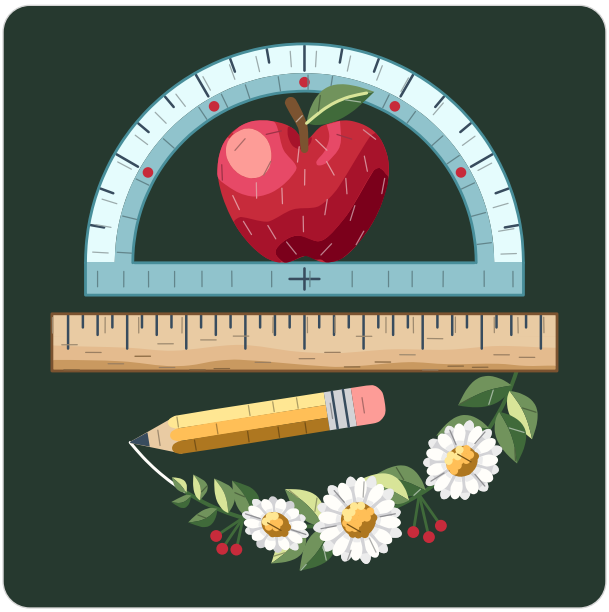
Math teacher ruler and protractor

6 inch (15 cm) hoop, 4.5 × 4.7 in (11.4 × 11.9 cm)



Colors by number: page 2.
Fabric: dark green cotton or linen.

What you need

A 6 inch (15 cm) hoop.

A 9 inch (23 cm) square of dark green cotton or linen.

Embroidery needles, size 9, and size 5 for 4 strands.

22 colors of floss (page 2): one skein of each color (an estimate from the drawing's lines and shapes).

A white pencil, and small scissors.

Onto the fabric

Fabric that lets light through: page 3 on a bright light, the fabric over it; trace with a white pencil.

Other fabric: print page 3 on a sticky wash-away sheet, stick it on, stitch through it and rinse it away.

Or white or yellow carbon paper, colored side down, page 3 on top; trace with a ballpoint and go over a faint line with a white pencil.

Then hoop it, inner ring under, tight as a drum.

How to read it

Floss has six strands: cut 18 inches (45 cm), pull out the number named one at a time, and lay them together.

Start a filling with tiny stitches, a line with a small knot; end under stitches on the back.

Every stitch in pictures: flossfield.com/embroidery/stitches.

New to this: flossfield.com/embroidery/guides/how-to-start.

Stitch in this order

Where a stitch page says otherwise, follow this list.

1. **Back stitch**, 4 strands
   Drawn line

2. **Stem stitch**, 3 strands
   Garland stem

3. **Fishbone stitch**, 2 strands
   Leaves, apple leaf

4. **Long and short stitch**
   1 strand
   Ruler, apple

5. **Satin stitch**, 2 strands
   Daisy petals, daisy centers, protractor scale, protractor rim, protractor base, ruler edge, pencil wood, pencil barrel, pencil point, ferrule, eraser, apple stem

6. **Back stitch**, 2 strands
   Berry stems

7. **Split stitch**, 2 strands
   Protractor edge, ruler outline

8. **Straight stitch**
   2 strands: degree marks, ruler marks, ferrule bands
   3 strands: center mark

9. **Stem stitch**, 1 strand
   Lines of the apple leaf

10. **French knot**
    2 strands, two wraps
    Berries, knots of the daisy centers, degree dots

Take out lines that still show, press face down, finish the hoop.

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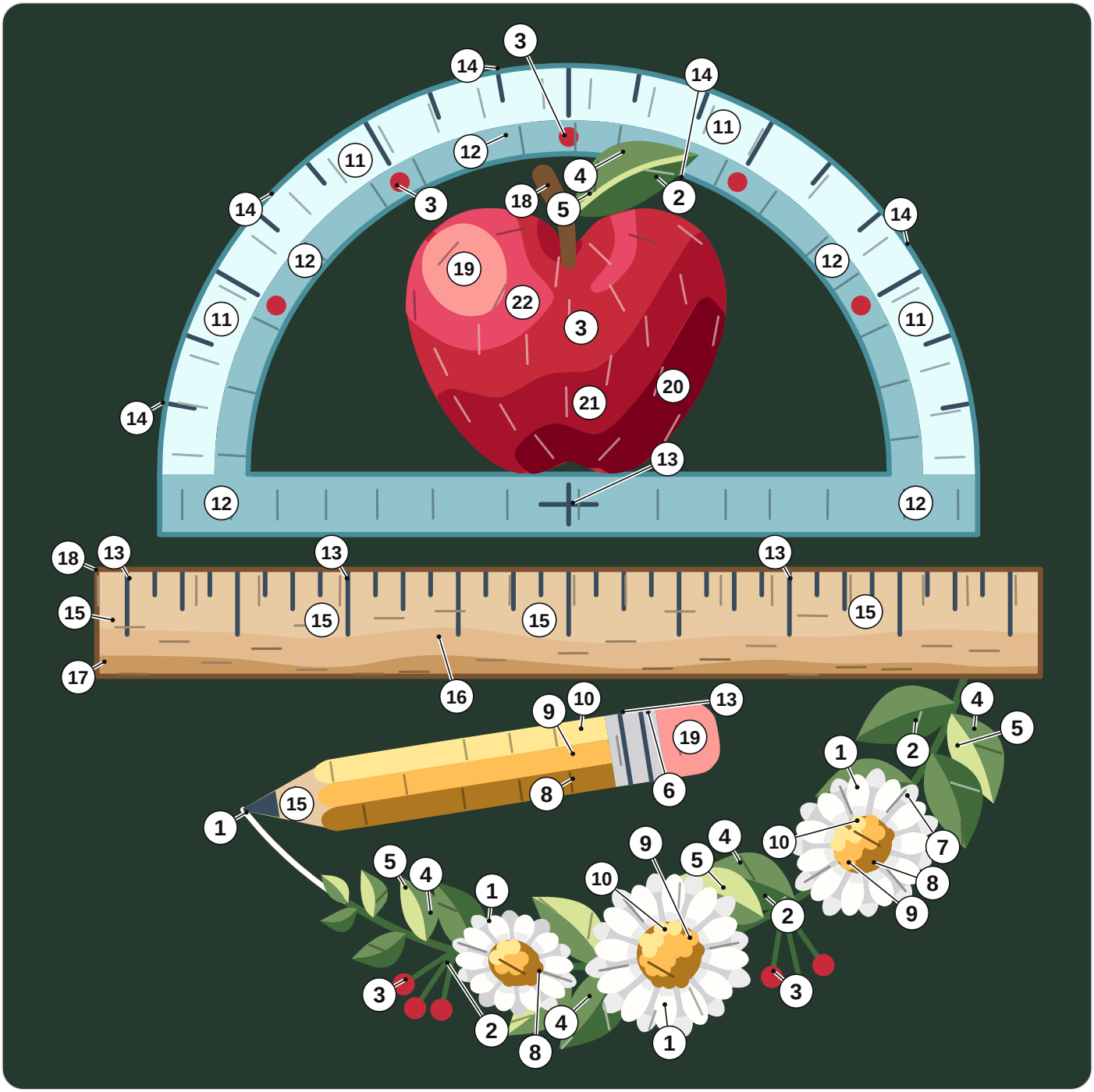
A number is a color of the list. Fine lines show which way the stitches lie: do not stitch them.



1	DMC BLANC White	9	DMC 742 Light Tangerine	17	DMC 436 Tan
2	DMC 3346 Hunter Green	10	DMC 744 Pale Yellow	18	DMC 433 Medium Brown
3	DMC 321 Red	11	DMC 747 Very Light Sky Blue	19	DMC 352 Light Coral
4	DMC 3347 Medium Yellow Green	12	DMC 598 Light Turquoise	20	DMC 814 Dark Garnet
5	DMC 472 Ultra Light Avocado Green	13	DMC 3750 Very Dark Antique Blue	21	DMC 498 Dark Red
6	DMC 415 Pearl Gray	14	DMC 3810 Dark Turquoise	22	DMC 3801 Very Dark Melon
7	DMC 762 Very Light Pearl Gray	15	DMC 738 Very Light Tan		
8	DMC 782 Dark Topaz	16	DMC 437 Light Tan		

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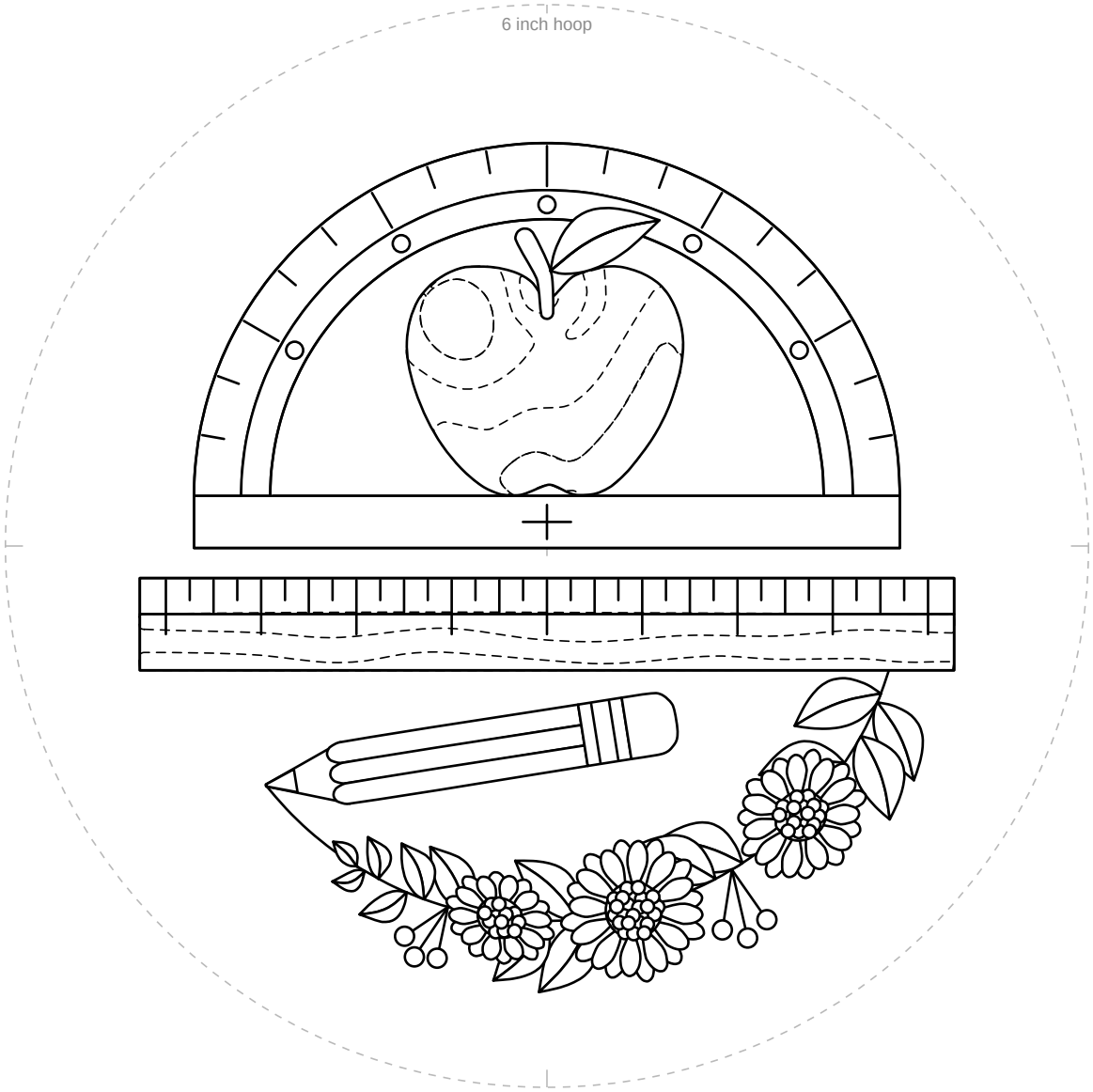
6 inch hoop

Print at 100% and measure the square. Trace the black lines only. The gray ring is the hoop: fold the fabric in four and lay the folds on its ticks.

On the drawing a ring is one French knot: mark a dot; a broken line inside a shape is where two shades meet: trace it, do not stitch it.



1 in
25.4 mm

Not 1 inch (25.4 mm)? Print again at 100%.

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