Fibers- Weave Note Guide

Fibers

* Considered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ evidence.
* Have probative value.
* Are common trace evidence at a crime scene
* Can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on comparison of both physical and chemical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Fabric

* Fabric is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Fibers are made of twisted filaments.
* Types of fibers and fabric
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- animal, vegetable or inorganic
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- synthesized or created from altered natural sources

Types of Fibers

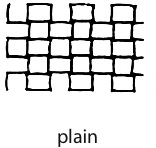
* Synthetic- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Natural- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fabric Production

* Fabrics are composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ threads or yarns, made of fibers that are knitted, woven, bonded, crocheted, felted, knotted or laminated. Most Most are either woven or knitted.
* The degree of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, absorbency, water repellence, softness and durability are all individual qualities of the different fabrics.

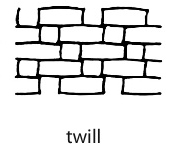
Weave Terminology

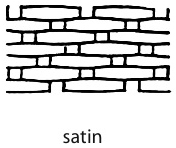
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- a continuous strand of fibers or filaments, either twisted or not.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- lengthwise yarn
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- crosswise yarn
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- a fabric made up of two or more different types of fiber.

Plain Weave

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ weave pattern.
* The warp and weft yarns pass under each other alternately
* Design resembles a checkerboard.

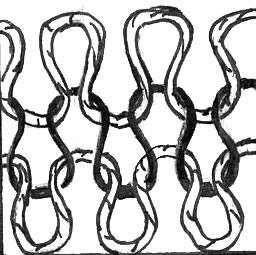
Twill Weave

* The warp yarn is passed over \_\_\_\_\_\_ to \_\_\_\_\_\_\_ weft yarns before going under one.
* Makes a diagonal weave pattern.
* Design resembles stair steps.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is one of the most common examples.

Satin Weave

* The yarn interlacing is not uniform.
* Creates long floats.
* Interlacing weave passes over \_\_\_\_\_\_\_\_\_ or more yarns.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the most obvious example.

Knitted Fabric

* Knitted fabrics are made by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ loops into a specific arrangement. It may be on continuous thread or a combination. Either way, the yarn is formed into successive rows of loops and then drawn through another \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of loops to make the fabric.

Polymers

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fibers are made of polymers which are long chains of repeating chemical units.
* The word \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mean many (poly), units (mer).
* The repeating units of a polymer are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* By varying the chemical structure of the monomers or by varying the way they are joined together, polymers are created that have different properties.
* As a result of these difference, forensically they can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from one another.

Filament Cross- Sections

* Synthetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are forced out of a nozzle when they are hot, and then they are woven. The holes of the nozzle are not necessarily round; therefore, the fiber filament may have a unique cross-section.

Testing for Identification

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ observation
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- observing of how a fiber burns, the odor, color of flame, smoke and the appearance of the residue.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- gently heating to break down the fiber to the basic monomers.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- solubility and decomposition

Dyes

* Components that make up dyes can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and matched to an unknown.
* There are more than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ different dye formulations.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to separate dyes for comparative analysis.
* The way a fabric accepts a particular dye may also be used to identify and compare samples.