TYPES OF PAPER

TREE-FREE PAPER
• Plants, such as hemp, kenaf and bamboo, that yield fiber faster than trees.
• Agricultural waste such as sugar cane, straw from wheat and rice, and by-products from coffee, banana and coconut plants.

RECYCLED PAPER
• Contains a percentage of fibers made from either post-consumer waste (wastepaper) or pre-consumer waste (cleaner paper waste, known as “broke”, from printers or the paper mill itself).

HANDMADE PAPER
• Small amounts of paper are still made by hand for prestigious applications such as letterheads, limited-edition books, and artists’ paper, where completely random orientation of fibers is important, particularly for watercolor paintings.
• The process is very slow and expensive, as each sheet has to be hand-produced.

MOLD-MADE PAPER
• This is a high quality grade of paper usually made from cotton rag pulp on a cylinder mold machine, rather than a Fourdrinier machine (paper making machine).

ACID-FREE PAPER
• Acid-free is paper with a pH rating of 7 or higher rating of alkalinity. It has a much longer life expectancy, and is used for books and other publications that are intended to last in good condition. It is treated to neutralize the acids that occur naturally in wood pulp. Where paper is not acid-free, it can yellow and deteriorate over time.

BULKY MECHANICAL (NEWSPRINT)
• It is machine-finished paper, made mostly from groundwood pulp, or recycled fiber used for printing newspapers and cheap landfills.
• It discolors, and becomes brittle when it is exposed to light, due to the impurities contained in and around the fiber, that were not removed in the pulping process.

MECHANICAL PAPERS
• These contain a large proportion of mechanical wood pulp, but also some chemical pulp to increase strength.
• Can be bleached
• Can be produced with a smooth surface by super calendering, machine finishing, or machine glazing.
• Used for offset printing, also called WSOP (web sized offset printing).
• These papers are used for cheaper leaflets and magazines - halftones up to 120 lines ppi, or more, can be printed satisfactorily.
Newsprint
One of the most familiar papers: absorbent, low cost, and easy to recycle.

Shiny plastic papers
These can be expensive but are ideal for products that face "difficult" conditions—like children's books and maps!

Micrometer
For measuring the thickness of paper and board in microns, or thousands of an inch.

Glossy magazines
Quality magazines are often described in terms of the paper—glossy, or more accurately, coated stock.
**FREESHEET (WOODFREE)**
- This paper is still made from wood pulp, but it is produced by the chemical, rather than the mechanical process.
- To be described as woodfree, the chemical wood pulp content should be at least 90%.
- Strong sheets with good whiteness are produced for use as general printing and writing papers, stationery, copying papers, and magazine papers.
- These grades will take color, but with not such good results as coated qualities.
- Includes: “bond” paper with fine formation (used for stationery), and “bank” that is a lighter weight version of bond.

**CARTRIDGE PAPERS**
- These are tough, hard, sized papers that were originally used in the production of cartridges. The term has been extended to most rough-surfaced heavy papers, such as papers used for drawing and painting.

**BOARD**
- Is used for covers to catalogues and paperback books, and for the production of cartons.
- It may be coated or uncoated on one or two sides.
- Board weights normally start at 150lbs (150gsm grams per square meter).
- Paperback book covers are specified in point thickness ranging from 10 point (200gsm) up to 15 or 17 point (300gsm) for larger and heavier books.
- Thicker board is used for packaging, children’s board books, or binding cased books.

**ANTIQUE**
- This relates to bulky paper with a naturally rough finish (antique wove), similar to that of an uncalendered handmade paper.
- Used in the production of books.

**ANTIQUE LAID**
- This has a different surface characteristic as it shows the laid lines and chain marks of the roll within the surface.
- Not suitable for halftones or line work with large solid areas of color or fine detail.

**ENGLISH AND SMOOTH FINISHES**
- Although uncoated, these are often used for publications that contain black-and-white halftones or color work.
- The smoothness of these finishes provides a receptive surface for the reproduction of fine line illustrations and photographs.

**COATED PAPERS**
- **Gloss art paper** is coated on both sides with china clay or chalk and calendered to give a very high smoothness and gloss.
- It is used for the printing of halftones and color, and high-quality magazines and promotional material.
- The base paper of cheaper coated papers can contain groundwood or recycled fiber.
- **Matt art or silk-finish** coated paper, is produced in a similar way to art paper by coating with china clay or chalk, but the calendering process is only used to consolidate the surface rather than to produce a high gloss.
- The surface has a matt appearance but still gives excellent reproduction of black and white halftones and four-color images without the glare effect from gloss interfering with the ease of reading the text portions of the publication.
- **Blade-coated cartridge paper** is midway between being an uncoated and a matt art paper.
- Has a lighter coating than art and matt art paper, but reproduces halftones well.
- Used for some magazine work and illustrated books.
• **Chromo paper** is coated on only one side and is used for posters, proofing work, and the printing of book jackets and labels.

• **Cast-coated papers** are characterized by exceptionally high gloss.
  • Cast-coated papers are used in the production of prestigious cartons or covers for presentation material, and corporated annual reports.

**PLASTIC PAPERS**
• Made completely from plastic or with a plastic, or latex, coating over a base paper.
• Although expensive, these products are ideal for the production of some waterproof maps, workshop manuals and books for young children.
• Tough and washable. They require special printing techniques and inks.

**CARBONLESS COPYING PAPERS**
• Are produced by employing a coating of microcapsules that rupture under the pressure of a stylus or printer key, releasing a solution of colorless dye. This transfers to the reactive surface on the sheet below where the dye is converted to its colored form.

**PAPERS FOR DIGITAL PRINTING**
• Many digital presses use toners instead of conventional offset inks, and these react with heat as the image is fused onto the paper.
• Coated stocks can cause problems in electrographic printing, as the coating acts as an insulator.
• The moisture levels are more critical in digital printing.

**TECHNICAL PAPERS**
• Many types of highly specialized papers are manufactured either through modification to the basic paper making process, blend of pulps, use of additives.
• These include papers for currency, photography, filters, electrical cable winding, decorative laminates, security applications, self-adhesive, and postage stamps.
MISCELLANEOUS GRADES

• Mills make a wide range of papers that have special sizes and uses, such as index, bristol, tag, board and newsprint. Many are used in both the packaging and printing industries. Several manufacturers produce specialty papers that resist tearing and moisture. You’ve seen them as envelopes, labels, maps, menus and textbook covers.

• The paper industry refers to heavyweight, bulky stock as board. The material is rigid, strong, hard and durable. Names such as index, bristol and tag are common in addition to the general term “board.”

• Sometimes an additional name gives a clue to intended use. For example, weatherproof bristol makes good lawn signs; plate bristol has a hard surface for business cards; vellum bristol is soft with good bulk for directmail cards.

• Because there is no consensus about basic sizes for board stock, basis weights vary greatly. Furthermore, some boards are described in caliper and others in ply.

• Ply board, also called railroad board or posterboard, comes in many colors and may be weatherized for outdoor use.

• Chipboard- Made from mill waste without concern for strength or printability. This inexpensive material is used for light-duty boxes and backings on notepads.

• Board Paper- This is very thick and used primarily for posters and signs. It’s usually coated on one side and is available in traditional sizes for advertising inside buses and trains.

• Bristols- These come in various finishes. Vellum bristol is used for business-reply cards and self-mailers. Bulky and very porous, it runs well on quick print presses.
- **Index Bristol** is used for file and index cards as well as direct-mail pieces. Its hard surface gives good ink holdout. **Tag** is a heavily calendered, dense, hard paper for products such as labels, scoresheets and notecards.

- **Newsprint** - This comes from groundwood pulp and usually runs on open web presses. It can be sheetfed, but runs slowly due to lack of body and impurities that lead to frequent cleanings of plates and blankets. The impurities also make this very inexpensive stock opaque but likely to yellow with age.

- **Kraft** - This is a cousin to newsprint made for wrappings and bags. It costs very little, may be hard to find for commercial printing, prints slowly and comes only in the familiar brown and manila.

- **Dry Gum** - This paper has glue on the back ready to activate with either moisture or heat. Heatsensitive glues are used for labels in retail applications such as meat packing.

- **Pressure-Sensitive Papers** - Often called stickyback, these are printed to make the popular peel-off label. Almost any kind of paper is available with a self-adhesive backing.

- **Carbonless** - These papers have chemical coatings that duplicate writing or typing on an undersheet. The stock is used primarily for multipart business forms. Sheets come in three types: CF (coated front), CB (coated back) and CFB (coated front and back).

- **Synthetic** - These papers are petroleum products with smooth, durable surfaces. They are very strong, as anyone knows who has tried to tear a synthetic envelope. Synthetics make fine maps, covers for field guides, game boards and other products that must withstand weather, water and hard use. Synthetics cost about three times more than comparable premium-coated book papers.

- **Specialty papers** include metallic paper coated with either mylar or powdered metals, and synthetic paper, which is actually not paper at all, but plastic film. These papers are expensive and may require special inks and printing techniques. If your design calls for using a specialty paper, discuss it with an experienced printer first.