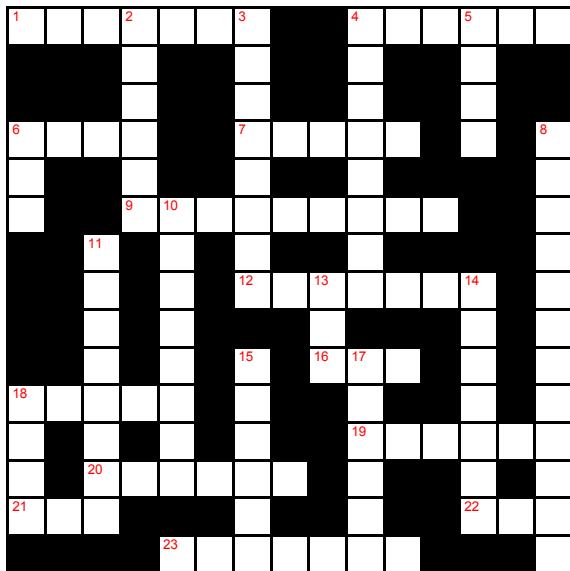


## Textile\_Fibers\_and\_yarns\_15x15\_2008-10-12

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### Across

- 1 A woollen fabric with a hard close-textured surface and no nap, woven of worsted yarns. (7)
- 4 A machine used for the combing process in yarn manufacturing. (6)
- 6 Short fibers separated during the combing operation. (4)
- 7 A slender and greatly elongated threadlike solid substance. (5)
- 9 A reduction in length or width of a material caused by certain treatments, especially washing. (9)
- 12 Separating the seeds from (cotton) with a cotton gin. (7)
- 16 One of the strands twisted together to make yarn. (3)
- 18 A lock of hair that

has been artificially waved or curled. (5)

- 19 Any glutinous material used to fill pores in surfaces or to stiffen fabrics. (6)
- 20 Machine for the removal of short fibres from the cotton seeds after the process of ginning. (6)
- 21 A usually soluble substance for staining or coloring e.g. fabrics, fibers or yarns. (3)
- 22 A machine that separates the seeds from raw cotton fibers. (3)
- 23 Yarn comprising two or more different fibers. (7)

### Down

- 2 The outer layer of cells of mammal hair. (6)
- 3 The process of drawing out a strand of material so as to straighten and align fibers creating a sliver for the spinning machine. (8)
- 4 A yarn made by winding one yarn around another. (4,4)
- 5 A large bundle of compressed fiber for storage or transport. (4)
- 6 A soft or fuzzy surface texture. (3)
- 8 A chemical, usually a surfactant, that acts as a lubricant during the process of fulling. (7,5)
- 10 Yarns which are spun manually. (8)
- 11 The skin structure
- 13 A small knot of tangled fibers. (3)
- 14 The classification of fibers according to such properties as staple length, strength, evenness and fineness. (7)
- 15 The wool of a sheep or similar animal. (6)
- 17 The shining and glossy feature of fiber. (6)
- 18 A textile machine that separates fibers, removes foreign particles and spreads the fibers into a web. (4)
- from which hair or wool fiber grows. (8)