Darul Arqam North

Scope and Sequence

11th Grade AP Biology APEX

1st Quarter			
Week	**Unit/Lesson**	**Learning Objectives**	**Reporting Categories**
1	**Welcome** **Collect & log Supplies received** **Classroom Rules** **Curriculum overview** **Lab Safety**	Demonstrate Lab Safety practices	Demonstrate safe practices during laboratory and field investigations, including the appropriate use of safety showers, eyewash fountains, safety goggles, and fire extinguishers; Know specific hazards of chemical substances such as flammability, corrosiveness, and radioactivity as summarized on the Material Safety Data Sheets (MSDS); and Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.
2	**Unit 1**	Lesson 1.1	Read about the many conserved core processes and features that are shared by all organisms. Describe the specific structures and functions of various animal-cell and plant-cell organelles.
3	**Unit 1**	Lesson 1.1	Predict how interactions between and malfunctions of organelles can impact cells and organisms. Analyze and evaluate scientific evidence and then communicate this evidence to your peers and apply it to your own experiences.
4	**Unit 1**	Lesson 1.2	Read about how organisms exchange matter with their environment in order to grow reproduce and maintain organization. Calculate the surface areas and volumes of cells with various shapes and analyze how surface area-to-volume ratios affect cells.
5	**Unit 1**	Lesson 1.2	Explain how the biological effects of hydrogen bonding result in polarity.
6	**Unit 2**	Lesson 2.1	Read about the events of protein synthesis. Describe models that show how genetic information is translated into polypeptides.
7	**Unit 2**	Lesson 2.1	Explain how changes in the nucleotide sequence result in mutations.

Darul Arqam North

Scope and Sequence

11th Grade AP Biology APEX

1st Quarter			
Week	**Unit/Lesson**	**Learning Objectives**	**Reporting Categories**
8	**Unit 2**	Lesson 2.2	Read about natural selection as a major mechanism of evolution. Investigate natural selection as a major mechanism of evolution.
9	**Unit 2**	Lesson 2.2	Explain how microevolutionary change affects gene pools.

2nd Quarter			
Week	**Unit/Lesson**	**Learning Objectives**	**Reporting Categories**
1	**Unit 3**	Lesson 3.1	Read about how biological evolution is supported by scientific evidence from many disciplines including mathematics. Evaluate the different forms of evidence for evolution and determine which is most persuasive.
2	**Unit 3**	Lesson 3.1	Explain the major events in Earth's history.
3	**Unit 3**	Lesson 3.2	Read about how organisms share many conserved core processes and features that evolved over time. Construct a cladogram by using evidence for evolution.
4	**Unit 3**	Lesson 3.2	Describe the function of restriction enzymes and how they can produce recombinant DNA molecules.
5	**Unit 4**	Lesson 4.1	Read about how genetic information is transmitted from one generation to the next through DNA or RNA. Provide evidence as to whether a given sample of genetic material is DNA or protein.
6	**Unit 4**	Lesson 4.1	Predict the effects of a malfunction in the cell cycle control system.

Darul Arqam North

Scope and Sequence

11th Grade AP Biology APEX

2nd Quarter			
Week	**Unit/Lesson**	**Learning Objectives**	**Reporting Categories**
7	**Unit 4**	Lesson 4.2	Read about the many biological processes involved in growth reproduction and dynamic homeostasis that include temporal regulation and coordination. Describe how Punnett squares can be used to predict genetic outcomes and how mathematical probabilities can replace the use of Punnett squares for geneticists.
8	**Unit 4**	Lesson 4.2	Predict how a change in a specific DNA or RNA sequence can result in changes in gene expression.
9	**Midterm Review**	**Midterm Review**	**Midterm Review**

3rd Quarter			
Week		Learning Objectives	Reporting Categories
1	**Unit 6**	Lesson 6.1	Read about how all living systems require constant input of free energy. Distinguish between endotherms and ectotherms.
2	**Unit 6**	Lesson 6.1	Explain activation energy and how enzymes impact the energy requirements of reactions.
3	**Unit 6**	Lesson 6.2	Read about how natural selection acts on phenotypic variations in populations.
4	**Unit 6**	Lesson 6.2	Apply mathematical relationships or estimation to determine macroscopic variables for ideal gases.
5	**Unit 7**	Lesson 7.1	Read about how all organisms require constant energy input to maintain organization to grow and to reproduce. Describe experiments in the history of the understanding of photosynthesis.
6	**Unit 7**	Lesson 7.1	Explain how chemosynthetic organisms capture free energy.

Darul Arqam North

Scope and Sequence

11th Grade AP Biology APEX

3rd Quarter			
Week		Learning Objectives	Reporting Categories
7	**Unit 7**	Lesson 7.2	Read about the stages of cellular respiration.
8	**Unit 7**	Lesson 7.2	Determine the net yield of ATP from the oxidation of glucose during the different stages of glycolysis and cellular respiration.
9	**Unit 7**	Lesson 7.2	Compare rates of carbon transfer in different organisms.

4th Quarter			
Week	Unit/Lesson	Learning Objectives	Reporting Categories
1	**Unit 8**	Lesson 8.1	Read about nonspecific and specific immune defenses in plants and animals. Identify how a signaling molecule binds to a receptor protein causing it to change shape. Create representations or models to describe nonspecific immune defenses in plants and animals.
2	**Unit 8**	Lesson 8.2	Read about how nervous systems detect external and internal signals. Compare interneurons sensory neurons and motor neurons.
3	**Unit 8**	Lesson 8.2	Describe the structure and function of the five types of receptors.

Darul Arqam North

Scope and Sequence

11th Grade AP Biology APEX

4th Quarter			
Week	Unit/Lesson	Learning Objectives	Reporting Categories
4	**Unit 9**	Lesson 9.1	Read about how changes in the availability of free energy can result in changes in population size. Explain the flow of energy through ecosystems.
5	**Unit 9**	Lesson 9.1	Define carrying capacity and explain how it affects the increase in size of a population.
6	**Unit 9**	Lesson 9.2	Read about how the availability of energy affects organisms, populations and ecosystems. Illustrate and investigate population interactions within and environmental impacts on a community.
7	**Unit 9**	Lesson 9.2	Explain how invasive species circumvent the natural predator-prey cycle in an ecosystem.
8	**Review for Finals / Finals**	**Review for Finals / Finals**	
9	**Extra assignments and activities/Labs** **Year End Activities**	**Extra assignments and activities/Labs**	