CURRICULUM MAP

Subject: Earth and Space Science **Grade Level: 9th/10th** **Updated Review August 2025**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
UNIT 1: WHITE SANDS NP ● Availability of natural resources ● Occurrence of natural hazards ● Climate change influenced by human activity ● Developing, managing and utilizing energy and mineral resources ● Solutions reducing human impacts on natural systems ● Resource availability guiding development of human society ● Sustainability of human societies ● Biodiversity ● Natural resource management **UNIT 2: GRAND CANYON NP** ● Properties of water and its effect on Earth materials and surface processes ● Relationships between management of natural resources, the stability of human populations and biodiversity ● Analyze major global challenges ● Design solutions that account for societal needs and wants ● Physical and chemical properties of liquid water ● Energy absorption, storage and release ● Waters ability to transmit sunlight ● Waters ability to expand when freezing	**UNIT 2: GRAND CANYON NP continued** ● Viscosities and melting points of rocks ● Risk mitigation ● Pollution minimization ● Clean water and food supplies **UNIT 3: HAWAII VOLCANOES NP** ● Movement of continental crust ● Movement of oceanic crust ● Theory of plate tectonics ● Age of crustal rocks ● Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean floor features ● Thermal convection ● Availability of natural resources ● Occurrence of natural hazards ● Changes in climate have influenced human activity ● Age of continental crust vs oceanic crust ● Feedback loops ● Plate boundaries and movements ● Continental and ocean floor features ● Distribution of rocks and minerals ● Natural hazards and geologic events ● Human populations and migrations ● Seismic waves ● Layers of the earth	**UNIT 4: GLACIER NP** ● Feedback loops impacting Earth's surface ● Energy flowing into and out of Earth's system results in climate change ● Carbon cycle ● Rates of global or regional climate change and associated future impacts to Earth systems ● Human activity impacts to Earth systems ● Positive and negative feedback loops and their impacts to Earth's systems ● Rising global temperatures ● Greenhouse gases and impacts to the ocean and the biosphere ● Modeling and predicting future impacts.	**UNIT 5: GREAT BASIN NP** ● Life span of the sun ● Nuclear fusion ● Big Bang theory ● Light spectra ● Motion of distant galaxies ● Composition of matter in the universe ● Life cycle of stars and the sun ● Composition of stars ● Composition of non-stellar gases ● Cosmic microwave background radiation ● Electromagnetic energy ● Supernovas

CURRICULUM MAP

Subject: Regents Biology **Grade Level: 9th** **Updated Review August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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 August 2025**

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: Sports Science **Grade Level: 11th/12th** **Updated Review August 2025**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
		Unit 1: What is Sports Science? ● Fields within sports science ● Careers in sports science ● Role of data, measurement, and experimentation in athletics **Unit 2: History & Evolution of Sport** ● Ancient sports and early training methods ● Olympic history and international competition ● Evolution of rules, equipment, and performance standards ● Impact of science and technology on modern sport **Unit 3: Sports Psychology** ● Motivation and goal-setting ● Focus, visualization, and confidence ● Stress, anxiety ● Team dynamics and leadership in sport **Unit 4: Training Principles & Performance** ● Core principles of training ● Periodization and seasonal planning for athletes ● Endurance vs. power sports ● Recovery methods **Unit 5: Nutrition & Hydration** ● Macronutrients and micronutrients for athletes ● Pre-game, during-game, and recovery nutrition ● Hydration strategies and electrolyte balance ● Ergogenic aids and supplements	**Unit 6: Env. Impacts on Sport** ● Performance in heat, cold, and altitude ● Acclimatization and adaptations ● Indoor vs. outdoor performance ● Environmental challenges (pollution, air quality, climate) **Unit 7: Sports Technology & Innovation** ● Wearable technology ● Video analysis and motion capture ● Equipment design innovations ● Controversy of "technology doping" **Unit 8: Strategy, Rules & Analytics** ● Role of strategy in team vs. individual sports ● Using data and statistics in decision-making ● Game theory in sport ● Evolution of rules and officiating technology **Unit 9: Applied Sports Science & Final Project** ● Case studies of athletes and teams ● Designing a mock training plan or performance improvement strategy ● Student-led investigations or sport analysis projects ● Review of major concepts ● Final assessment / project showcase

CURRICULUM MAP

Subject: Kinesiology **Grade Level: 11th/12th** **Updated Review August 2025**

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Unit 1: Introduction to Kinesiology ● What is kinesiology? ● Applications in sports, health, and rehabilitation ● Anatomical position, planes of motion, directional terms **Unit 2: Skeletal System** ● Structure and function of bones ● Major bones of the body ● Types of joints and movement ● Bone growth, repair, and common injuries **Unit 3: Muscular System** ● Types of muscle tissue ● Major muscle groups and actions ● Sliding filament theory (how muscles contract) ● Muscle fatigue, soreness, and injuries **Unit 4: Nervous System & Motor Control** ● Nervous system role in movement ● Neurons, reflex arcs, motor units ● Balance, coordination, and reaction time ● Motor learning and skill acquisition **Unit 5: Biomechanics & Movement Principles** ● Newton's Laws in human movement ● Levers in the human body ● Balance, stability, and center of gravity ● Sports skill and motion analysis	**Unit 6: Exercise Physiology & Energy Systems (Weeks 10–11)** ● ATP and energy pathways ● Aerobic vs. anaerobic activity ● Cardiovascular and respiratory responses to exercise ● Short-term vs. long-term training adaptations **Unit 7: Injury Prevention & Rehabilitation (Weeks 12–13)** ● Common sports injuries (sprains, strains, concussions) ● First aid and RICE method ● Principles of recovery and rehabilitation ● Importance of flexibility and mobility **Unit 8: Performance & Training Principles (Weeks 14–15)** ● Principles of fitness (specificity, overload, progression) ● Training methods for strength, endurance, agility, speed ● Role of nutrition and hydration ● Periodization and training cycles **Unit 9: Applied Kinesiology & Final Project (Weeks 16–18)** ● Movement analysis of sports (running, jumping, throwing) ● Ergonomics and efficiency in movement ● Technology in sports performance (wearables, video analysis) ● Student presentations & review of key concepts ● Final exam / assessment		

CURRICULUM MAP

Subject: Environmental Science **Grade Level: 11th/12th** **Updated Review August 2025**

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		