CURRICULUM MAP

Subject: Earth Science **Grade Level: 9th/10th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
UNIT 1: EARTH DIMENSIONS **Introduction** ● metric system, density, graphing **Description of Earth** ● Shape - oblate spheroid ● Size - diameters ● Parts - atmosphere, hydrosphere lithosphere ● Maps -latitude & longitude -field maps & isolines -topo maps -contour lines -gradient **UNIT 2: ROCKS & MINERALS** **Earth Composition** ○ mineral resources ○ rocks - composed of minerals **Minerals** ○ identification & classification ○ arrangements & bonding **Igneous** ○ origin ○ texture, comp. ○ intrusive & extrusive **Sedimentary** ○ origin ○ types - clastic, chemical, organic **Metamorphic** ○ origin ○ characteristics & types **Conservation** **Current Events** ○Articles	**UNIT 3: SURFACE PROCESSES & LANDSCAPES** **Weathering** ● physical & chemical ● particles & surface area ● mineral composition **Weathering Products** ● soil ● human influences **Erosion** ● residual vs. transported ● agents ● particles vs. stream velocity **Deposition** - size, shape, density **Landforms** - climate, rocks & structures **UNIT 4: DYNAMIC CRUST** **Earthquakes** ● zones of activity ● p & s waves ● epicenters **Earth's Interior** ● density & temp/w depth ● seismic & meteorite evidence **Place Movements** ● rock & fossil correlations ● heat flow ● hot spots ● rifting, subdivision, faults **Properties of Crust** ● ocean bottom - basaltic ● continent - granite	**UNIT 5: EARTH HISTORY** **Geological Sequence** ● igneous - intrusion/extrusions ● faults & folds are younger **Correlation** ● walking the outcrop ● index fossils ● volcanic ash **Geologic History** ● time scale ● buried erosion surface ● wind - magnitude & direction **Absolute Ages** **Evolution** **UNIT 6: METEOROLOGY** **Description & Measurement** ● daily temp. & dew point ● relative humidity ● wind magnitude & direction **Relations Among Variables** **Clouds** ● adiabatic cooling concept ● cooling before dew point **Weather Maps** ● isolines ● fronts **Forecasting** ● movement of air masses ● geographic origin of air ● cyclones/anticyclones ● probability predictions **Hazardous Weather**	**UNIT 7: WATER CYCLE & CLIMATES** **Sources of Water** ● oceans - major source ● water cycle **Solar Energy** ● sun - major source ● intensity & angle ● seasons ● day length ● greenhouse effect **Climate Factors** ● uses of water budget ● effects of latitude & altitude ● prevailing winds ● mountain barriers **Water Quality** **UNIT 8: ASTRONOMY** **Celestial Observations** ● sun's path ● earth's rotation ● constellations ● geocentric - heliocentric theory **Revolution with Tilt** ● sun's path with season/latitude ● noon position ● changing positions of sunrise & sunset ● seasons **Cosmic Features** **Earth in Universe**

CURRICULUM MAP

Subject: Regents Biology **Grade Level: 9th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER

UNIT 1: Marathon Runner
● Homeostasis
  ● Gas exchange Cell Respiration
  ● Muscle and energy production
  ● Human Thermoregulation
  ● Water Balance
 	
UNIT 2: Humans vs Bacteria
● Natural Selection
  ● Black Death
  ● Antibiotic Resistance
  ● Immunity
	UNIT 2: Humans vs Bacteria cont'd
	● Interdependence of Organisms
	  ● The Microbiome
	  ● Cooperation and Survival
	
	UNIT 3: Evolution of Sick Humans
	● Genetics
	● Protein synthesis
	  ● Lactase Resistance
	  ● enzyme-substrate
	  ● Leptin Resistance
	● Mismatch hypothesis
	  ● Circadian Rhythms
	  ● Common Ancestry
		UNIT 4: Saving the Mountain Lion
		Population
		  ● Mountain Lion Population
		  ● threats, range
		  ● interdependence of species
		  ● Sexual Reproduction
		  ● Genetic variation
		  ● Engineering Gene
		
		UNIT 5: Food for All
		● Energy
		  ● Neolithic Revolution
		  ● carrying capacity
		  ● The SuperFood that Changed the World
		  ● Infectious Agent or Insufficient Diet
			UNIT 5: Food for All cont'd
			  ● New foods and consequences
			  ● food deserts
			● Matter in ecosystems
			  ● Food for Plants
			
			UNIT 6: Woolly Mammoth
			  ● Evolution
			● Ecosystem resilience
			  ● Tuskless Elephants
			  ● Coral Bleaching
			● Climate change
			  ● Kelp Forest
			● Human impact
			  ● Passenger Pigeon

CURRICULUM MAP

Subject: Regents Chemistry **Grade Level: 11th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
MATH SKILLS- VOCAB ● Scientific notation ● Metric system ● Element names/symbols **ATOMIC STRUCTURE** ● Part of atom ● Rutherford model ● Avogadro's # mole concept ● Relative average at mass **ELECTRON CONFIGURATIONS** ● Bohr model ● Electron configuration notation ● Orbital config. notation ● Electron dot notation ● Orbital model ● Spectroscopy ● Quantum numbers - Honors **BONDING/ INTERPARTICLE BONDING/TABLE** ● Ionic bonding ● Covalent bonding ● Electronegativity ● Molecular shape/dipole ● Energy changes in bonding ● Metallic crystal ● Network crystal ● Molecular crystal ● Van der Waal's crystal ● Ionic crystals ● Melting/boiling points ● Periodic table history ● Groups and periods ● Periodic trends	**NAMING & FORMULA WRITING** ● Oxidation rules ● Formula writing ● Polyatomic ions ● IUPAC system ● % composition **EQUATION WRITING** ● Composition ● Decomposition ● Cation replacement ● Anion replacement ● Double replacement ● Combustion ● Electrolysis ● Neutralization **STOICHIOMETRY** ● Mass-mass ● Mass-volume ● Limiting/excess reagents **GAS LAW MATERIAL** ● Kinetic molecular theory ● Graham/Boyle/Charles' Laws ● Avogadro's Law ● Ideal gas law ● Combined law ● Density of gasses ● Pressure ● Dalton's Law ● Molecular weight and density	**PHASES OF MATTER** ● Phase characteristics ● Heating/cooling curves ● Heat equation ● Heat of fusion/vaporization **SOLUTION CHEMISTRY** ● Solute/solvent ● Solubility curves ● Arrhenius theory ● Energy changes ● % concentration by mass ● Molarity ● Molality-Honors ● Conductivity of solutions ● Changes in f.pt/b.pt **ACID/BASE THEORY** ● General Characteristics Arrhenius theory ● Bronsted-Lowry theory ● Titrations ● Naming acids/bases ● pH and pOH scales **KINETICS/EQUILIBRIUM** ● Potential energy diagrams ● Enthalpy changes ● React.rt./collision theory ● Equilibrium ● LeChatelier's principle ● Rate law/equil/ constant	**EQUIL. CONSTANTS/ SPONTANEITY** ● Ka and Kb (w. acid-Honors) ● Kw ● Ksp ● Free energy change **REDUCTION/ OXIDATION CHEMISTRY** ● Half reactions ● Balancing redox equations ● Electrochemical cells ● Voltage ● Electrolytic cells **ORGANIC CHEMISTRY** ● Chemistry of carbon ● Aliphatic series ● Aromatic series ● Naming ● Functional groups ● Substitution reactions ● Addition reactions ● Polymerization reactions ● Esterification reactions **RADIOACTIVITY** ● Particle/rays ● Half life ● Decay equation ● Fusion/fission ● Nuclear power plants

CURRICULUM MAP

Subject: AP Biology **Grade Level: 12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
CHEMISTRY ● Atoms, molecules, bonding ● Properties of water ● Organic molecule types ● Enzymes **CELLS** ● Prokaryote/eukaryote ● Organelles ● Membrane properties **PHOTOSYNTHESIS** ● Chloroplast structure ● Light reactions ● Dark reactions ● Oxidative phosphorylation ● Chemiosmotic theory ● C4 reactions **RESPIRATION** ● Glycolysis ● Krebs cycle ● ATP output ● Mitochondrial membranes ● Chemiosmotic theory ● Anaerobic respiration	**CELL DIVISION** ● Why cells divide ● Stages of mitosis ● Stages of meiosis ● Sims/diffs between the two ● Genetic variation **HEREDITY & GENETICS** ● History of genetics ● Genetic crosses ● Incomplete ● dominance ● Multiple alleles ● Epistasis ● Linkage ● Sex-linkage ● Nondisjunction ● Human genetics **MOLECULAR GENETICS** ● DNA structure/replication ● RNA structure ● Transcription/translation ● viral/bacterial genetics ● recombinant DNA ● Regulation of gene expression **EVOLUTION** ● Evidence ● Natural selection ● Sources of variation ● Genetic equilibrium ● Patterns of evolution ● Origin of life	**ANIMALS** ● Respiration ● Circulation ● Excretion ● Digestion ● Regulation ● Support/movement ● Immunity **ANIMAL REPRO & DEVELOPMENT** ● Sexual differences ● Human repro anatomy ● Gametogenesis ● Hormonal regulation ● Embryonic development	**ANIMAL BEHAVIOR** ● Genetic basis ● Kinds of behavior ● Communication ● Social behavior **ECOLOGY** ● Population ecology ● Communities ● Ecosystems ● Biomes ● Ecological succession ● Biogeochemical cycles ● Human impact - biosphere **LABORATORY REVIEW** ● AP Bio test review ● Practice multiple choices ● Sample essays **SIX KINGDOM SURVEY** ● Bacteria ● Archaea ● Protisa ● Fungi ● Plantae ● Animalia **PLANTS** ● Roots/stems/leaves ● Transport of water/sugar ● Hormones ● Reproduction ● Tropisms **FINAL PROJECT FOLLOWING AP EXAM** ● Students will complete a culminating project that will demonstrate understanding of various concepts that were learned throughout the year.

CURRICULUM MAP

Subject: Human Biology **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
ORGANIZATION OF HUMAN BODY ● anatomical directions ● plan of human body ● levels of organization ● body planes/cavities ● body systems **MECHANISMS OF DISEASE** ● causes ● risk factors ● prevention and control ● cancers **SKELETON-THE FRAMEWORK** ● structure of bone ● axial skeleton ● appendicular skeleton ● joints and movement ● disorders of skeletal system **MUSCLE TISSUE** ● anatomy ● sarcomere structure ● sliding filament theory ● energy requirements ● disorders of the muscles ● Muscular System ○ types of movement ○ muscles of axial skeleton ○ disorders of muscular system	**NERVOUS SYSTEM** ● structure of neuron ● transmission of impulse ● synaptic transmission ● disorders of neurons ● central nervous system/brain ● autonomic nervous system ● peripheral nervous system ● disorders of nervous system **THE HEART** ● structure/blood flow ● control of heart rate ● heart disorders ● arteries/veins/capillaries ● circulatory routes ● control of blood pressure ● disorders of vascular system **DIGESTIVE SYSTEM** ● Mouth o esophagus/peristalsis o disorders of upper GI tract ● Stomach ○ gastric secretions ○ chemical/mechanical digestion ○ disorders of stomach ● Intestines ○ small intestine/villi ○ large intestine ○ liver/gallbladder/pancreas ○ absorption/defecation ○ disorders of lower GI tract **RESPIRATORY SYSTEM** ● structures of respiratory tract ● diaphragm/breathing mech. ● control of breathing ● disorders of respiratory tract		

CURRICULUM MAP

Subject: Current Topics in Biology **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
		RIGHT TO DIE/ RIGHT TO REFUSE MEDICAL TREATMENT ● Dr. Kevorkian ● Euthanasia **REPRODUCTIVITY** ● Egg/sperm donors ● Frozen embryos ● Cloning ● Surrogacy **AIDS** ● Causes ● Prevention ● Treatment **SEX EDUCATION** ● School's role ● TV effects ● Abstinence	**DRUGS** ● Trends ● Legalization ● HIV association ● Alcohol **TRANSPLANTS** ● Who? why? costs ● Animal organs ● Fetal tissues **GENETIC REVOLUTION** ● DNA studies ● Bio-engineered plants ● Stem cell research

CURRICULUM MAP

Subject: Physics: The Physical Setting **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
UNIFORM MOTION ● Displacement ● Velocity ● Acceleration ● Graphing Motion ● Kinematic equations ● Centripetal accelerations **FORCES** ● Newton's 1st law ● Newton's 2nd law ● Frictional forces & equations ● Centripetal forces ● Gravitational Focus ○ universal gravitation ○ Kepler's laws **VECTORS** ● Scalers & vectors ● Parallel vectors ● Perpendicular vectors ○ parallelogram method ○ head to tail method ○ by components	**MOTION IN TWO DIMENSIONS** ● Independence of perpendicular motions ● Projectile motion o Horizontal o Angular **MOMENTUM** ● Impulses & momentum equations ● Newton's 3rd law ● Conservation of momentum ● Internal & external forces **ENERGY** ● Work ● KE & PE energy ● Simple machines ● Mechanical advantage ● Conservation of energy ● Conservation of energy in collisions ● Power ● Mass - energy conservation	**WAVES** ● Types of waves ● Wave characteristic ● Interference ● Polarization ● Diffraction ● Doppler effect **SOUND & LIGHT** ● Reflection ● Refraction (Snell's law ● Resonance & Standing Waves **ELECTRONIC FIELDS)** ● Static electricity & charges ● Electrostatic fields ● Charging by conduction ● Charging by induction ● Potential differences ● Charge distribution & field strength ○ point charges ○ wires & rods ○ parallel plates	**CURRENT ELECTRICITY** ● Electric current ● Resistance ● Ohm's law ● Electrical power ● Series circuit ● Parallel circuit ● Series - parallel circuits ● Resistivity **MAGNETISM & ELECTROMAGNET APPLICATIONS** ● Magnetic domain & field directions ● Magnetic field distribution & strength ● Motors ● Generators **MODERN PHYSICS** ● Photoelectric effect ● Light wave particle ● Emission spectrum ● De Broglie wavelengths ● Models of the atom ○ Rutherford model ○ Bohr model ● The Standard Model

CURRICULUM MAP

Subject: AP Chemistry **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Unit 0 – Preamble • Significant figures, units • Types of matter • Formulas and naming **Unit 1-Atomic Structure & Properties** • Moles and Molar Mass • Mass Spectra • Mass relations in mixtures • Atomic Spectra • Electron Configuration • Photoelectron Spec • Periodic Trends **Unit 4 – Chemical Reactions** • Types of reactions • Net Ionic Reactions • Particulate • Stoichiometry • Precipitation reactions • Acid base reactions • Redox reactions **Unit 2 -Compound Structure & Properties** • Types of Chemical Bonds • Intramolecular Force • Ionic Solids • Alloys • Lewis Diagrams • Resonance & Formal Charge • VSEPR & Hybridization	**Unit 3- Electronic Structure & Periodic Table** • Intermolecular Forces • Properties of Solids • Solids, Liquids, Gases • Ideal gas law • Kinetic molecular theory • Deviations from Ideal Gas • Solutions & Mixtures • Representations of Solutions • Separation of Solutions & Mixtures • Solubility • Spectroscopy • Properties of Photons • Beer-Lambert Law **Unit 5-Kinetics** • Rate vs. concentration • Concentration vs. time • Activation energy • Rate vs. temperature • Reaction mechanism • Catalysts	**Unit 6 - Thermochemistry** • Bond Energy • Calorimetry • Enthalpy • Thermochemical equations **Unit 7 - Equilibrium** • Equilibrium Kc, Kp • Equilibrium constant • Applications of Keq • LeChatelier and stresses • Ksp • Common ion • Precipitation **Unit 8- Acids and Bases** • Intro Acids & Bases • pH and pOH strong • Weak Acid & Base Equilibria • Acid-Base Reactions & Buffers • pH and pKa • Acid-Base Titrations • Properties of Buffers • Henderson-Hasselbalch Eqn • Buffer Capacity • pH & Solubility	**Unit 9-Thermodynamics & Electrochemistry** • Entropy and enthalpy • Free energy equation • State Functions • Redox equations • Electrochemical cells • Electrolysis • Nernst equation **REVIEW FOR AP EXAM** **In-Class Final prior to AP Exam** **FINAL PROJECT FOLLOWING AP EXAM** • Students will complete a culminating project that will demonstrate understanding of various concepts that were learned throughout the year.

CURRICULUM MAP

Subject: Astronomy **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
I. Introduction to Astronomy - Introduction to Our Solar System - Planetary Geology - What exactly is Pluto? II. Cosmic Voyage - Size of the Universe III. Origins of Astronomy - Constellations (Mythology) - Introduction to research and presentation methods - Using Stars/Constellations as Reference Points IV. Historical Astronomy - Historical Astronomers - Evolution of Discovery - Leaps in knowledge	V. Modern Astronomy - Current Space Flight - Current Space Science - Progress towards Human Exploration - Deep Space Discoveries - Active NASA/ESA missions - Possibilities for Extraterrestrial Life - Benefits of Space Science - Spin Offs - Self-Guided Research VI. TeleScopes - Ground Based - Space Based		

CURRICULUM MAP

Subject: AP Environmental Science **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Unit 1 – The Living World: Ecosystems ● Intro to Ecosystems ● Terrestrial Biomes ● Aquatic Biomes ● Carbon Cycle ● Nitrogen Cycle ● Phosphorus Cycle ● Hydrologic Cycle ● Primary Productivity ● Trophic Levels ● Energy Flow and the 10% Rule ● Food Chains and Food Webs **Unit 2 - The Living World: Biodiversity** ● Intro to Biodiversity ● Ecosystem Services ● Island Biogeography ● Ecological Tolerance ● Natural Disruptions to Ecosystems ● Adaptations ● Ecological Succession **Unit 3 – Populations** ● Generalist & Specialist species ● K-selected & r-selected species ● Survivorship Curves ● Carrying Capacity ● Population Growth & Resource Availability ● Age structure diagrams ● Total Fertility Rate ● Human Population Dynamics ● Demographic Transition	**Unit 4 - Earth Systems & Resources** ● Plate Tectonics ● Soil Formation & Erosion ● Soil Composition & Properties ● Earth's Atmosphere ● Global Wind Patterns ● Watersheds ● Solar Radiation & Earth's Seasons ● Earth's Geography & Climate ● El Nino & La Nina **Unit 5 - Land & Water Use** ● Tragedy of the Commons ● Clearcutting ● The Green Revolution ● Impacts of Agricultural Practices ● Irrigation Methods ● Pest Control Methods ● Meat Production Methods ● Impacts of Overfishing ● Impacts of Mining ● Impacts of Urbanization ● Ecological Footprints ● Introduction to Sustainability ● Methods to Reduce Urban Runoff ● Integrated Pest Management ● Sustainable Agriculture ● Aquaculture ● Sustainable Forestry	**Unit 6 – Energy Resources & Consumption** ● Renewable & nonrenewable ● Global energy consumption ● Fuel types and uses ● Distribution of natural energy resources ● Fossil fuels ● Nuclear power ● Energy from biomass ● Solar energy ● Hydroelectric power ● Geothermal energy ● Hydrogen fuel cell ● Wind energy ● Energy Conservation **Unit 7 – Atmospheric Pollution** ● Intro to air pollution ● Photochemical smog ● Thermal inversion ● Atmospheric CO2 & particulates ● Indoor air pollutants ● Reduction of air pollutants ● Acid rain ● Noise Pollution **Unit 8 - Global Change** ● Stratospheric ozone depletion ● Reducing ozone depletion ● Greenhouse effect ● Increases in greenhouse gasses ● Global climate change ● Ocean warming ● Ocean acidification ● Invasive species ● Endangered Species ● Human Impacts on Biodiversity	**Unit 9 - Aquatic & Terrestrial Pollution** ● Sources of pollution ● Human impacts on ecosystems ● Endocrine disruptors ● Human impacts on Wetlands & Mangroves ● Eutrophication ● Thermal pollution ● Persistent organic pollutants ● Bioaccumulation & biomagnification ● Solid waste disposal ● Waste reduction methods ● Sewage treatment ● Lethal dose 50% ● Dose response curve ● Pollution & human health ● Pathogens & infectious diseases **REVIEW FOR AP EXAM** **FINAL PROJECT FOLLOWING AP EXAM** ● Students will complete a culminating project that will demonstrate understanding of various concepts that were learned throughout the year.

CURRICULUM MAP

Subject: Forensics **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER		
Unit One: Intro to Forensics ● History of Forensics ● Careers in Forensics **Unit Two: Crime Scenes & Observation Skills** ● Practicing and improving observation skills ● Procedures for crime scene investigation ● Collecting and packaging evidence ● Chain of Custody ● Photography of a crime scene ● Sketching a crime scene **Unit 3: Fingerprinting** ● types of fingerprints ● structure of fingerprints ● collection and analysis of fingerprints **Unit 4: Blood** ● blood typing: structure and testing for ● Blood spatter analysis	**Unit 5: Hair Analysis** ● Structure of hair ● Collection of hair samples ● Analysis of hair **Unit 6: Toxicology** ● Narcotics ● Poisons **Unit 7: Anthropology** ● Collection of bones ● Skeletal analysis and reconstruction **Unit 8: Death and Decay** ● Types of deaths ● Stages of decay ● Determining time of death ● Etymology - insects and their use in determining a time of death	**Students will have a say in their learning and will have a vote as to which units we pursue, save for a few that the teacher will include in every semester(i.e. intro to forensics and observation skills). Other Units may select include but are not limited to: Document Analysis, Soil, Imprints, Psychology, Innocence Project**	

CURRICULUM MAP

Subject: AP Physics **Grade Level: 12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Unit 1 – Kinematics ● Scalars and vectors in one dimension ● Displacement, velocity, acceleration ● Representing motion ● Reference frames and relative motion ● Vectors and motion in 2 & 3 dimensions **Unit 2 - Force & Translational Dynamics** ● Systems and center of mass ● Forces and free-body diagrams ● Newton's third law ● Newton's first law ● Newton's second law ● Gravitational Force ● Kinetic and Static friction ● Spring forces ● Circular motion **Unit 3 – Work, Energy, Power** ● Translational kinetic energy ● Work ● Potential Energy ● Conservation of Energy ● Power	**Unit 4 – Linear Momentum** ● Linear momentum ● Change to momentum and impulse ● Conservation of linear momentum ● Elastic and inelastic collisions **Unit 5 – Torque & Rotational Dynamics** ● Rotational kinematics ● Connecting linear & rotational motion ● Torque ● Rotational inertia ● Rotational equilibrium & Newton's first law in rotational form ● Newton's second law in rotational form	**Unit 6 – Energy & Momentum of Rotating Systems** ● Rotational kinetic energy ● Torque and work ● Angular momentum & angular impulse ● Conservation of angular momentum ● Rolling ● Motion of orbiting satellites **Unit 7 – Oscillations** ● Defining simple harmonic motion ● Frequency and period of SHM ● Representing and analyzing SHM ● Energy of simple harmonic oscillations	**Unit 8 – Fluids** ● Internal structure & density ● Pressure ● Fluids and Newton's laws ● Fluids and conservation laws **REVIEW FOR AP EXAM** ● Examples on how questions are graded ● Topic review as needed **FINAL PROJECT FOLLOWING AP EXAM** ● Student choose something relevant to their everyday life ● With parent permission research topic to find connections to physics ● Design presentation demonstrating the physics of their chosen project.

CURRICULUM MAP

Subject: Aquatic Ecology **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER- *Aquatic Ecosystems*	FIRST QUARTER- *Aquatic Ecosystems*	SECOND QUARTER- *Aquatic Invertebrates*	SECOND QUARTER- *Aquatic Invertebrates*
• **Unit 1a- Lakes** ○ Ecological principles ○ Water column stratification ○ nutrient/oxygen cycling ○ the "ferrous wheel" ○ limiting nutrients ○ phosphorus cycling ○ phytoplankton lab ○ exam • **Unit 1b- Finger lakes, Management** ○ Riparian systems ○ habitat transition ○ lake productivity ○ lake turnover ○ The Finger Lakes ○ lake management ○ macrophyte growth ○ science paper discussion facilitation ○ thermocline lab ○ Marine Lab virtual: Slow Racer ○ environmental impacts poster • **Unit 2- Estuaries** ○ Mangroves ○ Blue Carbon ○ salt marshes ○ science paper discussion facilitation ○ sea grass meadows ○ Exam: mangrove ID and importance ○ Marine lab virtual: adaptation station	• **Unit 3: Coral reefs** ○ reef distribution ○ limiting factors ○ structure ○ bleaching ○ ocean acidification ○ science paper discussion facilitation • **Unit 4- Kelp Forests & Intertidal Zones** ○ Urchins as keystone species ○ trophic cascades ○ urchin fisheries ○ intertidal zonation ○ intertidal stresses • **Unit 5- Oceans and MPAs** ○ MPA export ○ Deep sea whale falls ○ nutrient desserts	• **Unit 1- Phylogeny** ○ Classification ○ invertebrate diversity ○ aquatic animal features ○ evolution of the Metazoa • **Unit 2- Protists and Poriferans** ○ body plans ○ importance of protozoa ○ origin of metazoa ○ sponges ○ placozoans • **Unit 3- Cnidarians** ○ Cnidarian diversity ○ Class: scyphozoa ○ Class: hydrozoa ○ Class: Anthozoa ○ Ctenophore phylogeny • **Unit 4- Mollusks** ○ Body Plans ○ Gastropods ○ Bivalves ○ Cephalopods • **Unit 5- Arthropods and Echinoderms** ○ Chelicerates ○ Copepods and Brachiopods ○ Decapods ○ Cirripeds ○ Echinoderm characteristics ○ Asteroids & Ophiuroids ○ Echinoids & Holothuroids ○ Crinoids and Ech. phylogeny • **Unit 6- Worms** ○ Platyhelminthes ○ Parasites	○ Nematodes ○ Annelids ○ Polychaetes ○ Onychophorans • **Unit 7- Invertebrate Chordates** ○ Hemichordates ○ Urochordates ○ Cephalochordates ○ Chordate Evolution • **Final Project: Identification of and solution to specific ecological problem/issue**

CURRICULUM MAP

Subject: Physics Elective - Intro to Motion **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
		Unit 1: Driving The Roads ● Distance ● Speed ● Acceleration ● Graphing Motion ● Using Models **Unit 2: Physics in Action** ● Newton's First Law ● Newton's Second Law ● Projectile Motion ● Newton's Third Law ● Frictional force	**Unit 3:Safety** ● Physics of accidents ● Newton's Laws revisited ● Energy and work ● Momentum ● Impulse **Unit 4:Thrills and Chills** ● Velocity and Acceleration ● Gravitational potential energy ● Elastic Potential energy ● Universal Gravitation ● Hooke's Law ● Apparent weight ● Circular Motion ● Work and Power ● Force and Energy

CURRICULUM MAP

Subject: Physics Elective - Electricity & Magnetism **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Unit 1: Atoms ● Static electricity ● Nature of charge ● Nucleus ● Bohr Model ● Energy in Nucleus ● Fission and Fusion ● Salt water car **Unit 2: Electricity** ● Generating electricity ● Series and parallel circuits ● Ohm's Law ● Electric power ● Current and Voltage ● Resistance ● Energy Consumption	**Unit 3:** ● Electricity and magnetism connection ● Electromagnets ● Building an electric motor ● Detect and induce current ● AC and DC current ● Electromagnetic Spectrum **Unit 4: Energy and sustainability** ● mechanical energy ● Work ● Power ● Climate change ● Alternate energy sources project ● Solar car project		

CURRICULUM MAP

Subject: Environmental Science **Grade Level: 11th/12th** **Updated Review July 2024**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
I. Introduction to Environmental Science - Sustainability - Ethical Concerns - Environmental Racism - Ecological Laws - Scientific Models - Energy Conservation - Scientific Method (process) - Data Collections II. Economics and Environmental Policy - Economics of Environmental Policy - US Environmental Policy - International Environmental Policy III. The Biosphere - Abiotic/Biotic Factors - Ecosystems - Equilibrium of Ecosystem - Biological/Ecological Evolution (Succession) - Adaptations - Biodiversity	IV. Air Pollution - Pollution Effects - Air Protection Laws - V. Water Access and Water Pollution - Water Protection Laws - Privatization of Water Access - Water Cycle - Potable Water - Water Sources - Water Pollution, VI. Land Use - Land Management - VI. Conservation - Protected Areas vs Resource Gathering		