among them getting the maximum canvas coverage possible from the yarn, and getting the greatest possible light reflectivity from the yarn to enhance its visual impact.

If you are working with two strands, you can use the index finger of your non-dominant hand to lay the strands. When a greater number of strands are used, specialized laying tools are required to keep the strands parallel.

To lay the strands in a yarn with your finger,

- Look at the yarn as it comes out of the front of the canvas. One strand should be on the left and the other on the right with respect to the direction they’ll be heading for the next stitch. If this isn’t the case, manipulate them to make it so.
- Place your finger under the strands as they come out of the canvas. Insert the needle into the canvas in its next intended location, and begin pulling the yarn through the canvas.
- As you pull the yarn through the canvas, let it glide over your finger. As it moves, watch to see that the two strands keep their left/right orientation and stay parallel with respect to each other. If they begin to cross, straighten them out so that they enter the canvas parallel to one another.

Using a frame with a frameweight or stand allows you to use both hands for stitching, as you no longer need to occupy one hand with holding the project. Keep one hand (generally the non-dominant hand) above the canvas and the other below. That way, you can move the needle back and forth through the canvas by passing it from one hand to the other.

## Beginning to stitch

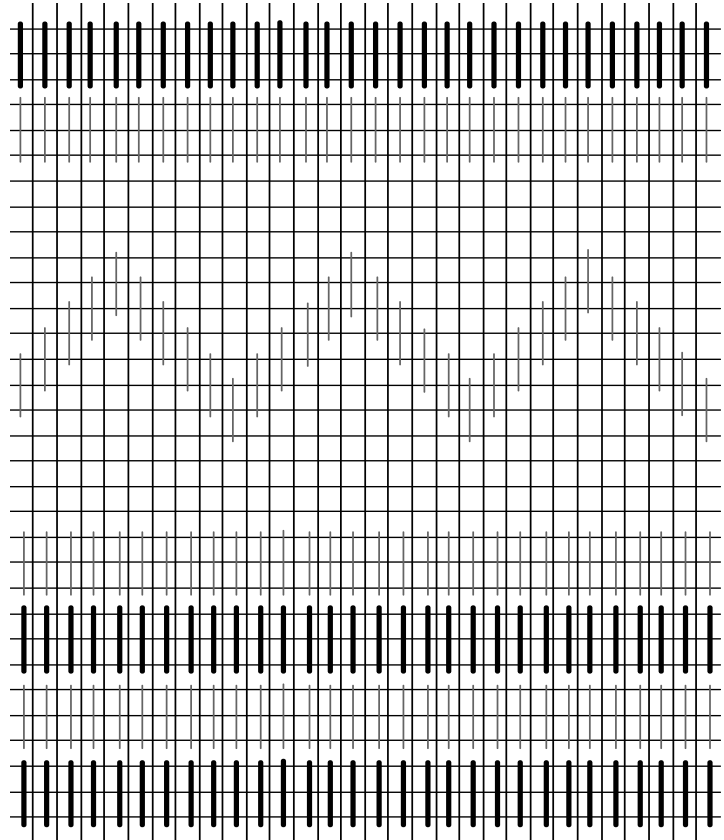
The Paternayan Straight Gobelin stitch is used in the Geometric blocks (numbers 2, 4, 6, 7, 9, 11, 14, 16, 18, 19, 21, and 23 at right) and its placement is diagrammed below. The gray stitches represent the Straight Gobelin stitches done with pearl cotton. The black lines represent the new stitches to be added. As you did in the last section, start at either the left or right side of each stripe, and use a waste knot.

	2		4		6
7		9		11	
	14		16		18
19		21		23	

Start with block 19, and then work blocks 21 and 23. Before you stitch blocks 14, 16, and 18, examine the design schematic on pg. 5 closely. Recall that not all of the Geometric blocks are the same – these in the interior rows are smaller. They lack the six horizontal canvas threads in the bottom of the diagram at right.

Once you've worked blocks 14, 16, 18, 19, 21, and 23, don't forget to rotate the canvas by 180 degrees to work the Geometric blocks on the other side - #2, 4, 6, 7, 9, 11.

At the point where Geometric blocks meet diagonally – for example, the upper right corner of 19 and the lower left corner of 14 – the end gobelin stitch in one block shares a hole with the end gobelin stitch of the other block.



## Stitching tension

Your goal in stitching should be to have an even tension, where any variation in the stitched surface is due to the choice of stitches and not the unevenness of each stitch with respect to the others. Stitches should be pulled snugly, but not tight enough that the canvas threads are distorted or that the yarn looks as if it's under stress.

Ideally, your stitching will be done with a smooth motion in which the needle is inserted into the canvas and the thread drawn completely through the canvas to the other side before inserting the needle again. This is sometimes referred to as a "stabbing" method. It differs from a "scooping" method, in which the point of the needle is tucked under a canvas thread and into the next hole, and the needle is pulled out to the front with the yarn sliding across the back of the canvas. The scooping method is used in hand sewing garments, but does not yield good results in part because it distorts the canvas.

As you stitch, your motions should be even and not too fast, so that the yarn can glide smoothly through the canvas without knotting. If you try to move quickly, your tension will suffer, as it is harder to maintain uniform tension from stitch to stitch.

## » **How to pack and carry your needlework**

When you're not working on it, your project needs to be protected to keep it clean, and to reduce wear on the stitched surface. Here is one approach to packing your work for travel:

- Purchase a few yards of unbleached muslin from a local fabric store and wash it. It's cheap, usually under a dollar a yard. Cut a piece large enough to wrap around your project.
- If there are dimensional stitches in your piece, you may want to put a piece of acid-free batting over the stitched surface before wrapping it in muslin.
- Place the wrapped piece in a plastic bag, but don't seal it – you want some air to circulate to prevent mildew or insect infestation.
- Cut a stiff piece of cardboard that is the same size as or slightly larger than your frame; put it on the side of the frame that has the canvas tacked to it.
- Tie a string or cord around the "sandwich" to secure it. This prevents the canvas from stretching and acquiring a strange bulge when something rests against it – such as the other items that reside in your stitching tote: a bag of threads or the small case that holds your stitching implements.

Your project is now ready to pop into a tote bag for travel to and from class or a stitch-in with friends!