

Here I'm commenting on the High School Biology courses.

-Janice Fischer

● (7) (D) investigate molecular technologies such as PCR, gel electrophoresis, and gene modification that are applicable in current research and engineering practices.

Change to: investigate molecular technologies such as PCR, gel electrophoresis, DNA sequencing, transgenic organisms, and gene modification that are applicable in current research and engineering practices.

The two items I added are things that the students will come across in their lives.

● This sub-concept is missing from (8) – mechanisms of genetics – inheritance and variation.

Add a new 8 (A): describe the process of meiosis and how it differs from mitosis.

● (8) (B) predict possible outcomes of various genetic combinations including monohybrid crosses, incomplete dominance, codominance, sex-linked traits, and multiple alleles.

Change to: predict outcomes of Mendel's monohybrid crosses involving complete dominance, and also crosses involving incomplete dominance, codominance, sex-linkage, and multiple alleles of a single gene.

The wording of the original did not make sense grammatically.

● This sub-concept is missing from (10) – biological evolution.

Add a new 10 (A): explain the processes of mutation that produce different forms of genes (gene variants), and how all evolution depends on the existence of gene variants;

● (10) (A) explain how natural selection produces change in populations, and not in individuals;

This needs to be reworded – natural selection can change an individual...it can make them dead.

Change to: explain how natural selection changes the gene pool of populations, not the genes of individuals.

● (10) (D) analyze the effect of evolutionary mechanisms other than natural selection, including genetic drift, gene flow, **mutation**, and genetic recombination on the gene pool of a population.

Get rid of "mutation" from this list. Mutation is not an evolutionary mechanism other than natural selection. Mutation is the process that produces the variation that natural selection and all other evolutionary mechanisms operate on. Without mutation, there can be no variation at all and thus no evolution. Mutation is the process by which gene variants are produced in the first place.

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● page 4: Computer databases should be listed as laboratory tools that the students should be familiar with. For example: <https://blast.ncbi.nlm.nih.gov/Blast.cgi>