

## How is Paper Made?

If you really want to know about paper and papermaking, you've got to get to know trees.

Trees are all around you. But have you ever really thought about how they're put together?

Just look at a tree trunk. The *bark* protects the inner wood from weather, insects and other dangers. Just inside the bark is a thin layer called the *cambium*, whose cells become both bark and inner wood. Next is *sapwood*, which carries nourishing sap throughout the tree the same way our blood flows through our bodies to nourish us. *Heartwood* is the innermost part of the trunk, and even though it isn't alive, it provides the tree with strength and structure.

All that wood material is formed of *fibers*, tiny cellulose strands stuck together with a natural adhesive material called *lignin*. It's by separating and reorganizing those fibers that we make paper.

**Question:** Why do newspapers turn gray, and then yellow?

**Answer:** The discoloration of newsprint occurs because of a natural wood chemical called lignin that is present in wood. Lignin is the natural "glue" that holds wood fibers together.

Pulp used to make newsprint is mostly made using a process called mechanical pulping, in which wood chips are ground to separate the wood into individual fibers. Lignin remains in the pulp, and after even a very short exposure to light, the chemical color bodies contained in the lignin begin to discolor, thus causing the newsprint to yellow.

Chemical pulping dissolves the lignin in the wood that binds the fibers together, freeing the fibers chemically rather than mechanically. Removing the lignin and all other non – cellulose materials ensures a more colorfast paper with greater resistance to the deterioration of time and environment.

It takes more raw wood chips to make the same amount of chemically pulped paper than it takes to make mechanically pulped paper. **Hence, chemically pulped paper tends to be more expensive.**

Other types of paper are made using a different type of pulping that actually removes lignin from the wood, so these papers are not as prone to discoloration. This process is more expensive.

Aging of any type of paper is accelerated by sunlight (UV ray exposure causes yellowing, fading and brittleness), heat (which breaks down the lignin), moisture (mildew stains), dirt (degrades the fibers), and household pests (like silverfish and beetles.)

**Scrap booking Paper:** Should be Acid free (neutral pH) and lignin free. It lasts longer than other papers and holds color well and is referred to as archival safe paper. It is paper which has had the acid removed from the pulp so that it has a neutral 7.0 pH known as acid free paper.

**Coverstock Scrapbook Paper (Known as cardstock):** Cardstock is the perfect paper to use to create scrapbooks. It is heavy weight and can be used as a base page to build a layout, or for making decorative [photo mats](#) and die cuts. When used as the page itself, scrapbook cardstock provides a sturdy base that is strong enough to carry the weight of the photos, embellishments and trims you'll be adding. It also stands up better than flimsier papers to the handling it will receive, both in the making and in the viewing. Scrapbook

cardstock adds dimension and texture to your page as well. The average weight for cardstock is about 80#.

**Text Weight Paper (Known as patterned paper):** Can also be used as a base page for making a layout, or for accenting pictures, documents, stamps and the like. Patterned paper style and color should be chosen to convey the theme of the album. For example, there are heritage papers that have colors, styles, even [forms](#), that convey your family genealogy. Text Weight paper is usually lighter than coverstock. The average weight for patterned paper is about 70# text.

**Vellum Scrapbook Paper:** Has a translucent appearance, creating a rich page layout. Vellum is often placed over other paper, yielding a 3-D effect and distinctive look. Vellums work beautifully to stamp on or for layering. You can stamp on one side, then color the image from the back with markers for gentle shading effects, or you can stamp and color on the same side. If the vellum is thin enough, you can also use it effectively with origami projects. Vellum can also be used to create beautiful envelopes. The higher the pound, the heavier the vellum. The average weight of the most commonly used vellum runs about 30# for color vellum and heavier for white/clear. The heavier the vellum the better for printing.

Scrap booking papers should last for generations without fading or breaking down. Paper that is acid-free and lignin-free is much more resistant to the ravages of time and use. The quality of dyes and pigments in paper plays a major role in its colorfastness. High quality dyes and pigments are more expensive, as are deeper, darker colors. Generally speaking, the paper's cost is an excellent indication of its ability to withstand fading and deterioration. You get what you pay for when you buy lower-end, inexpensive papers that use cheaper pigment. These lack the color permanence of more expensive papers. In fact, if you leave some of them out on the table even for a few days, the color will fade. The culprit in this case is not acid content in the paper, but the poor quality of the dye. More expensive papers made with higher quality dyes will hold their color permanently.

Remember, whatever paper you choose, you want it to be [acid](#) free and [lignin](#) free to ensure long-term preservation of your memories. Keep your memories safe, just like your other valuables - put your scrapbook paper inside [archival page protectors](#). Using archival scrapbook paper and page protectors will assist the longevity (safety) of your [scrapbook album](#) and its contents.

**Acid free:** Make sure you always use an acid free paper. Acid is used in the papermaking process to break down the wood chips. Some of that acid can remain in the paper. The acid can cause your photos to change colors, darken or fade.

**Lignin free:** Lignin is a substance that gives trees and plants their strength and binds the fibers together. You will want your papers free of lignin because it reacts with the light and heat. The reaction can result in yellowing your papers.

**Fugitive-free dye:** We all know that colored and patterned papers give an extra pizzazz to your layouts. Papers are colored by different materials including pigments and dyes. When these papers get wet, or are stored in a humid place, the colors can bleed onto other items on your page.

**ACID FREE SCALE** The Acid Scale goes from 0-14. 0 is very acidic while 14 is very alkaline. 7 is considered acid free but a pH value of 8 is preferable for use scrapbooks.