



CW High School

AP Biology C

1. Heredity Part 2 (20.00%)

Learning Targets

1.1 I can explain how the process of meiosis generates genetic diversity.

Learning Target	Descriptor	Definition
4	Proficient	I can explain how the process of meiosis generates genetic diversity.
3	Developing	I can compare/contrast mitosis and meiosis.
2	Basic	I can explain how meiosis results in the transmission of chromosomes from one generation to the next.
1	Minimal	I can describe the practical uses of meiosis in sexual reproduction.
0	No Evidence	No evidence shown.

1.2 I can interpret Mendel's laws of dominance and recessiveness by creating accurate pedigrees and performing all crosses using probability math.

Learning Target	Descriptor	Definition
4	Proficient	I can interpret Mendel's laws of dominance and recessiveness by creating accurate pedigrees and performing all crosses using probability math.
3	Developing	I can use a pedigree to follow a trait through a family and determine how the trait is transmitted.
2	Basic	I can perform mono and dihybrid crosses using Punnet squares.
1	Minimal	I can explain how shared, conserved, fundamental processes and features support the concept of common ancestry for all organisms.
0	No Evidence	No evidence shown.

1.3 I can use data to determine gene linkage and create a linkage map of those genes on a chromosome.

Learning Target	Descriptor	Definition
4	Proficient	I can use data to determine gene linkage and create a linkage map of those genes on a chromosome.
3	Developing	I can use recombination data to determine if genes are linked.
2	Basic	I can use a karyotype to diagnose disorders and chromosomal abnormalities.
1	Minimal	I can explain how incomplete dominance, codominance, and sex-linked traits are deviations from Mendelian genetics.
0	No Evidence	No evidence shown.

2. Gene Expression and Regulation (20.00%)



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Learning Targets

2.1 I can describe the process of polymerase chain reaction (and the enzymes involved) and the purpose of the process.

Learning Target	Descriptor	Definition
4	Proficient	I can describe the process of polymerase chain reaction (and the enzymes involved) and the purpose of the process.
3	Developing	I can describe the mechanisms by which genetic information is copied for transmission between generations.
2	Basic	I can describe the characteristics of DNA that allow it to be used as a hereditary material.
1	Minimal	I can describe the structures involved in passing hereditary information from one generation to the next.
0	No Evidence	No evidence shown.

2.2 I can discuss the process and importance of RNA processing in creating different proteins .

Learning Target	Descriptor	Definition
4	Proficient	I can discuss the process and importance of RNA processing in creating different proteins .
3	Developing	I can describe/diagram the process of transcription.
2	Basic	I can discuss the possible consequences of mutations in codons resulting from incorrect transcription.
1	Minimal	I can diagram an operon on DNA before transcription
0	No Evidence	No evidence shown.

2.3 I can predict effects of DNA mutations in polypeptide production.

Learning Target	Descriptor	Definition
4	Proficient	I can predict effects of DNA mutations in polypeptide production.
3	Developing	I can determine an amino acid sequence given DNA or RNA bases.
2	Basic	I can describe/diagram the process of translation.
1	Minimal	I can list the components and their functions in translation.
0	No Evidence	No evidence shown.

2.4 I can explain the connection between the regulation of gene expression and phenotypic differences in cells and organisms.

Learning Target	Descriptor	Definition
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Learning Target	Descriptor	Definition
4	Proficient	I can explain the connection between the regulation of gene expression and phenotypic differences in cells and organisms.
3	Developing	I can explain how transcription factors and promoter regions affect gene expression or the phenotype of the organism.
2	Basic	I can explain how the location of regulatory sequences relates to their function.
1	Minimal	I can describe the types of interactions that regulate gene expression.
0	No Evidence	No evidence shown.

2.5 I can conduct and analyze results of a bacterial transformation lab.

Learning Target	Descriptor	Definition
4	Proficient	I can conduct and analyze results of a bacterial transformation lab.
3	Developing	I can explain the use of genetic engineering techniques in analyzing or manipulating DNA
2	Basic	I can explain how alterations in DNA sequences contribute to variation that can be subject to natural selection.
1	Minimal	I can explain how changes in genotype may result in changes in phenotype.
0	No Evidence	No evidence shown.

2.6 I can use my knowledge of scientific roots to deduce the meanings of biological terms.

Learning Target	Descriptor	Definition
4	Proficient	I can use my knowledge of scientific roots to deduce the meanings of biological terms.
3	Developing	I can use my knowledge of scientific roots to identify words related to a root.
2	Basic	I can sort scientific roots into prefixes and suffixes
1	Minimal	I can identify scientific roots, prefixes, and suffixes.
0	No Evidence	No evidence shown.

3. Natural Selection (20.00%)

Learning Targets

3.1 I can explain how phenotypic variations increase or decrease fitness of an organism in a particular environment.

Learning Target	Descriptor	Definition
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Learning Target	Descriptor	Definition
4	Proficient	I can explain how phenotypic variations increase or decrease fitness of an organism in a particular environment.
3	Developing	I can explain how environmental change can apply selective pressure to populations.
2	Basic	I can explain how natural selection affects populations.
1	Minimal	I can describe the causes of natural selection.
0	No Evidence	No evidence shown.

3.2 I can describe mechanism by which humans can artificially select individuals in a lab.

Learning Target	Descriptor	Definition
4	Proficient	I can describe mechanism by which humans can artificially select individuals in a lab.
3	Developing	I can explain the relationship between changes in the environment and evolutionary changes in the population.
2	Basic	I can explain how humans affect ed diversity within a populations in the past.
1	Minimal	I can define artificial selection.
0	No Evidence	No evidence shown.

3.3 I can explain the impacts on the population if any conditions of Hardy-Weinberg are not met.

Learning Target	Descriptor	Definition
4	Proficient	I can explain the impacts on the population if any conditions of Hardy-Weinberg are not met.
3	Developing	I can describe conditions under which allele and genotype frequencies will change in populations (Hardy Weinberg).
2	Basic	I can describe the change in the genetic makeup of a population over time (mutation).
1	Minimal	I can explain how random occurrences affect the genetic makeup of a population (bottlenecks, founder effect, migration, mutation).
0	No Evidence	No evidence shown.

3.4 I can explain how phylogenetic trees and/or cladograms can be used to infer evolutionary relatedness using different types of data.

Learning Target	Descriptor	Definition
4	Proficient	I can explain how phylogenetic trees and/or cladograms can be used to infer evolutionary relatedness using different types of data.



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Learning Target	Descriptor	Definition
3	Developing	I can construct phylogenetic trees and cladograms to infer an evolutionary relationship or when traits arose.
2	Basic	I can explain how morphological, biochemical, and geological data provide evidence that organisms have changed over time.
1	Minimal	I can describe fundamental molecular and cellular features shared across all domains of life, providing evidence of common ancestry.
0	No Evidence	No evidence shown.

3.5 I can, given sequences, run a BLAST lab to create a cladogram based on nucleotide similarity.

Learning Target	Descriptor	Definition
4	Proficient	I can, given sequences, run a BLAST lab to create a cladogram based on nucleotide similarity.
3	Developing	I can use a table of traits to build a cladogram.
2	Basic	I can use a table of traits to determine relatedness
1	Minimal	I can relate similarity of DNA to species relatedness
0	No Evidence	No evidence shown.

3.6 I can describe the rate of evolution and speciation under different ecological conditions (punctuated equilibrium, gradualism, divergent evolution, convergent evolution).

Learning Target	Descriptor	Definition
4	Proficient	I can describe the rate of evolution and speciation under different ecological conditions (punctuated equilibrium, gradualism, divergent evolution, convergent evolution).
3	Developing	I can explain the processes and mechanisms that drive speciation (allopatric, sympatric, prezygotic, postzygotic).
2	Basic	I can describe the conditions under which a new species may arise.
1	Minimal	I can define vocabulary associated with speciation.
0	No Evidence	No evidence shown.

3.7 I can use my knowledge of scientific roots to deduce the meanings of biological terms.

Learning Target	Descriptor	Definition
4	Proficient	I can use my knowledge of scientific roots to deduce the meanings of biological terms.



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Learning Target	Descriptor	Definition
3	Developing	I can use my knowledge of scientific roots to identify words related to a root.
2	Basic	I can sort scientific roots into prefixes and suffixes.
1	Minimal	I can identify scientific roots, prefixes, and suffixes.
0	No Evidence	No evidence shown.

3.8 I can explain how extinction can make new environments available for adaptive radiation.

Learning Target	Descriptor	Definition
4	Proficient	I can explain how extinction can make new environments available for adaptive radiation.
3	Developing	I can explain species diversity in an ecosystem as a function of speciation and extinction rates.
2	Basic	I can explain how the risk of extinction is affected by changes in the environment.
1	Minimal	I can describe factors that lead to the extinction of a population.
0	No Evidence	No evidence shown.

4. Ecology (20.00%)

Learning Targets

4.1 I can explain how changes in energy availability affect populations and ecosystems.

Learning Target	Descriptor	Definition
4	Proficient	I can explain how changes in energy availability affect populations and ecosystems.
3	Developing	I can describe trophic levels and energy movement between them.
2	Basic	I can relate metabolic rate per unit body mass to the size of multicellular organisms.
1	Minimal	I can describe strategies organisms use to regulate temperature and metabolism.
0	No Evidence	No evidence shown.

4.2 I can predict the effects of uncontrolled population growth and the typical population growth pattern of species.

Learning Target	Descriptor	Definition
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Learning Target	Descriptor	Definition
4	Proficient	I can predict the effects of uncontrolled population growth and the typical population growth pattern of species.
3	Developing	I can use a graph and logistic growth model to determine population density and carrying capacity.
2	Basic	I can use graphs and exponential growth model to discuss differences in exponential and logistical growth.
1	Minimal	I can describe factors that influence population growth, using the population growth equation.
0	No Evidence	No evidence shown.

4.3 I can use survivorship in human populations to determine population dynamics of different nations.

Learning Target	Descriptor	Definition
4	Proficient	I can use survivorship in human populations to determine population dynamics of different nations.
3	Developing	I can describe the advantages and disadvantages of each type of survivorship curve.
2	Basic	I can use a graph to determine if a population is Type 1, Type 2, or Type 3.
1	Minimal	I can define terminology associated with life tables.
0	No Evidence	No evidence shown.

4.4 I can discuss how invasive and keystone species can affect a community.

Learning Target	Descriptor	Definition
4	Proficient	I can discuss how invasive and keystone species can affect a community.
3	Developing	I can describe how various community interactions (predator/prey, trophic cascades, niche partitioning) affect community structure. .
2	Basic	I can discuss how the types of symbiosis can drive population dynamics and affect community structure.
1	Minimal	I can describe the structure of a community using Simpson's Diversity Index.
0	No Evidence	No evidence shown.

4.5 I can use my knowledge of scientific roots to deduce the meanings of biological terms.

Learning Target	Descriptor	Definition
4	Proficient	I can use my knowledge of scientific roots to deduce the meanings of biological terms.



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Learning Target	Descriptor	Definition
3	Developing	I can use my knowledge of scientific roots to identify words related to a root.
2	Basic	I can define various scientific roots.
1	Minimal	I can identify scientific roots, prefixes, and suffixes.
0	No Evidence	No evidence shown.

5. Independent Study in Biology (20.00%)

Learning Targets

5.1 I can create an outline of information, including a primary resource experiment, to include in my presentation.

Learning Target	Descriptor	Definition
4	Proficient	I can create an outline of information, including a primary resource experiment, to include in my presentation.
3	Developing	I can find a primary research experiment to include in my presentation and discuss its contributions to the field.
2	Basic	I can create an annotated bibliography for at least three primary sources to use in my presentation.
1	Minimal	I can justify the importance of my choice for an independent study project.
0	No Evidence	No evidence shown.

5.2 I can research a biological topic of interest and create a presentation using at least three primary sources to teach the class about the topic and current research around it.

Learning Target	Descriptor	Definition
4	Proficient	I can research a biological topic of interest and create a presentation using at least three primary sources to teach the class about the topic and current research around it.
3	Developing	I can answer most student and teacher questions pertaining directly to my topic.
2	Basic	I can present my research to the class in a way that is clear and concise.
1	Minimal	I can use my outline to create a presentation surrounding my research.
0	No Evidence	No evidence shown.

Submitted on 2/8/2022 by Crystal Odegard