Learn About Fabric Weaves

If you're anything like us, fabric stores are your personal wonderlands. Whether in-person or online, the colors and textures that surround you just scream for new projects to be made. Which got us thinking... if we love fabric so much, shouldn't we know more about it; like how it's made, and what is what? An educated shopper is the best kind, so we set out to better understand the differences between weaves of fabrics, and we're sharing our results.

It all starts on the loom
Pendleton's Washougal, Washington mill weaves their solid, striped and plaid fabrics on Dobby looms. You can see in the picture above of their weave room that the threads on the looms are colored. On these fabrics, both the Warp threads (under tension, on the loom) and the Weft or fill threads (the threads that cross at a right angle) will show in the finished yardage. When Pendleton crosses a striped Warp with a striped Weft, they create one of their famous plaids. The large cones of thread next to each loom are the fill threads for that fabric.

Though it seems difficult to imagine, most fabric is still created on a loom – just like it was thousands of years ago! Of course, technology makes the process much faster, but the basic principles are still the same.

The loom is set with rows of thread criss-crossing each other to form the fabric. First, vertical (lengthwise) threads are attached to the loom itself. These are called the Warp threads and they are the basic foundation of the fabric. Next, threads are woven between the Warp threads, usually at a 90˚ angle. These fill in the fabric, and are called Weft threads. One great mnemonic device for remembering the difference is to say, “Weft goes right and left.” Plus, saying it makes you sound like Elmer Fudd, so that’s a secondary benefit. Weft threads create the selvedge of the fabric. The variations in the way the Warp and Weft threads criss-cross each other is how different weaves of fabric are created.

With our basic foundation in place, we can investigate some of the most common types of weaves.

**Plain Weave**
The most basic fabric construction is called (go figure!) the Plain Weave. This is a one-to-one overlap of Warp and Weft threads – the Weft threads go over and then under the Warp threads. The majority of the fabrics we use on Sew4Home fall into the Plain Weave category, including the quilting cottons we all love. These weaves are inexpensive to produce and quite durable. Calicos, Gingham, Cheesecloth, Percale, Voile, Chiffon, and Taffeta are all Plain Weave fabrics.

**Basket Weave**

This is a simple variation of the Plain Weave. In the Basket Weave version, the criss-cross pattern uses more than one thread, but the number of threads is consistent throughout. For example, two Weft threads cross the Warp fiber every two strands. Often the weave will use contrasting colors. The result resembles a checkerboard, because the criss-crossing strands are more pronounced than in the Plain Weave. One popular example of this type of weave is Oxford Cloth. In a fabric store, you’ll usually find these fabrics in the Shirting section.

**Twill**
Twill weaves are easy to spot because they create diagonal lines. The Weft thread is passed through the Warp thread in groups of two or more. Each row of threads starts on the next line in a progression, creating a distinct diagonal line. In other words, Row 1 starts by passing over the Warp thread, Row 2 starts by going under it, and so on. The counts of under and over threads create different patterns in twill, such as Houndstooth or Herringbone. The process of making Twill creates a distinct front and back side in the weave itself. You can often only tell the front and back on a Plain Weave because the front side (the right side) has been printed with a motif design. Twill is generally rougher in texture than Plain Weave fabrics, so they aren't great if you're making super soft pillows or comforters. The upside of this, however, is that the rough and tough texture will not wear or show dirt as readily. We love using it for many of our signature Sew4Home Bags and Totes. Denim, gabardine, and tweed are common examples of the Twill weave.

**Satin**

Satin is known as a soft and smooth fabric that drapes wonderfully. To create this weave, one thread (either the Warp or the Weft) is *floated* over four or more opposite threads. It then goes under one thread, and repeats the pattern. *Float* is the term for spaces between interlacings – where a thread rests on top of the opposite thread. The large distance between interlacings is what creates the smooth and glossy surface on this fabric. This distance also causes Satin to snag easily, and makes it less durable than other fabrics.

**Jacquard**
The Jacquard loom is the photo above is in Pendleton's mill in (yes, you guessed it...) Pendleton, Oregon. You'll notice the Warp threads on the loom are white, but the fabric is multicolored and patterned. This is possible because it's on a Jacquard loom, (and because of the structure of the Pendleton Trade Blankets). On this type of loom, the Warp threads will not show, only the fill colors. Notice how the space above the loom looks different on the Jacquard loom. That's because all the threads can be raised independently, making incredibly complex patterns possible. In this photo, the fabric being woven is their Chief Joseph pattern, one of the oldest in their line and still one of the most popular.
This special loom was invented by Joseph Marie Jacquard in 1801. The main distinction of the loom’s design is how the weaver can control individual Warps. Generally Warp threads are stagnant, while the Weft thread is woven in and out. A Jacquard loom allows for the creation of very complex, multicolored designs because of the ability to control all the threads. Jacquard fabrics tend to be rather expensive, but the designs created in the fabric won't fade or wear out as easily as printed designs. Because the back of some of these fabrics often expose quite a bit of the thread used in the weave, they most often are backed or used in situations where the back of the fabric will not be exposed. However, in many situations the back can be as gorgeous as the front and used as a design element. This type of weave is very popular for upholstery fabric, and most true tapestries are made in this manner. Common fabrics made with a Jacquard Weave are Brocade, Damask, and Tapestry. One of our favorite fabric embellishments is also a Jacquard: the detailed ribbon designs of Renaissance Ribbons.

Fabric, Color & Texture

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