

Part 2: The Vagaries of Gauge

by Cheryl Brunette

Gauge is a standard of measurement. In knitting we measure the stitches and rows that make up one inch of fabric and use those figures to build a garment piece that is a specific size to fit a specific body. To get an accurate gauge measurement you need three things:

1. a "swatch"
2. a healthy respect for the vagaries of gauge—those unexpected little details that change it
3. good measuring skills

The Swatch

The swatch is a small piece of knitted fabric that approximates, as closely as possible, the fabric in the final garment. If the sweater has a cable, the swatch needs one. If you are knitting a tricolor stripe design, all three colors should be knit into the swatch.

To make a swatch, cast on 50 stitches with a waste yarn that is about the same weight as the sweater yarn. Knit 6 or so rows of waste yarn, 50 rows with the sweater yarn and 6 more rows of waste yarn.

Remove it from the frame, roll it sausage style, lengthwise, give it a healthy yank, set it aside and begin to consider the following:

The Vagaries

1. Time

I have had swatches that have "shrunk" for a week. The pitch of the needles and the weighted hem stretch the stitches in every direction. Some fibers, spins and pattern stitches take a long time to recover. When you're excited about jumping into a project it's hard to be patient. But for best results, knit the gauge swatch one weekend and the sweater the next if it's a fiber you don't intend to launder before measuring (wool or acrylic, for example).

2. Color

When a yarn is dyed, the color is not just painted onto the surface of the fiber.

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Instead, through the magic of polypeptide chains and Ph values, the color molecule bonds chemically to the fiber molecule. And because different color molecules are different sizes and composition, the size of the fiber molecule changes, hence a different gauge. In other words, don't chart your red sweater from a black swatch of the exact same yarn.

3. Weight

Your weighted hem has 4 one-quarter inch steel rods running through it. The heavier the weight, the longer the row gauge—hence a problem with cardigans. The back may be 100 stitches wide, and each front 50 stitches wide. Try removing one or two of the rods; or for a more scientific approach, weigh the weight and divide its ounces by the number of stitches on the frame. Add or subtract weight to your knitting until you have the same number of ounces per stitch for each piece.

I knit the back of Kaffe Fassett's feathers jacket with four heavy-handled kitchen knives woven through the plastic strips of the weighted hem. It looked silly, but the result was a back and two fronts that were the same length.

4. Soap & Water

Some fibers, especially cotton and silk, change their gauge with laundering. Cotton shrinks or stretches; silk stretches. Wool tends to behave and stay the same if it's washed properly. In other words, wash, dry and block the swatch the same way you intend to treat the final garment before you measure the gauge.

You might go one step further with cotton, silk and linen. Spend a few days fondling the laundered swatch. Put it in an obvious place and stop several times a day to tug gently on it in all directions, pat it, roll it between your hands. Then measure the gauge again to see if it has changed.

5. Speed

Even if your yarn is free flowing, as you knit there is some drag on it. The faster you go, the more the drag, the smaller the stitch. Try to develop a steady, even rhythm to your knitting, and be consistent from swatch to sleeve.

Measuring

There are a variety of gauge measuring tools available for knitters and I encourage you to try them to find the one that works best for you. I use a sentimental favorite, a stainless steel 12-inch ruler that belonged to my dad. On one edge it's calibrated to tenths and hundredths of an inch. Because my brain and calculator work in the decimal system, it works for me.

Measuring the row gauge is easiest. I lay the ruler lengthwise on the fabric,

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measure from waste yarn to waste yarn to the nearest hundredth of an inch. I then divide that number into 50 (there are 50 rows in the swatch, remember) and round the result to the nearest tenth. For example, if the length is 8.2 inches, my row gauge is 6.1 rows per inch.

Getting an accurate stitch gauge takes a little longer. I lay the ruler on the knitting with the edge between two stitches. I then count stitches — sometimes 5 inches worth, sometimes 3.5 or 6 inches worth. I look for a line on the ruler that falls between two stitches or in the center of a stitch and count to there. I pick the ruler up and move it to a different place on the knitting and repeat the procedure. In all, I count the stitches three times and average the results. Here's a typical calculation:

18.5 STS = 5" = 3.7 STS per inch
15 STS = 4" = 3.75 STS per inch
10.5 STS = 3" = 3.5 STS per inch

Then average them:

$3.7 + 3.75 + 3.5 = 10.95$ divided by 3 = 3.65 or 3.7 STS per inch.

If I had measured only once and had charted a sweater based on 3.5 STS per inch, my 42" around sweater would be only about 40 inches around — too tight for me.

By taking several measurements and averaging them, I manage to knit most sweaters exactly to the size I had planned. But vagaries will be vagaries no matter how careful we are, and I've taken a cue from Elizabeth Zimmermann. If I have doubts about a gauge, I cheat toward making the sweater a little bit big in every direction. Then, by knitting tight wrist and waist ribbings, it looks as if it's just right — a comfortable, casual easy-to-wear sweater. Now, I just hope that styles don't get too skinny!

[Well, it appears, in 2010, that styles have, indeed, gotten skinny again.
But not I... so I still follow my old advice.]