

REEDY-JUNIOR COSMETOLOGY- OFF-SITE LEARNING PACKET DAY 3

1. PLEASE READ THE SUMMARY AND QUESTIONS PAGE FIRST
2. COMPLETE THE WORK SHEETS AND VOCABULARY WHERE IT PERTAINS.
YOU MAY GOOGLE AND REFERENCE THE MILADY WEB SITE FOR
VOCABULARY WORDS. NOT ALL ASSIGNMENTS CONTAIN VOCABLARY, OR
WORK SHEETS. THEY MAY BE SLIGHTLY DIFFERENT.
3. COMPLETE THE PRACTICE TESTS TO THE BEST OF YOUR ABILITY.
4. YOU MAY USE YOUR MILADY OR COURSEMATE ONLINE PROGRAM TO
ASSIST YOU IN ANY WAY.
5. PLEASE PUT YOUR NAME ON EVERY PAGE YOU HAVE COMPLETED.

E. HAIR GROWTH PATTERNS

Hair growth patterns are important to identify and consider, especially when preparing to shape and style the hair

1. Hair stream

Hair stream is hair flowing in the same direction, resulting from follicles sloping in the same direction.

Two streams flowing in opposite directions from the head form a natural part in the hair.

2. Whorl

A **whorl** occurs when hair leaves the follicles at an angle; the hair will lie in a particular direction forming patterns or streams on the head. *Often the streams spiral outward from a central point. Usually run in clockwise direction and sometimes more than one whorl can be seen in certain individuals*

3. Cowlick

A **cowlick** is due to a particular pattern of hair stream on the forehead. *Cowlicks are usually more noticeable at the front hairline in people with short, thick hair but they may be located anywhere on the head.*

F. DRY HAIR AND SCALP

Can be caused by inactive sebaceous glands; aggravated by excessive shampooing or by a dry climate. Should be treated with products that contain moisturizers and emollients. Avoid frequent shampooing along with the use of strong soaps, detergents, or products with a high alcohol content.

G. OILY HAIR AND SCALP

Characterized by a greasy buildup on the scalp and an oily coating on the hair. Caused by improper shampooing or overactive sebaceous glands. *Treat by properly washing with a normalizing shampoo, a well-balanced diet, exercise, regular shampooing, and good personal hygiene are essential to controlling oily hair and scalp.*

H. HEALTHY HAIR, HAPPY CLIENTS

The more you learn about the structure of hair and how to keep it healthy, the more you will understand how salon services affect different hair types. This is the key to consistent results with your services and happy clients who recommend you to their friends.

SUMMARY AND REVIEW

- We have learned that trichology enables the professional cosmetologist to better understand both the physical and microscopic properties of the hair.
- In order to give your clients the best possible consultative services, you must be able to recognize those conditions of the hair and scalp needing treatment.
- We've also learned that practicing proper disinfection procedures that are approved by your oversight regulatory agency will prevent the spread of disease.

✓ CHAPTER REVIEW QUESTIONS AND ANSWERS:

1. Name and describe the five main structures of the hair root.

Answer: The five main structures of the hair root are:

- Hair follicle: the tube-like depression or pocket in the skin or scalp that contains the hair root.
- Hair bulb: the thickened, club-shaped structure that forms the lower part of the hair root.

- Dermal papilla: the small, cone-shaped elevation located at the base of the hair follicle that fits into the hair bulb. It contains the blood and nerve supply that provides nutrients for hair growth.
- Arrector pili muscle: tiny, involuntary muscle fiber in the base of the hair follicle; causes goose bumps.
- Sebaceous glands: oil glands in the skin connected to hair follicles; secrete an oily substance called sebum that lubricates the hair and skin.

Note: The answer to this question can be found on page 225 of Milady Standard Cosmetology.

2. Name and describe the three layers of the hair shaft.

Answer: The three layers of the hair shaft are:

- Cuticle: outermost layer of hair consisting of overlapping layers of transparent, scale-like cells that look like shingles on a roof.
- Cortex: the middle layer of fibrous protein core formed by elongated cells containing melanin pigment
- Medulla: the innermost layer composed of round cells; it is quite common for very fine and naturally blond hair to lack a medulla layer.

Note: The answer to this question can be found on pages 226–227 of Milady Standard Cosmetology.

3. Explain the process of keratinization.

Answer: As newly formed cells in the hair mature, they fill up with keratin, move upward, lose their nucleus, and die.

Note: The answer to this question can be found on page 227 of Milady Standard Cosmetology.

4. What are polypeptide chains?

Answer: Polypeptide chains are long chains of amino acids linked by peptide bonds. Polypeptide chains are cross-linked like the rungs on a ladder by three different types of side bonds. These side bonds hold the polypeptide chains in place and account for the incredible strength and elasticity of human hair.

Note: The answer to this question can be found on page 228 of Milady Standard Cosmetology.

5. List and describe the three types of side bonds. Indicate whether they are strong or weak and why.

Answer: The three types of side bonds are:

- Hydrogen bonds: a physical side bond that is easily broken by water or heat. They are weak individually, but because there are so many, they account for about one-third of the hair's strength.
- Salt bonds: another weak, physical cross-link side bond between adjacent polypeptide chains. They are easily broken by strong alkaline or acidic solutions and account for about one-third of the hair's overall strength.
- Disulfide bonds: a strong chemical side bond. The disulfide bond joins the sulfur atoms of two neighboring cysteine amino acids to create one cystine. The cystine joins together two polypeptide strands like rungs on a ladder. There are far fewer disulfide bonds than the physical bonds, but they are stronger and account for about one-third of the hair's overall strength.

Note: The answer to this question can be found on page 228 of Milady Standard Cosmetology.

6. Name and describe the two types of melanin responsible for natural hair color.

Answer: The two types of melanin responsible for natural hair color are:

- Eumelanin: provides dark brown and black color to hair.
- Pheomelanin: provides natural hair colors from red and ginger to yellow/blond tones.

Note: The answer to this question can be found on page 230 of Milady Standard Cosmetology.

7. Name and describe the two types of hair and their locations on the body.

Answer: The two types of hair and their locations are:

- Vellus, or lanugo, hair is short, fine, and downy. Vellus hair is not pigmented and almost never has a medulla. On adults, is found in places that are normally considered hairless except the palms of the hands and soles of the feet.
- Terminal hair is the long, coarse hair found on the scalp, legs, arms, and body. It is coarser than vellus hair and, with the exception of gray hair, it is pigmented.

Note: The answer to this question can be found on page 232 of Milady Standard Cosmetology.

8. What are the three phases of the hair growth cycle? What occurs during each phase?

Answer: The phases of hair growth and what occurs during each phase are:

- Anagen, or growth phase: when the new hair is produced.
- Catagen or transition phase: the brief transition period between the growth and resting phases of a hair follicle.
- Telogen or resting phase: the final phase in the hair cycle and lasts until the fully-grown hair is shed.

Note: The answer to this question can be found on pages 232–233 of Milady Standard Cosmetology.

9. What is the reason for normal daily hair loss?

Answer: Normal daily hair loss is the natural result of the three phases of the hair's growth cycle. The growth cycle provides for the continuous growth, fall, and replacement of individual hair strands.

Note: The answer to this question can be found on page 234 of Milady Standard Cosmetology.

10. What are the most common types of abnormal hair loss?

Answer: The most common types of abnormal hair loss are:

- Androgenic alopecia: the result of genetics, age, and hormonal changes.
- Alopecia areata: when hair falls out in round patches or baldness in spots.
- Postpartum alopecia: experienced at the conclusion of a pregnancy.

Note: The answer to this question can be found on pages 235–236 of Milady Standard Cosmetology.

11. What are the only two approved hair loss treatments?

Answer: The only two approved hair loss treatments are Minoxidil™ and Finasteride™.

Note: The answer to this question can be found on page 236 of Milady Standard Cosmetology.

12. Name the two main types of dandruff. Can either one be treated in the salon?

Answer: The two main types of dandruff are:

- Pityriasis capitis simplex: This type of dandruff can be treated in a salon with the use of mild or medicated shampoos, scalp treatments, regular scalp massage, daily use of antiseptic scalp lotions, and medicated scalp ointments.
- Pityriasis steatoides: This type of dandruff must be referred to a physician.

Note: The answer to this question can be found on page 239 of Milady Standard Cosmetology.

13. Which hair and scalp disorders cannot be treated in the salon?

Answer: The types of hair and scalp disorders that cannot be treated in the salon are tinea, tinea capitis, tinea favosa, pediculosis capitis, scabies, carbuncles, furuncle and folliculitis.

Note: The answer to this question can be found on pages 240–242 of Milady Standard Cosmetology.

14. What four factors about the hair should be considered in a hair analysis?

Answer: The four factors that should be considered in a hair analysis are: texture, porosity, elasticity, and density.

Note: The answer to this question can be found on page 242 of Milady Standard Cosmetology.

Jr. Blizzard Bag / Properties of the Hair and Scalp**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. A small, cone-shaped area located at the base of the hair follicle that fits into the hair bulb is the:
- a. hair follicle
 - b. hair strand
 - c. dermal papilla
 - d. dermal cuticle
- _____ 2. The substance secreted by the sebaceous glands is called:
- a. sebum
 - b. sulfur
 - c. sudoriferous
 - d. lymph
- _____ 3. The scientific study of hair, its diseases, and its care is known as:
- a. dermatology
 - b. biology
 - c. cosmetology
 - d. trichology
- _____ 4. The part of the human hair that projects above the skin is known as the:
- a. hair root
 - b. hair structure
 - c. hair bulb
 - d. hair shaft
- _____ 5. The pocket or tubelike depression in the scalp or skin that contains the hair root is the:
- a. bulb
 - b. follicle
 - c. shaft
 - d. dermal
- _____ 6. The thickened, clublike structure that forms the lower part of the hair root is the:
- a. cuticle layer
 - b. hair bulb
 - c. dermal papilla
 - d. arrector pili
- _____ 7. The tiny, involuntary muscle fiber in the skin inserted in the base of the hair follicle is the:
- a. inner follicle
 - b. angled bulb
 - c. arrector pili
 - d. dermal papilla
- _____ 8. The three main layers of the hair shaft are the cuticle, cortex, and:
- a. middle layer
 - b. medulla layer
 - c. matrix layer
 - d. medium layer
- _____ 9. The layer that consists of transparent, scalelike cells that look like shingles on a roof is the:
- a. cortex layer
 - b. cuticle layer
 - c. middle layer
 - d. medulla layer
- _____ 10. The fibrous protein core formed by elongated cells that contains melanin pigment is the:
- a. cuticle layer
 - b. overlapping layer
 - c. cortex layer
 - d. medulla layer
- _____ 11. A lengthwise section of hair shows that cuticle scales overlap and each individual cuticle scale is attached to the:
- a. medulla
 - b. melanin
 - c. cortex
 - d. root
- _____ 12. The cortex is responsible for the natural color of hair, 90 percent of the total weight, and hair:
- a. growth
 - b. elasticity
 - c. length
 - d. porosity
- _____ 13. The medulla, the innermost layer of the hair, is composed of cells that are:
- a. transparent
 - b. elongated
 - c. flat
 - d. round

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- _____ 14. Hair is composed of protein that grows from cells originating within the:
- a. hair bulb
 - b. hair follicle
 - c. dermal papilla
 - d. medulla layer
- _____ 15. The hair shaft that emerges from the scalp is a nonliving fiber composed of:
- a. keratinized acids
 - b. hydrogen bonds
 - c. melanin protein
 - d. keratinized protein
- _____ 16. The units of structure that build protein and are linked end-to-end like a string of pearls are:
- a. oxygenated cells
 - b. primary acids
 - c. amino acids
 - d. lymph glands
- _____ 17. Chemical bonds that hold together amino acid molecules are:
- a. primary bonds
 - b. keratinized bonds
 - c. peptide bonds
 - d. composed bonds
- _____ 18. When peptide bonds hold together very long chains of amino acids, it is called a:
- a. primary chain
 - b. polymer chain
 - c. keratin chain
 - d. polypeptide chain
- _____ 19. The three different types of cross-links that form bonds between the polypeptide chains in the cortex are:
- a. oxygen, hydrogen, and salt bonds
 - b. hydrogen, ionic, and carbon bonds
 - c. ionic, helix, and covalent bonds
 - d. hydrogen, salt, and disulfide bonds
- _____ 20. The five major elements found in skin, hair, and nails are often referred to as the:
- a. COHNS elements
 - b. COABS elements
 - c. AMINO elements
 - d. ACID elements
- _____ 21. A temporary side bond between adjacent polypeptide chains that is broken by changes in pH is a:
- a. hydrogen bond
 - b. carbon bond
 - c. salt bond
 - d. sulfur bond
- _____ 22. Permanent waving and hair relaxers change the shape of hair by chemically altering the hair's:
- a. hydrogen bonds
 - b. ionic bonds
 - c. disulfide bonds
 - d. amino acids
- _____ 23. Hydroxide chemical relaxers break disulfide bonds and convert them to:
- a. lanthionine bonds
 - b. sulfur bonds
 - c. carbon bonds
 - d. hydrogen bonds
- _____ 24. All natural hair color is the result of pigment located in the cortex called:
- a. melanin
 - b. tissue
 - c. sebum
 - d. proteins
- _____ 25. The melanin that provides brown or black color to hair is:
- a. ionic
 - b. eumelanin
 - c. pheomelanin
 - d. telogen
- _____ 26. The term that is used to describe the shape of the hair strand is the:
- a. growth pattern
 - b. curling pattern
 - c. degree pattern
 - d. wave pattern
- _____ 27. Hair that has the largest diameter and usually requires more processing time is:
- a. fine hair texture
 - b. coarse hair texture
 - c. medium hair texture
 - d. gray hair

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- _____ 28. The measurement that describes the number of individual hair strands on one square inch of the scalp is:
- a. porosity
 - b. diameter
 - c. elasticity
 - d. density
- _____ 29. The ability of the hair to absorb water or oil is:
- a. porosity
 - b. elasticity
 - c. density
 - d. saturation
- _____ 30. Chemical services performed on hair with low porosity require a solution that is:
- a. less alkaline
 - b. absorbent
 - c. gentle
 - d. more alkaline
- _____ 31. The ability of hair to stretch and return to its original length without breaking is referred to as hair:
- a. density
 - b. elasticity
 - c. porosity
 - d. resistance
- _____ 32. Hair flowing in the same direction, the result of follicles sloping in the same direction form a:
- a. section
 - b. hair stream
 - c. hair whorl
 - d. cowlick
- _____ 33. Dry hair and scalp should be treated with products that contain moisturizers and:
- a. sulfur
 - b. chemicals
 - c. alcohol
 - d. emollients
- _____ 34. Oily hair and scalp are caused by improper washing or overactive:
- a. sudoriferous glands
 - b. monilethrix
 - c. sebaceous glands
 - d. arrector glands
- _____ 35. The short, fine, and downy hair that helps in the efficient evaporation of perspiration is:
- a. medulla hair
 - b. terminal hair
 - c. pheomelanin
 - d. vellus hair
- _____ 36. The three growth cycles of human hair are:
- a. anagen, endocentric, and telogen
 - b. catagen, return, and transition
 - c. anagen, catagen, and telogen
 - d. anagen, transition, and mature
- _____ 37. The average growth of healthy scalp hair is about:
- a. 1/8 inch per month
 - b. 1 inch per month
 - c. 1/4 inch per month
 - d. 2 inches per year
- _____ 38. The resting phase or final phase of the hair cycle that lasts until the fully grown hair is shed is the:
- a. telogen phase
 - b. anagen phase
 - c. catagen phase
 - d. transition phase
- _____ 39. The sudden falling out of hair in round patches or baldness in spots is:
- a. postpartum alopecia
 - b. alopecia androgenetica
 - c. alopecia totalis
 - d. alopecia areata
- _____ 40. The technical term for gray hair is:
- a. acquired
 - b. canities
 - c. albino
 - d. ringed
- _____ 41. A condition that is characterized by brittleness and the formation of nodular swellings along the hair shaft is:
- a. fragilitas crinium
 - b. trichorrhexis nodosa
 - c. alopecia areata
 - d. hypertrichosis
- _____ 42. The medial term that is used to describe dandruff is:
- a. alopecia
 - b. selenium
 - c. pityriasis
 - d. pyrithione

Name: _____

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- _____ 43. Current research confirms that dandruff is the result of a fungus called:
a. pyrithione
b. steatoides
c. capitis
d. malassezia
- _____ 44. A severe type of dandruff characterized by an accumulation of greasy or waxy scalp scales mixed with sebum is:
a. pityriasis capitis
b. tinea favosa
c. pityriasis papules
d. pityriasis steatoides
- _____ 45. Tinea is characterized by itching scales and sometimes painful circular lesions and is caused by:
a. seborrheic dermatitis
b. parasites
c. subcutaneous tissue
d. fungal organisms
- _____ 46. An infestation of the hair and scalp with head lice is:
a. pediculosis capitis
b. pediculosis furuncle
c. alopecia areata
d. vesicles parasites
- _____ 47. A highly contagious skin disease caused by a parasite called a mite is:
a. dandruff
b. pediculosis
c. scabies
d. tinea
- _____ 48. A carbuncle is an inflammation of the subcutaneous tissue caused by:
a. staphylococci
b. mites
c. nits
d. head lice
- _____ 49. A client with seborrheic dermatitis should be referred to:
a. a day spa
b. a treatment
c. a physician
d. another stylist
- _____ 50. The type of fungal infection that is characterized by red papules or spots at the opening of the hair follicle is:
a. tinea favosa
b. pityriasis steatoides
c. tinea capitis
d. androgenic alopecia

2

ESSENTIAL EXPERIENCE

Hair Follicle Structure

Using the following key, please label the cross-section of the hair.

arrector pili
bulb
dermal papilla

epidermis
hair follicle
hair root

sebaceous or oil glands



