Western Line SCHOOL DISTRICT

Pacing Guide
2026-2027 School Year

Biology I

TERM 1	
Term 1 Weeks	**MS College and Career Readiness Standards**
Week 1 (Aug 5-14)	**Scientific Practices; Characteristics of Life, Cell Theory, and Organization** *Science and Engineering Practices: Ask questions and define problems; develop and use models; analyze and interpret data; plan and conduct investigations; use mathematical and computational thinking; engage in argument from evidence; construct explanations and design solutions; obtain, evaluate, and communicate information.* **BIO.1A.1** Develop criteria to differentiate between living and non-living things. **BIO.1A.2** Describe the tenets of cell theory and the contributions of Schwann, Hooke, Schleiden, and Virchow. **BIO.1A.3** Using specific examples, explain how cells can be organized into complex tissues, organs, and organ systems in multicellular organisms. **BIO.1A.4** Use evidence from current scientific literature to support whether a virus is living or nonliving.
Week 2 (Aug 17-21)	**Biomolecules, Enzymes, and Cell Structures** **BIO.1B.1** Develop and use models to compare and contrast the structure and function of carbohydrates, lipids, proteins, and nucleic acids (DNA and RNA) in organisms. **BIO.1B.2** Design and conduct an experiment to determine how enzymes react under various environmental conditions; analyze, interpret, graph, and present data to explain effects on enzyme activity and reaction rates. **BIO.1C.1** Develop and use models to explore how specialized structures within cells interact to carry out functions necessary for organism survival. **BIO.1C.2** Investigate to compare and contrast prokaryotic and eukaryotic cells and plant, animal, and fungal cells. **BIO.1C.3** Contrast the structure of viruses with that of cells and explain why viruses must use living cells to reproduce.
Week 3 (Aug 24-28)	**Cell Membranes, Transport, and Homeostasis** **BIO.1D.1** Plan and conduct investigations to demonstrate that the cell membrane is semipermeable, allowing maintenance of homeostasis through active and passive transport. **BIO.1D.2** Develop and use models to explain how the cell deals with imbalances of solute concentration across the cell membrane, including hypertonic, hypotonic, and isotonic conditions and the sodium/potassium pump. *Unit assessment and targeted reteaching as needed.*
Week 4 (Aug 29-Sept 2)	**Cumulative Review, Targeted Reteaching, and Benchmark Assessment 1**
Week 5 (Sept 3-11)	**Cell Cycle, Mitosis, Differentiation, and Asexual Reproduction** **BIO.1E.1** Construct models to explain how cell division and cell differentiation produce and maintain complex multicellular organisms. **BIO.1E.2** Identify and describe changes during cell replication and explore problems that may occur when the cell cycle does not progress correctly, including cancer. **BIO.1E.3** Relate cellular reproduction to asexual reproduction in simple organisms and explain why daughter-cell DNA is the same as parent-cell DNA. **BIO.1E.4 Enrichment:** Investigate stem cells in regeneration and asexual reproduction and develop applications to human medical conditions.
Week 6 (Sept 14-18)	**Cellular Energy: ATP, Photosynthesis, and Cellular Respiration** **BIO.2.1** Use models to demonstrate that ATP and ADP are cycled within a cell to transfer energy. **BIO.2.2** Develop models of the major reactants and products of photosynthesis to demonstrate transformation of light energy into stored chemical energy. **BIO.2.3** Develop models of the major reactants and products of aerobic and anaerobic cellular respiration to demonstrate transformation of stored chemical energy into ATP. **BIO.2.4** Conduct investigations or simulations to compare aerobic and anaerobic cellular respiration in plants and animals.
Week 7 (Sept 21-25)	**Fermentation, Meiosis, Fertilization, and Chromosomal Abnormalities** **BIO.2.5 Enrichment:** Investigate variables affecting anaerobic respiration and real-world applications of fermentation. **BIO.2.6 Enrichment:** Use an engineering design process to manipulate fermentation factors to optimize energy production.

	BIO.3A.1 Model meiosis and fertilization to demonstrate maintenance of chromosome number and explain why daughter-cell DNA differs from parent-cell DNA. **BIO.3A.2** Compare and contrast mitosis and meiosis in terms of reproduction. **BIO.3A.3** Investigate chromosomal abnormalities arising from errors in meiosis and how they are identified using karyotypes.
Week 8 (Sept 28- Oct 5)	**DNA, Genes, Chromosomes, DNA Technology and Protein Synthesis** **BIO.3C.1** Develop and use models to explain the relationship among DNA, genes, and chromosomes in coding instructions for inherited traits. **BIO.3C.2** Evaluate the mechanisms of transcription and translation in protein synthesis. **BIO.3C.3** Use models to predict how changes in nucleotide sequence affect the resulting protein and inherited trait. **BIO.3C.4** Research how DNA technology benefits society and engage in scientific argument from evidence concerning ethical issues surrounding DNA technology. **BIO.3C.5 Enrichment:** Investigate current biotechnological applications in genome study, including transcriptomics, proteomics, individualized sequencing, and gene therapy.
Week 9 (Oct 6-7)	*Cumulative laboratory/application tasks, review, and remediation.*
Week 9 (Oct 8-9)	**Benchmark Assessment 2** *Spiral review of BIO.1A-BIO.3C standards; benchmark or comprehensive unit assessment; data analysis, remediation, and enrichment.*

TERM 1

Recurring Standards
(Standards that have been introduced but will be reviewed or revisited during the nine weeks.)

Standards: BIO.1A.1-BIO.1E.4; BIO.2.1-BIO.2.6; BIO.3A.1-BIO.3A.3; BIO.3C.1-BIO.3C.5. Revisit science and engineering practices, data analysis, modeling, experimental design, cell structure/function, energy transformations, heredity, and DNA/protein synthesis throughout the term based on formative and benchmark data.

Western Line SCHOOL DISTRICT

Pacing Guide
2026-2027 School Year

Biology I

TERM 2	
Term 2 Weeks	**MS College and Career Readiness Standards**
Week 1 (Oct 13-16)	**Mendelian Genetics and Probability** **BIO.3B.1** Demonstrate Mendel's law of dominance and segregation using mathematics to predict phenotypic and genotypic ratios with Punnett squares. **BIO.3B.2** Illustrate Mendel's law of independent assortment using Punnett squares and/or the product rule of probability to analyze monohybrid crosses.
Week 2 (Oct 20-23)	**Non-Mendelian Genetics and Pedigrees** **BIO.3B.3** Investigate traits that follow non-Mendelian inheritance patterns, including incomplete dominance, codominance, multiple alleles, and sex linkage. **BIO.3B.4** Analyze and interpret pedigree, family, and population data regarding Mendelian and complex genetic traits to determine inheritance patterns and disease risk. *Unit assessment and targeted reteaching as needed.*
Week 3 (Oct 26-30)	**Ecological Organization, Matter Cycling, Climate, and Energy Flow** **BIO.5.1** Illustrate levels of ecological hierarchy from organism through biosphere. **BIO.5.2** Analyze models of the cycling of carbon, nitrogen, phosphorus, and water between abiotic and biotic factors and evaluate ecosystem sustainability. **BIO.5.3** Analyze and interpret quantitative data to explain effects of greenhouse gases on the carbon dioxide cycle and global climate. **BIO.5.4** Develop and use models to describe energy flow and biomass through food chains, food webs, and food pyramids.
Week 4 (Nov 2-4)	**Cumulative Review, Targeted Reteaching, and Benchmark Assessment 3**
Week 5-6 (Nov 5-13)	**Ecological Relationships, Populations, and Succession** **Ecological Engineering and Human Impacts** **BIO.5.5** Evaluate symbiotic and coevolutionary relationships within specific environments. **BIO.5.6** Analyze and interpret population data to define limiting factors and use growth curves to illustrate carrying capacity. **BIO.5.7** Investigate and evaluate factors involved in primary and secondary ecological succession using local, real-world examples. **BIO.5.8 Enrichment:** Use an engineering design process to create a solution addressing changing ecological conditions, such as climate change, invasive species, biodiversity loss, population growth, habitat destruction, biomagnification, or natural phenomena. **BIO.5.9 Enrichment:** Use an engineering design process to investigate and model technological uses of biomimicry to address real-world problems.
Week 6 (Nov 16-20)	**Evidence for Evolution and Common Ancestry** **BIO.4.1** Use models to differentiate between organic and chemical evolution, illustrating steps leading to aerobic heterotrophs and photosynthetic autotrophs. **BIO.4.2** Evaluate empirical evidence of common ancestry and biological evolution, including comparative anatomy, fossil records, molecular/biochemical similarities, and biogeographic distribution.
Week 7 (Nov 30- Dec 4)	**Phylogeny, Natural Selection, and Adaptation** **Speciation, Disease,** **BIO.4.3** Construct cladograms/phylogenetic trees to illustrate relatedness between species. **BIO.4.4** Design models and use simulations to investigate interactions between changing environments and genetic variation in natural selection, adaptation, and differential population success. **BIO.4.5** Use Darwin's Theory to explain how genetic variation, competition, overproduction, and unequal reproductive success drive natural selection and evolution. **BIO.4.6** Construct explanations for mechanisms of speciation, including geographic and reproductive isolation. **BIO.4.7 Enrichment:** Construct explanations for how disease agents, including bacteria, viruses, and chemicals, can influence natural selection.
Week 8 (Dec 7-11)	Complete remaining laboratory/application tasks; cumulative EOC-style review and targeted remediation.

Week 9 (Dec 14-18)	**Comprehensive Review and End-of-Course Assessment** *Spiral review of all Biology I standards; benchmark/end-of-course assessment; data-based intervention, reassessment, and enrichment.*

TERM 2

Recurring Standards
(Standards that have been introduced but will be reviewed or revisited during the nine weeks.)

Standards: BIO.3B.1-BIO.3B.4; BIO.5.1-BIO.5.9; BIO.4.1-BIO.4.7, with cumulative review of all Term 1 standards. Continue recurring practice with scientific argument, quantitative data, models, investigations, genetics, ecology, evolution, and EOC-style application tasks.