



### How to measure it and why it matters

Tension squares (also referred to as gauge swatches) are the knitter's best friend. They make sure your project not only turns out the size and shape you intend but also allow you to substitute yarns and know that they will work for your project. Making tension squares can save a lot of time and disappointment.

Tension (gauge) is simply the size (length x width) of a knitting stitch knitted on a specific size of needle using a specified technique. As stitches form the basis of a knitted fabric it stands to reason that if your stitches are larger or smaller than the ones knitted by the designer (usually if you knit more loosely or tighter) if you knit 50 rows on 50 of your stitches you may not produce a piece of knitting the same size as the one the designer knitted.



If you doubt that this is the case, ask three of your knitting friends to each make a square using the same needles, rows and stitches and compare the finished sizes. They will almost certainly be different.

But does this matter? Small differences over a small square may not seem significant but if your stitches are just an eighth bigger than the designer's, for every 100 stitches the designer casts on, your work will measure the equivalent of 12 stitches larger. On a shawl with 400 stitches, that's the equivalent of an extra 50 stitches without you having cast on a single extra stitch. Equally, if your square is smaller than the designer's, your garment will be correspondingly smaller – and the greater the difference the smaller the garment will be.

### Measuring gauge

Knit your swatch exactly according to the pattern, bearing in mind that you may be asked to work in a pattern stitch or in a simple stockinette stitch. Knit the swatch 10 or so stitches larger and work an extra 10 rows more than the stated tension. This allows you to measure in the centre of the swatch which is more accurate since edge stitches are rarely the same size as the main body of the garment and cast on and cast off edges can distort your calculations.

1. Cast off, block and finish your swatch. Ideally leave overnight to allow the stitches to settle. Measuring in the centre of the swatch, mark a line vertically straight up one row with a large-headed pin. Use a ruler to measure the stated width (usually 4" or 10cm). Measure across the centre of the swatch to avoid distortions. Mark this measurement with a second pin. Count the stitches between the two pins. Include any half, quarter or partial stitches.



- Starting several rows into the swatch and in the centre of the width, place a pin horizontally straight along a line of stitches. Measure the stated length in straight vertical line and mark this point with a second pin. Count the rows between the two pins including any partial rows.

If your finished measurements match the pattern, you can proceed knitting with the needles you have been using. If the square is too small, repeat the process using a size larger needles. If the square is too large, try again with smaller needles.



## Non-matching gauge

There are occasions when it is not possible to match both the number of rows and the number of stitches simultaneously. With one set of needles your rows are correct but you have too few stitches. However, when you go up a size of needles, the stitch numbers are correct, but there are too few rows.

As we all knit differently it is quite common to find that we can't exactly match the tension stated in a given pattern.

If, having tried a couple of needle sizes you find that you can't match both stitches and rows it is generally advisable to ensure that the number of stitches is correct, even if this means that the number of rows is different to the pattern.

Where the number of rows is different to the stated tension, you may need to work fewer/more rows to achieve the correct dimensions. If the pattern gives measurements (eg. knit until the work measures Xcm) the number of rows isn't normally important, although you may not end in the same place on the pattern repeat. Where the pattern requires a specific number of rows, calculate how many centimetres this will be based on the stated tension. Compare this to the length if you used your own tension and aim to work more/fewer rows to match the original length. If it is a close measurement over a small length this may not be necessary, but over a long distance, adjustments will be needed. Aim to adjust length in areas where there is no shaping if at all possible. If adjusting rows in an area where stitches will be picked up, you may need to adjust the number of stitches being picked up accordingly.

### TOP TIPS

- Keep swatches for future reference in a folder or box (carefully labelled!) as these may come in handy if you knit the project or use the same yarn again.
- Swatches can be made into small projects such as coasters, mats, small purses. They can also be sewn together to create a blanket – a wonderful history of your knitting projects!
- Use the same needles as for your correct swatch and remember to adjust any smaller or larger needles (e.g. for ribs or bands) correspondingly.

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