Victor Valley Union High School District
Instructional Guide

Biology: Quarter I

TIME FRAME	BIG IDEA/TOPIC	STANDARDS	ASSESSMENTS	INSTRUCTIONAL MATERIALS	VOCABULARY	NOTES/LAB
5 days	Scientific Method	Investigation and Experimentation 1a Select appropriate tools 1b Identify, avoid experimental error 1c Identify reasons for inconsistent results 1d Explain using logic and evidence 1f Hypothesis vs. theory 1g Usefulness and limitations of models and theories 1j Statistic variability and controlled tests 1k Cumulative nature of science	Exam View Test Generator Ch.1 Test	Textbook Ch. 1 Measurement Worksheet Microscope Worksheet Workbook Ch.1	Science, observation, data, inference, hypothesis, controlled experiment, manipulated variable, responding variable, theory, biology, cell, homeostasis, sexual reproduction, asexual reproduction, metabolism, stimulus, metric system, microscope, cell culture, cell fractionation	Sec 1 & 2 Vocab Sec. 3 Vocab & characteristics of living things, big ideas of bio, levels of organization Sec. 4 Vocab
10 days	Ecology: Cycles & Food Webs	6d Water, carbon, nitrogen cycles 6e Roles of producers and decomposers 6f Energy transfer in food webs, pyramids 6g* Accommodation to environment vs. gradual adaptation through genetic change	Test Gen. Ch. 3 Test	Textbook Ch. 3 Workbook	Ecology, biosphere, species, population, community, ecosystem, biome, autotroph, producer, photosynthesis, chemosynthesis, heterotrophy, consumer, herbivore, carnivore, omnivore, detritivore, decomposer, food chain, food web, trophic level, ecological pyramid, biomass, biogeochemical cycle, evaporation, transpiration, nutrient, nitrogen fixation, denitrification, primary productivity, limiting nutrient, algal bloom	Food Web Diarama Project p. 79 Analyzing Data "Farming in the Rye"
6 Days	Populations	6b Analyzing changes in an ecosystem caused by climate change, human activity, changes in population size 6c Change in population size (birth, immigration, emigration, death)	Test Gen. Ch. 5 Sections 1 & 2 Test	Textbook Ch. 5 Sections 1 & 2 Workbook	Population density, immigration, emigration, exponential growth, logistic growth, carrying capacity, limiting factor, density dependent limiting factor, predator-prey relationship, density independent limiting factor,	p. 123 Analyzing Data "Population Trends"
1 Day	Biodiversity	6a Biodiversity	Test Gen. Ch. 6 Section 3 (Assessed with Ch. 5)	Textbook Ch. 6 Section 3 Workbook	Biodiversity, ecosystem diversity, species diversity, genetic diversity, extinction, endangered species, habitat fragmentation, biological magnification, invasive species, conservation, species richness	Chapter 6 Section 3 (add on to Chapter 5)
4 Days	Organic Molecules	1b Enzymes 1h Organic molecules 4e Proteins differ based on amino acids 4f* Amino acid sequence and protein shape	Test gen. Ch. 2 Sections 3 & 4 Quiz	Textbook Ch. 2 Sections 3 & 4 Graphic organizer Foldable Workbook 2-3, 2-4	Monomer, polymer, carbohydrate, monosaccharide, polysaccharide, lipid, nucleic acid, nucleotide, ribonucleic acid, deoxyribonucleic acid, protein, amino acid, chemical reaction, reactant, product, activation energy, catalyst, enzyme, substrate	-Notes -pg. 51 Analyzing Data -Lab ID Organic Compounds -or Virtual Lab "Catalase Action in Living Tissue"
10 Days	Cell Structure, Classification	1a Cell membranes 1c Prokaryotic vs. Eukaryotic 1d Protein synthesis 1e Golgi apparatus & endoplasmic reticulum 1j* Cell wall & cytoskeleton	Test Gen. Ch. 7 Sections 1 & 2 Test	Textbook Ch. 7 Workbook Cell Diagrams "Cell City" Activity Cell Model	Cell, cell theory, nucleus, eukaryotes, prokaryotes, organelle, cytoplasm, nuclear envelope, chromatin, chromosome, nucleolus, ribosome, endoplasmic reticulum, Golgi apparatus, lysosome, vacuole, mitochondrion, chloroplast, cytoskeleton, centriole, cell membrane, cell wall, lipid bilayer, cell specialization, tissue, organ, organ system, homeostasis, semipermeable, permeable	Vocab Cell Theory 3-D Cell Model Microscope Lab (Plant cell vs. Animal cell)
Benchmark Assessment Window: October 13 - 23 Standards Assessed: 1.a, 1.b, 1.c, 1.e, 1.f, 1.g, 1.f, 6.a, 6.b, 6.c, 6.d, 6.e, 6.f and Inv/Exp.						

Victor Valley Union High School District
Instructional Guide

Biology: Quarter 2

TIME FRAME	BIG IDEA/TOPIC	STANDARDS	ASSESSMENTS	INSTRUCTIONAL MATERIALS	VOCABULARY	NOTES/LABS
10 Days	Cell Function	1a cell membrane structure and function 1c comparison of eukaryotes, prokaryotes and virus 1d transcription and translation of proteins 1e endoplasmic reticulum and golgi apparatus function 1j* cytoskeleton	Test Gen. Ch. 7 Sections 3 & 4 Test	Textbook Ch. 7 Workbook	Cell membrane, cell wall, lipid bilayer, concentration, concentration gradient, diffusion, equilibrium, osmosis, isotonic, hypertonic, hypotonic, facilitated diffusion, active transport, endocytosis, phagocytosis, pinocytosis, exocytosis, cell specialization, tissue, organ, organ system, homeostasis, semipermeable, permeable	Virtual Lab "Osmosis through a selectively permeable membrane" p. 188 Analyzing Data "Crossing Cell Membrane"
9 Days	Photosynthesis	1f role of chloroplast in synthesis of sugars 1i* role of chemiosmostic gradients in ATP production	Test Gen. Ch. 8 Test	Textbook Ch.8 Workbook Flow Charts / Diagrams	Autotroph, heterotroph, adenosine triphosphate, photosynthesis, pigment, chlorophyll, thylakoid, photosystem, stroma, NADP+, light dependent reactions, ATP synthase, Calvin cycle	Elodea Lab p.206 (Textbook) Chromatography Lab
5 Days	Cellular Respiration	1g role of mitochondria in the break-down of sugar 1i* role of chemiosmotic gradients in ATP production	Test Gen. Ch. 9 Test	Textbook Ch. 9 Workbook Flow Charts / Diagrams	Calorie, glycolysis, cellular respiration, NAD+, fermentation, anaerobic, aerobic, Krebs cycle, electron transport chain	Notes Bromothymol Blue Lab Yeast Lab (possible take home lab)
14 days	DNA/RNA, Protein Synthesis	1d transcription and translation of proteins 4a role of RNAs in translation 4b genetic code in translation 4c the role mutations in protein expression 4d specialization of cells due to gene expression 5a structure and function of DNA, RNA, and proteins 5b base pair rules (replication and transcription) 5c genetic engineering 4f* protein structure	Test Gen. Ch. 12 Test	Textbook Ch. 12 Workbook DNA Model Diagrams	Transformation, bacteriophage, nucleotide, base-pairing, chromatin, histone, replication, DNA polymerase, gene, messenger RNA, ribosomal RNA, transfer RNA, transcription, RNA polymerase, promoter, codon, translation, anticodon, mutation, point mutation, frameshift mutation, polyploidy, operon, operator, differentiation	DNA Model Origami DNA Extraction Lab DNA Replication (pop bead activity)
Benchmark Assessment Window: January 4 - 15		**Standards Assessed: 1a, 1c, 1d, 1e, 1f, 1g,4a, 4b, 4c, 4d, 5a, 5b, 5c**				

Victor Valley Union High School District
Instructional Guide

Biology: Quarter 3

TIME FRAME	BIG IDEA/TOPIC	STANDARDS	ASSESSMENTS	INSTRUCTIONAL MATERIALS	VOCABULARY	NOTES
24 days	Mendelian Genetics, Punnett Squares, Meiosis	2a Meiosis – segregation, independent assortment 2b Meiosis – gametes 2c Random chromosome segregation 2d Fertilization – new combinations of alleles 2e Half of individual's DNA comes from each parent 2f Chromosomes and sex determination 2g Punnett Squares 3a Punnett squares and modes of inheritance 3b Mendels laws 3c* Pedigree diagrams 3d* Gene loci mapping	Test Gen. Ch. 11 Sections 1 – 3 Test Ch. 11 Sections 4 & 5 Test	Textbook Ch. 11 Workbook Mitosis Slides Microscope Punnett Square Practice Problems	Genetics, fertilization, true breeding, trait, hybrid, gene, allele, segregation, gamete, probability, Punnett square, homozygous, heterozygous, phenotype, genotype, independent assortment, incomplete dominance, codominance, multiple alleles, polygenic traits, homologous, diploid, haploid, meiosis, tetrad, crossing over, gene map	Meiosis Manipulatives Lab : How well do Punnett Squares Determine Ratios? Lab: Flip a coin baby genetic lab Mitosis Microscope Lab Mitosis/Meiosis Lab Mitosis/Meiosis Flip Book
5 days	Darwin & Natural Selection	7a Natural selection acts on phenotypes 7d Variation in a species increases chances of survival 8a Natural selection determines survival of groups 8b Biodiversity ensures at least some survive	Test Gen. Ch. 15 Sections 1 & 3 Test	Textbook Ch. 15 Section 1 & 3 Workbook	Evolution, theory, fossil, artificial selection, fitness, adaptation, survival of the fittest, natural selection, common descent, homologous structure, vestigial organ	Natural Selection Lab
6 Days	Evolution of Populations	7a Natural selection acts on phenotypes 7b maintaining lethal alleles in a gene pool 7c New mutations in gene pool 7d Variation in a species increases chances of survival 8a Natural selection determines survival of groups 8b Biodiversity ensures at least some survive 8c Genetic drift 8d Reproductive and geographic isolation 8e Analyze fossil evidence 7e* Conditions necessary for Hardy-Weinberg 7f* Hardy-Weinberg equation predicts frequency of genotypes	Test Gen. Ch. 16 test	Textbook Ch. 16 Workbook	Gene pool, relative frequency, single-gene trait, polygenic trait, directional selection, stabilizing selection, disruptive selection, genetic drift, founder effect, speciation, reproductive isolation, behavioral isolation, geographical isolation, temporal isolation	Fork, Spoon Lab
5 days	CST Review			Released Test Questions, Test Gen., Pearson SuccessNet		
Benchmark Assessment Window: NO District Assessment (State STAR TESTING)						

Victor Valley Union High School District
Instructional Guide

Biology: Quarter 4

TIME FRAME	BIG IDEA/TOPIC	STANDARDS	ASSESSMENTS	INSTRUCTIONAL MATERIALS	VOCABULARY	NOTES/
5 Days	CST Review			Released Test Questions, Test Gen., Pearson SuccessNet		
10 Days	Nervous System	9a interactions between body systems 9b function of nervous system 9c feedback loops- nervous system 9d role of neurons in transmitting signals 9e sensory, inter, and motor neurons	Test Gen. Ch. 35 Sections 1 – 4 Test	Textbook Ch. 35 Sections 1 – 4 Workbook Concept Map (Interactivity of Human Body Systems)	Specialized cell, epithelial tissue, connective tissue, nervous tissue, muscle tissue, homeostasis, feedback inhibition, neuron, cell body, dendrite, axon, myelin sheath, synapse, neurotransmitter, meninges, cerebrospinal fluid, cerebrum, brain stem, cerebellum, thalamus, hypothalamus, reflex, reflex arc, sensory receptor,	-Activities to explain interconnectivity of human body systems. -Lab: Nervous System
4 Days	Endocrine System	9b function of endocrine system 9c feedback loops- endocrine system 9i* hormones role in homeostasis	Test Gen. Ch. 39 Sections 1 & 2	Textbook Ch. 39 Sections 1 & 2 Workbook	Hormone, target cell, endocrine gland, exocrine gland, pituitary gland, diabetes mellitus,	Lab Ch. 39 "Modeling Blood Glucose Regulation"
7 Days	Immunology	10a role of skin in non-specific defense 10b antibodies and infection 10c role of vaccines in protection from disease 10d bacteria vs. virus antibiotic treatments 10e effects of a compromised immune system (AIDS) 10f* role of phagocytes, B lymphocytes, and T-lymphocytes	Test Gen. Ch. 40 Sections 1 - 3	Textbook Ch. 40 Sections 1 - 3 Workbook	Disease, pathogen, germ theory of disease, Koch's postulates, vector, antibiotic, immunity, inflammatory response, fever, interferon, immune response, antigen, humoral immunity, cell mediated immunity, antibody, vaccination, active immunity, passive immunity, allergy, histamine	Research Paper: Infectious Diseases Lab Ch. 40 Constructing Models of Antibodies
End of Course Assessment: TBD						