

Quiz #1 Notes

Apr 20-1:51 PM

Asexual Reproduction

Feb 12-9:53 AM

- can be done 3 ways: Cloning, Budding, and Regeneration
- offspring is identical to the parent (zero variety)
- full set of chromosomes to new organism after mitosis
- fast and can produce large numbers of offspring
- does not depend on a second organism to reproduce, only one parent organism is required

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Sexual Reproduction

Feb 12-9:57 AM

- 1/2 or 50% of each parent contributes to the offspring
- Special cells go through Meiosis to produce gametes (sex cells)
- slow and produces lower numbers of offspring
- depend on a mate, due to two organisms being needed to produce offspring
- produces a blended full set of chromosomes coming from each parent.

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Meiosis

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- Special cell division that produces 4 gametes with half sets of chromosomes
- produces egg cells and sperm cells
- important because when the sex cells from this type of division combine the offspring will have a full set of chromosomes.

Feb 12-10:02 AM

Gregor Mendel

Feb 12-10:04 AM

- Austrian Monk who studied pea plants
- "Father of Genetics"
- found patterns of heredity and traits
 - traits come in pairs (one from each parent)
 - traits can be strong or weak (dom. and rec.)
 - strong factors are always expressed
 - weak is only exp. when both are rec.

Feb 12-10:05 AM

Genes - Carry the code of heredity on the DNA and make up the chromosome pairs.

Traits - paired up on the genes and give different outcomes called alleles based on them being dominate or recessive.

Alleles - the varieties of one trait (ex. eye colors (Brown, blue, green and hazel).

Apr 18-7:08 AM

Dominate Trait - when ONE or two are in a gene pair it is ALWAYS expressed, or "seen".

Recessive Trait - BOTH genes in the gene pair need to be this recessive trait to be "seen".

Hybrid - when there is one dominate and one recessive trait in the gene pair. The dominate overpowers the recessive and you "see" the dominate trait. The recessive is "hidden".

Apr 18-7:08 AM

Genotype - The WRITTEN form at a gene pair or trait. ("genes" are written out) ex. Brown Eyes are dominate, all other colors are recessive. You ALWAYS use the letter of the dominate trait (in this case B). There is ONLY three possible genotypes!!

Pure-bred Dominate Genotype = BB (Brown Eyes)

Hybrid Genotype = Bb (Brown Eyes)

Pure-bred Recessive Genotype = bb (ANY color but Brown, like blue, green, hazel)

Apr 18-7:16 AM

Phenotype - What you "physically see" when you look at the trait.

You will see BROWN eyes (BB or Bb).

You will see BLUE, GREEN, HAZEL eyes (bb)

Apr 18-7:20 AM

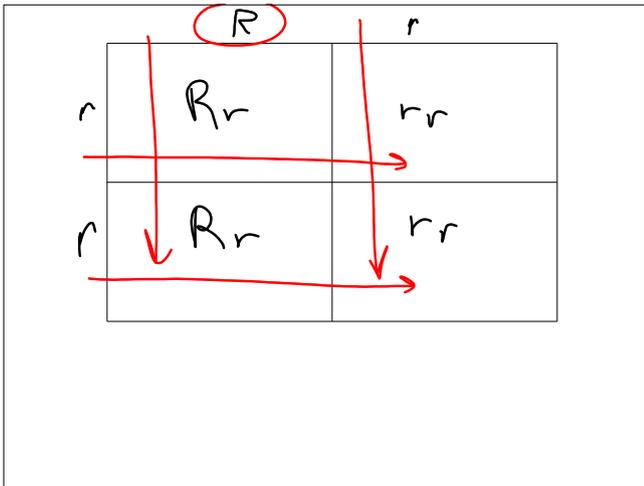
In humans round faces are dominant over long faces. Letter used? Possible genotypes?

R RR, Rr, rr

Cross a hybrid round face person with a long face person. What genotypes will they have?

Rr and rr

Feb 12-10:09 AM



Feb 12-10:11 AM

The trait you are looking at in your Punnett Square is Face Shape.

Feb 12-10:12 AM

The alleles for this trait are Round and Long.

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The genotypes for the parents are Rr and rr.

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What are the possible phenotypes for the offspring? **Round and Long**

Feb 12-10:37 AM

What are the possible genotypes of the offspring? **Rr and rr**

Feb 12-10:38 AM

An offspring that is Rr will have what type of face? **Round**

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What percentage will have a long face phenotype?

50%

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What percent will be pure-bred dominant Round faced?

0%

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What percent will be have a hybrid genotype?

50%

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Human Body cells have how many total chromosomes?

46

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How many chromosomes are in a human gamete (sex cell)?

23

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Females 23rd pair of chromosomes

XX

Feb 12-10:45 AM

Males 23rd set of chromosomes

XY

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True or False:

The higher the number of chromosomes in a nucleus the complex the organism.

False

Feb 12-10:46 AM

Chromosomes

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- are found in the nucleus
- occur in pairs
- carry instructions for the cell
- carry DNA and the code for the organism.

Feb 12-10:50 AM

Genes

Feb 12-10:51 AM

- sections of chromosomes
- occur in pairs
- have alleles (one from mom and one from dad)

Feb 12-10:51 AM

Take Quiz if absent!
Today = Final section of Notes
Tomorrow = Dragon Lab
Thurs. and Fri. = DNA model Lab
(Start Planning now!!)

Apr 24-7:19 AM

DNA MODEL:

- 3D
- Self standing, or hanging!
- Shows main 6 parts of DNA in a twisted ladder form!(paper, lego, wires, food (no nuts))
- Groups - 1 to 4 max!

Apr 24-7:21 AM

Quiz #2 Notes

Apr 24-7:19 AM

DNA

- is a set of instructions telling the cell how to assemble proteins to make the code of genetics.
- looks like a twisted ladder
- made up of sugars, phosphates, and nitrogen bases
- make up chromosomes and are found in the nucleus
- found in BOTH plants and animal cells
- the number of chromosomes DOES NOT = how complex an organism is. Goldfish = 94 and human = 46.

Feb 12-10:52 AM

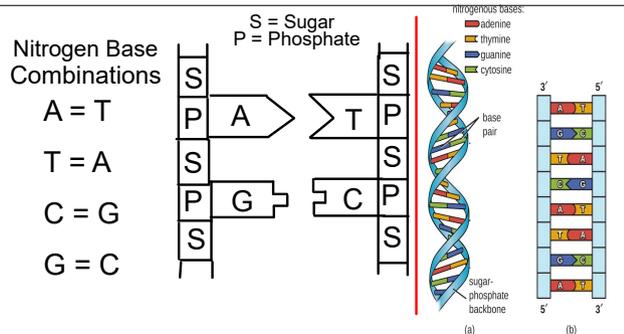
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DNA Structure

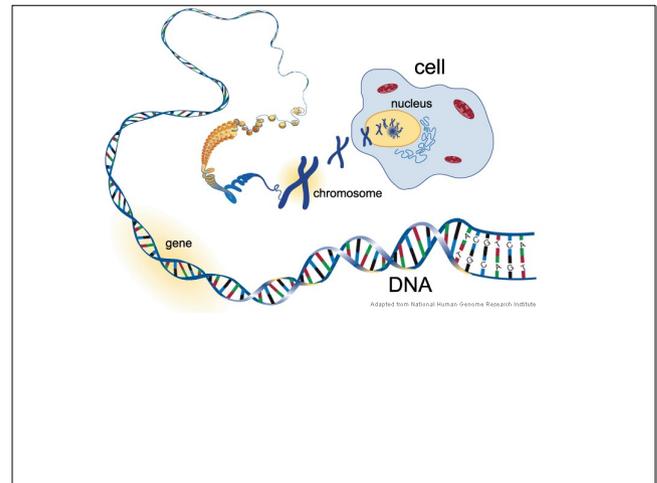
- Looks like a twisted ladder
- order of nitrogen bases determine how the protein is assembled which tells us what it will "look like"
- Adenine bonds with thymine and cytosine bonds with guanine
- Sugar and Phosphates alternate up the side of the ladder and the bases (A, T, C and G) make up the steps (rungs) of the ladder.

Feb 12-10:54 AM

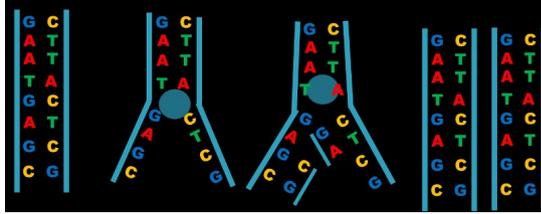
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Apr 23-11:42 AM



Apr 23-11:54 AM



DNA Replication - the DNA unzips and copies both sides, giving you two identical DNA strands.

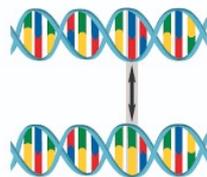
Apr 23-11:57 AM

Mutations

Feb 12-11:00 AM

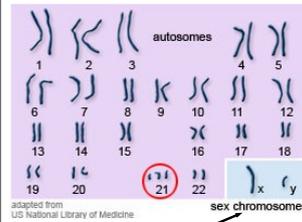
- occur when there is a change in the making of the copy of a DNA strand.

- can be helpful
- can be harmful
- most go unnoticed



Feb 12-11:00 AM

Karyotype = paired map of chromosomes



This is a karyotype of a male who has down syndrome.

Notice the mutation of having an extra 21st chromosome.

Also, notice the short "y" chromosome in the 23rd pair = male.

adapted from US National Library of Medicine
xx = female xy = male

Apr 24-7:07 AM

The directions for building proteins is found in the DNA within the nucleus of the cell, but the proteins are then assembled by the protein manufactures of the cell, the ribosomes.

Feb 12-11:01 AM

Applied Genetics:

Selective Breeding = process of choosing and mating organisms with desired traits.

Genetic Engineering = taking the genes from one type of organism and inserting that gene into a totally different species.

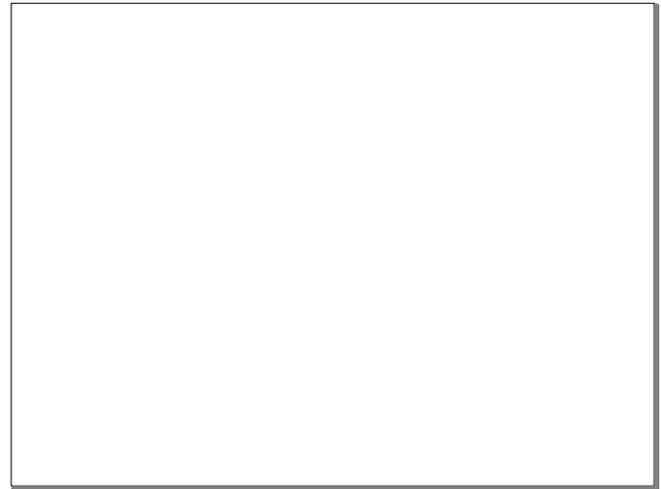
Apr 23-12:02 PM

Recombinant DNA and Gene Splicing:

DNA section is cut and placed into a single celled organism or bacteria. This cell then has a new recombined DNA. When this cell divides all new cells will have the new DNA.

Used to make hormones like insulin for diabetics.

Apr 24-7:16 AM



Apr 24-7:18 AM