

CH 3 GENETICS - TEST – GIFT GUIDE HINTS due to Homecoming Mr. Galloway

**** Be able to complete Punnett Squares and answer questions about them.**

**** Be able to match the main vocab terms with the definitions and/or concepts they represent**

Alleles = are different forms of a gene. (Examples: tall or short)

Amino acids = link together into a chain to make proteins when tRNA and mRNA match up

BB = homozygous (or purebred) dominant (example = black)

bb = homozygous (or purebred) recessive (example = white)

Bb = heterozygous (or hybrid) (example = black since at least one dominant allele – B)

Remember that it only takes ONE DOMINANT allele represented by one CAPITAL letter to make the dominant trait show up. So a Bb rabbit would be Black not white, and a Nn snake would be Normal not albino. The only way it could be recessive (white or albino) is either bb or nn.

Capital = upper case letters represent the dominant allele (B or N or P, etc.)

Chromosome = a tightly coiled (packaged up) molecule of DNA. Humans have 46 in pairs. So humans have 23 pairs, one set of 23 from Dad and another set of 23 from Mom.

Codominance = is when neither allele is dominant or recessive, so both traits show up

Cytoplasm = is the region inside the cell between the cell membrane and the nucleus.

In the cytoplasm is where protein synthesis takes place on the ribosomes

Dominant = allele is one whose trait always shows up if it is in the genes

Egg = female sex cell

Genes = are the factors that control traits. (Example: plant height)

Genetic code = uses three of the four nitrogen bases (molecules) to form a code, that specifies (tells) which kind of protein will be produced for the cell.

Genotype = actual genes or genetic makeup (allele combination) in the organisms genes

Half = Remember that Dr. Sutton discovered that sex cells contain only half the number of chromosomes as the parent cells. Sex cells (sperm and egg must have ONLY HALF of the chromosomes so that when they merge together to form a new beginning baby, then it will start with a TOTAL amount of chromosomes.

Harmful = describes the result from most mutations. Only rarely are they beneficial and even then there is a loss of coded information, not a gain or increase in coded information.

Heredity = is the passing of traits from parents to offspring

Heterozygous = a hybrid organism

Homozygous = a purebred organism

Hybrid = also called heterozygous which has two different alleles for a trait (tall/short or Tt, Bb)

Meiosis = the process by which sex cells are formed. It ends by producing 4 sex cells (egg or sperm), each with ONLY HALF of the normal number of chromosomes.

Mendel = the father of genetics who bred and studied pea plants

Messenger RNA = copies the coded message from the DNA in the nucleus, and carries the message to ribosomes in the cytoplasm.

Mitosis = the process of normal cell division for body cells. It ends by making only 2 cells, each with the total, normal amount of chromosomes.

Mutation = a change or error when the cell copies the DNA to make new cells

Offspring = the “children” of parents. Some mutations are passed to offspring

Order = refers to the sequence of DNA code letter (ATCG) that leads to the order (sequence) of amino acids that make up proteins

Phenotype = the phenomena or physical traits of an organism that are usually **visible** to the human eye

Probability = the math principles used to predict the results of genetic crosses.

Proteins = are chains of amino acids in an order based on the DNA order of ACTG, etc.

So, mutations are errors that cause the DNA to produce wrong proteins.

Punnett Square = chart showing all possible combinations of alleles that can result from a genetic cross.

Purebred = also called homozygous like TT or tt and always produces offspring with same trait as parent

Recessive = allele is masked or covered up, if a dominant allele is in the genes.

Sperm = male sex cell

Transfer RNA = carries amino acids to the ribosomes.

Visible = describes the fact that traits are different physical characteristics seen by the eye, like (tall, short, black, or white).

BONUS: 1. Be able to write the **chemical name for DNA** - Deoxyribonucleic Acid

2. Be able to write the chemical names for the DNA bases: Adenine, Thymine, Cytosine, Guanine

3. Why is there death and suffering among animals and humans? (2 Points)

Adam’s sin caused God to separate from creation partially, which allowed things to start to fall apart. This began the process of disorder, dysfunction, disease, violence, pain, and death.