
7th Grade Life Science

Curriculum Guide

Scranton School District

Scranton, PA



7th Grade Life Science

Prerequisite:

- Completion of 6th Grade Science

Life Science establishes the study of living things and how they interact with the non-living world. This course readies students for further, more in-depth studies in the sciences through the establishment of underlying knowledge of living things and their environments. Topics presented in this course include, but are not necessarily limited to, cells, cell parts, cell processes, classification, cell reproduction, genetics, heredity, evolution, and ecology.

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Year-at-a-glance

Subject: 7 th Grade Life Science	Grade Level: 7	Date Completed: 6-16-15
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1st Quarter

Topic	Resources	Assessment Anchor
Cells	Approved textbook	S.6.B.1.1 CC.3.5.6-8.D
Cellular Organelles	Approved textbook	S.6.B.1.1
Levels of Organization	Approved textbook	S.7.B.1.1
Cells and Their Environment	Approved textbook	S.6.B.1.1
Cellular Processes (Photosynthesis, Respiration, Fermentation)	Approved textbook	S.8.B.1.1

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2nd Quarter

Topic	Resources	Assessment Anchor
Characteristics of Living Things	Approved textbook	S.6.B.1.1 CC.3.5.6-8.D CC.3.5.6-8.G
Classifying Organisms	Approved textbook	S.8.B.1.1
Cell Reproduction (Asexual and Sexual)	Approved textbook	S.7.B.1.2
Cell Division (Mitosis and Meiosis)	Approved textbook	S.7.B.1.2

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3rd Quarter

Topic	Resources	Assessment Anchor
Genetics	Approved textbook	S.6.B.2.1 S.7.B.2.2 CC.3.5.6-8.A CC.3.5.6-8.D CC.3.5.6-8.G
Advanced Genetics	Approved textbook	S.7.B.2.2
Genetic Variations	Approved textbook	S.8.B.2.2
Genetics Causing Change	Approved textbook	S.6.B.2.1 S.7.B.2.1

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4th Quarter

Topic	Resources	Assessment Anchor
Evolution and Natural Selection	Approved textbook	S.6.B.2.1 S.7.B.2.1 S.8.B.2.1 CC.3.5.6-8.A CC.3.5.6-8.D CC.3.5.6-8.G
Ecosystems	Approved textbook	S.6.B.3.1 S.7.B.3.1 S.8.B.3.1 S.7.B.3.2 S.8.B.3.2
Renewable/Nonrenewable Resources	Approved textbook	S.7.B.3.2 S.8.B.3.3

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General Topic	Academic Standard(s)	Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time
Scientific Method/Scientific Inquiry	CC.3.5.6-8.C			Teacher prepared tests, quizzes, etc. Corresponding Plato series (optional)	5 days
Cellular Biology	S.6.B.1.1 S.7.B.1.1 S.8.B.1.1 CC.3.5.6-8.D				
Cells			Approved textbook		15 days
Prokaryotic/Eukaryotic Unicellular/Multicellular		prokaryote, eukaryote, unicellular, multicellular, nucleus, cell, microscope			
Organelles		cell, cell theory, organelle, cell wall, cell membrane, cytoplasm, mitochondria, nucleus, nucleolus, nuclear envelope, endoplasmic reticulum, ribosome, golgi body, chloroplast, vacuole, lysosome			
Levels of Organization		cell, tissue, organ, organ system, organisms, cardiovascular, integumentary, immune, digestive, nervous, etc.			

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Cellular Processes			Approved textbook		20 days
Cells in Environment - Diffusion - Active Transport		selectively permeable, diffusion, osmosis, passive transport, active transport, concentration (high/low), engulfing, endocytosis, exocytosis, pseudopod			
Photosynthesis		photosynthesis, autotroph, heterotroph, pigment, chloroplast, chlorophyll, stomata			
Respiration		respiration, glucose, oxygen			
Fermentation		fermentation, lactic acid, alcohol			
Basic Biological and Chemical Principles of Life	S.6.B.1.1 S.7.B.1.2 S.8.B.1.1 CC.3.5.6-8.D CC.3.5.6-8.G				
Characteristics of Living Things		organism, unicellular, multicellular, stimulus, response, development, spontaneous generation, homeostasis, energy	Approved textbook		8 days

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Classifying Organisms		classification, taxonomy, binomial nomenclature, genus, species, prokaryote, eukaryote, domain, kingdom	Approved textbook		8 days
Purpose of Classification		classification, taxonomy, binomial nomenclature, similarities			
Domains and Kingdoms		domain, kingdom, archea, eukarya, bacteria, protista, fungi, plantae, animalia			
Phyla, Class, Order, Family, Genus, species		phylum, class, order, family, genus, species			
What defines a species					
Cell Division - Somatic Cell Cycle			Approved textbook		6 days
Interphase		interphase, G1 phase, S phase, G2 phase, replication			
Mitosis		mitosis, nucleus, prophase, metaphase, anaphase, telophase			
Cytokinesis		cytokinesis, cell plate			

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Cell Reproduction			Approved textbook		14 days
Structure/Role of DNA		DNA, bases, adenine, cytosine, guanine, thymine, urasil, histones, double helix, RNA, base-pairs, mutation			
Chromosomes/Genes - Function - arrangement		chromosome, centromere, chromatid, X chromosome, Y chromosome, traits, mutation			
Meiosis		meiosis, diploid (2n), haploid (n)			
Genetics	S.6.B.2.1 S.7.B.2.1 S.7.B.2.2 S.8.B.2.2 CC.3.6.6-8.A CC.3.5.6-8.D CC.3.5.6-8.G				
Mendel's Genetics			Approved textbook		16 days
Probability		probability			
Mendel's Studies		heredity, trait, genetics, fertilization, purebred, gene, alleles, hybrid, homozygous, heterozygous			

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Dominant/Recessive Genes		dominant alleles, recessive alleles			
Punnett Squares		Punnett Square, phenotype, genotype			
Incomplete Dominance Codominance		incomplete dominance, codominance			
Sex-linked Genes		sex chromosomes, sex-linked traits, carrier			
Pedigree		pedigree			
Modern Genetics			Approved textbook		20 days
Human Inheritance		multiple alleles			
Genetic Disorders		genetic disorder, karyotype, Down syndrome, sickle-cell anemia			
Advances in Genetics		selective breeding, inbreeding, clone, genetic engineering, gene therapy, genome			

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Evolution and Ecology	S.6.B.2.1 S.6.B.3.1 S.7.B.2.1 S.7.B.3.1 S.7.B.3.2 S.8.B.2.1 S.8.B.3.1 S.8.B.3.2 S.8.B.3.3 CC.3.6.6-8.A CC.3.5.6-8.D CC.3.5.6-8.G				
Change Over Time			Approved textbook		15 days
Scientists - Lamarck - Wallace - Darwin		species, evolution, adaptation, scientific theory, habitat			
Natural Selection - Overproduction - Variations, etc		natural selection, overproduction, variations, adaptations, competition			
Adaptations - Camouflage - Mimicry - Body features		adaptations, camouflage, mimicry			
Evidence of Evolution - Fossils - Homologous Structures		homologous structures, fossil			
Ecology			Approved textbook		20 days

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Biotic/Abiotic Factors - Water, Carbon, - Nitrogen Cycles		biotic factor, abiotic factor, ecosystem, water cycle, evaporation, condensation, precipitation, nitrogen fixation			
Ecosystems and Biomes		ecosystem, biome, canopy, understory, desert, savanna, grassland, habitat, population, community, ecology, tundra, estuary			
Energy Flow/Food Webs		producer, consumer, herbivore, carnivore, omnivore, decomposer, scavenger, food chain, food web, energy pyramid, predator, prey			
Populations - Relationships - Niches		natural selection, adaptations, niche, competition, symbiosis, mutualism, commensalism, parasitism, parasite, host			
Humans and the Environment			Approved textbook		20 days (or remaining school days)
Environmental Issues		pollution, natural resource, renewable resource, nonrenewable resource, environmental science			
Effect on Existing Environment		poaching, keystone species, biodiversity, extinction, endangered species, threatened species, habitat destruction,			

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Food Production		captive breeding, clear cutting, selective cutting, sustainable yield, fishery, aquaculture			
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