

PCB BIO 4 ASSIGNMENT SHEET 11: NOVEMBER 2-6, 2009
Reading, Preparation, Study Questions, Practice Essays, Labs.

ASSIGNMENT	DESCRIPTION
MONDAY	<p>This week will be used to learn about cell division and sex cell production. Sex cells are also called gametes. The human gametes are sperm and eggs, or spermatozoa and ova. Gametes have a haploid number, meaning they have only one of each chromosome rather than a pair of chromosomes. Gametes are n, not $2N$. Another term for gametes is germ cells. So the names for n cells are sex cells, gametes, and germ cells.</p> <p>Non gametes are called somatic cells. Somatic cells are $2N$, meaning they have full pairs of each homologous set of chromosomes. When a gamete fertilizes another gamete, it creates a somatic cell.</p> <p>You just read the above sentences using cells in your eyes, optic nerve and brain. There are over 100 billion cells in your brain, and somewhere between 50 and 70 trillion in your body that started as one cell somewhere in your biological mother's oviduct. How did single cell called a zygote develop into a human who just learned a lot about photosynthesis last week?</p> <p>The answer is cell division! Cell division can also explain why bacteria are bad at math (they multiply by dividing), problems that result in cancer, growth, repair, much more.</p> <p>For homework tonight:</p> <ol style="list-style-type: none"> 1. Make sure that you understand the difference between prokaryotic and eukaryotic DNA organization. 2. What are mother and daughter cells? 3. What is the difference between a chromosome, homologous chromosomes, sister chromatid, and chromatin. It is confusing, so you have to think about all of this with minimal distraction. Pictures help. 4. What is a centromere? 5. What is the difference between diploid ($2N$) and haploid (N) cells? <p>DO A GOOD JOB.</p>
TUESDAY	<p>Concepts and details to solidify tonight:</p> <ol style="list-style-type: none"> 1. What are centrioles/centrosomes? 2. What are the 3 major stages to the eukaryotic cell cycle, abbreviated I, M, and C. 3. What are the 3 phases of interphase (I), and what occurs in each phase? 4. What are the 4 major stages to mitosis, and what occurs in each one. 5. What happens in cytokinesis?
WEDNESDAY	<p>You need to study the eukaryotic cell cycle. It will require a lot of memorization. The main concept is that cells must copy, sort, and evenly divide all of their DNA so that their daughter cells can survive.</p> <p>Mitosis in detail!</p> <ol style="list-style-type: none"> 1. Mitosis is the famous part of eukaryotic cell division (like the Beyoncé' of R&B). Remind yourself what the two other parts of cell division are by writing them down now. 2. Look at the pictures of the real cells going through mitosis on p. 130-131!!!!!!!!!!!!!! 3. Spend serious time reading and trying to understand what happens in prophase, metaphase, anaphase, and telophase. All you have to do is read. But you have to think a lot too.
THURSDAY	<p>Write a one page letter to your best friend (imaginary friends are acceptable) explaining all about the eukaryotic cell cycle, including, <u>interphase</u>, <u>mitosis</u> and <u>cytokinesis</u>! If you do not have a best friend, do this anyway. Stop making excuses. Turn this in on paper if you want credit.</p>
FRIDAY	<p>There may be a short quiz on Monday when we return to learn more about why biology cannot be stopped.</p>