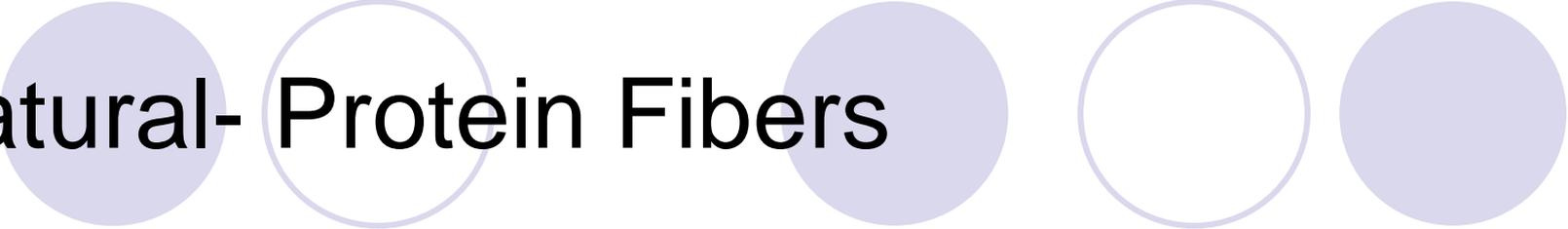


# Two different Types of Fibers

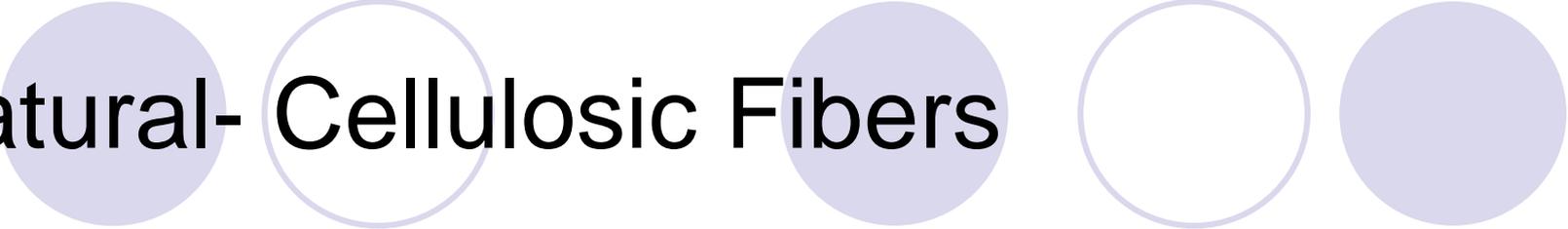
- Natural
- Synthetic or Manufactured





# Natural- Protein Fibers

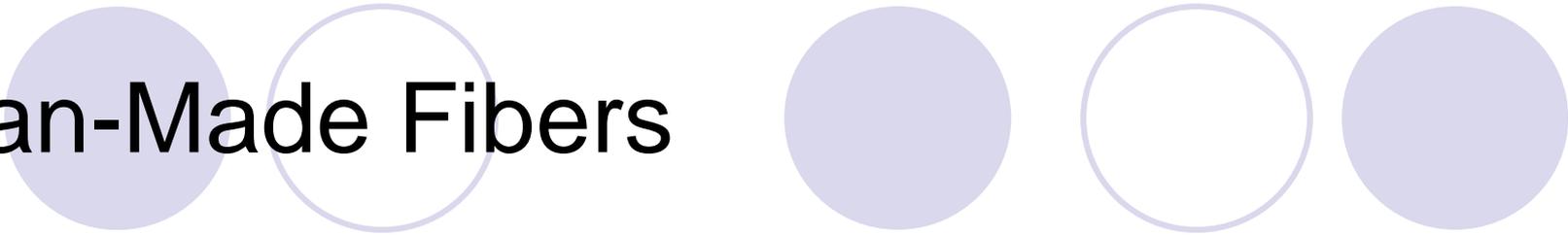
- Come from animal sources
- Examples
  - **Silk** (from cocoon of silkworm)
  - **Wool** (from sheep)



# Natural- Cellulosic Fibers

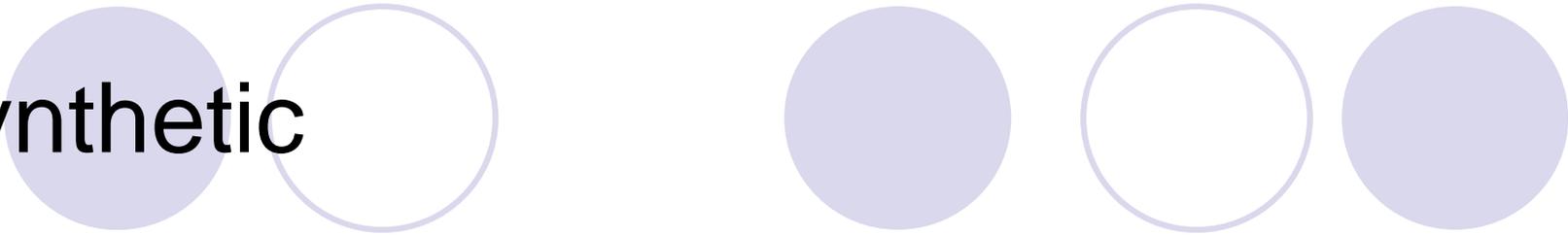
- Comes from plant sources
- Examples
  - **Cotton** (cotton plant)
  - **Linen** (flax plant)

# Man-Made Fibers



- Regenerated Cellulosic

- Made to look like fibers that come from plant sources
- Cellulose is chemically treated to be a soluble compound and then converted or “regenerated” back into almost pure cellulose
- Examples are:
  - Acetate
  - Rayon



# Synthetic

- Made from chemicals
- Usually stronger than either natural or regenerated fibers
  - **Acrylic**
  - **Nylon**
  - **Polyester**
  - **Spandex**

# Natural Fibers

- Comes from a plant or animal

- Cotton

- comfortable, absorbent (hydrophilic), wrinkles easily

- Linen

- from flax plant, strong, lint free, wrinkles excessively

- Silk

- made from cocoon of silkworm, soft and smooth, lustrous

- Wool

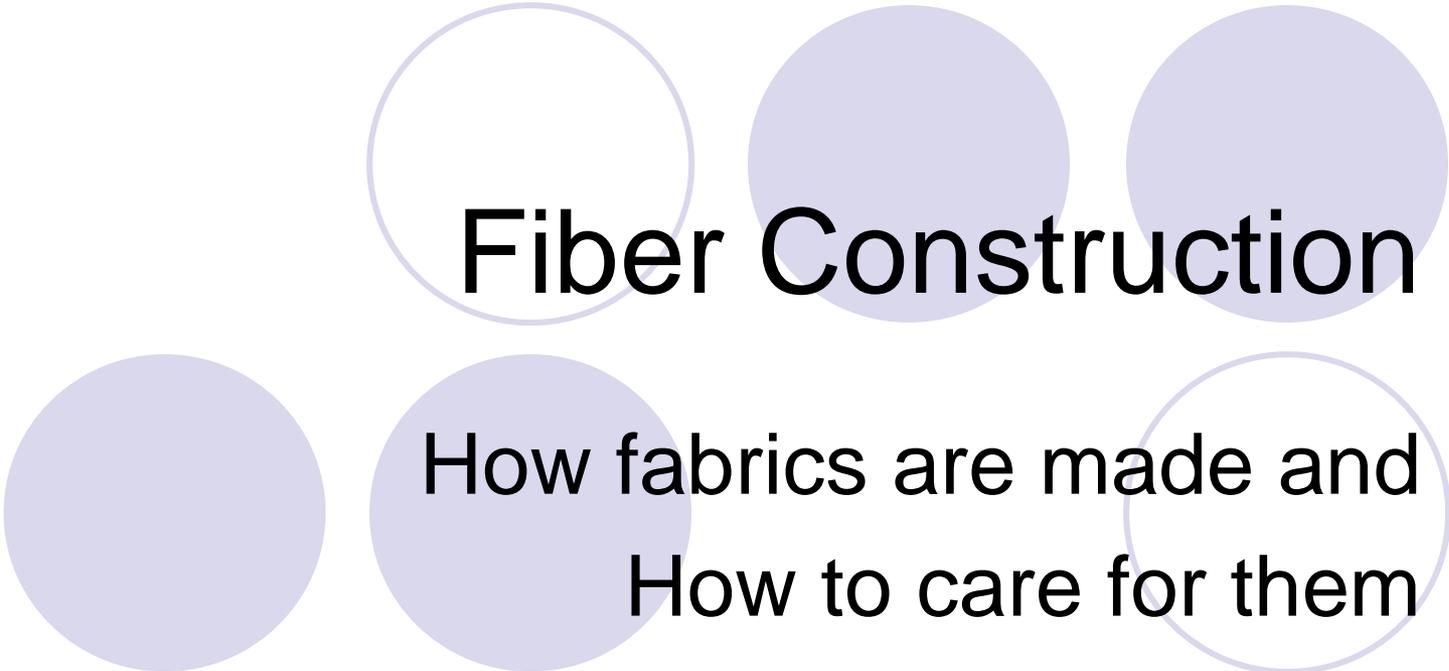
- from fleece of sheep, durable, warm, fire resistant



# Synthetic/Manufactured Fibers

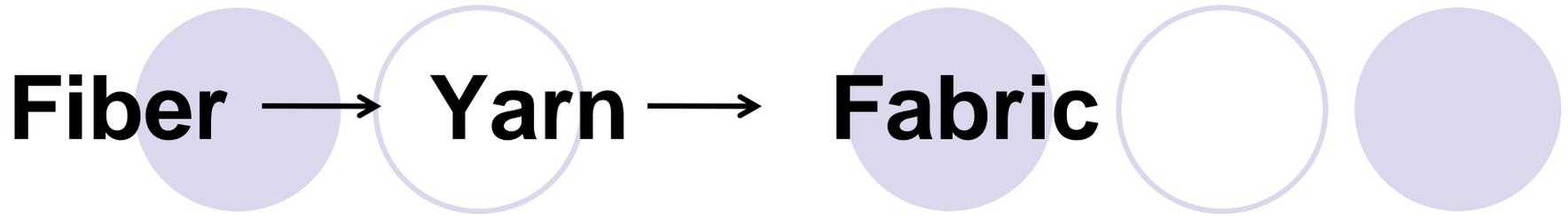
- Man made through a chemical substance
- Nylon
  - strongest fiber, lightweight, heat sensitive
- Polyester
  - most widely used, strong, resilient, retains oily stains, hydrophobic
- Acrylic
  - wool substitute, resists wrinkling, pills
- Rayon
  - first manufactured fiber, made from wood pulp, soft, absorbent, wrinkles
- Spandex
  - elasticity, stretch, resistant to sun, perspiration and abrasion, heat sensitive
- Acetate
  - absorbent, dries quickly, silky appearance and feel



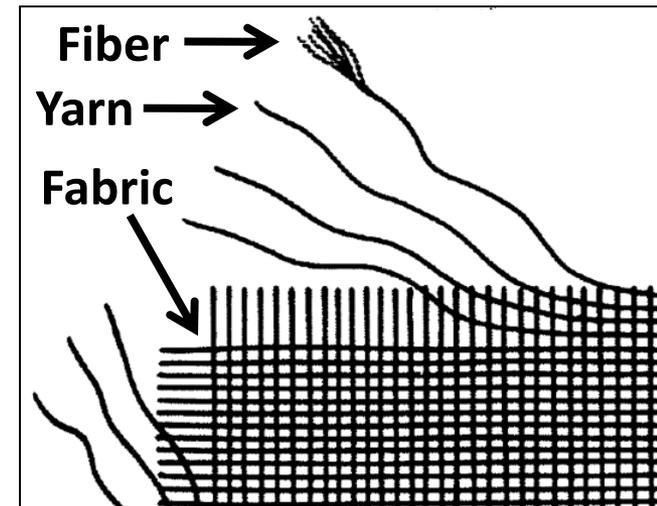
The slide features a decorative arrangement of six light purple circles. Three circles are positioned in a horizontal row at the top, and three are in a horizontal row at the bottom. The top-left circle is an outline, while the other five are solid. The text is centered between these two rows of circles.

# Fiber Construction

How fabrics are made and  
How to care for them



1. All fabric is made from fiber, either **natural or synthetic.**
2. The **fiber is processed and twisted** into yarn.
3. The yarn is then **woven or knit into fabric.**



# Fiber Blends & Finishes

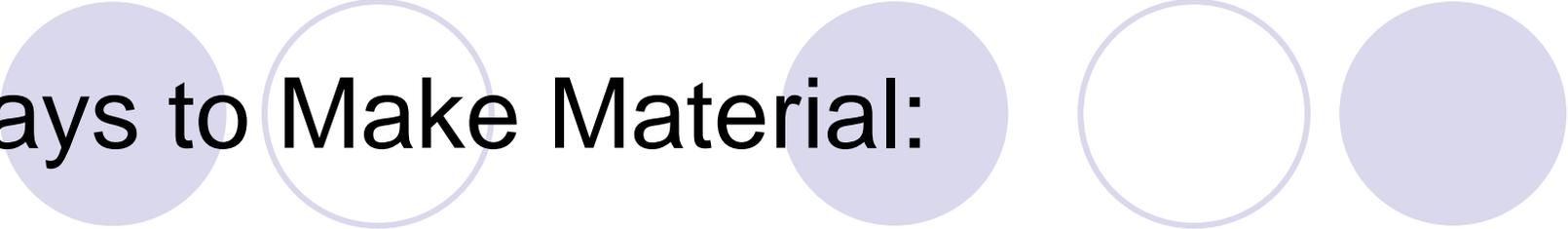
1. Fibers are often blended together to increase strength, durability, absorption, and other characteristics.

2. Common Fiber Blends:

- a. Cotton & Polyester\*
- b. Wool & Nylon
- c. Spandex & Cotton



3. A finish is added to provide certain characteristics to the finish product.

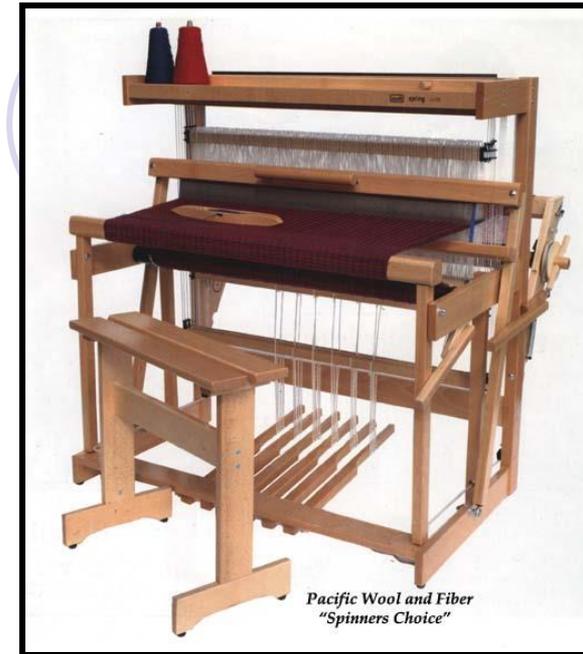


# Ways to Make Material:

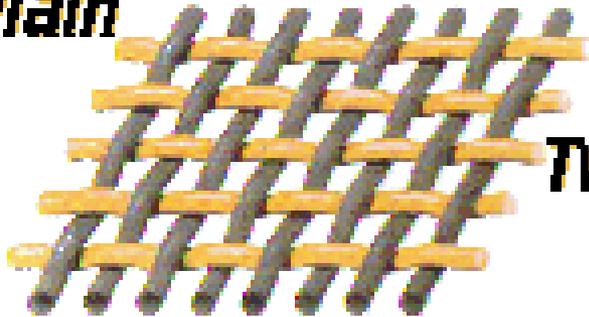
- Weaving: The process of producing a fabric by interlacing two or more yarns at right angles.
- Knits: The production of fabric by inter-looping continuous yarns.
- Non-Wovens: Material that is made without weaving or knitting.

# Woven Fabric

1. Woven fabrics are created by the interlocking of two separate yarns, the warp and the weft.
  - \*Warp- Top to bottom
  - \*Weft- Left to right
2. The three main types of woven fabric are:



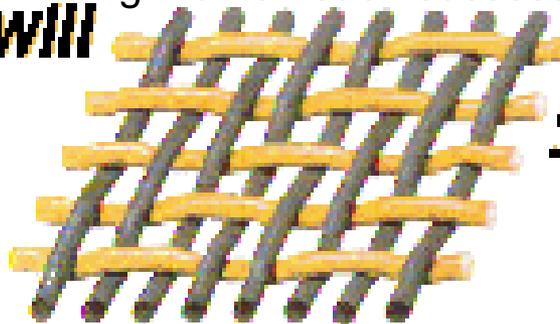
## **Plain**



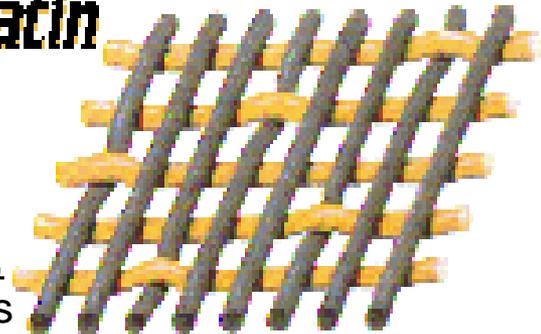
simplest weave, filling yarn passes over & under each warp yarn then alternates

strongest weave, recognized by obvious diagonal ridges, filling yarn passes over and under two or more warp yarns then shifts to the right or left each successive row

## **Twill**



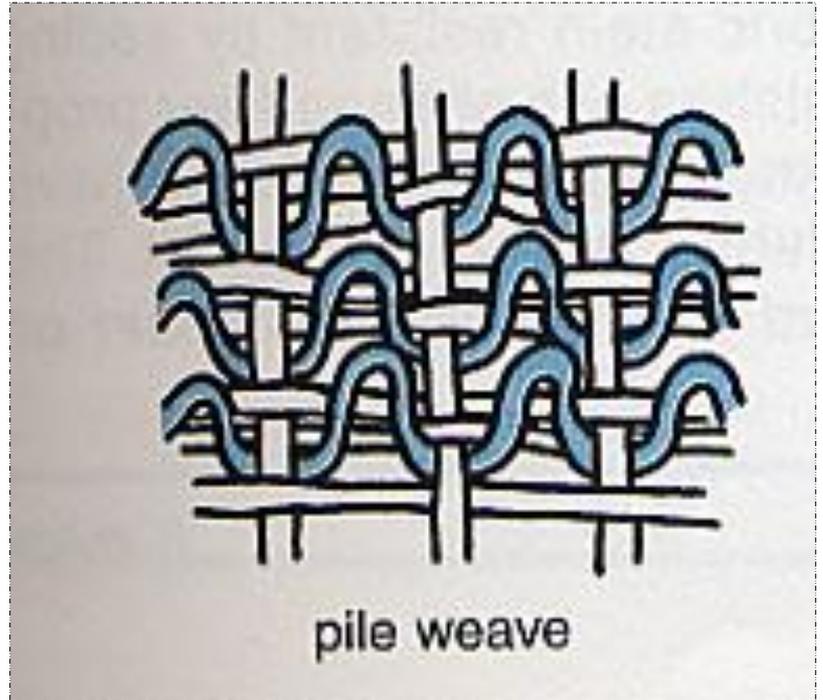
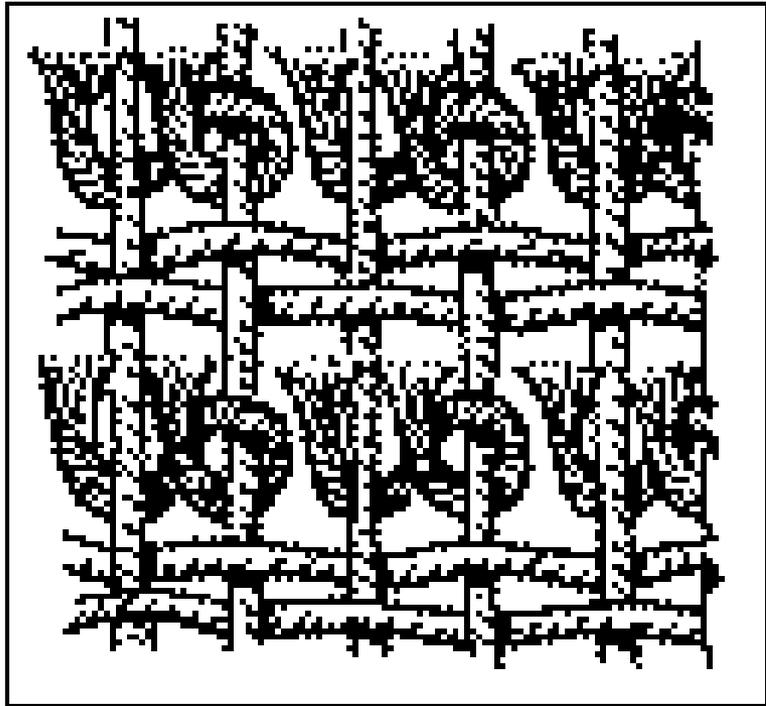
## **Satin**



most lustrous weave, the filling yarn passes over 4-8 warp yarns

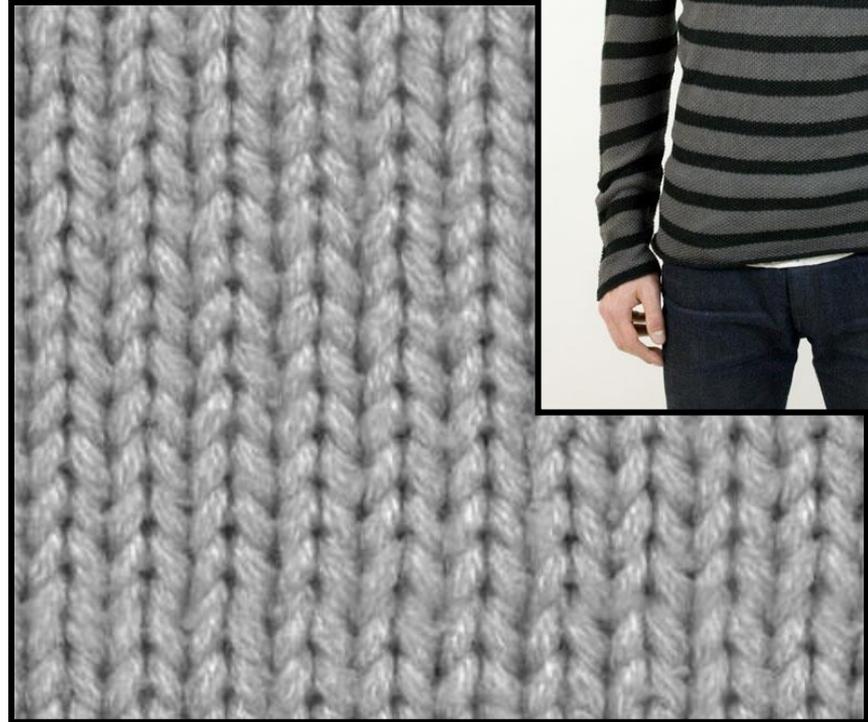
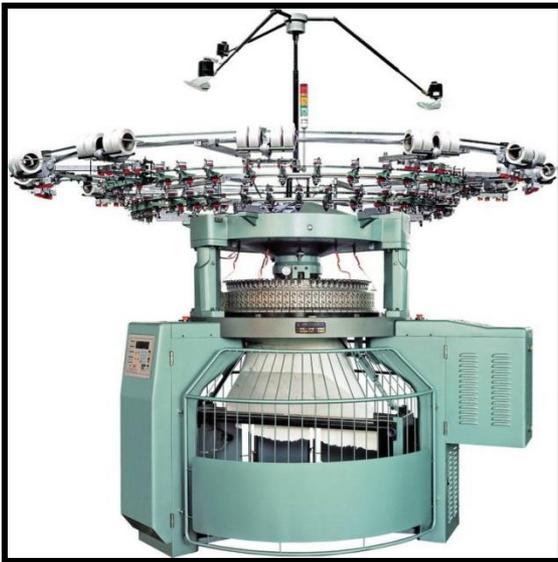
# Wovens

- Pile Weaves



# Knit Fabrics

1. Knits are interlocking yarns. They are popular because:
  - a. They are easy to care for.
  - b. They are inexpensive to produce.



2. If the fabric has a LOOSE KNIT, it will =

- a. Stretch
- b. Sag
- c. Get baggy
- d. Have less recovery from stretching

3. If the fabric has a TIGHT KNIT, it will have =

- a. More stability,
- b. Less shrinkage,
- c. Better recovery from stretching (shape recovery)

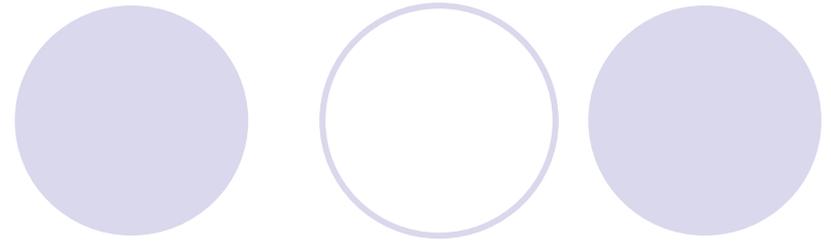


# Non-Woven Fabrics

1. Making fabric without knitting or weaving
2. The Felting Process:
  - a. A mass of fibers interlock and shrink with heat and moisture
  - b. The best fibers used for felting are:
    - Wool
    - Rayon mixed with hair or fur fibers

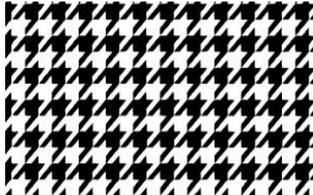
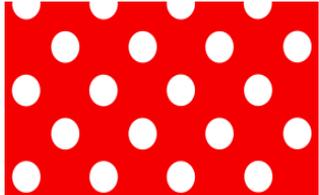
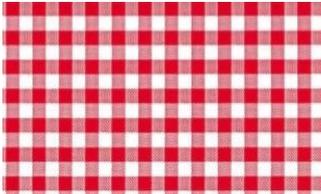
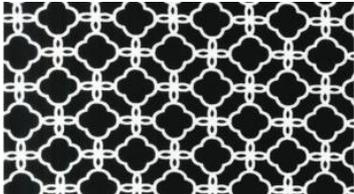
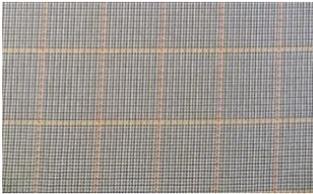


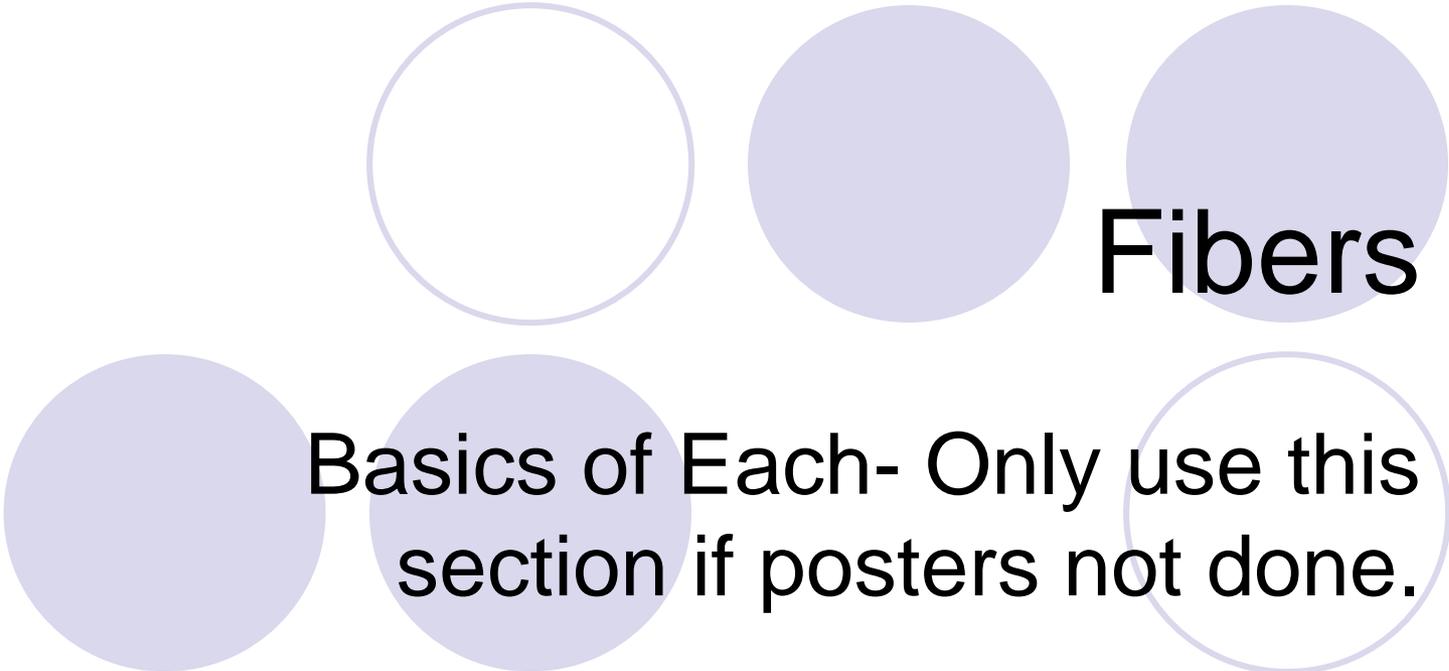
# Fabric Finishes



- 1. Stock Dyeing:
  - Natural fiber dyed after being spun into yarn
- 2. **Solution Dyeing**:
  - Adding color to a fiber solution before it is extruded.
- 3. **Yarn Dyeing**
  - Dye is added to yarn before they are woven or knitted.
- 4. **Piece Dyeing**:
  - Fabrics dyed after being woven or knitted
- 5. Product Dyeing:
  - Fabric is cut and sewn into the finished product, then dyed.
- 6. **Product Printing**:
  - Fabric is printed after being woven or knitted.

# Classic Textile Patterns

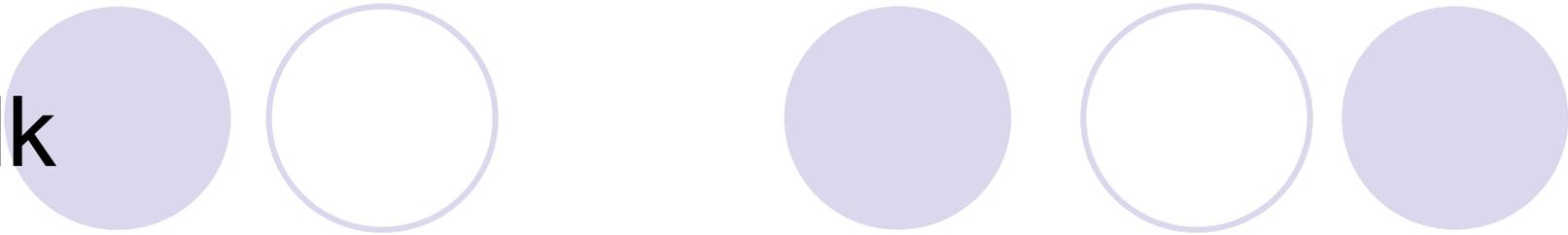
Classic Textile Patterns			
Plaid	Pinstripe	Argyle	Pin Dot
			
Herringbone/Tweed	Floral	Hounds Tooth	Polka Dot
			
Gingham Check	Geometric	Tattersall's Check	Paisley
			



Fibers

Basics of Each- Only use this section if posters not done.

# Silk



- Good Characteristics-

- Available in wide variety of weights and textures
- Luxurious, strong, drapable, soft, absorbent,
- Resists wrinkles, resists mildew

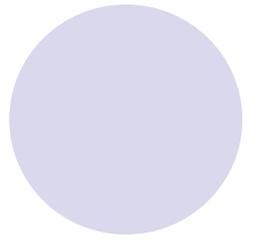
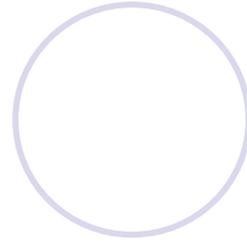
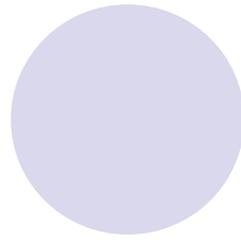
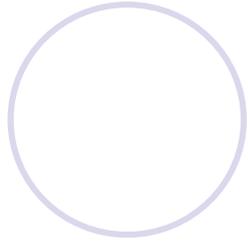
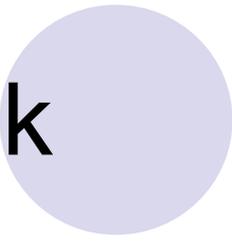
- Poor Characteristics

- Damaged by perspiration, deodorants, perfumes, hairspray, and bleached.
- Weak when wet, sensitive to light, may water spot

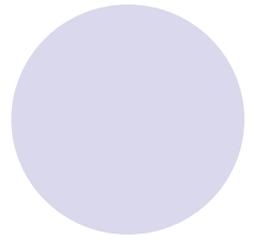
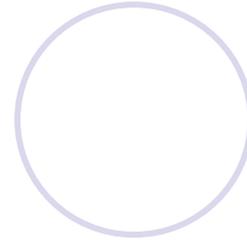
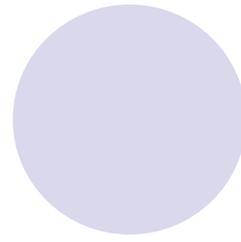
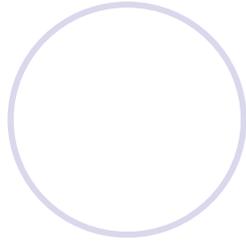
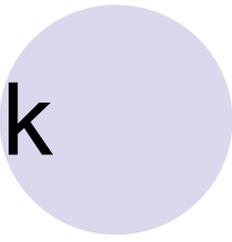
- Care of Fabric

- Dry cleaning is safest, some fabrics may be hand washed, however, color loss can occur.
- Rubbing surface can damage fibers.
- Iron wrong side, moderate temperature

Silk



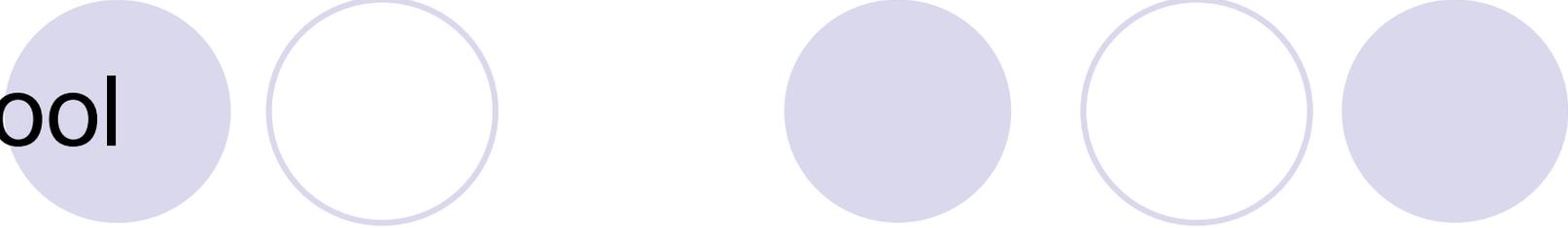
Silk



Silk



# Wool



- Good Characteristics:

- Static resistant, strong, durable, resilient and elastic due to natural crimp
- Resists wrinkles, absorbent, dyes well, resistant to fading and perspiration, warm

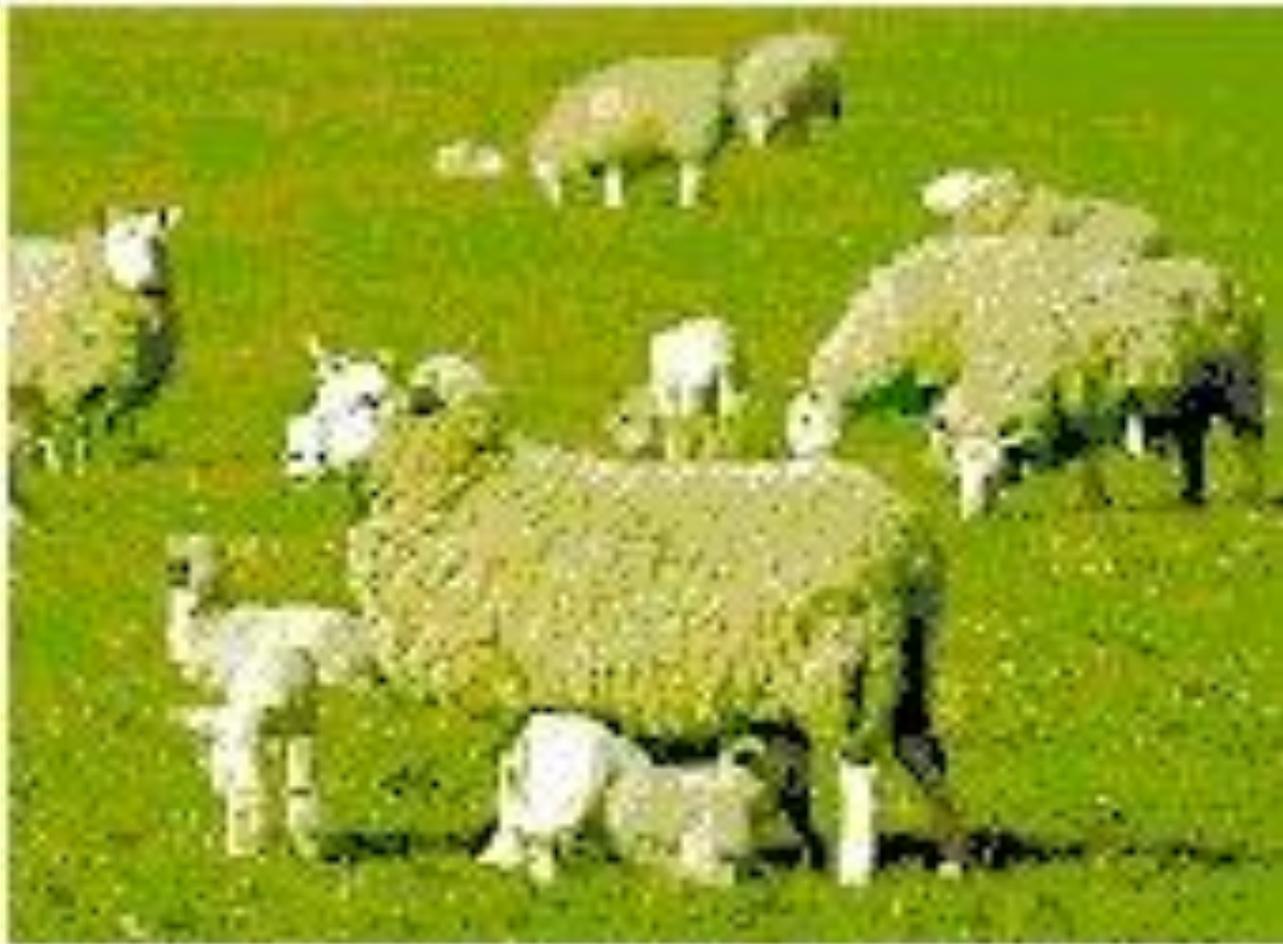
- Poor Characteristics:

- Absorbs odors, NOT moth resistant, not washable unless treated, weaker when wet, undesirable felting can occur

- Care:

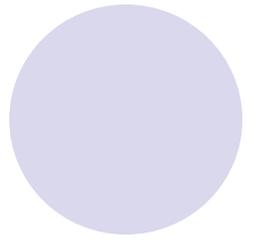
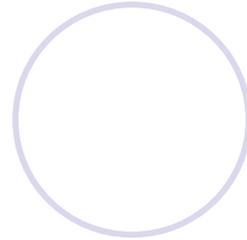
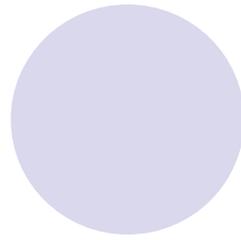
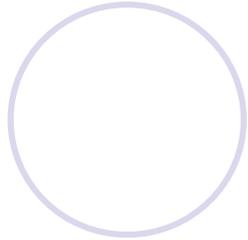
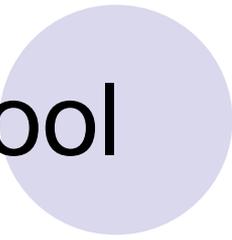
- Usually dry cleaned. May be machine washed if treated.

Wool



**Wool comes from sheep.**

Wool

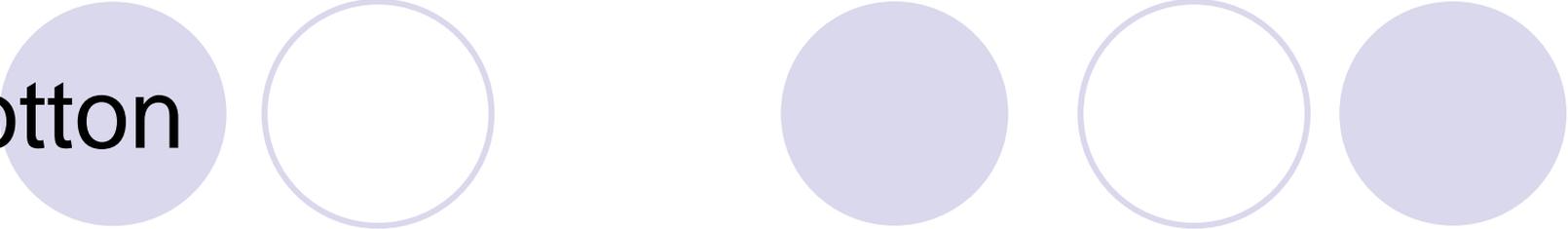


# Wool



**An Australian rancher with bales of wool.**

# Cotton



- Good Characteristics:

- Strong, durable, versatile, comfortable, absorbent, static resistant.

- Poor Characteristics:

- Mildews, does not spring back into shape, wrinkles easily without special finish, shrinks unless treated or preshrunk

- Care:

- Machine washable if colorfast. May shrink if washed or dried at high temperatures. Usually ironed at high temperatures.

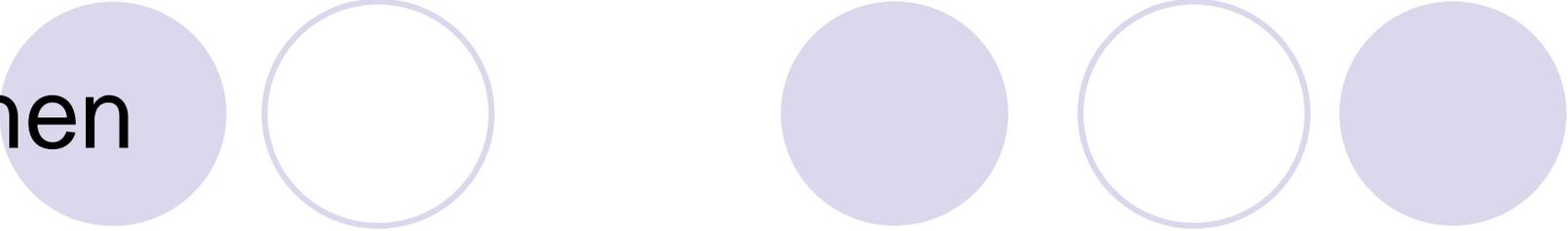
Cotton



Cotton



# Linen



- Good Characteristics:

- Cool, comfortable, absorbent, natural luster, withstands high temperatures, strong, durable, resilient, blends well with other fibers

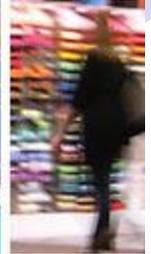
- Poor Characteristics:

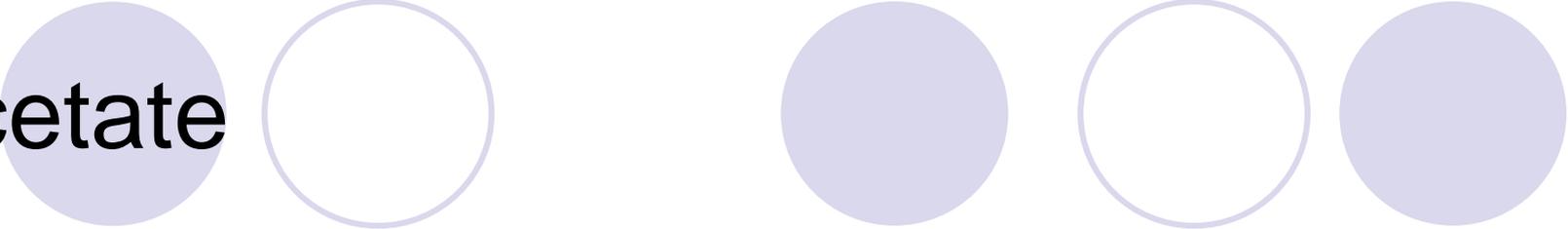
- Wrinkles easily, does not dye well, shows wear in areas of abrasion, shrinks unless treated or preshrunk, mildews.

- Care:

- May be machine washed and dried. Bleach weakens fibers- can yellow fabric. Check manufacturer's instruction due to shrinkage, can be dry cleaned, iron at high temperatures

# Linen





# Acetate

- **Good Characteristics:**

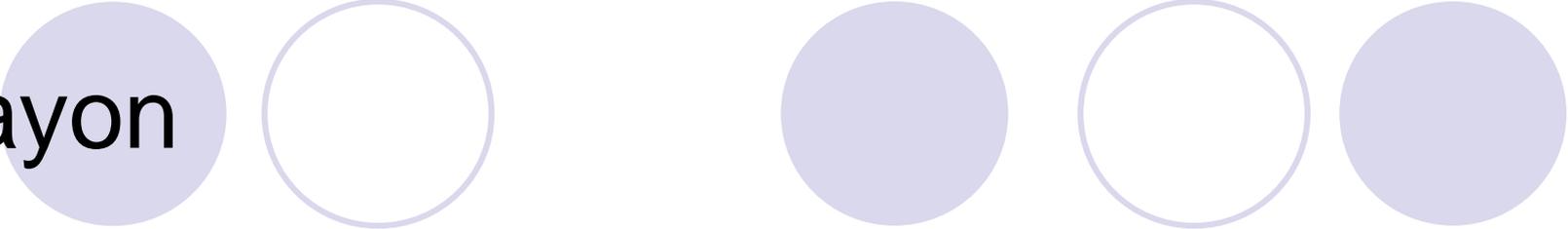
- Excellent drapability, dyes well, luxurious feel and appearance. Shrink, moth, and mildew resistant

- **Poor Characteristics:**

- Poor resistance to abrasion, wrinkles easily, heat sensitive

- **Care:**

- Dry Clean for best results, can machine wash but wrinkles difficult to remove, iron at low temperature



# Rayon

- **Good Characteristics:**

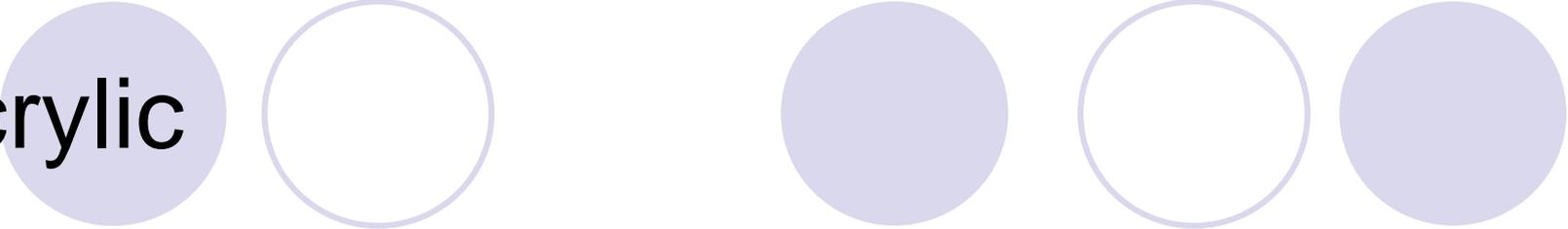
- Cool, comfortable, highly absorbent, good sheen, soft drapability, dyes well, versatile

- **Poor Characteristics:**

- Lacks strength, may stretch or shrink, heat sensitive, poor resistance to soil and abrasion, supports mildew growth, wrinkles unless treated

- **Care:**

- Usually machine washable, retains appearance better if dry-cleaned.
- Check care label. Iron at low temperatures.



# Acrylic

- **Good Characteristics:**

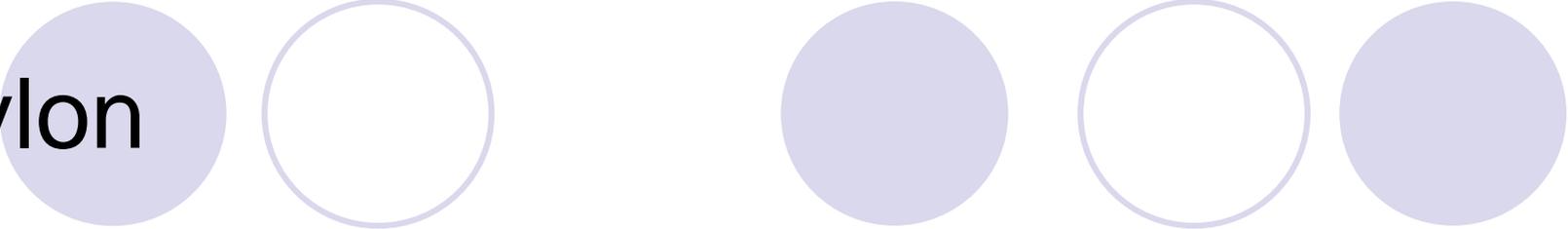
- Soft, warm, wool-like, lightweight, resist wrinkles, resistant to sunlight, chemicals, oil.
- Dries quick, retains shape.

- **Poor Characteristics:**

- Surface tends to pill, builds up static electricity, does not absorb moisture.

- **Care:**

- Machine washable and dryable. Use fabric softener to reduce static.



# Nylon

- Good Characteristics:

- Exceptionally strong, abrasion resistant, soft, lustrous, retains commercially heat-set pleats, resists stretching and shrinking, dyes well.

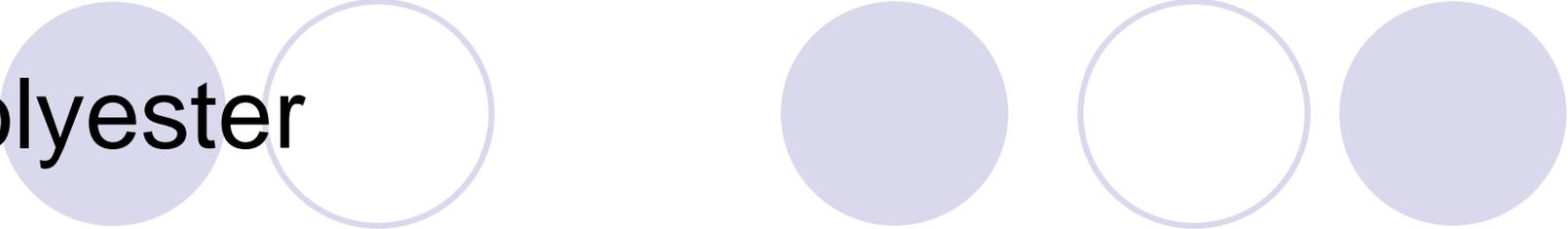
- Poor Characteristics:

- Builds up static electricity, heat sensitive, does not absorb moisture, may pill, white fabric may gray or yellow.

- Care:

- Machine washable. Use fabric softener to reduce static. Iron at low temperature.

# Polyester



- Good Characteristics:

- Durable. Resists wrinkling, versatile,
- Retains commercially heat-set pleats, resists stretching, abrasion, and shrinking. Resists heat, bacteria, most chemicals. Accepts dyes well.

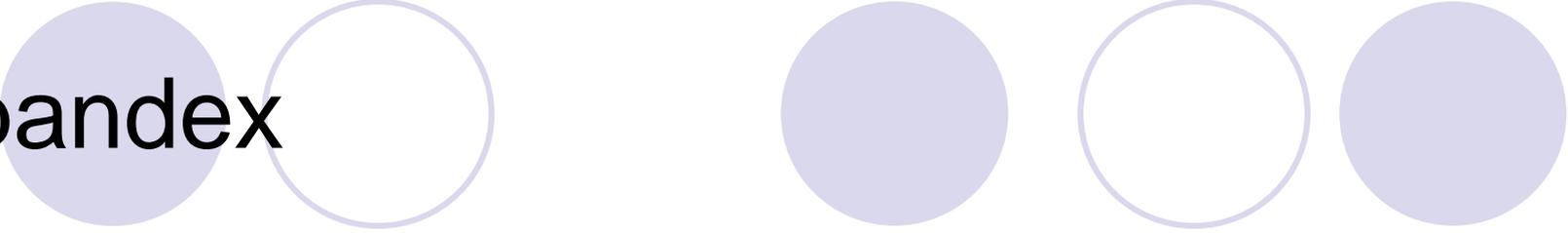
- Poor Characteristics:

- Builds up static electricity, heat sensitive, does not absorb moisture, absorbs oil and grease readily, may pill

- Care:

- Usually machine washable, use fabric softener to reduce static, remove oily stains immediately with solvent or detergent solution

# Spandex



- Good Characteristics:

- Elastic. Strong, lightweight, soft, resists abrasion, resists perspiration and body oils.

- Poor Characteristics:

- Heat sensitive, chlorine bleach will cause loss of strength and yellowing

- Care:

- Hand or machine wash and dry. Do not use chlorine bleach, iron at low temperatures.