Chapter 10

INCREASES

Just as we might think that charting decreases would cause problems, we might think increases would also cause problems. Unless we do the increase before the first stitch or after the last stitch, then our chart has to somehow shoehorn a symbol for the new stitch between two existing symbols.

But we can chart the following projects (and a whole lot more) that need increases:

- sleeves worked from cuff to shoulder
- toe-up socks
- items started in the center on a few stitches and worked outward, such as hats or shawls
- square or rectangular items worked from corner to corner
- triangular shawls started at a point
- sweaters worked top down

Types of Increases

We can increase one or more stitches at the same time. The yarnover, backwards loop, running-thread increase, knit in the front and back, and lifted increase all add a single stitch. We can also increase two stitches at once with a variety of techniques, like K–yo–K all in the same stitch. If we do K–P–K–P–K all in one stitch, we increase four stitches at once.

Single-Increase Symbols

Here are symbols for various single increases, along with the keys we use if we're charting in the computer.

y	⊙	Yarnover
+	⊞	Make one (by any method)
?	FB	Knit into the front and back of the stitch
x	⋒	Cat Bordhi's LRinc
X	⋒	Cat Bordhi's LLinc
;	⌣	Pick up running thread from back
:	⌣	Pick up running thread from front

Increase Example: Toe-Up Sock

Toe-up socks made with certain kinds of cast-ons start right at the tips of the toes with about half the total stitches that will be needed to go around the foot. That means we'll have to do increases to get up to the full number of foot stitches.

Let's say the foot of our sock will be forty-two stitches around, so we'll have twenty-one stitches on the sole side and twenty-one on the instep side. We are instructed to start, however, with eleven stitches on both the sole and the instep, then increase two stitches on both the sole and instep every other round. We will therefore need five increase rounds with plain rounds in between them.

For each increase round, on both the sole and the instep, we'll work one stitch, do an increase, work across to the last stitch, do another increase, then work the final stitch.[1]

As with the mitten fingertip shaping, we'll again just show what happens on either half of the sock, since we would do the same thing each round on both the instep and the sole. Here are the eleven stitches we start with for, say, the instep.
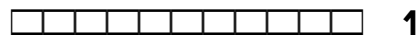
Charting on paper would look similar to how we charted decreases. Since I'm lazy, each plain grid cell will represent a knit stitch. That means we have to show with vertical lines where each row starts and stops.
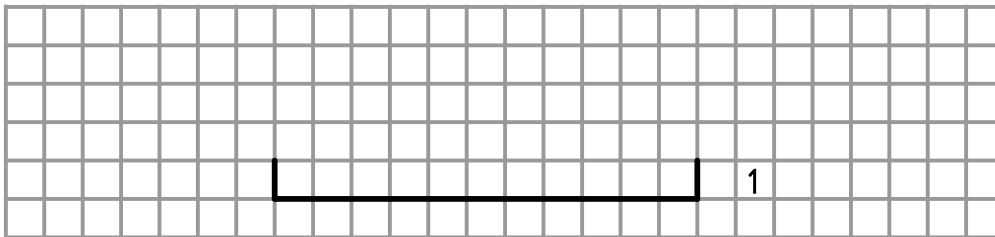
The First Increase Row

So here's the first stitch, along with the row number, where we'll do our first two increases.

Hey! Wait a minute! Why is the row number on the **right** end of the row?

Remember, we're making a sock. A sock is the last place we want a seam, so we're working in the round. That means every row (technically, every round) is a public-side row

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[1] If our preferred increase is KFB, then we KFB in the first stitch. At the end of the row, to get the new stitch in the mirror-image location (as the second stitch from the end), we KFB in the next-to-last stitch.

(round!), so every row *(round!!)* in this chart will have the row *(ROUND!!!)* number on the right.[2]

Let's do all the increases as yarnovers. Here's the first one.

Now, how many stitches do we work before the next yarnover?

We started with eleven, and we work one stitch before the first yarnover and one stitch after the second yarnover. That leaves nine stitches between the yarnovers.

Let's not get confused about how many stitches there are **between** the yarnovers.[3] Don't think that there are only seven stitches between the yarnovers, because that would mean we were counting the yarnovers themselves as part of the original eleven stitches.

We started with eleven stitches, so when we finish row (er, round) two on this half of the sock, we will have thirteen total stitches.

So let's add nine knit stitches
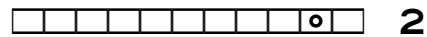
the yarnover
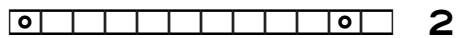
and the final knit.
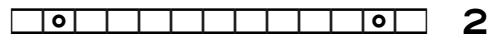
The First Two Rows (Rounds!)

Let's put the first two rounds together.
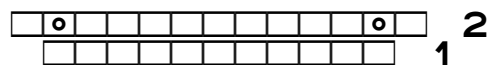
If we want to do a different increase, or if we don't care exactly which increase is used, we can use different increase symbols.

If we're charting on paper, we make row two start and end one stitch farther out than row one did, just as we do in the computer.

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[2] We could have charted the mitten fingertip this same way, with all row/round numbers to the right of the symbols.

[3] Again, increases besides KFB.
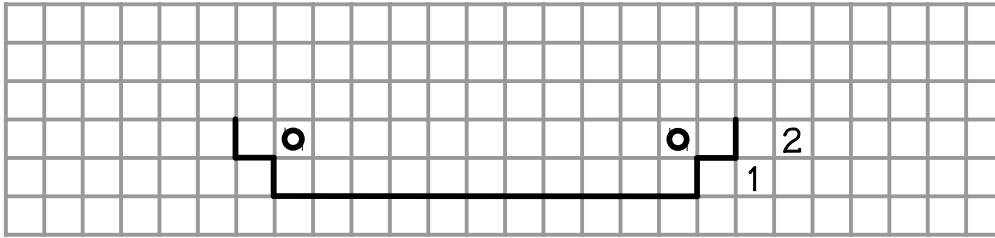
The Plain Round

Since we do the increases every other round, we'll simply work evenly on round three.
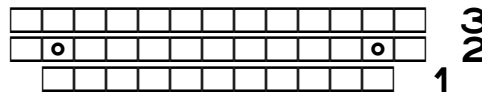
On paper, we extend upward by one row the vertical lines marking the ends of round three, because it has the same number of stitches as round two.
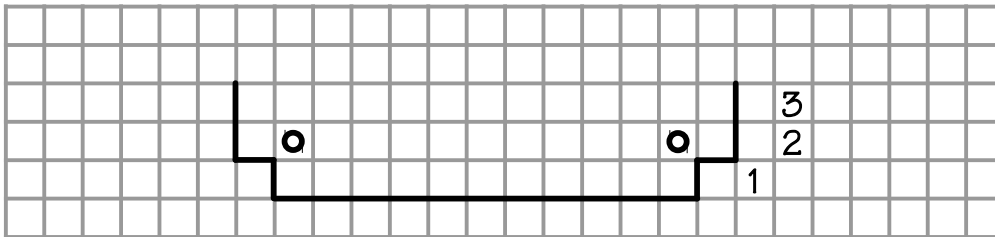
The Final Chart

We need to do four more increase rounds, up to a total of twenty-one stitches (remember that we have twenty-one on the sole **and** another twenty-one on the instep, even though our chart shows only one or the other).

On Paper

As we saw in the mitten fingertip decrease chart in the previous chapter, every other row changes width, but then the row following stays the same width, which accounts for most of the vertical lines being two rows tall.

When either end of a row grows wider, a short horizontal line connects the vertical lines of the previous and current row. Those segments aren't strictly necessary, so some of us may want to omit them.
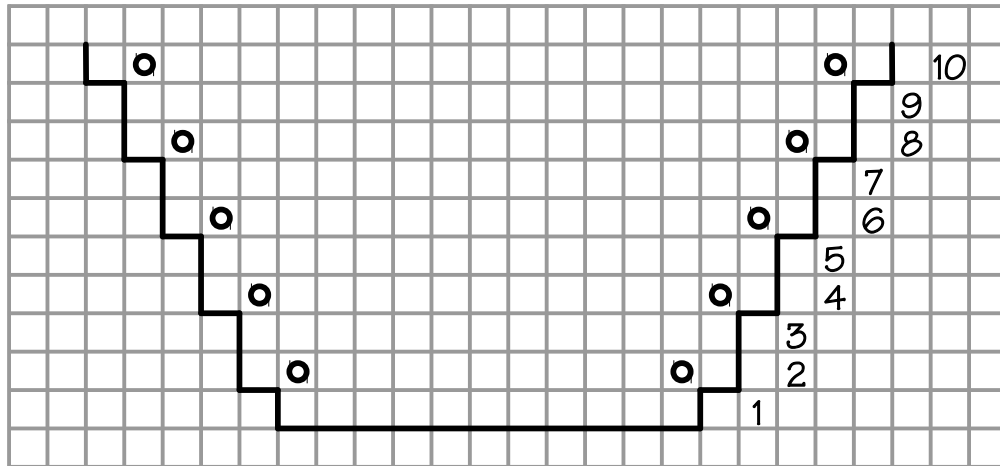
In the Computer

Let's now look at the computer chart.
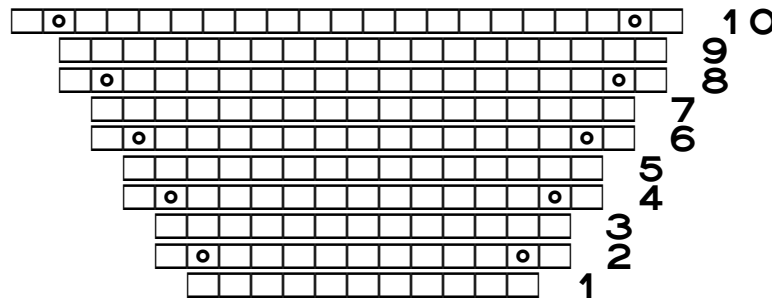
On paper, we can easily align the increased width of round ten with round nine, because round ten will be one grid cell wider at both ends. When we add the round's number to the chart, a "1" is skinny, we can fit "10" in a single grid cell, or we can slop the "0" into the adjoining grid cell without any problems.

But in the computer, we have a slight issue with the relative positions of the stitch symbols. What's wrong with the last round, round ten?

Should We Use Ordinary Lines or Tables?

In this short example, the chart rounds have been on ordinary lines instead of in a multi-column, multi-row table.

The chart lines are centered on the page, and for even-numbered rounds two, four, six, and eight, each one was two symbols longer than the round below, because of adding the two yarnovers. Each half of the line thus grows by a single symbol.

But round ten needs two digits for its number, so it is **three** symbols longer than round nine, the two yarnovers plus the extra digit. That means each half of the line grows by a symbol **and a half**, so that's why row ten's stitch symbols are half a symbol out of alignment with round nine's symbols.

In the chapter "Charting in the Computer," I mentioned that I prefer multi-column, multi-row tables for charts and that a full discussion of why was provided in the part four chapter "Software Options." If you did not read that chapter, let me briefly say here that having misaligned symbols like this is the main reason I prefer to make charts in tables.

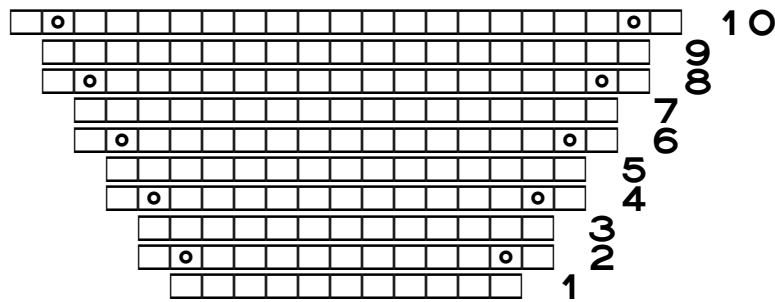In this particular case, we only need to add a single space to the left end of row ten. That makes row ten a total of four symbols (the two yarnovers, the additional digit, and the space) longer than row nine. Each half of the row grows by two full symbols, which lets all the symbols line up nicely.

Typing Up the Chart

As with charts showing decreases, I usually make charts with increases from the bottom to the top. I can't keep straight the increases and the plain rows in between if I try to type the table from top to bottom.

So I make a table with a couple of rows, click in the proper cells, and type whatever's needed in each cell, whether a row number or the stitch symbols. When I've entered the symbols in the top row of the short table I started with, I add some more rows to the top of the table and keep working my way upward.

In the same way as shown in the chapter "Decreases," I copy and paste existing table rows, then add the symbols for the new stitches and fix the row numbers.

Multiple Increases

Just as we can show double and higher-order decreases in charts, we can also use symbols to indicate that we have to increase by two or more stitches.

Suppose that we wanted to do a double increase at the center of the instep instead of a

single increase near each end. One possibility is "knit one, yarnover, knit one" in the center stitch.[4]
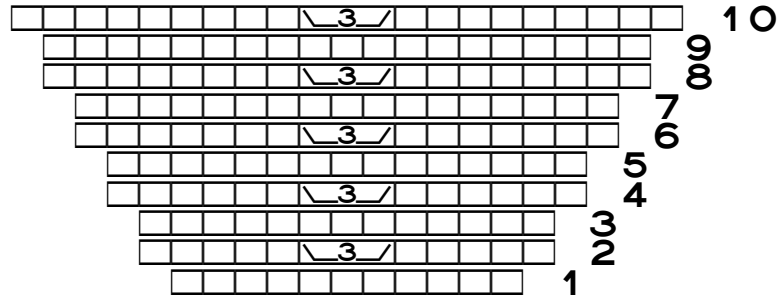
Because there are so many ways to do a double increase, the knitting font doesn't have any specific symbols. Any symbol can be used to represent whatever is needed in each project. (Round ten still needs the extra space at the left end to keep the symbols aligned.)

Charts Don't Have to Be Square

In the first two projects, the purl diamond and the Aran sampler, the charts had the same number of stitches on every row. Because of that fact, their charts were rectangular.

But a chart's symbols don't have to form a rectangle, as the mitten fingertip and toe-up sock toe charts have now shown, to have their symbols in proper relation to one another. In both those examples, we used the word processor's Centered alignment since our charts were symmetrical.

What if we needed an asymmetrical chart, as for a shaped border? Here's a pattern that could be added to the left and right edges of a project like a scarf or blanket. The main fabric's symbols would be placed in what is here shown as the blank center column.

On paper we can draw the symbols exactly where we know they will go.

In the computer chart, if we've put the border parts of the chart in their own table columns, as recommended in the purl diamond project and the Aran sampler, we can set the borders' columns to be right- or left-justified. Those settings make the chart show how the free edges will zigzag.

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[4] Doing a double increase in the center of the fabric may well have a similar result as pairing single decreases in the center of the mitten fingertip: tilting the fabric in a way that might be uncomfortable to wear. My knitting imagination fails me in this situation.

We could align the points with each other by re-stacking one side of the border. We can do the re-stacking steps several ways, all of which will give the same final result.

To get the widest row of both borders to fall on the same chart row, we push the left border's rows down. (We could also push the right border up, but if we're working in a table, it's easier, and safer, to add rows at the bottom than at the top.)

Now we need to remove the left border's foundation row. If we don't, then when we move the bottom rows of the left border to the empty table cells at the top, the foundation row will become a middle row in the pattern, which would be incorrect. We work foundation rows only once, before we start the pattern, and we never work them again.

We now move the rows that are sticking out of the bottom of the chart to the top of their moved-down stack. Note that we take the bottom four rows, not the bottom three rows. Why? Because the bottom row in the right border is its foundation row, not its row one. Since we've temporarily deleted the left border's foundation row, we need the pattern row in that cell to go with the rest to the top of the left border's chart rows.

Now we restore the left border's foundation row, except that it can't be the width it was before. Instead, we must make it the same width as the right border's foundation row, since it will function exactly the same way.

The possibilities are endless, and we can do lots of planning before we even cast on.