Genetics Review

Genetics: what is it?

– Genetics is the scientific study of heredity, the process in which a parent passes certain genes onto their children.

(http://www.nlm.nih.gov/medlineplus/ency/article/002048.htm)

What does that mean?

– Children inherit their biological parents' genes that express specific traits, such as some physical characteristics, natural talents, and genetic disorders.

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1 Match the genetic terms to their corresponding parts of the illustration.

A base pair
B diploid cell
C gene
D DNA (Deoxyribonucleic acid)
E chromosome
F centromere

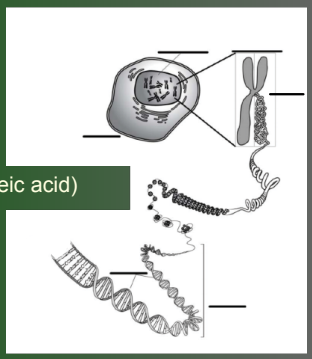

Illustration Source: Talking Glossary of Genetic Terms http://www.genome.gov/glossary.cfm?key=chromosome

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- Traits are expressed by_____ , which are small sections of DNA that are coded for specific traits.
- Genes are found on _____ .
- Humans have two sets of _____ (hint: a number) chromosomes—one set from each parent.

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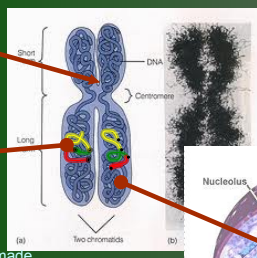
DNA

1. Replicates-makes identical copies of itself

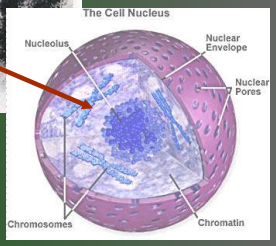
2. Transcibes-copies to make mRNA which exits nucleus.

3. There are 22 pairs of homologous chromosomes in diploid human cells. One set from each parent. 1 pair sex chromosomes.

46 total chromosomes



Individual genes: set of instructions that code for a protein.



Sister chromatids (made during mitosis interphase) are identical copies of a single chromosome joined at the centromere. They have identical alleles.

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Genetic Terms
Use the internet or a textbook to define the following words and write their definitions using your own words.
– allele:
– genes:
– dominant:
– recessive:
– homozygous:
– heterozygous:
– genotype:
– phenotype:
- Mendel's law of segregation
– Principle of independent assortment (2nd law)
- gamete
- Punnett square

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Mendelian Inheritance

- Each person has 2 copies of every gene—one copy from mom and a second copy from dad. These copies may come in different variations, known as alleles, that express different traits.

For example, 2 alleles in the gene for freckles are inherited from mom and dad:
– 1 allele from mom = has freckles (F)
– 1 allele from dad = no freckles (f)
– child inherits gene pair of alleles, Ff
(F allele from mom and f allele from dad).

- The inherited traits are determined by genes that are passed from parents to children.
- A trait may not be observable, but its gene can be passed to the next generation.

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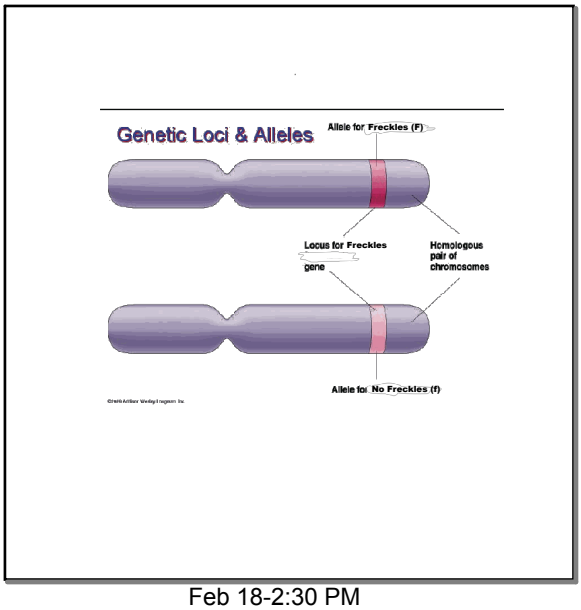

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2 Cells produced by meiosis are identical to the parent cells.

True

False

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3 Cells produced by mitosis are genetically identical to the parent cell.

True

False

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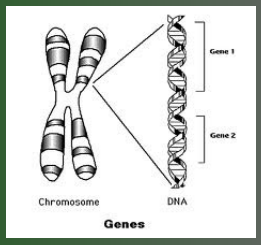
4 Each chromosome consist of 4 identical sister chromatids.

True

False



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5 How many possible alleles for one trait are in a haploid cell?

A 0
B 1
C 2
D 3
E 4

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6 When a child inherits the identical allele from both parents for a trait, the child is genetically _____ for that trait.

A heterozygous
B consistent
C homologous
D homozygous
E dominant

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7 The principle of dominance states that some alleles are dominant and some are recessive. If an organism has a dominant allele for a trait, that trait will sometimes be exhibited.

True

False

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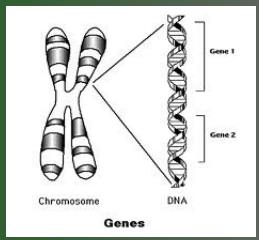
8 Each chromosome consist of 4 identical sister chromatids.

True

False



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9 How many gamete cells are produced during meiosis?

A 1
B 2
C 3
D 4
E 5

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Attachments

chromosome alleles.ai