

CORNELL NOTES

Name: _____ Period: _____

Class: _____ Date: **16 and 22 Jan 2015**

Topic: Chapter 11, Section 2 Genetics Since Mendel

Question Column

Notes Column

Incomplete Dominance:

Is when offspring of two homozygous parents (Alleles dominant or recessive: male XX, or female xx) show intermediate phenotype, this is inherited from the parents. Examples: feather color of chicken breeds, coat color of some horse breeds.

Multiple Alleles:

A trait that is controlled by more than two alleles is said to be controlled by multiple alleles. Examples: hair color, eye color, skin color, and blood type A, B, O which produce AB, AA, AO, BB, BO, OO.

Polygenic Inheritance:

Occurs when a group gene pairs act together to produce a trait. The effect of many alleles on those genes produces a wide variety of phenotypes. Examples, is height, egg production in chickens, eye color, milk production in cows, skin color, grain color of wheat, hair color.

Environment Impact:

Toxins or chemicals in the air, water, ground, can cause changes in the gene and therefore changes in the proteins that are made – we see changes in the organism. Examples: skin cancers, diseases, (some chemicals in the environment could cause the proteins that make feathers in birds become brightly colored in the offspring), unusual behavior in an organism.

Cornell Notes Continued:

Human Genes and Mutations:

Mutations can be beneficial, has no effect on the organism, or harms the organism.

Beneficial – example can be prey camouflage to hide from predators, or a mutation to help get food, or be more successful in their environments.

Harmful Mutations: chemicals, radioactivity, toxins, or genes that are passed on by the parents.

Chromosome Disorders:

Occurs in Meiosis – can have more chromosomes, or less. Has a negative effect on the organism.

Example: Down's Syndrome in which 3 copies of Chromosome #21 are produced.

Recessive Genetic Disorders:

Genetic disorders that are caused by recessive genes or alleles that have mutations and make proteins that have mutations in them. These alleles are rare. Both parents must have the recessive allele and pass them on to their offspring to have the recessive genetic disorder. Example: Cystic Fibrosis is a homozygous recessive genetic disorder

Sex Determination:

Sex in many organisms is determined by the X and Y chromosomes. They are always the last two single chromosomes. They are chromosome #45 and 46 in humans. You receive these from parents. XX means you are female, and XY means you are male.

Sex-Linked Disorders:

Some traits are associated with the X and Y chromosome. An allele inherited in a sex chromosome is called a sex-linked gene. Example: Color blindness gene is on the X chromosome for a male, and has to be on both X chromosomes for the female. When this occurs, the color blindness trait

Cornell Notes Continued:

is expressed (phenotype) and the person is color blind. The allele for Calico color in cats is carried on the X chromosome and must have two recessive alleles on both X chromosomes to be expressed.

Pedigrees Trace Traits:

Shows the alleles for traits passed on from parents, to offspring in the first generation and then passed on to the second generation. Figure 10 shows the Color Blindness recessive allele being passed on to offspring from parents. Some are carriers, some are normal, and some are color blind.

