

**MARLBORO CENTRAL SCHOOL DISTRICT-CURRICULUM MAP**

**Subject: Biology – The Living Environment**

**Grade 9**

<b>Title or Topics (Unit organizing idea)</b>	<b>Concepts (understandings)</b>	<b>Skills (What students actually do)</b>	<b>Major Assessments (Tests, projects, etc.)</b>	<b>Time Frame (# of wks)</b>
<b>September</b> Procedures/Policies PreTests Greek/Latin Vocab Scientific Inquiry/Skills Graphing Lab Skills/Microscopes	Scientific method Independent/Dependent variable Control/hypothesis Intro lab format/Lab Safety Data/reporting skills Graph/measurement Microscopes & other techniques	Conduct scientific investigations Practice correct lab write-ups v. desc & pages Mark appropriate scale on graphs Organize, classify & interpret data Create accurate graphs & tables Interpret & analyze data	“Class Divided” Lab Safety & Equipment, Gak Lab M&M Sci Method Lab & Quiz SI measurement lab & Quiz Graphing & Sci Method Quizzes & Test Castle Learning/practice, Regents questions, Review activities	4
<b>October</b> Life Functions Cells - Structures & Functions Transport - passive vs. active (1.2h) (5.1g)	Cell is the unit of structure & function Cell organelles Diffusion/active transport/passive transport	identify organelles relate cell to a factory identify characteristics of life identify life processes Organize, classify & interpret data Staining Graphing skills	*quizzes & tests Castle Learning/practice, Regents questions, Review activities NYS Making Connections Lab & Quiz Cell Book Project, Cell Part Chart Web Quest Microscope ‘e’ Lab & Quiz Plant & Animal Cell Lab & Quiz	4
<b>November</b> Transport Biomolecules/Biochemistry Photosynthesis Aerobic/anaerobic respiration (1.2a,f,g,i) (5.1a,b,c,d,e,f)	Atoms, bonding, ph, enzymes Organic Compounds (Proteins Carbohydrates, Fats, Enzymes) ATP – common energy source Understand photosynthesis Fermentation in humans & bacteria	compare & contrast elemental composition, functions, monomers of the 4 groups of organic compounds Enzyme reactions Structure determines function compare photosynthesis & aerobic respiration	*quizzes & tests Organic Compounds graphic organizer, Video fact sheets Photosynthesis/Respiration fold books NYS Diffusion through a Membrane Lab & Quiz Egg Osmosis Demo Lab Photosynthesis/Waterweed Simulation Lab & Quiz Castle Learning/practice, Regents questions, Review activities	4
<b>December</b> Dynamic Equilibrium Homeostasis Human anatomy & physiology (1.2d,e) (1.3a) (1.2b,c,e,j) (5.2a,b,c,d,e,f,g,h,i,j) (5.3a,b)	Homeostatic/Feedback mechanisms Respiratory/Circulatory Systems - Structures, functions, diseases Humans must undergo life functions Intro. to human anatomy and physiology	Identify major organs/functions of human body Understand AIDS, cancer Describe mechanisms necessary to maintain homeostasis Describe how human body systems work together to maintain homeostasis	*quizzes & tests Enzyme Cut out Lab, X-Ray Lab, Toothpickase Lab & Quiz Body Systems Research Project & Presentations Case studies – human physiology investigations Castle Learning/practice Regents questions Review activities	4

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<b>January</b> Dynamic Equilibrium Homeostasis Human anatomy & physiology (1.2d,e) (1.3a) (1.2b,c,e,j) (5.2a,b,c,d,e,f,g,h,i,j) (5.3a,b)	Nervous & Endocrine systems - Structures, functions, diseases Digestive & Excretory Systems - Structures, functions, diseases	Identify major organs/functions of human body Understand AIDS, cancer Describe mechanisms necessary to maintain homeostasis Describe how human body systems work together to maintain homeostasis	*quizzes & tests Blood Diseases & Blood Counting Labs with Quiz, Digestive System Lengths Lab Body Systems Research Project & Presentations Case studies – human physiology investigations Castle Learning/practice Regents questions Review activities	
<b>February</b> Immune System/Disease Mitosis & Meiosis (2.1a,b,c,d,e,f,g,h,i,j,k) (2.2a,b,c,d,e)	Different types of immune responses, protection from disease, disease as failure of homeostasis	Explain disease as failure of homeostasis Describe mitosis, meiosis, fertilization; compare & contrast mitosis & meiosis	*quizzes & tests Body Systems Research Project & Presentations Asexual Reproduction/Measurement lab, Onion Cell Mitosis Lab & Quiz, Mitosis & Meiosis Poster Projects Castle Learning/practice Regents questions Review activities	6
<b>March</b> Meiosis Human Reproduction, Growth & Development Genetic continuity (3.1a,b,c,d,e,f,g,h,i,j,k,l)	Meiosis as maintaining genetic/chromosomal # continuity Human Karyotype Fetal growth, potential hazards/diseases haploid vs diploid chromosome #	Identify a human karyotype Identify human reproduction structure Understand gamete production Fertilization & development Identify specific techniques associated with reproductive technology	*quizzes & tests Microslide #55 Mitosis Lab & Quiz; Fetal Growth Lab & Quiz; Menstrual Cycle Graphing Lab; Menstrual Cycle Calendar Lab & Quiz Castle Learning/practice Regents questions Review activities	2
<b>April</b> Basic Genetics, Protein Synthesis Molecular genetics Taxonomy & Evolution (1.1a,b,c,d,e,f) (6.1a,b,c,d,e,f,g) (6.2a,b) (6.3a,b,c)	Role of DNA/RNA; Protein Synthesis Genetic Engineering Common Ancestry Darwin & natural selection Importance of Variation Extinction of species Evidence of evolution	Interpret graphs & charts of cycles Describe food chains, webs, & Pyramids Identify autotroph & heterotroph Biotic/abiotic - identify	*quizzes & tests DNA Extraction Lab & Quiz; Protein synthesis lab & Quiz;; Karyotype lab; Baby Chromosome lab & Quiz; Insect Key, Phrens Key Labs & Quiz, Evolution of horse Lab; NYS Beaks of finches LAB; evidence of evolution lab Castle Learning/practice Regents question, Review activities	6
<b>May</b> Evolution Ecology, Biodiversity & Human Impact on living environment (7.1a,b,c) (7.2a,b,c) (7.3a,b)	Abiotic vs. biotic Ecological relationships & cycles Autotroph + heterotroph Energy flow, Organism relationships, Biomes, climates Negative effects of technology Renewable vs. nonrenewable resources, Neg/Pos effects	Distinguish all components of Natural Selection Theory Describe sources of variation Distinguish among types of evidence for evolution Identify global warming, ozone shield, biodiversity & deforestation organize, classify & interpret data	*quizzes & tests Food Chain & Web Labs & Quiz; Natural selection lab NYS Relationship & biodiversity LAB & Quiz Castle Learning/practice Regents questions Review activities	2
<b>June</b> Review	Review old labs Review regents	Graphing Lab skills Review lab folders	Regents test; Practice Part D questions Essay assignments Current events – write out responses to events related to biology	2