FASHION FABRIC FACTS

KAREN BRUNGER

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I hope you find this booklet on Fashion Fabric Facts helpful! If you would like to have samples of the fabrics we reference, you can check out our Fabric Glossary. You will find it in our webstore at http://www.imageinstitute.com/store/assessment-tools/fabric-glossary/.

Karen

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INTRODUCTION TO FABRICS

"The finest clothing made is a person's own skin, but, of course, society demands something more than this." ~ Mark Twain

While teaching image consulting, I have noticed a great deal of confusion around fabric fibers, weaves, and terminology. Hopefully this book will help!

This chart shows the basics of how fabrics are constructed.

1		Fibers originate from numerous sources – natural or synthetic. Fibers can be staples, which are short, or filaments, which are long, continuous threads.
2		The fibers are spun into yarns.
3		The yarns are woven on looms or by hand, knitted on machines or by hand, or bonded with glue, heat, or machines into fabrics.

FIBERS

MANUFACTURED FIBERS

Manufactured fibers have either an organic or synthetic source.

Synthetic fibers are based on polymers or minerals. Polymers are the result of a chemical reaction using petroleum products: coal, oil, or natural gas. After polymerization the solution is forced through spinnerets (a mechanism with tiny holes like a shower head), and then dried into filaments.

SYNTHETIC		
Type	**Source**	**Description**
Acrylic	Acrylonitrile	Strong and warm; often used in sweaters and linings
Lycra / spandex	Polyurethane	Exceptional elasticity; used in small amounts where stretch is required
Nefflon	Polyvinyl chloride	Made from Teviron fibers, it has negative ions, as it always attracts electrons
Nylon	Polyamides	A thermoplastic that is sometimes used to replace silk
Polyester	Polyethylene terephthalate	Highly insulating and stain-resistant
Recycled polyester	Soft drink bottles	The polymer is melted and extruded as a new fibre; it reduces energy consumption and saves raw materials
Luminex	Fiber optics	A luminous fabric that emits light
Metallic, lurex	Steel, copper, aluminum	Used as a decorative factor

Semi-synthetic fibers have an organic origin, and chemicals are incorporated in the production.

SEMI-SYNTHETIC		
Type	**Source**	**Description**
Acetate, Cupro, Lyocell, Modal, Rayon, Tencel, Viscose	Wood pulp	Wood pulp is dissolved in chemicals, and then the solution extruded through spinnerets and dried
Milk	Milk protein	The fabric wrinkles easily and is not very durable; it has anti-bacterial properties and a pH close to that of skin
Milk silk	Goat milk and spiders	Goats' eggs are mixed with genetic material from spiders, so that the goats produce milk that contains silk fibres
Ingeo	Corn	Easy-care, durable, good wicking
SeaCell	Seaweed with eucalyptus	The soft, breathable, and luxurious fabric has anti-inflammatory properties.
Soy silk or "vegetable cashmere"	By-products of tofu	The high protein content allows it to easily absorb dyes; the fabric is soft, luxurious, breathable, durable and washable.

NATURAL FIBERS

Natural Fibers are either plant-based or animal-based.

CELLUOSE / PLANT BASED	
Fiber	**Description**
Bamboo	Bamboo is a grass, and as the fastest growing plant in the world, it is highly renewable, and has antibacterial and anti-fungal properties; the fabric is soft, luxurious, stretchy, comfortable, and strong
Banana	Outer fibers on the stalk are coarse; fibers from the inner stalk are silk-like; the entire production can be done by hand, and without the use of chemicals
Cotton	Cotton comes from the hairs covering the seeds of cotton plants
Hemp	Hemp plants grow quickly and densely, require only an average amount of water, and are pest-resistant; hemp can be spun into yarns with minimum processing, and is more durable, absorbent, and insulating than cotton.
Jute	Jute is obtained from the skin of a plant grown in South-East Asia; because it is coarse and strong it is used for durable products such as sacks, rugs and rope
Linen	Linen is obtained from fibers of the flax plant; the fabric can range from very fine to very coarse.
Nettle	Stinging Nettle plants are highly resistant to parasites and vermin, and grow in temperate climates. The fabric is similar to hemp and linen. The nettle fiber is unique in that it is hollow, making it highly insulating
Piña	The leaves of the pineapple plant make a lightweight, stiff fabric
Ramie	The fiber is taken from the bark of a nettle plant grown in Eastern Asia; it is strong, but not resilient
Sisal	Sisal comes from the agave plant found in Mexico; the stiff fabric is commonly used for rugs and ropes

PROTEIN / ANIMAL BASED		
Fiber / Source	**Types**	**Description**
Silk: filament obtained from silkworm cocoon	Cultivated	Produced by silkworms in a controlled environment
	Tussah	A wild silk that is coarse and less lustrous than cultivated silk
	Peace	The silkworms are not killed, but leave the cocoon; the silk filament is lighter than regular silk
	Raw	Silk before the sericin, a gummy protein substance, is removed
	Duoppioni	Produced when two silkworms spin a cocoon together; the strand has a thick/thin appearance
Wool: Animal hair from domestic sheep or goats	Virgin	Previously unused
	Merino	Best grade of wool
	Lambswool	The first clip from a sheep less than one year old
	Super 100 / 150 / 180, etc.	Number represents the number of fibers per inch; the higher than number, the finer the wool
	Organic	The livestock's food is organic, and no growth hormones or synthetic insecticides are used
Animal Hair	Angora	From the angora rabbit
	Camelid	From camel, alpaca, llama, vicuna
	Cashmere	From the cashmere goat
	Horsehair	
	Mohair	From the angora goat

Hide	Mammal leather	From cows, deer, kangaroos, pigs, sheep
	Fish, Shark Leather	The fish skin is dried, bleached, and made into leather that is luxurious and durable
	Nubuck	Top-grain cattle hide leather is buffed to produce a nap similar to velvet
	Ostrich leather	
	Patent leather	The leather is given a high-gloss finish, often with a plastic coating
	Reptile leather	From alligators, crocodiles, snakes
	Suede	The underside of the skin is used, so it is softer but less durable

FABRIC TERMINOLOGY

Denier: Refers to the weight in grams of 9,000 meters of filament yarn

Double-faced: Fabric appears the same on both sides

Drape: The ability of a fabric to hang in folds

Filaments: Long fibers measured in yards or meters

Gauge: Refers to the fineness or compactness of warp knits and hosiery

Grain: Describes the relationship between warp and filling (weft) yarns

Greige goods: Unfinished fabrics; (pronounced *gray*)

Hand: The feel or texture of the fabric

Leno weave: Warp yarns twist around filling yarns in a figure 8; often used in curtains

Loom: Machine used for weaving fabric

Microfibers: Manufactured fibers that are less than 1 denier

Ply: Yarns twisted together

Scroop: The rustle of silk as it rubs against itself

Selvage: The lengthwise edge of woven fabric

Sized: Agent added for body, stiffness, smoothness or weight

Soil Release: Finishes that ease cleaning

Staple fibers: Short fibers from 1” to 18” long

Warp: Yarns that run lengthwise parallel to the selvage

Water-resistant: Finish that prevents water from being absorbed; not water-proof

Weft: Also called filling yarns; yarns that run horizontally across the width of a fabric perpendicular to the warp yarns

Wicking: The ability of a fabric to carry moisture along its surface

Woven fabrics: Two sets of yarns are interlaced at right angles to each other

Yarn: Continuous thread-like strands made of fibers twisted together

ECO-FRIENDLY FABRIC

Biodegradable: When scrapped, natural fabrics decompose into the soil; synthetic fabrics are typically not biodegradable, and when they are scrapped the chemicals used in their manufacture are leached into the environment

Eco-Fashion: Fabric that takes into account the environment

Ecological footprint: The amount of natural resources required to sustain a plant or animal to full growth

Fair Trade: People that make the textiles and clothing are paid a fair price and have decent working conditions

Organic: Fibres that are grown and produced without chemically formulated fertilizers, pesticides, insecticides, herbicides, growth stimulants, etc.

Reclaimed: Textiles or garments that have been discarded and are suitable for re-use

Recycled: Textiles that have been manufactured from previous products, such as bottles

Renewable: Resources that can be replenished within a few years

Vegan: Products that are made without the use of animal product

HOW TO CLEAN FABRICS IN AN ENVIRONMENTALLY FRIENDLY WAY

- Baking soda
- Borax
- Eucalyptus oil – to remove grease
- Hydrogen peroxide – to remove fresh blood
- Lemon juice and sunshine – to remove stains
- Rubbing alcohol – to remove grass stains
- Sunshine – to bleach
- Tea tree oil – to disinfect

FABRIC CONSTRUCTION

Fabrics are woven, knitted, or bonded in a variety of ways.

PLAIN WEAVES

Filling yarns are passed over and under warp yarns.

Basket-weave: Loosely woven using 2 or more warp and weft yarns

Batiste: Soft, lightweight semi-sheer

Broadcloth: Closely woven, usually of cotton, silk or wool

Burlap: Plain-woven coarse fabric

Calico: Closely woven cotton or blend with a small design; often used in casual country fashions

Canvas: Closely woven heavy cloth

Challis: Soft, plain weave usually in a small print

Chambray: A colored warp and a white woof gives a slight mottled effect

Cheesecloth: Very thin unsized cotton

Chiffon: Soft, diaphanous plain woven fabric

Chintz: Cotton fabric often glazed and printed in bright patterns

Crepe de Chine: A lustrous, high quality silk

Crepe georgette: Sheer, fine-textured fabric

Donegal: Slubbed tweed

Faille: Crisp fabric with a slight sheen and a heavy crosswise grain

Gauze: Thin, diaphanous, loosely-woven material

Georgette: Sheer crepe with a dull texture

Gingham: Medium or lightweight fabric in a plain weave; available in checks, stripes, plaids and solids

Lame: Fabric woven of gold or silver threads

Linen Weave: Weave with slub yarns

Madras: Small geometric design in a striped pattern used for men's shirts

Muslin: Plain-weave ranging from sheer to coarse

Organdy: Crisp sheer fine fabric

Organza: Sheer, fine fabric

Oxford cloth: Lustrous cotton or blend of medium and heavy weight

Percale: Fine smooth-weave cotton or blend used primarily in summer clothing and better-quality bed sheets

Seersucker: Crinkle-surface material used for casual or tailored clothes

Shantung: A slubbed surface created by irregularly spun yarns

Taffeta: Plain, closely woven smooth fabric which is slightly lustrous

Ticking: Durable fabric used to cover mattresses; often in a twill weave.

Voile: Lightweight, plain, semi-transparent fabric

Worsted: Yarn spun from combed wool

TWILL WEAVES

A weave pattern with diagonal lines

Cavalry twill: Strong double twill

Denim: Durable twill; brushed denim has a short nap; rarely colorfast and usually shrinks

Drill: Strong twill, usually cotton

Gabardine: Suiting material of a tightly woven twill with a hard surface; very durable; used primarily for trimly tailored outfits

Glenurquart: Check pattern

Herringbone: Repeating chevron pattern

Houndstooth: Pointed check pattern

Serge: Piece-dyed simple twill woven fabric with a clear finish

Tartan: Check pattern

Whipcord: Fabric with a steep, diagonally ribbed surface

DOBBY WEAVES

Fabric with a small floral or geometric pattern

Dobby Dot: Small dot pattern

Pique: Firm, crisp cotton or blend with either a lengthwise rib or a square or diamond-shaped pattern

Waffle cloth: Fabric with a honeycomb pattern.

JACQUARD WEAVES

Fabrics created on a jacquard loom for individual control of the warp yarns, creating patterns

Brocade: All over woven design of raised figures

Damask: Elaborately patterned fabric

Jacquard: Fabric with a figured weave

Matelassé: Double-weave fabric with a raised pattern or quilted effect

Tapestry: Fabric with coloured threads woven on the warp

SATIN WEAVES

Weave where the warp yarns float over at least 4 weft yarns

Charmeuse: Lustrous satin weave fabric

Duchess satin: Lustrous satin with a dull luster

Peau de soie: Satin-faced, silky fabric with a dull luster

Sateen: Cotton fabric with a satin finish

Satin: Fabric with a smooth, high gloss face

Toile de Jouy: Cotton satin

KNITS/TWISTS

Interlooping yarns form a fabric

Crepe: Very high twist yarns

Doubleknit: Fabric having the same ribbing on both the face and the back

Jersey: Plain knit, ribbed fabric with a degree of elasticity

Ribknit: Knitted fabric with a pattern of ribs

Tricot: Warp-knit fabric with fine vertical ribs on the face and horizontal ribs on the back

Lace: Open-work fabrics

Tulle: Very fine net

Crochet: Yarns looped together using a crochet hook

Raschel: Coarse knit, often with intricate designs

PILES or TUFTS

Loops on the surface of the fabric

Boucle: Curled or twisted yarn produces loops or knots that occur at intervals

Corduroy: Deep–pile with a soft luster; ribbing ranges from no wale to wide wale

Flannel: Soft wool fabric with a slight nap

Flannelette: Soft cotton fabric with a slight nap

Fleece: Jersey-knit fabric with a thick, fleecy pile or nap

Terry Cloth: Fabric with a raised loop forming uncut pile

Velour: Velvet-like fabric

Velvet: Fabric with a thick soft pile formed of loops of the warp thread

Velveteen: Fabric with a short, velvet-like pile

NON-YARNS

Felt: Thick, firm, smooth material

FABRIC FINISHES / EFFECTS

Acid-washed: Chemically washed fabrics to produce a worn look

Air brushed: Dyes applied with an air brush

Batik: From Indonesia; designs are waxed on, and the fabric dyed.

Burned-Out: Fabrics are treated with chemicals that destroy fibers to create a pattern of holes

Calendered: Mechanical finished gives a lustrous surface

Cired: Brilliant, highly glazed finished achieved from wax, heat, and calendaring

Crushed velvet: Velvet fabric is mechanically twisted to create an irregular surface

Dotted swiss: Crisp sheer fabric into which small dots are woven

Embossed: Raised design

Embroidered: Fabrics decorated with patterns of yarns

Eyelet: Fabric pierced by small holes finished with stitching; often in a flower design

Flocked: Tufts of fiber

Fulled: Induced felting shrinking in wool produces a more compact fabric

Glazed: Fabric that has been coated with a thin glossy overlay

Melton: Thick, heavy material in which the nap is raised and then shaved to create a smooth texture

Mercerized: Chemical finish gives luster and strength to cotton

Moire: Wavy, watery pattern effect

Napped: Fabric passed against brushes to raise the fabric face

Oilskin: Cloth waterproofed by a process using oil

Panne: Pile flattened all one way to give a shiny surface; or satin treated to have a high surface shine

Plisse: Puckered or blistered effect produced by chemical treatment

Sueded: Soft napped surface

Tufted: Pile yarns are stitched onto a fabric backing

Tie-dyed: Fabric is knotted or tied before being dyed, creating a design

Waterproofed: Fabric coated or laminated to be protected in wet weather

AFTER THE FACTS

TEST YOURSELF

1. Which of the following is a fiber?
    a. Denim
    b. Silk
    c. Satin
    d. Tweed

2. Which of the following is a synthetic fabric?
    a. Viscose
    b. Soy silk
    c. Nylon
    d. Modal

3. Which would generally not be used for a business suit?
    a. Gabardine
    b. Serge
    c. Worsted
    d. Drill

4. Which would generally not be used for an evening dress?
    a. Taffeta
    b. Seersucker
    c. Chiffon
    d. Organza

RESOURCES

http://alteredstates.net/index2.php?/ionizers/ozonemyths.htm

http://www.goodnighties.com/pages/Science-Behind-Negative-Ions.html

https://en.wikipedia.org/wiki/Synthetic_fabric

https://en.wikipedia.org/wiki/List_of_textile_fibres

http://www.lumigram.com

DID YOU KNOW?

Fabrics treated with negatively charged ions can enhance healing and wellbeing.

Synthetic fabrics generally do not let negative ions penetrate, so the benefits are lost.