

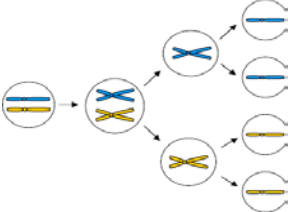
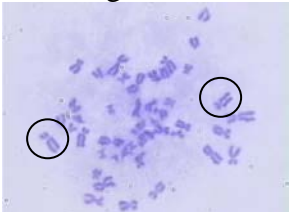
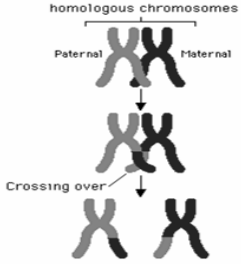


<p>Class Notes</p> <p>Meiosis</p> <p>Questions/Main Idea:</p>	<p>Name: _____</p> <p>Period: _____</p> <p>Date: _____</p> <p style="text-align: center;">Notes:</p>
<p>DNA Passes from Parent to Offspring</p> 	<p>Two types of reproduction (making more of you):</p> <ol style="list-style-type: none"> Asexual reproduction → a single parent reproduces by itself <ul style="list-style-type: none"> Parent and offspring (child) are genetically identical e.g., bacteria, many plants and fungi Sexual reproduction → 2 cells (different parents) unite to produce the first cell of the new offspring <p>2. parents and offspring are genetically unique</p>
<p>Review of Chromosomes</p> 	<ul style="list-style-type: none"> Chromosome → condensed DNA, containing all genes Normal cells = diploid (2n) → 2 copies of each chromosome (good idea! backup copy!) In diploid cells, 1 copy came from each parent (people: 1 from mom, 1 from dad) <p>Offspring have the same amount of DNA as their parents...so how can parents only pass on HALF their genetic material?</p>
<p>What is meiosis?</p> 	<ul style="list-style-type: none"> Meiosis → special cell division for sexual reproduction Produces haploid (1n) cells → 1 copy of each chromosome Haploid cells = gametes (sperm/eggs) Human gametes: <ul style="list-style-type: none"> In ♂, meiosis produces (in testes) 4 sperm cells In ♀, meiosis produces (in ovaries) 1 egg cell and 3 polar bodies (that later disintegrate)
<p>Chromosome number questions</p>	<ul style="list-style-type: none"> If a horse retina cell has 36 chromosomes, a horse sperm cell has _____ chromosomes. If n= 4 for a fruit fly, the fly's wing cell has _____ chromosomes. If the 2n number of a pine tree is 86, a cell in a pine ovum has _____ chromosomes. If n = 16 for a goldfish, the fin cell has _____ chromosomes.
<p>Homologous Pairs</p> 	<ul style="list-style-type: none"> Homologous pairs → Pairs of chromosomes with the same sequence of genes One is from mom, one from dad Genes are in the same <u>order</u>, but not identical! e.g., blood type
<p>Phases of meiosis</p>	<ul style="list-style-type: none"> Remember mitosis? (I)PMAT... In meiosis, each phase occurs twice Meiosis I: Prophase I, Metaphase I, Anaphase I, Telophase I, Cytokinesis I Meiosis II: Prophase II, Metaphase II, Anaphase II, and Telophase II, Cytokinesis II

<p>Meiosis I</p>	<ul style="list-style-type: none"> • In Prophase I, homologous chromosomes pair up in a tetrad <ul style="list-style-type: none"> – same gene sequences, same banding pattern, same position of centromere • Crossing over takes place 		
<p>What is crossing-over?</p> 	<ul style="list-style-type: none"> • During crossing-over, homologous chromosomes exchange pieces of DNA • Allows for a reshuffling of genetic material 		
<p>What is the result of meiosis I?</p>	<ul style="list-style-type: none"> • Meiosis I results in 2 haploid daughter cells 		
<p>What is the result of meiosis II?</p>	<ul style="list-style-type: none"> • Each of the haploid daughter cells from meiosis I divide again to make 4 haploid cells. 		
<p>How are mitosis and meiosis different?</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p>Mitosis</p> <ul style="list-style-type: none"> • Includes only 1 cycle of cell division • Occurs in body cells • No crossing over of chromosomes • Results in two genetically identical diploid cells • Metaphase: 1 duplicated chromosome per spindle fiber </td> <td style="width: 50%; padding: 5px;"> <p>Meiosis</p> <ul style="list-style-type: none"> • Includes 2 cycles of cell division (meiosis I and II) • Occurs only in gametes (sex cells) • Chromosomes cross over in Prophase I • Results in four genetically different haploid cells • Metaphase I: 2 duplicated chromosomes per spindle fiber </td> </tr> </table>	<p>Mitosis</p> <ul style="list-style-type: none"> • Includes only 1 cycle of cell division • Occurs in body cells • No crossing over of chromosomes • Results in two genetically identical diploid cells • Metaphase: 1 duplicated chromosome per spindle fiber 	<p>Meiosis</p> <ul style="list-style-type: none"> • Includes 2 cycles of cell division (meiosis I and II) • Occurs only in gametes (sex cells) • Chromosomes cross over in Prophase I • Results in four genetically different haploid cells • Metaphase I: 2 duplicated chromosomes per spindle fiber
<p>Mitosis</p> <ul style="list-style-type: none"> • Includes only 1 cycle of cell division • Occurs in body cells • No crossing over of chromosomes • Results in two genetically identical diploid cells • Metaphase: 1 duplicated chromosome per spindle fiber 	<p>Meiosis</p> <ul style="list-style-type: none"> • Includes 2 cycles of cell division (meiosis I and II) • Occurs only in gametes (sex cells) • Chromosomes cross over in Prophase I • Results in four genetically different haploid cells • Metaphase I: 2 duplicated chromosomes per spindle fiber 		
<p>Summary:</p>			