9. DYEING & PRINTING

Do You Know ?

What is the first thing that attracts your attention when you go shopping for clothes?

Do you know how so many beautiful shades of colour and patterns are created on the clothes we buy and use?

Colours play an important part in our life. Apart from adding beauty and vibrancy, colours also have specific psychological effect on us. We also use colours for cultural and social reasons. As civilizations all over the world developed, mankind was not content with using textiles in their original natural colour. Ancient people found out ways of colouring their textiles to make them more attractive and beautiful and that was the origin of the art and science of textile dyeing & printing.

Pic. No. 9.1 Dyeing in ancient times

9.1 Origin

A dye is a natural or synthetic substance used to impart colour to textiles, paper, leather and other materials in such a way that the colouring is not easily affected by heat, light, washing or any other factors.

Ancient people had used various natural substances to dye their textiles. They used to develop various colours from different kinds of plants, minerals and insects. Table 9.1 will give you an idea about various coloured dyes obtained from various natural resources. All these dyes are collectively known as **Natural Dyes.** For a long period of time, these were the only dyes known to mankind.

Pic. No. 9.2 Natural Dyes

A peek in history.

The use of dyes to colour textile materials began 3000-2000 years BC. Archaeologists have found evidence of dyed textiles in ancient civilizations all over the world. Fabrics dyed with natural dyes have been found in Egyptian pyramids, excavations of Mohen-jo-daro, China, Europe and various cave paintings found in pre historic caves dating back to Neolithic period.

Table No. 9.1 Natural Dyes

Colours	Obtained from
Reds & Pinks	Madder plant, Henna, Avacado pits, Asafoetida.
Yellows	Saffron, Pomegranate rind, Turmeric, Onion skin, bark of Oak tree.
Greens	Wood , combining Indigo with yellow dyes.
Blues	Indigo in India, Woad in European countries.
Purple	Sea snails.
Black	Logwood (blue colour) + mordant (a special chemical)

Do You Know ?

In ancient times India was world famous for its **Indigo** dye. It was the primary supplier for this dye and textiles dyed with this dye. The Britishers put an end to Indigo production in India.

The purple dye obtained from sea snails was the costliest dye as one snail could provide only one drop of the dye. Hence only royalty used to wear clothes dyed with this dye and so it came to be known as ***Royal Purple.***

Internet my friends

Find out about other natural dyes, the colours they produced and their origins.

But Natural dyes had certain limitations –

- Their availability was limited and seasonal.
- Their manufacturing and subsequent application on textiles was at times quite tedious.
- The colour range they provided was limited.
- They were not compatible with the new fibres discovered.

The limitations of Natural dyes led scientists all over the world to discover new types of dyes which are called **Synthetic Dyes.** These dyes are made from chemicals or petroleum products. They are –

- Cheaper than natural dyes,
- Easier to manufacture and apply on textiles,
- Provide a wide range of colours and
- Can be applied to all kinds of textiles.

You Should Know ?

Synthetic dyes were discovered in the mid 19th century. The first synthetic dye called ***mauveine*** was discovered by William Perkin in 1856, derived from coal tar. ***Alizarin,*** the red dye present in madder, was the first natural dye to be duplicated synthetically in 1869. By 1870, the business of commercial dyeing with natural dyes started collapsing.

Whether Natural or Synthetic, a good dye should have the following qualities :

Qualities of a good dye :

- It should not be very costly.
- It should be non-toxic.
- It should be compatible with other dyes and chemicals used on the fabric.
- It should have high colour strength.
- It should get fixed on the fabric easily.
- It should have good fastness – to sun light, washing or dry cleaning.

9.2 Types of Dyes

Some major types of dyes available now in market and widely used are as follows –

- **Direct Dyes :** These are very cheap and easy to apply. They were used extensively for dyeing cotton and so are also known

as ***Direct Cotton Dyes.*** They are readily soluble in water and so very easy to apply. Their fastness is poor and so to make them fast they are treated with salt or some other chemicals. Because of this reason, these dyes are also called ***Salt Dyes***.

- **Acid Dyes** : These are soluble in water containing H_2SO_4. They are also cheap. **They are used for protein fibres and also for nylon and acrylic**. Fast to sunlight, Not so fast for washing.
- **Vat Dyes** : *Vat dyes* are insoluble in water but become soluble after treating them with certain chemicals. The process of darker converting insoluble *vat dyes* into soluble form is known as ***vatting.*** **These are fastest dyes for cellulosic fibres , protein fibres and man-made fibres.** These dyes require hot water. They are expensive.

Do you know what is Mordant?

Most of the dyes require a fixative to set the dye on the fabric. Such reagents are called **Mordants.** Alkali mordant like soda ash is used for cotton while acid mordant vinegar is used for wool.

- **Azo Dyes :** They are also known as ***Aniline Dyes***. They are applied in two stages – first the fabric is treated with naphthol and then it is treated with Azo dyes. Colour develops afterwards. Used mostly for cotton but can be used for many other fibres too. They are considered easy to use, relatively cheap and provide clear, strong colours. They are very fast and being cold water dyes are especially suitable for techniques like ***batik*** and ***tie-n-dye.***

  Some of the Azo dyes can be harmful to skin and so are banned.

- **Basic Dyes** : Basic dyes are powerful colouring agents. **They are applied to wool, silk, cotton and modified acrylic fibres. They are special dyes for acrylic fibre.** Usually acetic acid is added to the dyebath to help the take up of the dye onto the fibre. They have good fastness and provide bright shades.
- **Reactive Dyes** : Reactive dyes are comparatively newly discovered. **They have good fastness properties because the dye chemically reacts with the fibre and gets attached to it.** Reactive dyes are most commonly used in dyeing of cellulose like cotton or flax, but also for wool and nylon.
- **Sulphur Dyes :** *Sulphur dyes* are the most commonly used dyes manufactured for applying dark shades or black colour to cotton and other cellulosic fibres including Rayon. They are inexpensive, generally have good wash-fastness, and are easy to apply. They are water insoluble. The basic method of application is same as Vat dyes. **Sulphur dyes are usually black, brown, and dark blue in colour.**
- **Disperse Dyes** : Disperse dyes are the only water -insoluble dyes which can be applied on cellulose acetate and polyester. Both these fibres have very poor moisture absorption and so it was not possible to dye them with the regular dyes available at that time. Scientists invented disperse dyes specially for these fibres. These dyes are applied at high temperature. **The thermoplastic fibres start softening at high temperature and these dyes are dispersed inside the fibres.** Because of this method of application, these dyes have excellent fastness.

The different types of dyes and their special properties are given in table no. 9.2 –

Table No. 9.2 Types of Dyes

S. No.	Type of Dye	Applied on	Special Properties
1.	Direct Dyes	Cotton & other cellulosic fibres.	Cheap and easy to apply. Readily soluble in water. Poor fastness. Treatment required.
2.	Acid Dyes	Wool, Silk, Nylon, Acrylic etc.	Soluble in acidic medium. Cheap Fast to sunlight. Not so fast for washing.
3.	Vat Dyes	Cotton, Linen, Rayon and other cellulosic fibres. Wool, Nylon, Polyester too.	Fastest dyes for cellulosic fibres. Hot water dyes. Insoluble in water. Certain chemicals are needed to make them soluble.
4.	Azo Dyes	Mostly to Cotton. Also for Nylon.	Fast to washing and sunlight. High intensity colours. Cold water dyes suitable for Batik, tie-n-dye.
5.	Basic Dyes	Acrylic, Wool, Silk, Cotton.	Special dyes for acrylic fibres. Good fastness. Bright colours.
6.	Reactive Dyes	Natural and Man-made fibres.	Excellent fastness. High temperature needed.
7.	Sulphur Dyes	Natural and man-made cellulosic fibres.	Cheap. Easy to apply. Dark colours.
8.	Disperse Dyes	Cellulose Acetate, Polyester.	Insoluble in water. Different method of application. Good fastness.

9.3 Types of Dyeing

The textile material to be dyed is first prepared for dyeing by washing, bleaching and drying it. **The method of dyeing differs according to the type of dye and the fibre to be dyed.** The basic two methods of dyeing are –

A. Hand Dyeing : Hand dyeing is the oldest and simplest method of dyeing textiles. The dyeing takes place in a wash tub. Dye bath is prepared by mixing the required amount of dye in a small amount of water and then adding the dye solution to the wash tub having clean water of desired quantity. The amount of water depends upon the size of the textile material to be dyed and also the intensity of colour desired. The material to be dyed is put in the dye bath and rotated with a wooden ladle. The material is lifted out at intervals to check the level of dyeing.

B. Machine Dyeing : This is a faster and easier way of dyeing textiles which requires less time and skill. During industrial revolution, a number of dyeing machines were invented and new versions are still coming out. Machine dyeing basically follows

the principle of Hand dyeing only but the amount of textile material to be dyed is large in a lesser time. These machines can be divided into three major types:

Pic. No. 9.3 Hand Dyeing

Pic. No. 9.4 Machine Dyeing

- Machines that move the material through the dye solution. Rotating Arm machines, Dye Box and Ferris-wheel machines are examples of this type.
- Machines that move the dye solution through the textile material.
- Machines that do both procedures simultaneously.

9.4 Methods of Dyeing

Dyeing can be done at different stages of textile manufacturing process. Textiles can be dyed as fibre, as yarn, as fabric or as garment. Some of the popular methods of dyeing are as follows –

- **Direct Dyeing :** When a dye is applied directly to the fabric without the aid of a mordant, it is called **direct dyeing.** The direct dyes, which are largely used for dyeing cotton, are water soluble and can be applied directly to the fiber from an aqueous solution. Most other classes of synthetic dye, other than vat and sulphur dyes, are also applied in this way.
- **Stock Dyeing :** Stock dyeing refers to the dyeing of the fibers, or stock, before it is spun in to yarn. It is done by putting loose, unspun fibres in to large vats containing the dye bath, which is then heated to the appropriate temperature required for the dye application and dyeing process. This method is used mainly for woollen fibres.
- **Top Dyeing :** Top dyeing is also the dyeing of the fibre before it is spun in to yarn – much like Stock dyeing. The term ***top*** refers to the longer fibres of wool which are used to spin worsted yarn. Slivers of these fibres are dyed in this method.
- **Yarn Dyeing :** This is dyeing of the yarns before they have been woven or knitted into fabrics. Yarn dyeing is used to create interesting checks, stripes and plaids with different-coloured yarns in the weaving process. This is also known as ***Hank dyeing.***

Pic. No. 9. 5 Hank Dyeing

- **Piece Dyeing :** The dyeing of cloth after it is being woven or knitted is known as piece dyeing. It is the most common method of dyeing used. The various methods used for this type of dyeing include jet dyeing. Jig dyeing, pad dyeing and beam dyeing.
- **Garment Dyeing :** Garment dyeing is the dyeing of the completed garments. The types of apparel that can be dyed are mostly

non-tailored and simpler forms, such as sweaters, sweatshirts, T-shirts, hosiery, and pantyhose. This is done by placing garments (usually about 24 sweaters) into large nylon net bag. The garments are loosely packed. From 10 to 50 of the bags are placed in large tubs containing the dye bath and kept agitated by a motor – driven paddle in the dye tub. The machine is appropriately called a **Paddle dyer.**

Pic. No. 9.6 Garment Dyeing

- **Ombre Fabric Dyeing :** This means to dye a fabric from light to dark or from one colour to another colour. The word Ombre means gradual transition from one colour to another. So if there is light blue colour on one end of the fabric, it will go on intensifying and will become dark blue on the other end of the fabric.

Pic. No. 9.7 Ombre Dyeing

9.5 Some Popular Traditional Resist Dyeing Techniques

- **Bandhani :** This is a traditional textiles of the state of Gujarat. It is made by using tie-n-dye technique and dates back to the Indus Valley Civilization in 4000 BC. It is also known as ***Bandhej.*** The word ***bandhani*** comes from the Sanskrit word ***Bandh*** which means ***to tie.*** This is basically a resist dyeing technique in which some portion of the fabric is not allowed to be dyed , resulting in beautiful patterns.
- **Object Tieing and dyeing :** Tyeing object into the fabric before dyeing can create a variefy of patterns.

Material used – Cotton and Silk were traditionally used for making bandhani. Nowadays the technique is used with man-made fibres also.

Technique - The art of bandhani is a highly skilled process. In this, the fabric is plucked by finger nails, tied into tiny knots which create a design and then dyed. Alternately, pulses, beads or tiny pebbles are put in the fabric and the area around is tied tightly by a thread. Then the fabric is dyed in bright colours like red, green, pink, yellow etc. In olden times, natural dyes were used for dyeing but nowadays mostly synthetic dyes are used.

Pic. No. 9.8 Dyeing cloth for Bandhani

Pic. No. 9.9 Bandhani

Some interesting facts !

In ***bandhani,*** different colours have different meanings. For eg. Red colour represents a bride while yellow colour represents a new mother.

Sarees, scarves, dupattas, kurtis, turbans, hand bags etc. made by this technique has been in use since centuries and are still popular. Today bandhani technique is also being used in a modern context in fashion designing industry. It is one of the most popular Indian textiles in foreign markets.

Nowadays bandhani is made in Gujarat, Rajasthan, Sindh, Punjab and Tamil Nadu. In Tamil Nadu, it is known as ***Chungidi.***

- **Leheria -** This is a simple dyeing technique popular in Rajasthan. It results in striped textiles in many bright colours. The word ***Leher*** means waves, and the pattern made on the fabric resembles that. This is also a resist dyeing technique.

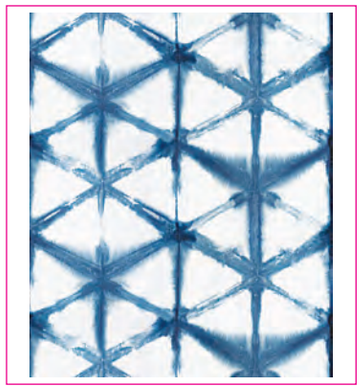
Material used – Traditionally cotton and silk. Nowadays all kinds of fibres are used.

Pic. No. 9.10 Leheria

Technique – The cloth is folded and then tied diagonally in such a manner that diagonal stripes or ***lehers*** are created all over the fabric.

- **Shibori -** This is a traditional resist dyeing technique of Japan. In Japan the earliest known example of fabrics dyed by Shibori technique dates back to 8th century.

Material used – Traditionally natural fibres.



Pic. No. 9.11 Shibori Fabric

Some interesting facts !

During the 8th Century, the technique of Shibori first came into Japan from China. The word Shibori comes from 'Shibori,' a term that means, 'to wring, squeeze, and press.'

Technique - The fabric is folded, twisted, stitched and clamped in different manners to create different unique patterns. The fabric is then dyed and the clamps or stitches are removed after drying. The areas of fabric with clamp or stitches remain undyed. The exact technique is chosen according to the type of textile to be dyed.

In many books, the Shibori technique is mentioned as Shibori Print because of the beautiful patterns created on the surface of the fabric but technically it is a type of resist dyeing.

- **Batik :** This is a very interesting technique for resist dyeing. This first originated in Egypt in 4th century BC and since then has been practiced in many countries. It was popular in China, India and Japan too.

Material used – Cotton and silk. Synthetics are not used.

Technique – The creation of Batik is a laborious three-stage process of waxing, dyeing and dewaxing (removal of wax). A pattern is made on the fabric and on certain portions of the pattern, liquid wax is applied and allowed to cool. Then the fabric is dyed. The wax acts as a resistant and does not allow the dye to colour the specific areas of fabric. After dyeing, the wax is removed by treating the fabric with hot water.

The characteristic effect of batik are the cracks formed in wax coating which allow the dye to colour the cracked parts. The final effect is very beautiful and not possible with any type of printing. Like Shibori, Batik is also termed as Batik Print in many books.

Pic. No. 9.12 Batik fabric

Internet my friends

Find out about more traditional dyeing techniques prevalent in different regions of India.

Do You Know ?

Batik is an Indonesian word.

The art of batik was revived in 20th century when it was included as a subject in the famous university of Shanti Niketan in Kolkata.

Batik produced in Chennai is known for its original and vibrant designs.

Indonesia is considered the cradle of batik with its many designs. Their designs have significant mythological meanings.

Sri Lanka also produces batik with simpler designs more suitable for modern clothing.

9.6 Textile Printing

Printing like dyeing, is a process for applying colour to a surface. However, instead of colouring the whole surface - as in dyeing, print colour is applied only to defined areas to obtain the desired pattern. This involves different techniques and different machinery with respect to dyeing, but the physical and chemical processes that take place between the dye and the fibre are similar to dyeing.

Textile Printing is a technique by which beautiful patterns and motifs can be created on the surface of the fabric by applying dyes to only selected areas of the fabric.

A peek in history.

The Asian continent has the oldest history of decorating fabrics using textile printing methods. For instance, in 327 B.C. when Alexander the Great invaded India, colourful, printed textiles were found.

China also had expertise of different ways of printing textiles.

This process of decorating textiles has been around for centuries. Of course the techniques have changed a lot over the years, but textile printing is an ancient art that can be seen in fabrics dating as far back as the 4th and 5th Centuries B.C.

Pic. No. 9.13 Textile Printing

You Should Know ?

A dye paste is prepared for Printing. It contains the dye, a solvent, a mordant and a thickener to avoid bleeding of colours. Traditionally oil-water emulsions were used thickeners. Nowadays starch, flour, gum arabic, guar gum, tamarind, alginate, dextrin, albumen, or polyacrylate are used.

9.7 Types of Printing

Printing, unlike dyeing, can use many colours to add a pattern on to a fabric. The patterns can be floral, geometric or stylised. Following are a few popular methods of printing textiles –

- **Block Printing :** The earliest type of printing on fabric is Block Printing, also sometimes referred to as ***Relief printing.*** This is the process of dye being pressed onto a fabric from a carved material; historically wood, copper but also rubber and now many other materials. For a very long period, this was the main method for printing textiles.

Pic. No. 9.14 Printing Blocks

The fabric to be printed is washed, dried and ironed. A dye paste is made using a suitable dye along with starch**,** A curved wood block is carved in such a way that the pattern looks embossed on it. The dye paste is applied on the block and then it is pressed against the fabric so that the design gets transferred to the fabric. The fabric is then boiled and washed to fix the dye on the fabric and remove the paste material from the fabric.

Beautiful patterns can be created in a simple manner by this method and so this ancient form of printing has still not lost its charm despite the advent of other modern, faster and more convenient methods of printing. Many handloom products like sarees, dress materials, dupattas, bed sheets etc. are made by block printing technique.

Pic. No. 9.15 Block Printing

- **Stencil Printing :** By the 2nd Century A.D., Chinese textile printers introduced stencil techniques for fabric adornment to Japan where the process was further developed. A stencil is made with the design or pattern cut out on a sheet of card paper or thin metal or plastic sheet. This stencil is placed and fixed on a fully spread out fabric and dye paste is applied on it. Only the cut out parts of the stencil will allow the dye to reach up to the fabric. The fabric is boiled later to fix the dye.

Pic. No. 9.16 Stencil Printing

This technique is still popular for making small samples or for the beginners who take up textile printing as a hobby. Ready made plastic stencils are available in the market. You can

make your own pattern also by drawing it on a plastic sheet and then cutting on the lines with a sharp cutter.

- **Roller Printing :** In the 18th century, the technique of roller or cylinder printing came about thanks to industrial revolution in Europe. It was pioneered by Thomas Bell. This was similar to block printing, but with engraved rollers. It is similar to newspaper printing, where the design is 'stamped' onto the fabric via engraved rollers. In this process, the fabric is carried along a rotating central cylinder and pressed by a series of rollers, each of which is engraved with the design. Each roller is fed a different colour through feed rollers, and some roller printing machines were even able to print 6 colours at once, making them much faster than the block printing process. Because of the higher speed of production, this method is very economical also for printing large amounts of fabric.

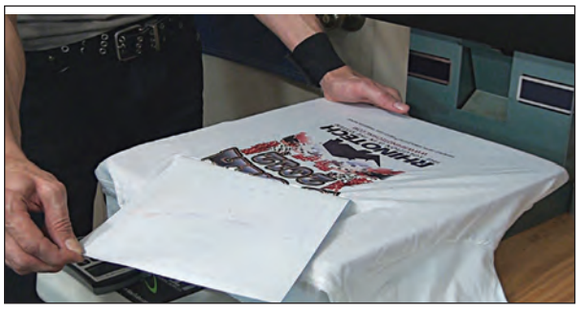
Pic. No. 9.17 Roller Printing

- **Screen Printing :** In the early 20th Century the modern process of screen printing arrived, although it is thought that screen printing dates back much further than this. This process is similar to that of Stencil Printing but the scale is much larger. It involves making a pattern on a screen of porous mesh-which was traditionally made of silk. It can be of two types :
  - **Rotary Screen Printing:** Where a roller is used to pull ink over the stencil which is in turn forced through the mesh and onto the fabric.
  - **Flat(bed) Screen Printing:** Where the screen is fixed in a frame. For each separate colour a different screen is used of the two types, the Rotary screen printing allowed for large-scale screen prints at a faster rate, making it more economical.

Pic. No. 9.18 Screen Printing

- **Transfer Printing :** Transfer printing is the term used to describe a textile printing process in which the design is first printed on to a flexible nontextile material like paper and later transferred by a separate process to a textile. This is a new method discovered in 8th century and became popular in 19th century.

It is also known as ***Heat Transfer*** because temperature and pressure is used to transfer the dye onto the fabric. It is most suitable for thermoplastic fibres. The dye gets diffused inside the fabric and no after treatment is required. It is used when a very complicated pattern or an image is to be transferred to the fabric. It is more suitable for garment printing and you can print T shirts, cushions and such things with it. It is also a quick process.



Pic. No. 9.19 Transfer Printing

- **Digital Printing :** This is a latest technique uses computer controlled lasers and high-pressurised jets to inject ink directly into the fabric. This allows for very detailed printing at a fast pace. However it is an expensive process. It is also known as ***direct garment printing.***

Digital printing is highly suitable for printing intricate patterns and fine detail as the ink is thinner. Each garment is printed individually, and form a computerized image, which means it is highly customized. This is fast becoming a very important and popular method of printing.

Sarees, dupattas and dress materials printed with photographs or sceneries are the latest trend in fashion. You can find the photo studios using this technology to print T-shirts, cushions etc.

Pic. No. 9.20 Digital Printing

9.8 Traditional Textile Printing in India

With a printing tradition dating back to ages, India is a hub for wide variety of textile arts. The traditional textile prints of India are not only popular within the country but are admired all over the world. This traditional textile printing comes under the umbrella of handicraft sector as the artisans still use old methods like block printing. Different regions in India have a distinct style and technique resulting in unique prints which are easily recognisable when worn. Initially, the tools of block printing were crude and undeveloped, but there has been significant progress in the area. The entire concept of printing has undergone a complete revolution, and currently, the industry is blooming. Following are a few examples of Indian traditional textile prints which deserve to be preserved, promoted and appreciated.

- **Bagh :** An indigenous printing technique from the state of Madhya Pradesh, the name originates from the Bagh district, where it is most practised. It essentially refers to a technique of block printing by hand where the colours used are absolutely natural.

Motifs used – Geometric designs and bright colours are used. The designs have been inspired by paintings of the Taj Mahal, flowers, mushrooms and others.

Material used - From cotton, silk, chiffon to bamboo chicks, this process can be carried out on a variety of fabrics.

Pic. No. 9.21 Bagh Print

Technique - The fabric is made to undergo what is known as the "bhatti process" which includes boiling, drying and subsequently printing with blocks.

- **Kalamkari :** Kalamkari is a highly popular form of hand-painted or block-printed cotton textile and paintings. The name originates from Persian words ***Kalam*** (pen) and ***Kari***(craftsmanship). Andhra Pradesh is famous all over for this form of art. There are two major forms – Shrikalahasthi from Chittoor district, and Machilipatanam Kalamkari from Krishna district.

Kalamkari is a form of painting cotton fabrics with a kalam i.e. pen made of bamboo or tamarind stick. The Machilipatanam Kalamkari also uses block printing along with painting.

Pic. No. 9.22 Kalamkari

In earlier days, singers, poets and scholars used to paint accounts of stories from Hindu mythology which ultimately led to the generation of kalamkari prints. It has been practised by families and generations over the ages.

Motifs used – Scenes from Ramayana, Mahabharata are used as primary themes, and this art form depicts India in all its past glory.

Material used – Cotton fabric.

Technique - After stiffening and drying the cloth, it is printed in different phases according to the colour scheme. Wax is used while dyeing the areas blue and the remaining areas are hand painted. A bamboo stick with a bundle of fine hair is used as a brush while painting. Mostly natural dyes are used. There are different textile products produced from this style like bedsheets, wall hangings and clothing, curtains, saris etc.

- **Sanganeri :** This is a kind of block printing that originated in Rajasthan. This handicraft developed over the years and is still popular in home decor materials as well as apparel.

Motifs used – Beautiful floral designs with buds, flowers, leaves, mangoes and even jhumkas sometimes are part of the detailed designs on the blocks.

Material used – Cotton fabric.

Pic. No. 9.23 Sanganeri Print

Technique - A hand printing technique which involves laying out of the material on tables and then printing using blocks with intricate designs. The fabric is marked before, so that symmetry of design is maintained.

- **Ajrak :** Found mostly on shawls and carpets, Ajrak is a unique form of block print that is popular in Sindh, Pakistan; Kutch, Gujarat; and Barmer, Rajasthan in India. These prints include designs and patterns made using block printing by stamps. They originated in the ancient civilization of Mohen-jo-daro and the legacy still continues.

Motifs used – Various geometric shapes and patterns.

Material used – Mostly cotton and wool.

Technique – Block printing by stamps. Common colours used while making these patterns include blue, red, black, yellow and green. Ajrakh printing uses natural dyes that include both vegetable dyes and mineral dyes, with Indigo being the key dye.

Pic. No. 9.24 Ajrak Prints

- **Daboo :**

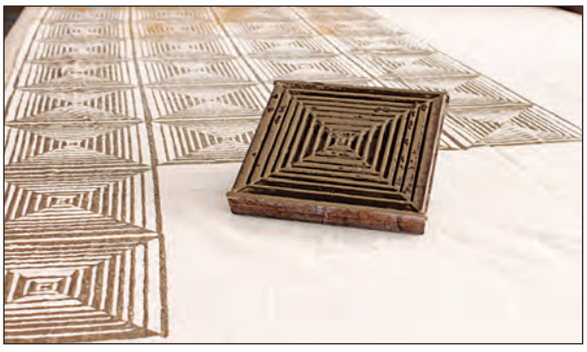
This is a famous **Mud Resist Printing** pursued in North Gujarat and Rajasthan. The print got its name from the Hindi word ***Dabana*** which means ***to press.***

Motifs used – mostly geometrical and floral patterns.

Material used – mostly cotton. Mostly natural dyes are used.

Technique – Mud, *chuna* , wheat chaff and gum are the main ingredients that go into making the mud resist. This resist is applied onto the blocks and transferred onto a flat fabric. Once the resist dries up, the fabric is put in a dye bath. Later the fabric is thoroughly washed to remove all the mud. **Due to cracks in dried mud, this print resembles Batik material**. The whole fabric will be of a darker shade while the block printed parts will be white or lighter in shade.

The fabrics thus produced have a beauty of their own.



Pic. No. 9.25 Daboo Prints

Table No. 9.3 Difference between Dyeing and Printing

Dyeing	Printing
• A dye solution is made.	• A dye paste is made.
• The whole fabric is immersed in the dye solution.	• The dye paste is applied to only selected portions of the fabric.
• At a time only one colour is used.	• Many colours can be used at a time.
• A dye colours both sides of the fabric equally.	• Printing is usually seen on only the right side of the fabric.
• Patterns if formed are blurred and limited.	• Even intricate patterns can be formed easily.
• Does not require any other instrument to apply dye on the fabric.	• Blocks, rollers, screens, stencils etc. are needed to apply dye on the fabric.

Use Your Brain Power !

I. Crossword :

1				2				
		3						
4								
5						6		
				7				

Across : **Down :**

Across		Down	
1.	Dye used for batik & bandhani.	1.	Dye used directly on cotton.
3.	Japanese technique of tie-n-dye.	6.	Hot water dye.
4.	Special dye for polyester.		
5.	Dye that chemically react with the fabric.		
7.	A special resist dyeing technique in which wax is used.		

II. Looking at the given correlation, find out other correlations :

Daboo - Gujarat, Rajasthan

Ajrak	
Bagh	
Bandhani	
	Japan
Sanganeri	
	Shanti Niketan
Kalamkari	
Leheriya	

EXERCISE

Objective Type Question

1. Match the following :

A			B
1.	Daboo	a.	wax resist dyeing
2.	Batik	b.	computerized printing
3.	Kalamkari	c.	light to dark colour
4.	Digital Printing	d.	vat dyeing
5.	Ombre Dyeing	e.	use of bamboo pens
		f.	mud resist printing

2. Select and write the most appropriate answer from the given alternatives for each question :

1. The dyes most commonly used for cotton fibres
   a. Reactive b. Direct c. Disperse
2. The earliest type of printing method
   a. Screen printing
   b. Block printing
   c. Roller printing
3. The dyes most commonly used for polyester fibres
   a. Reactive b. Direct
   c. Disperse
4. Top Dyeing is a term used for dyeing
   a. Fibres b. Yarns c. Fabric
5. Special dyes for acrylic fibres
   a. Acid dyes b. Basic dyes
   c. Reactive dyes
6. The dyes suitable for Batik work
   a. Azo dyes b. Basic dyes
   c. Direct dyes
7. The natural dye for which India was famous world wide
   a. Sulphur dyes
   b. Madder
   c. Indigo
8. The natural dye famous as Royal Purple was obtained from
   a. Sea snails b. Sea shells
   c. Wood

3. Write whether the given sentences are True or False :

1. Most dyes require a fixative reagent to get fixed on the fabric.
2. Batik dyeing originated in Europe.
3. Using Vat dyes is a two step process.
4. A dye colours both sides of the fabric equally.
5. Reactive dyes chemically react with the fibre.
6. Screen printing is the fastest type of printing.
7. In Leheriya, diagonal line effect is created by tie -n-dye.

4. Complete the sentences :

1. In ancient times, India was famous for a natural dye called _____.
2. Batik is a dyeing technique known as _____.
3. Sanganeri print is a type of _____.
4. Special dyes for acrylic fibre are _____.

Short Answer Type Question

5. Give Reason:

1. Mordants are used while dyeing.
2. The purple dye obtained from sea snails was known as Royal Purple.
3. Azo dyes are considered suitable for Batik work.
4. Polyester is dyed with disperse dyes.
5. Shibori and Batik are also called prints.
6. Daboo prints resemble Batik.

6. Give two examples of each of the following :

1. Block Printing
2. Resist Dyeing
3. Dyeing of fibres
4. Screen Printing
5. Dyes most suitable for cotton.
6. Natural dyes

7. Do as directed :

1. Differentiate between Dyeing & Printing.
2. Make a list of the qualities of a good dye.
3. What is stencil printing? Explain.
4. Write short notes on digital printing.
5. Write in short about Kalamkari.

Long Answer Type Question

8. Explain in detail :

1. Any two types of traditional Indian prints.
2. What is Transfer Printing, Block Printing and Screen Printing.
3. Any two traditional resist dyeing techniques.
4. Explain about Direct dyeing, Stock dyeing and Ombre dyeing.

Self Study Project

1. Do a market survey on different kinds of digitally printed materials.
2. Collect photographs of traditional textile printing popular in India.
3. Study the latest trends in dyeing and printing prevailing in world today.