Grade Level: 7 Unit of Study: Life Science - Human Body

Concepts: Function & Interdependence; Complexity; Owner's Manual

Exploration & Focus Questions	Essential Content	Activities to Provide Students w/Essential Background	Activities That Prompt Students' Questions	Developing Reading and Writing Skills	Experiments & Inquiry Ideas	Demonstrating Learning	Materials
How does my body work? What does my body do? How do I keep my body healthy?	Body Organization: • Cells • Tissue • Organs • Organ systems • Organ systems • Organisms Core Systems: • Immune • Cardio-vascular • Cardio-vascular • Skeletal • Muscular • Digestive • Nervous • Respiratory • Reproductive Whole Organism: • Interdependency of systems NOTE: Conceptual understanding is the focus (more so than memorization of parts)	KWL: what we already know, what we want to know, what we learned Reading Viewing Basic textual research Guest speakers Vocabulary	Labs Data collection and analysis • Vernier probes • Journals Field trips Current events	Reading: • Current events • Reading strategies • Technical, scientific text • Validity of resources • Vocabulary • Synthesis Writing: • Organization • Synthesis • Scientific writing • Lab write-up • Citing sources Note-taking and retention strategies	Background information What can impact/affect systems?	Data and/or statistical analysis and application Sharing research project Formal writing Building models Giving speeches	"Teaching Reading in the Content Area" <i>Nonfiction Matters</i> CREST anatomy models Computers and calculators Vernier probes Digital Library/ online resources Textbook Community partnerships Basic lab equipment Parent communication

Grade Level: 7 Unit of Study: Life Science - Cells

Concepts: Every living thing is made of cells; how cells work

Exploration and Focus Questions	Essential Content	Activities to Provide Students with Essential Background	Activities That Prompt Students' Questions	Developing Reading and Writing	Experiments & Inquiry Ideas	Demonstrating Learning	Materials
What is a cell? How does a cell work? What roles do cells play in living things?	Cell theory Characteristics of cells: • Plant • Animal • Bacteria Differences between types of cells Basic cellular structure and function: • Cell membrane • Cell wall • Nucleus • Ribosome • ER • Chloroplast • Mitochondria • Golgi Complex • Cytoplasm • Vacuoles • Lysosome Cell processes: • Osmosis • Diffusion • Respiration	Cell model Looking at cells: Cheek Onion Pond water Prepared bacterial slides Mitosis slides Comparisons and analogies (ex. more cells in your body than people on the planet)	Plasmolysis (onion exposed to salt water)	Reading: • Current events • Reading strategies • Technical, scientific text • Validity of resources • Vocabulary • Synthesis Writing: • Organization • Synthesis • Scientific writing • Lab write-up • Citing sources Note-taking and retention strategies Observing, sketching, and labeling	Cancer What is a healthy cell? What is an unhealthy cell? Form and function Comparisons and analogies (ex. more cells in your body than people on the planet)	Cell analogies Cell model (with formal writing) Observing, sketching, and labeling	Flexcam (projecting microscope) Slides Textbook Digital Library/ online resources Community partnerships Basic lab equipment

Grade Level: 7 Unit of Study: Life Science - Genetics/Heredity

Concepts: Traits are determined by DNA and are passed from one generation to another

Exploration and Focus Questions	Essential Content	Activities to Provide Students with Essential Background	Activities That Prompt Students' Questions	Developing Reading and Writing	Experiments & Inquiry Ideas	Demonstrating Learning	Materials
How are traits determined? How are traits passed from one generation to another? How am I different/the same as my ancestors?	Hierarchy of: • Chromosome • Gene • DNA Structure of DNA/genes: • Base pairs • Coding • Sugar/phosphate Mendel and his peas: • Punnett squares • Dominant • Recessive • Hybrid • Selective breeding • Co-dominance • Incomplete dominance • Genotype • Phenotype Meiosis and Mitosis (role in genetics)	DNA Model: basic structure* Punnett square crosses *NOTE: Replication DNA model covered in high school Biology	Mutations and genetic diseases/ disorders Genetic cross simulations Current events DNA extraction	Reading: • Current events • Reading strategies • Technical and scientific text • Validity of resources • Vocabulary • Synthesis Writing: • Organization • Synthesis • Scientific writing • Lab write-up • Citing sources Note-taking and retention strategies	Cloning GMOs DNA fingerprinting (not a lab)	Genetic pedigree Speeches Formal writing	"A Monk in the Garden" Microscopes and slides Projecting microscope Digital Library/ online resources Community partnerships Basic lab equipment

Grade Level: 7 Unit of Study: Life Science - Evolution

Concept: Living things are changed over geologic time

Exploration and Focus Questions	Essential Content	Activities to Provide Students with Essential Background	Activities That Prompt Students' Questions	Developing Reading and Writing	Experiments & Inquiry Ideas	Demonstrating Learning	Materials
What is evolution? Under what conditions do species evolve? (the role of environment, mutation, etc.) What is the difference between adaptation, natural selection, and evolution?	Species do not choose to evolve Charles Darwin Evidence for evolution: • Fossil record • Adaptations • Carbon dating • Natural selection (survival of the fittest) • Genome mapping • Speciation Geologic time • Time periods and organisms existing during periods • Geologic extinctions Classification • Hierarchy • Scientific naming	Drawing conclusions from physical evidence (examining fossils, etc.) Construct geologic timeline Slide show - climate change in Oregon prompting species adaptation (Wendy)	What is instinct? Nature versus nurture discussion "Are humans evolving?" discussion • Height • Hominid skulls • Brain pathways	Reading: • Current events • Reading strategies • Technical and scientific text • Validity of resources • Vocabulary • Synthesis Writing: • Organization • Synthesis • Scientific writing • Lab write-up • Citing sources Note-taking and retention strategies	Simulation for natural selection Correlation of a trait and income level (i.e., height, weight, etc.)	Case studies: • How might species evolve to adapt to environmental factors? • Survival predictions	PBS Series: The Journey of Man Basic lab equipment John Day fossil kit Textbook Digital Library/ online resources The Dalles Discovery Center (mammoth tusk) Tualatin Library (1/2 of mammoth skeleton) Fossil collection (wish list)