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Keys to success on the 4th Quarter Exam

7. L.2.2 Infer patterns of heredity using information from Punnet Squares and Pedigree analysis.

1. How many pairs of chromosomes do humans have? 23 (46 total)

2. What are sex linked traits and on what chromosomes are they found?
Sex-linked traits are trait found on the sex chromosomes (pair #23)

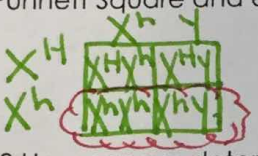
3. What are autosomal traits and on what chromosomes are they found?
Autosomal traits are any trait found on chromosomes 1-22 (not on sex chromosomes)

4. What combination of chromosomes lead to a male XY, what combination leads to a female XX?

5. How does sex linked traits affect humans? (Who can be affected?)
Can affect males and females. Males more likely because 'X' chromosome longer than 'Y'

6. Colorblindness is a sex linked recessive trait. A color blind man has children with a woman who is a carrier, what is the probability of having a child who is colorblind. Remember you must use X and Y when dealing with sex linked traits. Draw a Punnett Square and explain the results.

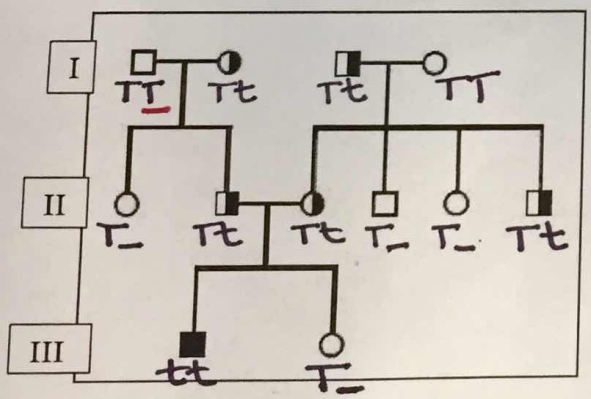
$X^h Y$ × $X^H X^h$



50% probability of having a child who is colorblind. Both parents have recessive allele

7. Define the term carrier? How can we determine if someone is a carrier?
also called heterozygous. A carrier has recessive trait, but does not 'show' it. (Has one dominant & one recessive allele)

8. Examine the pedigree below. A half shaded circle or square means the person is a carrier but doesn't show the disorder. Label each individual in the pedigree with a letter above their circle or square. Write the genotype of each individual below their circle or square.



a. How many persons have the trait we are looking at? 1

b. How many individuals are carriers? 5

c. How many individuals are not affected by the trait? 11

c. This trait has been in the family for 3 generations why did it only show up in the 3rd generation?
His a recessive trait. Both parents must be carriers to give to child

d. What is the mode of inheritance of this trait?
recessive

7.L.2.3 Explain the impact of the environment and lifestyle choices on biological inheritance (to include common genetic diseases) and survival.

1. Define genetic traits and list some examples.
Genetic traits are traits coded in a persons DNA such as eye color, hair color, blood type

2. What is an environmental trait and list a few examples?
An environmental trait is determined by a person's surroundings (can choose/learn) ... weight; athletic ability, language

3. What is a genetic disorder and how do people get them?
diseases/problems that are passed from a parent to a child (inherited).

4. Describe the following genetic disorders.

a. Downs Syndrome:
Chromosomal condition; results from Trisomy 21 (extra Chromosome 21)

b. Sickle cell:
affects hemoglobin in cells (which delivers O_2 to cells) cells not formed properly

c. Hemophilia:
bleeding disorder that slows blood clotting

d. Cystic Fibrosis:
inherited disease characterized of buildup of thick, sticky mucus in lungs

4. How does the environment and lifestyle choices affect the quality of a person's life? will vary
More positive life style choices and environment, better quality of life.

5. List a few lifestyle choices that can enhance (make better) your quality of life? Will vary
Exercise
Healthy diet
Limit pollution
Limit drugs/alcohol
no stress
be positive
be self-aware

6. List a few genetic traits that can be influenced by the environment.
height; skin tone; personality; hair color; cancer

7.L.1.4 - Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

1. What is the role of the digestive system?
converts food into energy/nutrients that body uses.

2. What is chemical digestion and where does it begin?
begins in mouth w/ Salivia. chemicals break food into smaller pieces

3. What is mechanical digestion and where does it begin?
begins in mouth. Physical breakdown of food into smaller pieces by chewing, crushing, mashing, etc...

4. List the path food takes through the Alimentary Canal (Digestive System)
mouth → esophagus → Stomach → Small Intestines → large intestine → rectum → anus

5. Describe what each part of the digestive system does to/for food as it travels through it.

Mouth/Teeth	physically breakdown food. Begins chemical/mechanical digestion
Esophagus	connects mouth to stomach. Squeezes food by peristalsis, down to stomach
Stomach	Continue mechanical (muscle contractions) + chemical (acids) digestion
Small Intestines	Absorbs nutrients through wall of small intestines
Large Intestines	absorbs water from leftover food from small intestines. wastes become Solid
Rectum	end of large intestines (last straight section of large intestine) Stores wastes
Anus	Controls expulsion of wastes from digestive system

The Liver, Pancreas and Gall Bladder are described as ***accessory*** organs of the digestive system, why is this so and what do they do?

Liver	makes bile which helps breakdown fat into smaller pieces
~~Pancreas~~ Gall Bladder	Stores excess bile and releases as needed.
~~Gall Bladder~~ Pancreas	Breaks down Proteins, fats, carbs
Accessory Organs because...	helps with digestion process, but not officially apart of digestive system

6. What is the function of the circulatory system?
Responsible for flow of blood, nutrients, oxygen and other gases to and from cells.

7. ~~What is the major function of the circulatory system?~~

What do the following organs/blood vessels do?

Heart	Pumps blood through body
Veins	Carry blood TO heart ♡ (deoxygenated blood)
Arteries	carry blood AWAY from ♡ (oxygenated blood)
Red Blood Cells (RBC)	Transport Oxygen through bloodstream; carries CO_2 to lungs
White Blood Cells (WBC)	Helps fight disease
Platelets	cells Stop bleeding when cut
Plasma	carries nutrients, hormones, proteins through body

8. Describe the flow of blood from the heart through the blood vessels and back to the heart.

Heart → Arteries → Capillaries → Veins → Heart

9. How does the circulatory system work with the digestive system?

Nutrients absorbed by small intestines (digestive) move into bloodstream (circulatory)

10. What is the function of the Excretory System?

Removes wastes from body

11. List the pathway urine takes to exit the body.

Kidneys → ureters → bladder → urethra

12. What are the functions of the following organs?

Urethra	Tube that carries urine from bladder out of body.
Kidney	Filter waste from blood
Ureter	Tube that connects Ridney's to bladder
Bladder	Sac that holds urine

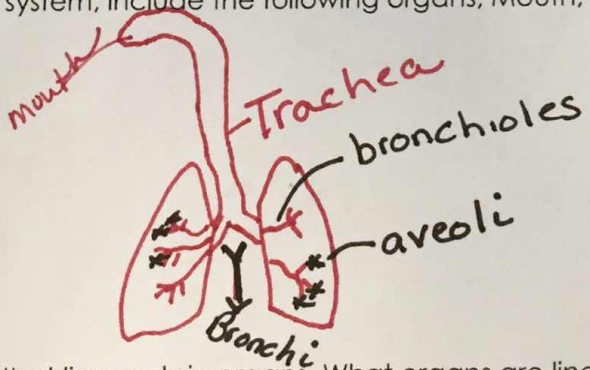
13: How does the Excretory System work with the Circulatory System?

Kidney's (excretory) filter wastes from blood (circulatory)

14: What is the function of the Respiratory System?

Allows one to obtain O_2 and eliminate CO_2 from body

15. Draw and label the respiratory system, include the following organs, Mouth, Trachea, Bronchi, Bronchioles, Alveoli. HA!



16. The Respiratory system has cilia that line certain organs. What organs are lined with cilia and what is the purpose?

Nose/Nasal Cavity = filters of dirt/dust

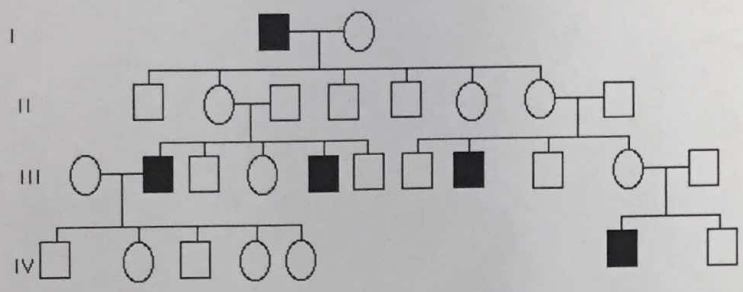
Lungs

17. How does the Respiratory System work with the Circulatory System?

Respiratory sys. brings in O_2 & exchanges w/ circulatory system (through bloodstream). CO_2 in blood moves into lungs to be removed from body.

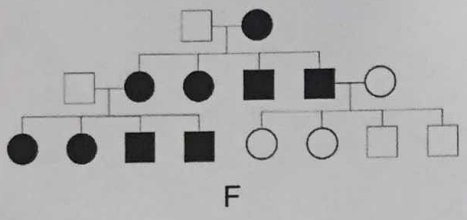
7.L.2.2 *Infer patterns of heredity using information from Punnett squares and pedigree analysis....cont'd*

1. Look at the following pedigree and identify the mode of heredity as sex linked, autosomal recessive, or autosomal dominant and explain your reasoning.



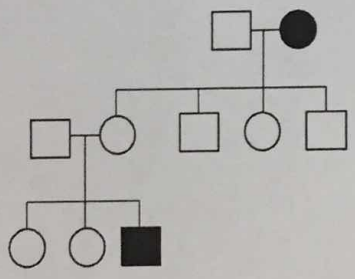
Mode of Inheritance: Sex-Linked recessive

Reason: skips generations
males affected



Mode of Inheritance: Autosomal Dominant

Reason: at least one parent has
in every generation
equal male/female



Mode of Inheritance: autosomal recessive

Reason:

skips generations
equal male/female affected

2. The following pedigree shows an X link recessive trait fill out the genotypes of all individuals to complete the pedigree. Remember Sex Linked pedigrees use the X and Y notation. Use X^RX^R, X^RX^r, X^rX^r for females and X^RY, X^rY for males.

affected

normal carrier affected normal

XX = female

XY = male