# PROJECT 1: PURL DIAMOND WITH SEED-STITCH BORDER

It's relatively easy to combine knit and purl stitches to "draw" a shape.[1] Let's make a small piece with a series of purl bumps in a diamond shape on a stockinette background. A seed-stitch border on all four sides will keep the edges from curling. A poor version of the instructions would be

> CO 25.
> Row 1 (RS): * K1, P1 *, rpt betw * across, K1.
> Rows 2 to 5: As row 1.
> Row 6: (K1, P1) twice, K1, P15, (K1, P1) twice, K1.
> Row 7: (K1, P1) twice, K8, P1, K8, (P1, K1) twice.
> Row 8: (K1, P1) twice, K1, P6, K1, P1, K1, P6, (K1, P1) twice, K1.
> Row 9: (K1, P1) twice, K6, P1, K3, P1, K6, (P1, K1) twice.
> Row 10: (K1, P1) twice, K1, P4, K1, P5, K1, P4, (K1, P1) twice, K1.
> Row 11: (K1, P1) twice, K4, P1, K7, P1, K4, (P1, K1) twice.
> Row 12: (K1, P1) twice, K1, P2, K1, P9, K1, P2, (K1, P1) twice, K1.
> Row 13: (K1, P1) twice, K2, P1, K11, P1, K2, (P1, K1) twice.
> Rows 14–25: Work rows 12–1 in reverse order.
> BO.
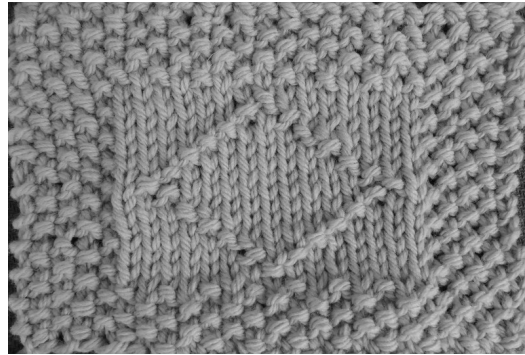
You like the way the picture looks, but you want to make a blanket, so you're going to need lots of diamonds. You also want a wider border, but of garter stitch, not seed stitch.

With these written-out instructions, it's difficult to figure out where the stitches for the diamond motif are and where the seed stitch starts and ends. The charted version, however, makes both parts of the design quite clear, just as clear as the photograph, in fact.

The Bottom Border

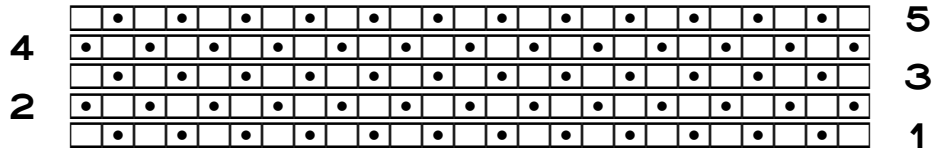Row one alternates twenty-five stitches between knit and purl, and it both starts and ends with a knit. So row one is

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[1] Tips for designing your own motif are at the end of the chapter.

Rows two through five have the same instructions, but we have to remember to invert the knits and purls on the private-side rows.


Yes, this partial chart shows the bottom border of seed stitch, so we're off to a good start.[2]

Row six has a big section of purl stitches in the middle of the row. That's probably where the border ends and the central panel of stockinette starts.
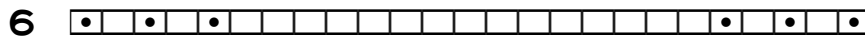
The Motif

Since row six is a private-side row, we have to invert the knits and purls as we work from left to right. We start with "(K1, P1) twice," then add the "K1," but we have to invert them to what they look like from the public side.
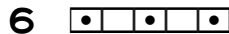
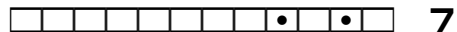There's a big block of purls, which we must show as knits.
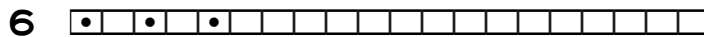
Then row six finishes the way it began.

Row seven also has lots of knit stitches, but they're interrupted by a single purl stitch. We start off with the "(K1, P1) twice,"
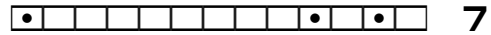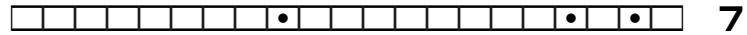

knit eight,

purl one,

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[2] If it looks like the partial chart is in ordinary lines instead of having each chart row in its own table row, you're right. I'll explain a bit later in the chapter why I'm doing the project chart this way, even though I just explained in chapter 120 that I prefer to chart in multi-column, multi-row tables.
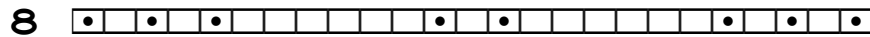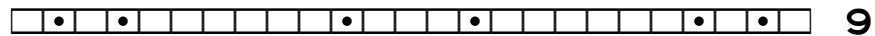
(Row 7 chart)

knit eight,

(Row 7 chart)

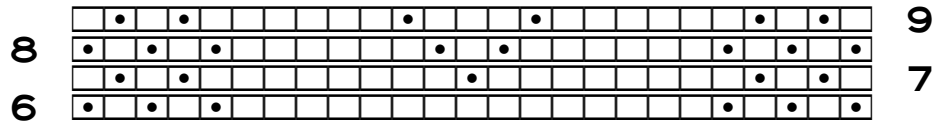and finish with "(P1, K1) twice."

(Row 7 chart)
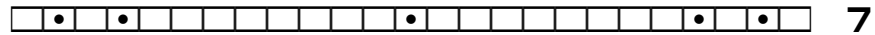
Row eight puts many purl stitches together, but there's something different in the middle of the row.

(Row 8 chart)

Row nine continues the theme.

(Row 9 chart)

Let's put rows six through nine together.

(Rows 6–9 chart)

That's definitely the bottom point of the diamond starting to take shape. Now we just need to get to the vertical center. Since the instructions tell us to start repeating rows after row thirteen, we can guess that row thirteen must be the center row of the diamond.

(Rows 10–13 chart)

Let's put the entire bottom half of the chart together.

The Complete Chart

Since rows fourteen to twenty-five simply repeat previous rows in reverse order, we can just copy them and fix their row numbers. The entire chart is

Compare the Samplers to the Chart

Note that although the project chart is numerically square, twenty-five stitches by twenty-

five rows, the samplers are not square. They're shorter than they are wide. That's because individual stitches are usually shorter than they are wide.

Stitch and Row Gauges in Basic Knitted Fabrics

The typical ratio in stockinette is about five to seven in worsted-weight yarn; if we get five stitches to the inch, we'll usually have about seven rows to the inch. Seed stitch will usually match our stockinette stitch and row gauges. In the worsted-weight version, there are right at five stitches and seven rows to the inch.[3] In the bulky-weight yarn, the project has about 3.5 stitches and four rows to the inch.
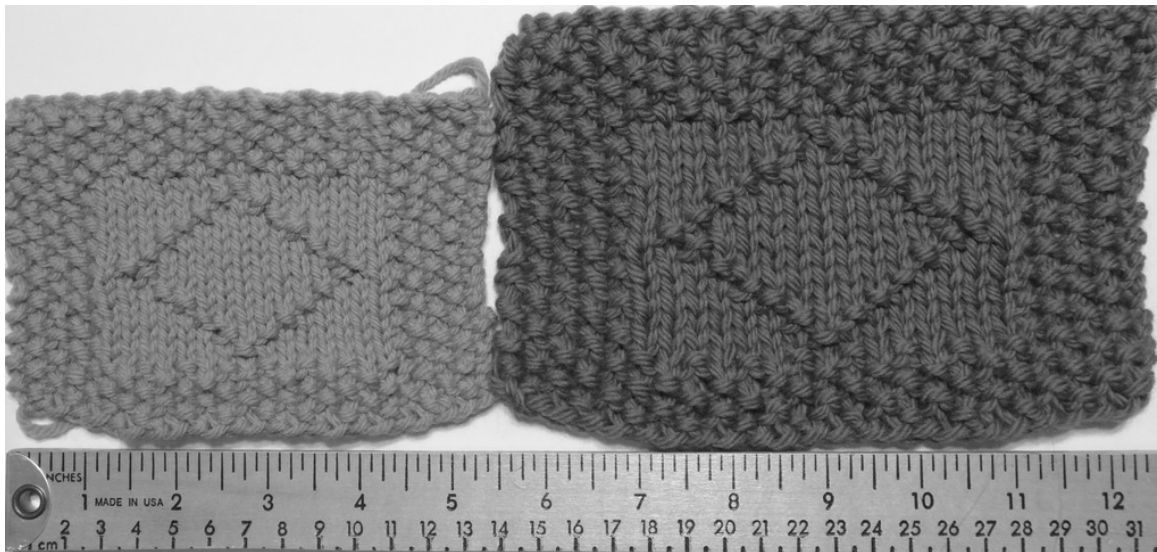
Depending on how you knit, your particular stitch-to-row ratio may be different. Remember that it's not uncommon for knitters whose stitch gauges match to have wildly different row gauges. You aren't doing anything wrong!

Appendix B has suggestions about making borders on flat projects.

Catching Typos with a Chart

Suppose row nine of the written-out instructions had been

Row 9: (K1, P1) twice, K7, P1, K3, P1, K6, (P1, K1) twice.

Let's chart this version. Since it's a public-side row, we put the row number to the right, then keep adding stitches to the left in our preferred method. So, the chart starts
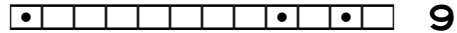
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[3] And believe it or not, I use a size 4 needle to get this gauge in worsted-weight yarn. Don't be afraid to use a very different needle size than what a pattern or yarn label suggests you use.
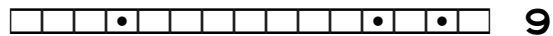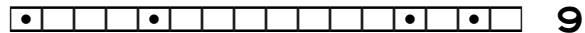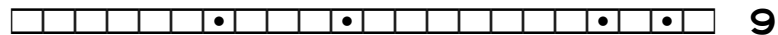
9
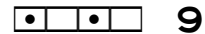
Now let's add the seven knit stitches,

9

the P1,

9

the K3,

9

and the P1.

9
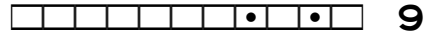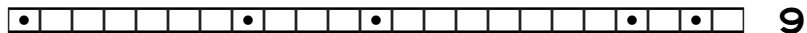
Let's add the six knit stitches that follow.

9
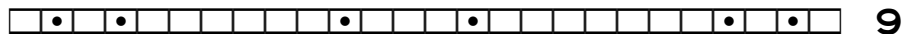
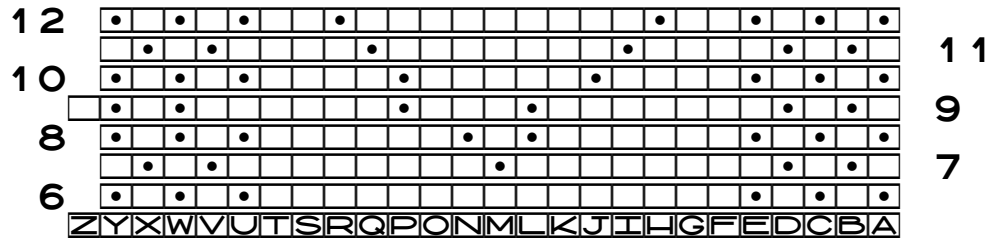And we finish with P1,

9

K1,

9

P1,

9

and finally K1.

9
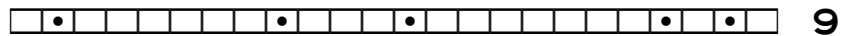
Now let's put this version of row nine in its place with some of the surrounding rows. Let's label all the stitches with letters to make the next part of the discussion easier.

1 2																												

(chart: rows 12, 11, 10, 9, 8, 7, 6 with purl-bump dots; bottom stitch labels)

Z Y X W V U T S R Q P O N M L K J I H G F E D C B A

What's different about this partial chart with the alternate version of row nine?

🧶 Row nine is one stitch wider than the surrounding rows.

🧶 The purl bumps do not form the straight and unbroken diagonal lines that the dia‐ mond motif requires.

The "K7" in the alternate directions for row nine is a typo. It should read "K6" in‐ stead, as it does in the original instructions.

Deleting one of the knit stitches from F through K on row nine will

🧶 move the motif's purl bumps to the proper locations, from stitches L and P to stitches K and O

🧶 shorten row nine to twenty-five stitches

🧶 align border stitches V through Z with those in the rows before and after them by moving them to stitches U through Y

Charting a project's instructions allows us to catch these kinds of errors. Think about the time, frogging, yarn, and sanity we save by knowing we have error-free instructions be‐ fore we even cast on.

Lessons Learned: Single Motifs

What can we see in the chart that isn't obvious from the written-out instructions?

The Border Stitches and Rows Are Clearly Isolated

If we want to make that border wider, we can now see exactly where those extra stitches would have to go. If we want to change the border to garter stitch, we now see which stitches have to be changed from purls to knits and knits to purls. If we want to do a border‐ ectomy, we can now see which stitches and rows to remove to leave the central motif.

Typos in the Instructions Are Obvious in a Chart

We can save time and frustration by charting the instructions, essentially making ourselves

unpaid pattern proofreaders. Yes, someone else should have caught any errors, but now we know how to find them ourselves.
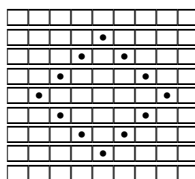
Does a typo matter much in this small project? Not really. But imagine a "K7" typo in the first row of a project on three hundred stitches. Yikes!

We Can Resize the Motif Easily

If we want to make the diamond larger, we can simply re-chart the purl stitches over a larger grid, adding both stitches and rows.
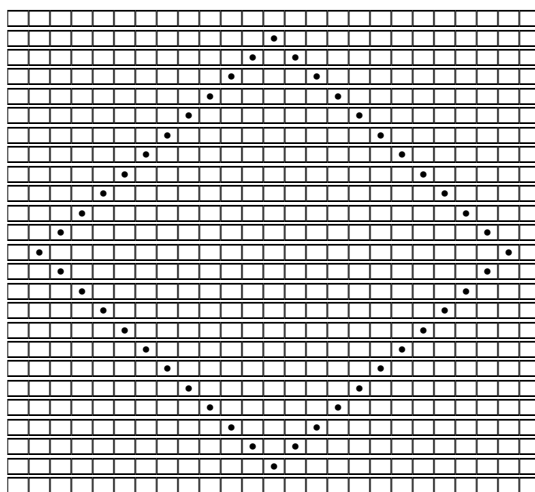
If we want to make the diamond smaller, we eliminate stitches and rows.

In either case, the basic idea is to make a chart the desired height (with rows) and width (with stitches) of knit symbols, then change some knits to purls to "draw" the desired shape.
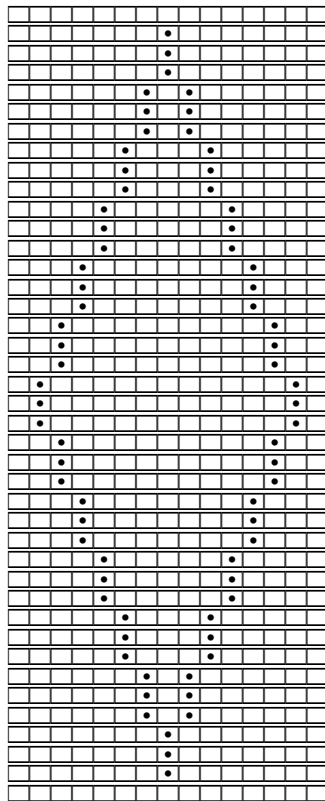
We Can Alter the Motif's Proportions

Since stitches are usually shorter than they are wide, if we want the diamond to be taller, we can just repeat each row that has part of the diamond motif once
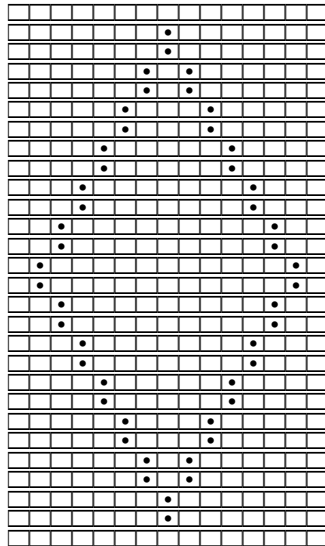
or even twice

Here's what the double-height project looks like:

Whoa! What happened here? Where are the nice, projecting purl bumps making the diamond twice as tall?

This disappearing act is what **vertical** columns of purl stitches do. Think about the appearance of 1x1 ribbing. Unless the fabric is stretched sideways, we usually can't even see the reverse-stockinette columns between the obvious stockinette columns.

We've seen that diagonal lines of purl bumps show up nicely. So will horizontal lines of purl stitches. But vertical? Nope. Sorry. No can do. You can't block it to make the purl bumps more prominent either, so don't waste your time trying to.

But let's look at the private side of the double-height purl diamond. After all, seed stitch and reverse stockinette are also legitimate knitted fabrics. Some of us might even prefer the private side's appearance.
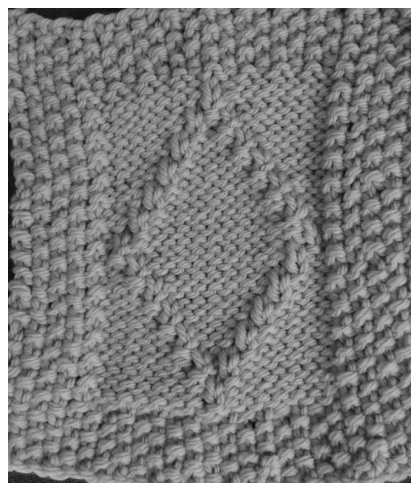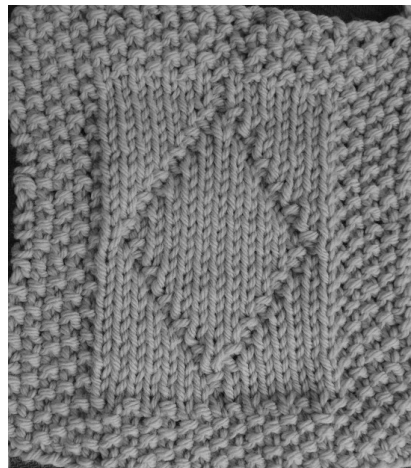
So How Do We Get a Vertical Line in a Motif?

There's a better way to do vertical lines when using purl stitches to draw a motif on a stockinette background. Use a column of seed stitch instead of all purls. Remember that seed stitch alternates knits and purls as you move upward through the column of a stitch. In other words, to get a motif twice as tall, double up the rows, but then change the top or bottom purl stitch in each pair of rows to a knit.
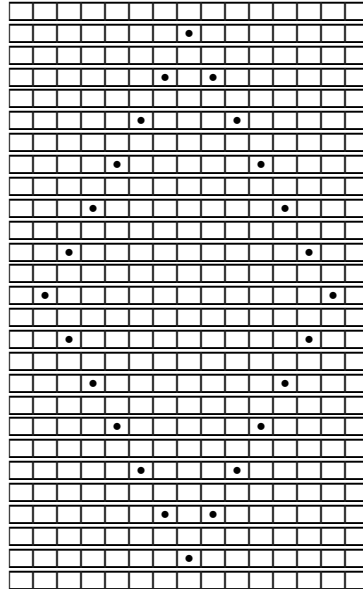
For row seven, I copied it,
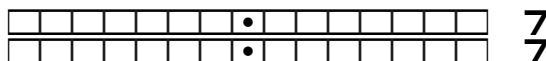
then changed the top purl stitch in the motif portion to a knit.
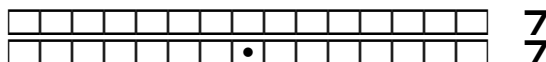
Here's what it looks like when we do that with every motif row.

Since we're only doubling the motif height, all we've **really** done is just put a plain stockinette row between each motif row.

If you wanted the diamond three times as tall? Triple up each motif row, then in every place in the motif where there is a column of three purl stitches, change the center purl to a knit.
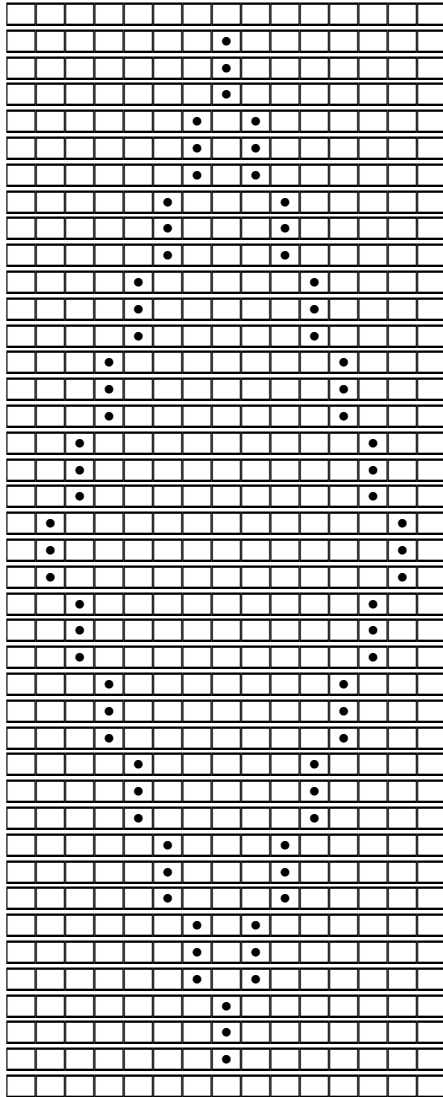
This won't work   Do this instead
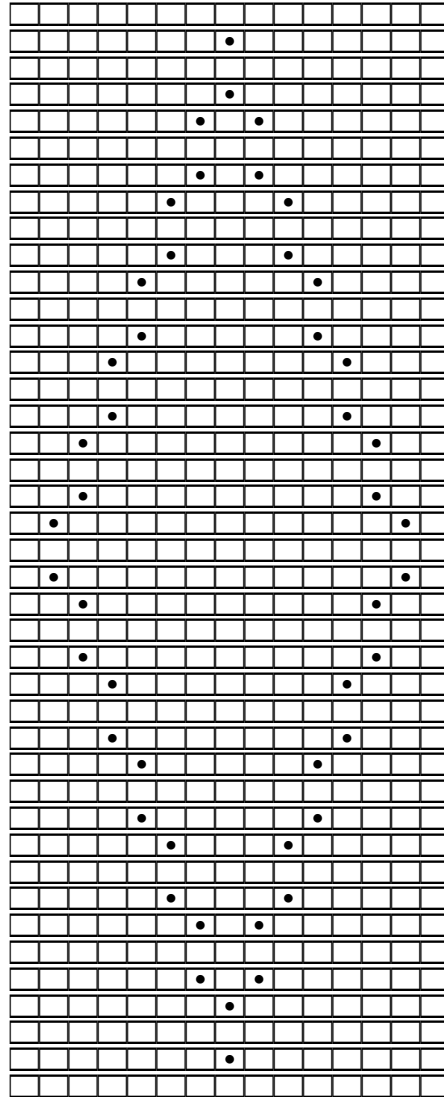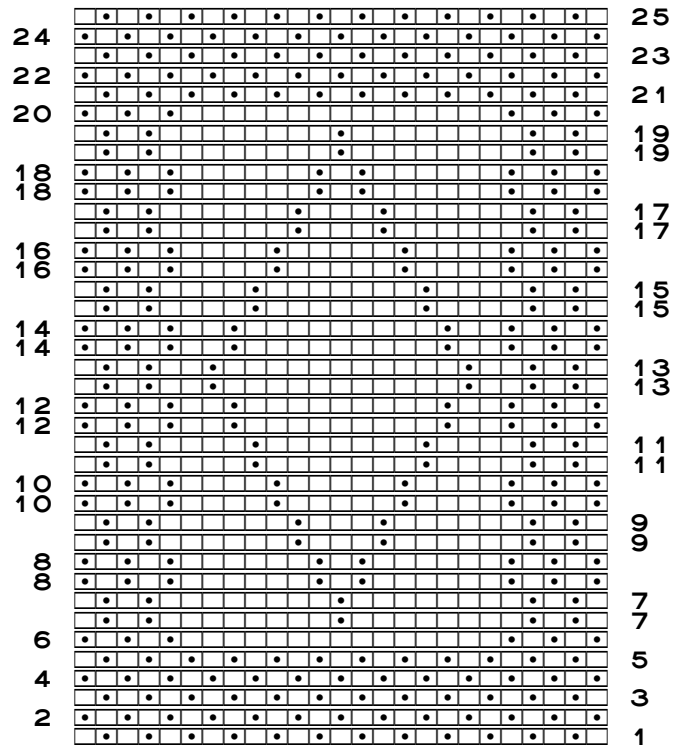
A Closer Look at Doubling the Motif Height

Let's look at the full chart with the motif rows doubled (the row numbers have not been fixed, to make it clear which rows are doubled).

Now let's change the "top" purl bumps in the motif portion to knit stitches.

(knitting chart — purl diamond motif with seed-stitch border; rows numbered 2–24 on the left and 1–25 on the right)

Our diamond motif is now twice as tall, and we know that the purl bumps will stand out nicely.

But There's Still a Problem

Do you see how the duplicated rows **do not** keep the side borders of seed stitch in pattern? The side borders now look like moss stitch. If we double up the motif rows to make a taller diamond but want to keep proper seed-stitch left and right borders, we would have to do one of two things:

1. Fix the chart so that the left and right edges have the proper checkerboard placement of knit and purl that seed stitch requires. We would probably also want to renumber all the rows to avoid confusion.

2. Ignore the border stitches as charted on the doubled-up rows and instead work them the opposite of how they present themselves (since it's seed stitch, we already know that we knit the purls and purl the knits for the first five and last five stitches of every row).

What If We Don't Need to Re-Do the Chart?

In fact, if what we really want is for the motif to be twice as tall, we might not even need to re-do the chart **at all**.

What?!

What we want is to work **two** rows for each row with a portion of the motif, making the purl bumps as charted on the public side going across, then working plain old stockinette in the motif portion on the private side coming back.

We Can Shorten the Chart

What just happened on the two row sevens is what will happen after we work **every** public-side motif row. When we turn to work the private-side row, we will work the motif portion as stockinette. If we're working in the flat, we purl all of the motif stitches, and if we're working in the round, we knit all of the motif stitches.

We could shorten the chart to show only public-side motif rows, and the instructions could say, "On private-side rows, work the motif stitches to make stockinette."

The chart would thus be only half as tall.
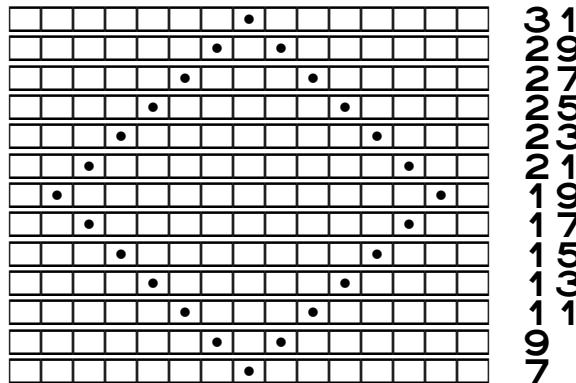
Instead of needing written-out instructions, or even a new chart, we know we can simply work stockinette in the motif portion of private-side rows.

The Border Stitches on the Doubled-Up Motif Rows

In the border portions of the motif rows, we work seed stitch according to the normal rule of seed stitch: we **work the stitches the opposite of the way they present themselves**, knitting purl stitches and purling knit stitches.

So we can do some pattern changes without making a new chart, because the work itself shows us what to do.

The Corrected Chart with the Motif Rows Doubled

Here's the double-height motif chart with the border stitches and row numbers fixed.

Do you notice anything different about this chart? Here's a hint: carefully compare the top and bottom of the diamond.

After we change the motif portion of private-side rows to be simple stockinette, we now have an extra row of stockinette above the top of the diamond. At the bottom of the diamond, there is only one row, row six, between the border and the motif. But at the top of the diamond, we have two rows, rows thirty-two and thirty-three, between the motif and the border.

If we are feeling very fussy, we can delete row thirty-three and fix the resulting chart.

A Not-So-Obvious Lesson Learned: Put Side Borders in Their Own Columns

You'll have to read the reasons **why** we should do this in chapter 320, which explains how to change a chart from ordinary lines to a multi-column, multi-row table. This lesson learned is

the entire reason why the charts in this chapter are not in multi-column, multi-row tables. The conversion process shows why using a multi-column table (with the motif as well as the left and right borders in their own columns) instead of ordinary lines is better.

Design Your Own Motif

If you want to make a small item like this with your own motif, it's easy to set up a basic grid, then use purl stitches to "draw."

Step 1: Set Up a One-Column Table

Set up a table with one column, and fill it with as many knit stitches as you want the motif to be wide. Here's a table for a motif thirty stitches wide.
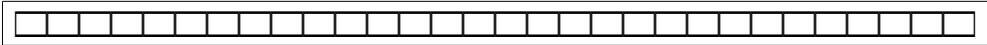
Now add rows to the table, select the entire group of knit stitches, copy them, and paste them into each row.
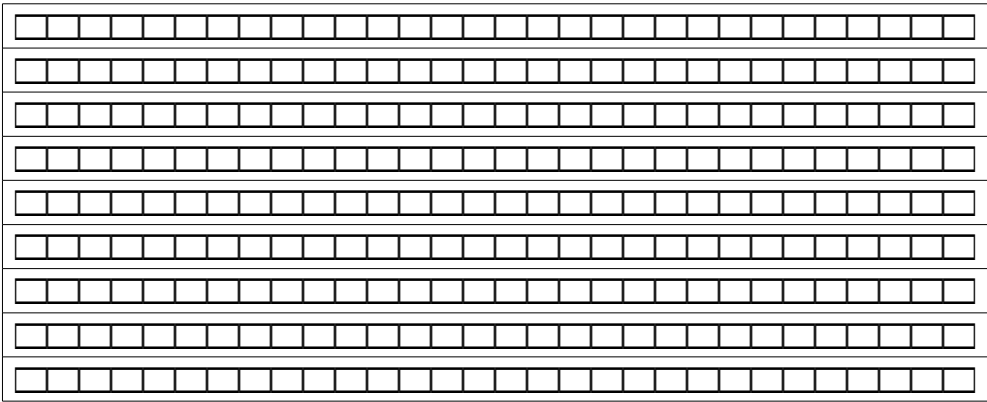
If the cell margins, which control how close the symbols get to the edges of the cells, seem too big for easy drawing, set them all to be zero. We could also remove the cell borders.

        HollyBriscoe.com
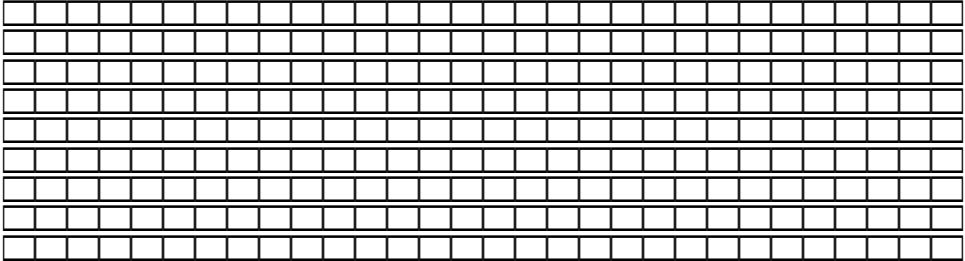
If you need more knit stitches to draw a bigger motif, you can

- 🧶 change the page orientation to landscape
- 🧶 shrink the page margins
- 🧶 use legal paper instead of letter paper
- 🧶 use a smaller font size for the chart

Combine these suggestions as needed.

Step 2: Draw the Motif

Now you have two options.

Option A: Draw Directly on the Computer

To make your motif, select a knit stitch and type a lowercase

<div align="center">

`p`

</div>

to switch it to a purl.

Keep switching knits to purls until you have completed your motif.

Option B: Draw on Paper

Print out the all-knit table. Add purl dots by hand as needed.

One advantage to working on paper is that if you are creating a motif from a drawing or a photo, you can put your all-knit chart on top of the drawing, then work on a light box or against a sunlit window to help you see the image you're working from. Then it's easy to see which knit stitches need to be replaced with purls.

When you are done with your design, update your computer chart as in option A. Or you can just use the hand-drawn chart.

Beware of Columns of Purl Stitches

As we saw in the purl-diamond project, diagonal lines of purl stitches work well. So will horizontal lines of purls.

But if you need a truly vertical line, you'll have to experiment. Single-stitch columns of purl stitches may recede irretrievably into the fabric, just as they do in 1x1 ribbing. You might be tempted to make vertical lines that are two or even three purl stitches wide, but those columns of purls may still pull in, and even more so than a single column. Again, you'll have to experiment, because some yarns may not behave like the wool used in both the worsted- and bulky-weight samplers.

If several columns of purl stitches don't work, try a column of seed stitch. If a one-stitch column seems inadequate, try two or even three columns of seed stitch.

Step 3: Complete the Chart

If you created the entire motif on the computer, add a column for row numbers (public-side numbers would probably be sufficient), print it out, and cast on your designer project, designed by *you*!

If you want to add borders to your project chart, do so. You'll be much happier if you put the left and right borders in their own columns, which we'll see up close in chapter 140.

If you created your motif by hand on paper, then you can choose whether to update the computer chart with all the purl stitches.

If you decide to work off your hand-drawn chart instead of going to the trouble of updating the computer chart, just remember that if you lose that piece of paper, you're stuck. If you take a few minutes to put the final chart in the computer, then you can always just re-print it if something happens to the first copy.[4]

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[4] If your life is like mine, then if I take the time to put the chart in the computer and print it out, I would bet real money that nothing will happen to it. I won't lose it, spill anything on it, have the cat throw up on it, or whatever. But if I work from my hard-won, one and only original, I'm sure to lose it or find it somehow unusable. Overall, it's probably better to take the time to put it in the computer. Then you have it if you want to use it again five years from now or if one of your knitting buddies wants to make something from it.