

Gauge

by Binka Schwan

The measurement of gauge is (or should be) one of the beginning processes in every knitting project. The question, “Have you done your gauge swatch?” is one that is asked over and over again. Hopefully, when you hear that question, your answer is “YES”! If a knitter understands gauge and why it is so important, their final product will fit correctly and match the written pattern measurements.

Gauge measurements also play an important role in all three levels of the Master Hand Knitting program. Knowing how to calculate stitch and row gauge and how to correctly obtain (knit) a stated gauge are a part of every level in the program. The student will also write patterns that must include gauge in all three levels. Gauge for these patterns should be measured in the pattern stitch being worked. And, in Level 3, the student will knit an originally designed hat and sweater that must match the gauge of their original patterns.

Gauge, also called tension, is basically the number of stitches and rows per inch that are obtained in a particular pattern stitch. Written patterns will state if the gauge swatch is to be done in stockinette or a particular pattern stitch. If the pattern does not state the stitch, the assumption is to do the gauge swatch in stockinette stitch. Different stitch patterns will produce different stitch and row gauges even if the same yarn and needle size are used. For example, a cable swatch would be very different in stitch gauge as compared to a garter stitch swatch of the same stitch count.

Gauge is printed on yarn labels and in knitting patterns as the number of stitches and rows in a 4 inch (or 10 centimeter) square. The job of the knitter is to obtain the gauge stated in the pattern prior to knitting the actual garment so that the finished product equals the pattern’s stated measurements. The knitter must knit a swatch with the yarn and recommended needle size, measure that swatch (after it has been washed and blocked if appropriate for the yarn), and determine if gauge has been obtained or not. If the correct measurement has been obtained, the knitter can then proceed to knitting the actual project. If it has not been obtained, the knitter must find the correct needle size for his/her knitting tension to obtain the stated gauge. If the gauge is too loose (too few stitches per inch), it is best to try a smaller needle size to obtain the correct measurement. If the gauge is too tight (too many stitches per inch) a larger needle should be used.

Stitch gauge is THE most important measurement in knitting and this measurement needs to be exact. For example, if the knitter is off by just 1/2 stitch per inch than the stated gauge, this difference can cause the actual size of a finished garment to be either bigger or smaller by a number of inches. If 5 stitches/inch is the knitter’s goal, 100 stitches would equal 20 inches. If the knitter is knitting loosely, and a gauge of 4.5 stitches/inch is obtained, that same 100 stitches would equal 22 inches. Conversely, if the knitter’s tension is tight, at 5.5 stitches/inch, the 100 stitches would equal 18 inches.

Many knitters feel that row gauge is not that important and some ignore it and either add or subtract rows to make the garment’s length match the pattern. There are a number of situations where row gauge is very important. If the knitter is off the stated row gauge, increases (as in sleeve shaping) may alter the length and shape of that sleeve. Also, if a knitter is doing a pattern from a chart such as those required in Fair Isle or Intarsia, row gauge must be exact. If it is not, there is a strong possibility that the actual piece may be longer or shorter than intended. Row gauge is also very important when garments are worked from sleeve-to-sleeve as the row gauge measurement is actually the width of the garment and not the length.

There are many factors which can affect a knitter’s gauge. Every knitter has their own way of “holding” the yarn and the amount of tension they are putting on that yarn. The mood of a knitter can also produce a different gauge. For example, if a knitter is tense, that can result in tighter knitting. Yarn substitutions from that suggested in a pattern can produce a different gauge as well as color of a yarn due to the dyeing process. The type of needle that is used can also affect the gauge. Bamboo needles may produce a tighter gauge when compared to steel, and straight needles compared to circular might also produce a slight variation in gauge. It is always recommended that the needles to be used for the complete project are used for the gauge swatch.

A gauge swatch is basically a small knitted piece. That swatch should have AT LEAST the same amount of stitches that the gauge in the pattern calls for. That means that if there are 20 stitches to 4 inches, cast on 20 stitches and work for 4 inches in the recommended pattern stitch. I prefer to cast on more stitches, 24 in this case, so that edge stitches are not used in the calculation of

gauge. Make certain that the bind-off is loose so the swatch has not been “pulled-in” at the top. Measure the width and length of the swatch and then wash and block it. After it has dried, measure again so that you can see if shrinkage or stretch needs to be taken into account.

For accurate measurement of stitch and row gauge, place the swatch on a smooth surface such as a table. To measure stitch gauge, place a ruler (not a tape measure) horizontally across the swatch (see figure 1). Measure the width of the swatch to the nearest eighth of an inch. Do not include the edge stitches in this measurement. Convert this number to a decimal. Divide the number of stitches (minus the selvedge stitches) in the swatch by the width of the swatch. Do not round the number at this point. Multiply this number by 4 inches to obtain stitch gauge. At this point the number can be rounded.

The next step is to place the ruler vertically on the swatch. Repeat the same steps as you did for stitch gauge to obtain row gauge. Do not include the cast on and bind off rows in this measurement (see figure 2).

Determine if the stitch gauge and row gauge match the stated pattern. If they do, GREAT, go ahead and start the project. If they do not, adjust needle size, and knit another swatch, until the correct gauge has been obtained. Also, remember to save your gauge swatch. It can be used later to for picking out buttons, determining the ratio for button bands, or can be saved in a record book of projects completed. Periodically check your gauge as you are working your actual project to make certain that your original gauge measurements have been maintained throughout your work.

Sometimes it is very difficult to count stitches and rows in highly textured yarns, mohair, etc. If this is the case, it is recommended that the exact number of stitches in the recommended gauge be cast-on and then worked for 4 inches. The entire swatch should measure a 4x4 inch square when finished. If it does, gauge has been met.

There are many aspects of gauge that I have not discussed. For example, the measurement of gauge in lace patterns, cables and ribbing have not been addressed, nor how to measure gauge in circular knitting. The purpose of this article is to give a basic understanding of gauge and its importance in the process of knitting and in the Master Hand Knitting program.

Bibliography

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figure 1

GAUGE EXAMPLE: WIDTH

Width: 4.125"

Number of Stitches: 20

$$20 \div 4.125 = 4.8484848$$

Number of Stitches per Inch: 4.8484848

$$4.8484848 \times 4 = 19.393939$$

Number of Stitches in 4": 19



figure 2

GAUGE EXAMPLE: LENGTH

Length: 4.25"

Number of Rows: 28

$$28 \div 4.25 = 6.5882352$$

Number of Rows per Inch: 6.5882352

$$6.5882352 \times 4 = 26.35294$$

Number of Rows in 4": 26