

## TCAP-EOC Biology I Framework

<b>Inquiry, Technology &amp; Engineering, Mathematics</b>		<b>%</b>	<b># of Items</b>
		8%	5–10
3210.T/E.1	Distinguish among tools and procedures best suited to conduct a specified scientific inquiry.		1
3210.T/E.2	Evaluate a protocol to determine the degree to which an engineering design process was successfully applied.		0-1
3210.T/E.3	Evaluate the overall benefit to cost ratio of a new technology.		0-1
3210.T/E.4	Use design principles to determine how a new technology will improve the quality of life for an intended audience.		0-1
3210.Math.1	Interpret a graph that depicts a biological phenomenon.		1-2
3210.Math.2	Predict the outcome of a cross between parents of known genotype.		0-1
3210 Inq.1	Select a description or scenario that reevaluates and/or extends a scientific finding.		0-1
3210 Inq.2	Analyze the components of a properly designed scientific investigation.		0-1
3210 Inq.3	Determine appropriate tools to gather precise and accurate data.		0-1
3210 Inq.4	Evaluate the accuracy and precision of data.		0-1
3210 Inq.5	Defend a conclusion based on scientific evidence.		0-1
3210 Inq.6	Determine why a conclusion is free of bias.		0-1
3210 Inq.7	Compare conclusions that offer different, but acceptable explanations for the same set of experimental data.		0-1

\* All Performance Indicators should be covered between the fall and spring forms

## Tennessee Biology I Blueprint

<b>Cells</b>		<b>%</b>	<b># of Items</b>
		24%	11–13
3210.1.1	Identify the cellular organelles associated with major cell processes.		1-3
3210.1.2	Distinguish between prokaryotic and eukaryotic cells.		1-3
3210.1.3	Distinguish among proteins, carbohydrates, lipids, and nucleic acids.		1-3
3210.1.4	Identify positive tests for carbohydrates, lipids, and proteins.		1-3
3210.1.5	Identify how enzymes control chemical reactions in the body.		1-3
3210.1.6	Determine the relationship between cell growth and cell reproduction.		1-3
3210.1.7	Predict the movement of water and other molecules across selectively permeable membranes.		1-3
3210.1.8	Compare and contrast active and passive transport.		1-3

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<b>Interdependence</b>		%	# of Items
		13%	6–7
3210.2.1	Predict how population changes of organisms at different trophic levels affect an ecosystem.		0-2
3210.2.2	Interpret the relationship between environmental factors and fluctuations in population size.		0-2
3210.2.3	Determine how the carrying capacity of an ecosystem is affected by interactions among organisms.		0-2
3210.2.4	Predict how various types of human activities affect the environment.		0-2
3210.2.5	Make inferences about how a specific environmental change can affect the amount of biodiversity.		0-2
3210.2.6	Predict how a specific environmental change may lead to the extinction of a particular species.		0-2
3210.2.7	Analyze factors responsible for the changes associated with biological succession.		0-2

<b>Flow of Matter &amp; Energy</b>		%	# of Items
		18%	9–10
3210.3.1	Interpret a diagram that illustrates energy flow in an ecosystem.		2-3
3210.3.2	Distinguish between aerobic and anaerobic respiration.		2-3
3210.3.3	Compare and contrast photosynthesis and cellular respiration in terms of energy transformation.		2-3
3210.3.4	Predict how changes in a biogeochemical cycle can affect an ecosystem.		2-3

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<b>Heredity</b>		%	# of Items
		24%	11–13
3210.4.1	Identify the structure and function of DNA.		1-3
3210.4.2	Associate the process of DNA replication with its biological significance.		1-3
3210.4.3	Recognize the interactions between DNA and RNA during protein synthesis.		1-3
3210.4.4	Determine the probability of a particular trait in an offspring based on the genotype of the parents and the particular mode of inheritance.		1-3
3210.4.5	Apply pedigree data to interpret various modes of genetic inheritance.		1-3
3210.4.6	Describe how meiosis is involved in the production of egg and sperm cells.		1-3
3210.4.7	Describe how meiosis and sexual reproduction contribute to genetic variation in a population.		1-3
3210.4.8	Determine the relationship between mutations and human genetic disorders.		1-3
3210.4.9	Evaluate the scientific and ethical issues associated with gene technologies: genetic engineering, cloning, transgenic organism production, stem cell research, and DNA fingerprinting.		1-3

## Tennessee Biology I Blueprint

<b>Biodiversity &amp; Change</b>		<b>%</b>	<b># of Items</b>
		13%	6–7
3210.5.1	Compare and contrast the structural, functional, and behavioral adaptations of animals or plants found in different environments.		1-2
3210.5.2	Recognize the relationship between form and function in living things.		1-2
3210.5.3	Recognize the relationships among environmental change, genetic variation, natural selection, and the emergence of a new species.		1-2
3210.5.4	Describe the relationship between the amount of biodiversity and the ability of a population to adapt to a changing environment.		1-2
3210.5.5	Apply evidence from the fossil record, comparative anatomy, amino acid sequences, and DNA structure that support modern classification systems.		1-2
3210.5.6	Infer relatedness among different organisms using modern classification systems.		1-2