

Chapter 1 : Dyeing - Wikipedia

Add salt if dyeing cotton or linen, or white vinegar for wool or silk; amount will depend on size of dye bath. We used $\frac{1}{4}$ cup of either salt or vinegar for a bath of about 1 gallon, $\frac{1}{2}$ cup for 2 gallons, and 1 cup for 3 or more gallons. (These additions help the fabric take the dye.) 2.

Dyeing The most commonly used processes for imparting color to cotton are piece dyeing and yarn dyeing. In piece dyeing, which is used primarily for fabrics that are to be a solid color, a continuous length of dry cloth is passed full-width through a trough of hot dye solution. The cloth then goes between padded rollers that squeeze in the color evenly and removes the excess liquid. In one variation of this basic method, the fabric, in a rope-like coil, is processed on a reel that passes in and out of a dye beck or vat. Yarn dyeing, which occurs before the cloth is woven or knitted, is used to produce gingham checks, plaids, woven stripes and other special effects. Blue dyed warp yarns, for example, are combined with white filling yarns in denim construction. One of the most commonly used yarn dyeing methods is package dyeing. In this system, yarn is wound on perforated cylinders or packages and placed on vertical spindles in a round dyeing machine. Dye solution is forced alternately from the outside of the packages inward and from the inside out under pressure. Computers are used increasingly in dyeing processes to formulate and match colors with greater speed and accuracy. Printing colored designs on cotton cloth is similar to printing on paper. Long runs of the same fabric design are produced on a roller print machine operating at speeds between 50 to yards a minute. As many as of 10 different colors can be printed in one continuous operation. A typical printing machine has a large padded drum or cylinder, which is surrounded by a series of copper rollers, each with its own dye trough and doctor blade that scrapes away excess dye. The number of rollers varies according to the fabric design, since each color in the design is etched on a separate roller. As the cloth moves between the rotating drum and rollers under great pressure, it picks up color from the engraved area of each roller in sequence. The printed cloth is dried immediately and conveyed to an oven that sets the dye. Automatic screen-printing is another principal method for imparting colored designs to cotton fabrics. Although slower than roller printing, it has the advantage of producing much larger and more intricate designs, elaborate shadings and various handcrafted effects. In flat bed screen-printing, the fabric design is reproduced on fine mesh screens, one for each color. On each screen, the areas in the design that are not to be penetrated by the dye are covered with lacquer or some other dye-resistant coating. The screens are coated with dye on the back and mounted in the proper sequence above a flat bed. As a belt carries the fabric along from screen to screen, a squeegee or roller presses the dye through the open area of the screen onto the fabric. The new flat bed machines can have speeds of up to 1, yards per hour for a fabric with a inch design repeat. Faster by far are the recently developed rotary screen printing machines with production speeds of up to 3, yards an hour. The system combines roller and screen printing, utilizing perforated cylinders instead of flat screens. The color paste is fed inside the cylinders and a small metal roller forces the color through the pores of the cylinder onto the fabric which is moving continuously under the cylinders. As many as 16 colors can be printed on one fabric using this method. Use of this technique is increasing since the screens or cylinders can be produced less expensively than the engraved copper rollers used in roller printing. **Finishing** Finishing, as the term implies, is the final step in fabric production. Hundreds of finishes can be applied to textiles, and the methods of application are as varied as the finishes. Cotton fabrics are probably finished in more different ways than any other type of fabrics. Some finishes change the look and feel of the cotton fabric, while others add special characteristics such as durable press, water repellency, flame resistance, shrinkage control and others. Several different finishes may be applied to a single fabric. From Field to Fabric.

Chapter 2 : Cotton: From Field to Fabric- Dyeing, Printing & Finishing

This fabric was patterned by snow dyeing, piling snow on top and pouring dye over it. This beautiful fabric would be lovely in your patchwork, applique or other fiber project. The base fabric is a high-quality cotton muslin.

This will whiten or lighten the fabric so it can take on the new color. Wash your fabric item if it is new. Cover work surface with a dropcloth. Fill a bucket, bin, or stainless steel sink large enough to hold the fabric loosely about halfway with very hot tap water or boiling water. For wool, water should be warm, not hot. Wearing rubber gloves, add liquid dye, mixing colors as desired see Mixing Colors, right. Add salt if dyeing cotton or linen, or white vinegar for wool or silk; amount will depend on size of dye bath. These additions help the fabric take the dye. With a stainless steel spoon or a wooden spoon reserved only for dyeing, move fabric around in water to avoid uneven dyeing. Keep item in dye 5 to 15 minutes, stirring the whole time. Allow fabric to get a little darker than you want it, as it will fade slightly with rinsing and drying. Carefully remove fabric from dye and rinse in running water, starting with warm water and then making it cooler, until it runs clear. Wash out bucket, bin, or sink immediately. Wash item with mild detergent on the cold cycle, then dry. Rit color remover and liquid dyes, Michaels. Mixing Colors Below are formulas for the colors shown, each using 1 quart of water and the specified amounts of Rit liquid dyes. For instance, the dark-green bedding uses formula E; we made a bath with about 30 gallons of water, 12 tablespoons of Dark Green dye, and 4 tablespoons of Teal dye. Generally, start with less dye, test on a paper towel, and add more as needed. Test the color with a paper towel. When you have the hue you want, make the bath in a larger amount. See Mixing Colors, above, for tips on increasing the size of the dye bath. Surprise Results You never know exactly how a material will take a color. A white napkin and an off-white napkin may not come out looking the same. Trim and stitching can take color differently than the base fabric does. For Large Items When dyeing bedding and tablecloths, we used a large plastic bin set in a bathtub to catch any drips and brought in pots of water heated on the stove. When the items reached the desired color, we lifted them out and placed them in another empty bin to take them to the washing machine, where we rinsed them on the rinse cycle. Washing Dyed Fabrics The first several times you wash dyed items, wash them alone to prevent bleeding or add an old white washcloth or sock to see if the dye runs. Over time and with repeat washings, the color of the dye may fade but remember, you can always dye them again.

Chapter 3 : Fabric Dyeing - The Basics www.nxgvision.com

Adding more of one dye than the other will change the colour (example: % cotton terry fabric is dyed midnight blue and a blue green sample is made with 1 Tbsp midnight blue + 1 1/4 tsp kelly green).

Dyeing in Fes, Morocco. The earliest dyed flax fibers have been found in a prehistoric cave in the Republic of Georgia and date back to 34,000 BC. Alizarin, the red dye present in madder, was the first natural pigment to be duplicated synthetically in 1868, a development which led to the collapse of the market for naturally grown madder. Methods[edit] Dyes are applied to textile goods by dyeing from dye solutions and by printing from dye pastes. Methods include direct application and yarn dyeing. Selection of dyes[edit] Selection of the appropriate dye is important because any given dye is not applicable on every type of fiber. Furthermore, resistance to washing, rubbing and light differ among dyes. The choice of dye depends on the objective in dyeing and which material is to be dyed. For example, indigo dyes have poor wash and rubbing fastness on denim cotton, so they are used to produce washed-down effects on that fabric. In contrast, vat or reactive dyes are applied on cottons to achieve excellent washing fastness. Chemical structure of Vat Green 1, a type of vat dye The term "direct dye application" stems from some dyestuff having to be either fermented as in the case of some natural dye or chemically reduced as in the case of synthetic vat and sulfur dyes before being applied. This renders the dye soluble so that it can be absorbed by the fiber since the insoluble dye has very little substantivity to the fiber. Direct dyes, a class of dyes largely 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 surface dyes, are also applied in this way. The term may also be applied to dyeing without the use of mordants to fix the dye once it is applied. Mordants were often required to alter the hue and intensity of natural dyes and improve color fastness. Chromium salts were until recently extensively used in dyeing wool with synthetic mordant dyes. These were used for economical high color fastness dark shades such as black and navy. Environmental concerns have now restricted their use, and they have been replaced with reactive and metal complex dyes that do not require mordant. Common forms are the package form and the hanks form. Cotton yarns are mostly dyed at package form, and acrylic or wool yarn are dyed at hank form. In the continuous filament industry, polyester or polyamide yarns are always dyed at package form, while viscose rayon yarns are partly dyed at hank form because of technology. The raw yarn is wound on a spring tube to achieve a package suitable for dye penetration. The packages are pressed up to a desired height to achieve suitable density of packing. The carrier is loaded on the dyeing machine and the yarn is dyed. After dyeing, the packages are unloaded from the carrier into a trolley. Now the trolley is taken to hydro extractor where water is removed. The packages are hydro extracted to remove the maximum amount of water leaving the desired color into raw yarn. The packages are then dried to achieve the final dyed package. After this process, the dyed yarn packages are packed and delivered. History of garment dyeing[edit] Garment dyeing is the process of dyeing fully fashioned garments subsequent to manufacturing, as opposed to the conventional method of manufacturing garments from pre-dyed fabrics. Up until the mid 20th century the method was rarely used for commercial clothing production. It was used domestically, to over-dye old, worn and faded clothes, and also by resellers of used or surplus military clothing. The first notable industrial use of the technique was made by Benetton, which garment dyed its Shetland wool knitwear. Complex garment dyeing[edit] In the mid 20th century the Bologna clothing designer Massimo Osti began experimenting with the garment dyeing technique. Up until its development by Massimo Osti for his clothing brand C. Company, this technique had never been successfully industrially applied in any context. The complexity lay in developing both a practical and chemical understanding of how each fabric responded differently to the dye, how much it would shrink, how much color it would absorb, developing entirely new forms of quality control to verify possible defects in fabric before dyeing etc. Beyond the industrial advantages of the technique purchasing fabric in one color, white or natural, you may produce as many colors as you wish etc. Removal of dyes[edit] The dyer of the fountain "Weberbrunnen" in Monschau Germany. If things go wrong in the dyeing process, the dyer may be forced to remove the dye already applied by a process called "stripping" or discharging. This normally means

destroying the dye with powerful reducing agents such as sodium hydrosulfite or oxidizing agents such as hydrogen peroxide or sodium hypochlorite. The process often risks damaging the substrate fiber. Where possible, it is often less risky to dye the material a darker shade, with black often being the easiest or last option.

Dyeing Cotton Fabrics Posted on July 15, by zedster66 A few weeks ago I decided to dye some of the cotton fabrics I was using in felting: Cotton Gauze, Cheesecloth, Muslin, a few lightweight cottons and some cotton/synthetic mixes.

The properties of cotton fabrics before and after the combined treatments were investigated, including the colour strength, colour fastnesses and tearing strength. Compared to polishing and dyeing in two baths, the one-bath method endowed fabric with a bit lower colour strength. Other chemicals used in this work were analytical grade. The dyeing procedure usually consisted of two distinct phases: It has been widely used for lyocell polishing, denim washing and eliminating the prickle of linen [4 - 6]. More recently, the enzymatic polishing of carded cotton fabrics with cellulases has been increasingly used instead of the singeing method, owing to its mild treating condition of low temperature. The relative enzyme activities of the cellulase before and after incubation were subsequently calculated. After incubating the cellulase with additives of salt or soda for a certain time, the mixed solution was centrifuged at r. Reactive dyeing and enzymatic polishing Two-bath combined treatments for the dyeing and bio-polishing of cotton fabrics were selectively carried out. For the one-bath method of polishing and dyeing cotton fabric, cellulase was added to the dyeing solution before initiating re-active dyeing. After incubating at 60 °C for 40 min, 2 M of trichloroacetic acid TCA was added to the solution and the TCA-soluble products were separated by centrifugation at r. The visual appearances of the protein deposits were also observed. Fabric properties of drapability, smoothness appearance and tearing strength The tearing strengths of cotton fabric before and after enzymatic polishing were evaluated according to ISO The fabric drapability of the cotton fabric was determined according to ISO All results in this work were expressed as the means of three replicates, the relative standard deviations SD for the measured data were also calculated. For the combined treatment of polishing and dyeing in one bath, the addition of salt and alkali might affect the enzyme activity of cellulase. Contrarily, high concentrations of sodium sulphate exhibited noticeable inhibiting effects on the cellulase. The dramatic decrease might be similarly interpreted as being caused by incubating with sodium sulphate. Colour strength and dyeing fastness of cotton fabrics after polishing and dyeing processes To investigate and compare the effects of enzymatic polishing on the dyeability of cotton fabrics, one-bath and two-bath methods of polishing and dyeing were carried out, respectively. The colour strengths and colour fastnesses of different fabric samples were determined and depicted in Figure 3 see page Enzymatic treatment with cellulase decreased the colour strengths of the dyed fabrics to different extents. To verify the assumption above, an investigation of the interactivity between cellulase and reactive dye was carried out as described in section 2. The error bars show the SD of three replicates. Without the addition of sodium carbonate, the deposits of enzyme proteins after centrifugation showed a native white appearance, and the absorbances of the residual dyeing solutions did not obviously change. Meanwhile if the reactive groups of dyes were bonded to the active sites of cellulase, it would undoubtedly affect the enzyme activity or stability of cellulase, which also partially explained why there was an inhibiting effect between cellulase and some reactive dyes. The properties of fabrics after different Figure 3.

Chapter 5 : - Blue Snow Dyed Cotton Fabric - Dyesmithy

Solid color dyeing cotton, linen, rayon, and silk. The best dye for vivid, color- and light-fast color are the reactive dyes, available from www.nxgvision.com and www.nxgvision.com Some crafts stores carry reactive dyes, also.

They come in powder form and are mixed with water. These are the seven basic colors that I work with in the book. Each company has different names for the basic colors and you can order a starter kit from each of the companies. I show you my set up at my house and discuss the things that I think are helpful for you to get started dyeing your own fabrics. I cover the area that I work on to prepare my dyes with an old blanket or towel. I spritz the material with water so that when I am handling the dyes any stray dye will land on the wet fabric and stay there. I use a blender to mix my dyes with hot water. This helps the dye dissolve well. I mix my dyes right on top of my washing machine because that is a good working height. I use a bucket to pre soak my fabric in before I start to dye. I mix sodium carbonate ph plus from the pool supply companies in hot water and let the fabric soak at least 15 minutes before I apply the dye. I think of this color as a neutral and use it that way in my designing. Cotton, linen, tencel and rayon are all plant based fabrics. But I also dye silk the same way that I dye cotton. I treat the silk the same way I treat the cotton. PFD stands for prepared for dye. Some quilt stores also carry these. You can use regular white cotton or muslin too, but you should really prewash the fabrics to remove any starches and residue. You can also over dye printed commercial fabrics. Like dots and stripes and checks. Anything really, decorator fabrics, old shirts or dresses. White on white fabrics are great to over dye too. Over dyed white dots in a darkened gradation and over dyed white on white in a light gradation. In the book I have you dye fat quarters of plane fabric in six different gradations. To get ready to dye the first gradation you need to get your fat quarters ready. I have found that this method works really well. I suggest if possible NOT to dye in your kitchen. Find a place that is away from food preparation, the garage, basement, or back yard. You do want to work on a counter high surface. I have a table in my basement that I have lifted on PVC pipe. Or the top of your washer and dryer works well too if you cover the surface with an old towel or blanket. First fill the container that the fabric will soak in with hot water and add in the sodium carbonate. I add in 1 cup of sodium carbonate and swirl it around. It is nice if you have a bucket with a lid, but not necessary. Second I rip all my fabrics into fat quarters. The gradation in the book is a 12 step gradation so you need 12 fat quarters, or three yards of fabric. Rip a yard in half and rip the two halves in half. Make a stack of these fabrics and number them with a black sharpie marker in the corner. Number them from and stack them with number 1 on the top. Then take them as a unit and push them into the bucket so that all the fabric is soaking and the number 1 fabric is on the top. After about 15 minutes of soaking pull them out so that they hang over the edge a bit and it is easy to grab the number 1 fabric when you start your gradation. Third you want to prepare your dyes. When you are working with the dyes you want to wear a mask, gloves, and an apron and I like to have a towel tucked into my waist. This is not a glamorous job and you might get a little messy. Where dye lands dye stays. I also have a rubber mat that I stand on in the basement to cushion. A concrete floor will make your whole body ache after standing on it for any length of time. We will continue with this on Monday so stay tuned. Here is one of the colorways that I work with on my own quilts ALL the time. It is a two-tone green made of lime and emerald green that lets me make leaves in almost any setting for my flower quilts. You need this in your stash. I always wear a non porous mask so that I do not inhale any dry dye particles. While the dyes are not toxic they can cause allergic reactions. You want to make sure that you are wearing gloves, I use disposable ones but certainly reusable rubber gloves are great. They were in the gardening section. You should designate some old clothes for your dye clothes. I have several pair of old jeans, tee shirts and a few sweat shirts, a pair of old shoes and socks. And I always wear an apron over that. I also like to have a stack of old wash clothes handy and I keep a clean one tucked into my waist to wipe my hands on when I am working. I rewash the clothes when I rinse out the dyed fabric which I will talk about later. I place an old towel or newspapers on the surface I will be mixing my dyes. I spritz this with water so that it is moist. This surface then will catch any stray dye powder that may spill while you are working, and stay where it lands and can be easily cleaned up later. I use an older blender to mix the dyes and I place the

blender inside a dish pan. This will catch any of the spills when I am mixing the dye in the blender. I want to have my containers that will hold the mixed dye ready and open to put the mixed dye in once I have blended it. I usually work on top of my washing machine and a long table so that I have lots of room for all the things I am working with. To mix the dyes I use regular mixing Tablespoons and teaspoon and regular measuring cups. I like the mixing spoons that are on a ring that way I can always find the right one when I need it. For each of the three colors that I will mix I have a separate container to put the dye in and I like to label them so that I can see at a glance what color I will be using. While this seems a bit redundant as you can see the difference in colors, it helps me visually distinguish between them. To mix the dyes I add 4 cups of hot water to my blender. For each color I use 2 level TABLEspoons placed in the blender with the hot water and blended on high for about 30 seconds. Pour the blended dye into the larger container marked with the correct color. I blend three colors to do the gradation. Yellow, Red, and Blue. That is the warm color gradation. Lemon Yellow, Fuchsia and Turquoise is a separate cool color gradation. It reminds me of rainbow sherbet. I want to clear away the blender and the dye powder containers and set out my smaller containers to hold the dyed fabric. I like to use small glad ware like containers rather than zip lock baggies. I like them for two reasons. They are stack-able once they are filled and 2. They are much easier to clean and use again. You will need a dozen small containers to put your dyed fabric in. I got mine at the dollar store. I also like to have a small bowl with water in it to rinse my hands in rather than constantly turning on and off the water facet. Remember you want to keep your hands clean when you start the dyeing process because where dye lands dye stays and if you pick up your clean white fabric with yellow dye on your fingers you will have yellow dots on your next gradation. Again it is one of the reasons I keep a towel tucked into my waist. I am going to use the chart in my book for the 12 step dye gradation. I pull out the number one fabric from the top of the pile that is soaking in my bucket and place it in my small glad ware container or a dishpan. Squish is a technical term I like to use. I want to make sure that the dye gets on all the fabric as evenly as possible. Heavier fabrics will soak up more dye. I will have excess dye in the bottom of the container, do not be tempted to pour it back in the big dye bottle. In my experience, if you leave the excess dye in the container it will make your fabric more mottled, if you pour it off your fabric will be more solid. You can choose which you want to do, leave the excess dye in the container or pour it out. I usually have an extra piece of fabric in a dishpan and I pour all of my left over dye on it. Now that I have finished squishing the dye around I rinse my hands and put a lid on the container and then start the next step in the gradation.

Chapter 6 : Tips for At Home Fabric Dyeing - A Beautiful Mess

Glenda Hopp of www.nxgvision.com shows how overdyeing fabric can add rich new interest to a bland fabric and rescue an ugly dye job.

Cold, windy, snowy and just plain miserable in many parts of the country. I started looking for new things to work on and came across an old book that told of natural dyes for fabric made with nuts and berries. Types of fabric to use Not all fabric can be easily dyed with natural materials. The best ones to use are those made from natural materials themselves. Cotton, silk, wool and linen will take the dye the best. Synthetic blends will take some dye, but will usually be lighter in color. I use a piece of muslin to gauge my color saturation before I dye my clothes. You can find muslin at any fabric store or online here. Natural Dyes for Fabric Not all natural materials will produce a dye, and some produce colors that are nothing like the original plant it came from. Blackberries, walnut hulls, iris root Red-purple: You want to be sure to use ripe, mature plant material and always use fresh, not dried. Dried plant material will usually give you muted colors and sometimes no color at all. Chop the plant material very small to give you more surface area. If the plant is tough, like yellow dock roots, smash the root with a hammer to make it fibrous. This will also give you more exposed surface area. Just be sure to label it. First, wash the fabric. Here are the measurements: Rinse with cool water when done. The Process for Natural Dyes for Fabric Before you start, cover the surface of your work area with newspaper. Be sure to wear gloves so you only color the fabric, not your hands. Then, prepare your dye. Place the plant material in a large non-reactive pot like stainless steel or glass. Remember the dye could stain some pots and spoons, so use these only for dyeing. Fill pot with twice as much water as plant material. Simmer for an hour or so, until you get a nice dark color. Strain out the plant material and return the liquid to the pot. Carefully place the fabric in the dye bath and bring to a slow boil. Simmer for an hour or so, stirring once in a while. Remember, it will be lighter when it dries. An hour should produce nice color, but darker hues can be achieved by allowing to sit longer, even overnight. Turn the pot off after an hour and allow fabric to sit in the warm water as long as needed. When you get the color you want, take the fabric out and wash in cold water. Expect the color to run some as the excess dye is washed out Dry as usual. Have you ever used natural dyes for fabric? How did it turn out?

Chapter 7 : Dyeing Workshop | Frieda Anderson

The most commonly used processes for imparting color to cotton are piece dyeing and yarn dyeing. In piece dyeing, which is used primarily for fabrics that are to be a solid color, a continuous length of dry cloth is passed full-width through a trough of hot dye solution.

Chapter 8 : Natural Dyes for Fabric: All Natural Ways to Dye Fabric Different Colors

Most fabric blends will accept dye, including synthetics, like rayon and nylon-fiber blends that are at least 60% dyeable fiber. Natural fibers like cotton, linen, silk, wool and ramie are the most easily dyeable, in my experience.

Chapter 9 : Dyeing Cotton Fabrics | feltingandfiberstudio

When you are considering dyeing or overdyeing a print or solid, test the fabric by dabbing a miniscule amount of dye onto a seam allowance inside the garment (a very tiny amount so that it doesn't seep into the main body of the garment).