**Fiber Evidence Practice Test**

Matching Match each item to the correct definition or description.

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| 1. \_\_\_\_\_\_\_\_\_\_ a continuous strand of fibers that have been spun together 2. \_\_\_\_\_\_\_\_\_\_ a flexible, flat material made by interlacing yarns or threads 3. \_\_\_\_\_\_\_\_\_\_ a type of carbohydrate that makes up plant fibers 4. \_\_\_\_\_\_\_\_\_\_ long strings that make up synthetic fibers 5. \_\_\_\_\_\_\_\_\_\_ repeating chemical units bonded together to form polymers 6. \_\_\_\_\_\_\_\_\_\_ the lengthwise, parallel yarn in a weave pattern 7. \_\_\_\_\_\_\_\_\_\_ the looser, crosswise yarn in a weave pattern 8. \_\_\_\_\_\_\_\_\_\_ the smallest indivisible unit of a textile | 1. Cellulose 2. Fiber 3. Monomers 4. Polymers 5. Textile 6. Warp 7. Weft 8. Yarn |
| 1. \_\_\_\_\_\_\_\_\_\_ Fiber made from caterpillar cocoon 2. \_\_\_\_\_\_\_\_\_\_ Fiber made from flax 3. \_\_\_\_\_\_\_\_\_\_ Fiber made from leaves of a desert plant 4. \_\_\_\_\_\_\_\_\_\_ Fiber made from goat hair 5. \_\_\_\_\_\_\_\_\_\_ Fiber made from rabbit hair 6. \_\_\_\_\_\_\_\_\_\_ Fiber made from sheep hair 7. \_\_\_\_\_\_\_\_\_\_ Fiber made from surrounding of a coconut 8. \_\_\_\_\_\_\_\_\_\_ Most common plant fiber | 1. Angora 2. Cashmere 3. Coir 4. Cotton 5. Linen 6. Silk 7. Sisal 8. Wool |

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| 1. \_\_\_\_\_\_\_\_\_\_ Fiber with extreme elastic properties 2. \_\_\_\_\_\_\_\_\_\_ Fibers made from cellulose esters derived from cellulose then modified 3. \_\_\_\_\_\_\_\_\_\_ Fibers that are totally man-made from petroleum plastics 4. \_\_\_\_\_\_\_\_\_\_ First man-made fiber, also the most common synthetic fiber 5. \_\_\_\_\_\_\_\_\_\_ Good alternative to rayon because it is less polluting 6. \_\_\_\_\_\_\_\_\_\_ Inexpensive synthetic fiber; tends to ball easily 7. \_\_\_\_\_\_\_\_\_\_ Lightweight but warm fabric; soft and resilient fabric 8. \_\_\_\_\_\_\_\_\_\_ Most durable man-made fabric; extremely light weight | 1. Acetate 2. Acrylic 3. Nylon 4. Polyester 5. Rayon 6. Regenerated fibers 7. Spandex 8. Synthetic polymer fibers |

Multiple Choice Write the letter of the correct answer on the line.

1. \_\_\_\_\_\_\_\_\_\_ Which statement correctly shows the size order from smallest to largest?
   1. Textile 🡪 Yarn 🡪 Fiber c. Fiber 🡪 Yarn 🡪 Textile
   2. Textile 🡪 Fiber 🡪 Yarn d. Fiber 🡪 Textile 🡪 Yarn
2. \_\_\_\_\_\_\_\_\_\_ This diagonal weave pattern results in a soft, pliable, and strong fabric:
   1. Satin b. Twill c. Plain d. Basket
3. \_\_\_\_\_\_\_\_\_\_ This weave pattern results in shiny fabric with little friction:
   1. Satin b. Twill c. Plain d. Basket
4. \_\_\_\_\_\_\_\_\_\_ This weave pattern has a checkerboard design and it snag resistant:
   1. Satin b. Twill c. Plain d. Basket
5. \_\_\_\_\_\_\_\_\_\_ Which fiber comes from a leaf and is often used to make paper and envelopes?
   1. Sisal b. Manila c. Coir d. Jute
6. \_\_\_\_\_\_\_\_\_\_ How much time does it typically take for 95 percent of fiber evidence to fall off after a crime?
   1. 6 hours b. 24 hours c. 2 days d. 1 week

1. \_\_\_\_\_\_\_\_\_\_ Sisal comes from what part of a plant?
   1. Seed b. Stem c. Fruit d. Leaf
2. \_\_\_\_\_\_\_\_\_\_ Hemp comes from what part of a plant?
3. Seed b. Stem c. Fruit d. Leaf
4. \_\_\_\_\_\_\_\_\_\_ Asbestos is often used around pipes and fireplaces, in ceiling and floor tiles, shingles, home siding,

and insulation because of what property?

* 1. It is durable and long-lasting c. It is fire resistant
  2. It can be molded into many different shapes d. It is easy to handle and install on big projects

1. \_\_\_\_\_\_\_\_\_\_ Cotton is often too common to provide much forensic evidence. What might make cotton fiber

evidence more unique?

* 1. If it has been burnt c. If it has been dyed
  2. The length of the fiber d. If it has been melted

1. \_\_\_\_\_\_\_\_\_\_ During class, a student pulled a loose fiber from their shirt. That fiber fell to the ground and was

later picked up on the pant leg of another student. This is an example of:

* 1. Direct transfer b. Secondary transfer c. Tertiary transfer

1. \_\_\_\_\_\_\_\_\_\_ When searching for fiber evidence, what should forensic scientists do first?
   1. Shine light from an Infrared Spectroscope to make fibers more visible
   2. Crawl on the ground with forceps and collect fibers as they find them
   3. Visually search the area
   4. Use a vacuum to make sure they don’t miss any small fibers
2. \_\_\_\_\_\_\_\_\_\_ Scientists use this test to analyze the dyes in fabric evidence:
   1. Stain test b. Solvent test c. Chromatography d. Infrared Spectroscopy
3. \_\_\_\_\_\_\_\_\_\_ Scientists use this test to compare solubility of known and unknown fibers:
   1. Burn test b. Density test c. Solvent test d. Polarizing light microscopy
4. \_\_\_\_\_\_\_\_\_\_ If there is a limited amount of fiber found at the crime scene, scientists perform this test so that

will not damage the evidence:

* 1. Chromatography b. Infrared Spectroscopy c. Density test d. Solvent test

1. \_\_\_\_\_\_\_\_ Plant fibers are made of what material?
2. Carbohydrate b. Protein c. Lipid d. None of the above
3. \_\_\_\_\_\_\_\_ Animal fibers are made of what material?
4. Carbohydrate b. Protein c. Lipid d. None of the above
5. \_\_\_\_\_\_\_\_ Mineral fibers are made of what material?
6. Carbohydrate b. Protein c. Lipid d. None of the above

**This or That** For each description or fiber below, list whether it is describing a natural or synthetic fiber.

1. Synthetic or Natural : These fibers tend to be much stronger
2. Synthetic or Natural : These fibers can often be damaged by microorganisms
3. Synthetic or Natural : These fibers can deteriorate in bright sun
4. Synthetic or Natural : Under magnification, these fibers have very regular diameters
5. Synthetic or Natural : Under magnification, these fibers might have a cuticle
6. Synthetic or Natural : Polyester is considered this type of fiber
7. Synthetic or Natural : Fiberglass is considered this type of fiber
8. Synthetic or Natural : Mohair is considered this type of fiber
9. Synthetic or Natural : Jute is considered this type of fiber
10. Synthetic or Natural : In a burn test, these fibers will often shrink back away from the flame

**Fill-In and Short Answer Questions** Use correct spelling and legible handwriting.

53-54. Name two mineral fibers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

59-61. Natural fibers can be harvested from what three sources:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

62. The number of threads that are packed together for any given amount of fabric is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and is commonly used to describe bed sheets.

63-64. Fibers are considered what kind of evidence? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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