NEW TEXTILES

YARN

Leah Buechley
MIT Media Lab
http://newtextiles.media.mit.edu/
YARN

“A continuous strand of textile fibers, filaments, or materials in a form suitable for knitting weaving, or otherwise intertwining to form a textile fabric”

-American Society for Testing and Materials (ASTM)
TYPES OF YARN

• Filament Yarns
  – Smooth filament yarns: smooth uniform filaments
  – Mono filament yarns: single filament
  – Tape yarns: tape-like filaments
  – Bulk yarns: textured filaments

• Spun Yarns: spun from staple fiber

Photo courtesy of Koocheekoo on Flickr.
STAPLE FIBER → YARN PROCESS

- Opening: cleaning the fiber
- Carding (combing): aligns fiber, produces slivers
- Drawing (rolling): increases alignment, combines slivers
- Combing (brushing): increases alignment
  - Combed yarn="worsted" or "combed"
  - Uncombed yarn="woolen" or "carded"
- Roving: increases alignment, introduces slight twist
- Spinning (twisting): creates yarn

* Filaments can also be spun
MEASURING YARNS

- Fiber length
- Twist
  - Direction
    - S twist
    - Z twist
  - Amount
    - turns/twists per inch
- Ply: number of strands in yarn
- Size
  - Yarn number
    - Spun: length/weight (finer yarn=higher number)
    - Filament: weight/length
  - Denier (for filament yarn)
    - weight in grams of 9000 meters of yarn
      - larger yarn = higher number
    - 1000/280 = yarn denier/fiber denier
  - Tex
    - Weight in grams of 1000 meters of yarn

Image: public domain
MAS.962 Special Topics: New Textiles
Spring 2010

For information about citing these materials or our Terms of Use, visit: http://ocw.mit.edu/terms.