

Student Growth Objective Form

Name	School	Grade	Course/Subject	Number of Students	Interval of Instruction
	Orange High School	9-12	Biology		September 2015 to
					March 2016

Standards, Rationale, and Assessment Method

Name the content standards covered, state the rationale for how these standards are critical for the next level of the subject, other academic disciplines, and/or life/college/career. Name and briefly describe the format of the assessment method.

STANDARDS

UNIT I: From Molecules to Organisms: Structures and Processes

LS1.A- Organisms grow, reproduce, and die. They have characteristic structures (anatomy and morphology), functions (molecular-scale processes to organism-level physiology), and behaviors (neurobiology and, for some animal species, psychology).

HS-LS1-2-Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms

HS-LS1-3 Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range.

UNIT II: Matter and Energy in Organisms and Ecosystems

HS-LS1-5 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

HS-LS1-6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

HS-LS2-5 Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

HS-LS2-3 Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

HS-LS2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

HS-LS1.C Use visual representations to illustrate how interactions among living systems and with their environment result in the movement of matter and energy.

UNIT III: Independent Relationships in Ecosystems

LS2.A Illustrate how interactions among living systems and with their environment result in the movement of matter and energy.

Graph real or simulated populations and analyze the trends to understand consumption patterns and resource availability, and make predictions as to what will happen to the population in the future.

Provide evidence that the growth of populations are limited by access to resources, and how selective pressures may reduce the number of organisms or eliminate whole populations of organisms.

LS2.D Provide examples of adaptations that have evolved in prey populations due to selective pressures over long

periods of time.

HS-LS2-8 Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce

HS-LS2-1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2.C Make scientific claims and predictions about how specific human activities that impact species diversity within an ecosystem ultimately influence ecosystem stability.

HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

HS-LS2-7; HS-LS4-6 Design, evaluate, and refine a solution or simulation for reducing the impacts of human activities on the environment and biodiversity.

UNIT IV: Inheritance and Variation of Traits

HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

HS-LS1.A, LS3.A Compare the products of meiosis and mitosis

HS-LS3.A Explain how the process of meiosis results in the passage of traits from parent to offspring, and how that results in increased genetic diversity necessary for evolution.

HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

Rationale

Biology investigates patterns, processes and relationships among organisms. The core concepts are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics. A lab-based/inquiry biology course is structured so that students actively engage in scientific and engineering practices and apply crosscutting concepts to deepen their understanding of the core ideas. The learning experiences provided for students should engage them with fundamental questions about the world and with how scientists have investigated and found answers to those questions. Students should have the opportunity to carry out scientific investigations and engineering design projects related to the disciplinary core ideas in life sciences (pp. 8-9, NRC, 2012).

Assessment Method

Authentic Assessments throughout the year will be used to measure students' growth. The assessments will consist of selected content understanding task, and performance task that reflect higher levels of cognitive complexity.

Starting Points and Preparedness Groupings

Students will be tiered as determined by a data point systems the uses 3 points of data. Each tier group will be assigned a target level.

Data Measures used to Establish Baselines

2014-2015 Final Grade; weight (. 35) Science Pre-Assessment: weight (.35) Labs: weight (.30)

Preparedness Group	Baseline Score
Tier 1	< 0.45
Tier 2	0.45 – 0.65
Tier 3	0.65 – 0.75
Tier 4	0.7585
Tier 5	>.85 *increase within tier group

Student Growth Objective

By March 2016, 70% of students in each preparedness group will meet their assigned target command level for full attainment of the objective as shown in the scoring plan.

Preparedness Group (e.g. 1,2,3)	Number of Students in Each Group	Target Level of SGO Combined Assessments
Tier 1		2
Tier 2		3
Tier 3		4
Tier 4		5
Tier 5		Growth with 5
Scoring Plan		

State the projected scores for each group and what percentage/number of students will meet this target at each attainment level. Modify the table as needed.

Preparedness Group	Student Target Command Level	Teacher SGO Score Based on Percent of Students Achieving Target Score			
		Exceptional (4)	Full (3)	Partial (2)	Insufficient (1)
Tier 1	2				
Tier 2	3				
Tier 3	4				
Tier 4	5				
Approval of Student Growth Objective Administrator approves scoring plan and assessment used to measure student learning.					

Teacher	Signature			Date Submitted	
Evaluator	Signature			Date Approved	
Results of Studen	t Growth Objective	2			
Summarize results u	Students at Target	te as appropriate. De	Noight (based on	s and rows as needed.	Total Teacher
Group	Score	Score	students per group)	Weighted Score	SGO Score
Notes	·			·	·
Describe any change	es made to SGO after	initial approval, e.g. I	because of changes in	n student population,	other unforeseen
circumstances, etc.					
Review SGO at Annual Conference					
Describe successes and challenges, lessons learned from SGO about teaching and student learning, and steps to improve					
SGOs for next year.					
				_	
Teacher		Signature		Date	
Evaluator		Signature		_ Date	