

Day 2 of AP Review

AP Biology Vocabulary Mania

Get a flash card and quiz at least three people then have a seat to start your quick write.

Quick write

- **Continuity and Change**—All species tend to maintain themselves from generation to generation using the same genetic code. However, there are genetic mechanisms that lead to change over time, or evolution.
- *Example: Mitosis consistently replicates cells in an organism; meiosis (and hence sexual reproduction) results in genetic variability.*
- Comment (discuss) on either of the first two examples or come up with one or two more examples of continuity & change and discuss how they relate to continuity & change.

Review lab #2 Enzyme Catalysis

- What was the enzyme?
- What was the substrate?
- What was the product in the reaction?
- How could you prove that the gas emitted was O₂?
- If you were to draw a graph, what would be the independent variable and the dependent variable?
- How would you title it?
- What was the best temperature? Why?
- What was the best enzyme & substrate concentration? Why?

Review Lab #3 Compare & Contrast Mitosis & Meiosis

Mitosis

- Formation of new cells genetically identical to parent cell
- New somatic cells for growth and repair
- Formation of adult from zygote
- Asexual reproduction in unicellular organisms
- Regeneration

Meiosis

- Reduction of chromosome number
- Formation of gametes in animals
- Formation of spores in plants

Mitosis

- Prophase – duplicated homologous chromosomes do not pair to form tetrads, & crossing over between homologous chromosomes does not occur
- Metaphase – individual chromosomes align independently of one another at the metaphase plate.
- Anaphase – Sister chromatids of each duplicated chromosomes stay together and homologous pairs of chromosomes separate. Homologous chromatids are separated during the meiotic division.

Meiosis

- Prophase I – duplicated homologous chromosome pair to form tetrads, and crossing over does occur between homologous chromosomes.
- Metaphase I – tetrads align at the metaphase plate.
- Anaphase I – sister chromatids of each duplicated chromosome stay together and homologous pair of chromosomes separate. Homologous chromatids are separated during the second meiotic division.

Comparing Mitosis & meiosis

	Mitosis	Meiosis
Chromosome Number of Parents	2N	2N
Number of DNA Replications	1	1
Number of Divisions	1	2
Number of Daughter Cells Produced	2	4
Chromosome Number of Daughter Cells	2N	N
Purpose/ Function	Growth, Repair, Replace	Formation of gametes and spores

Fetal Pig Dissection

- Continuity & change
- Both the Fetal Pig and humans have DNA, but DNA is coded differently to produce different proteins.

Good Review Study Questions

- The continuity of life is based on heritable information in the form of DNA. In a short essay (100 – 150) words, explain how the process of mitosis faithfully parcels out exact copies of this heritable information in the production of genetically identical daughter cells.

- The continuity of life is based on heritable information in the form of DNA. In a short essay (100 – 150 words), explain how chromosome behavior during sexual reproduction in animals ensures perpetuation of parental traits in offspring and, at the same time, genetic variation among offspring.

Cell Cycle

- Check points exist at G1, G2 & M.
- A checkpoint is a control point where the signals for stop and go – ahead regulate the cycle. These signals report whether important cellular processes have occurred by that point in the cycle.
- G₀ phase is the non-dividing state where the cell exits the cell cycle
- Cells in the body that are in G₀ phase are the nerve cells and muscle cells that never divide.

