Study Resources for the Praxis® Elementary Education: Science Test (5005)

The links below allow you to connect content topics on this *Praxis*® test directly to free Khan Academy study resources.

***Praxis* Elementary Education: Science (5005) Content Topics**	**Study Resources**
I. Science	**Lesson**
A. Earth Science	
1. Understands the structure of the Earth system (e.g., structure and properties of the solid Earth, the hydrosphere, the atmosphere)	Structure of the earth Compositional and mechanical layers of the earth How we know about the earth's core
2. Understands processes of the Earth system (e.g., earth processes of the solid Earth, the hydrosphere, the atmosphere)	Plate tectonics: Evidence of plate movement Plate tectonics: Geological features of divergent plate boundaries Plate tectonics: Geological features of convergent plate boundaries Plates moving due to convection in mantle Seismic waves Biogeochemical cycles overview The water cycle
3. Understands Earth history (e.g., origin of Earth, paleontology, the rock record)	Earth formation Beginnings of life Hawaiian islands formation Pangaea Fossils: Rocking the Earth
4. Understands Earth and the universe (e.g., stars and galaxies; the solar system and planets; Earth, Sun, and Moon relationships)	Intro to Moon phases Solar and lunar eclipses Scale of the large Scale of earth and sun Scale of solar system Scale of distance to closest stars

Praxis Elementary Education: Science (5005) Content Topics	Study Resources
Understands Earth and the universe (e.g., stars and galaxies; the solar system and planets; Earth, Sun, and Moon relationships) *(continued)*	Scale of the galaxy Big bang introduction
5. Understands Earth patterns, cycles, and change	Seasons aren't dictated by closeness to sun How Earth's tilt causes seasons Biogeochemical cycles overview The water cycle
6. Understands science as a human endeavor, process, and career	
7. Understands science as inquiry (e.g., questioning, gathering data, drawing reasonable conclusions)	The scientific method Data to justify experimental claims examples Introduction to experimental design
8. Understands how to use resource and research material in science	
9. Understands the unifying processes of science (e.g., systems, order, and organization)	
B. Life Science	
1. Understands the structure and function of living systems (e.g., living characteristics and cells, tissues and organs, life processes)	Biology overview Scale of the small The discovery of the double helix structure of DNA DNA replication and RNA transcription and translation Introduction to metabolism: Anabolism and catabolism ATP: Adenosine triphosphate Enzymes Scale of cells Cell theory Prokaryotic and eukaryotic cells

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Understands the structure and function of living systems (e.g., living characteristics and cells, tissues and organs, life processes) *(continued)*	Overview of animal and plant cells Cellular respiration introduction Photosynthesis Interphase Mitosis Comparing mitosis and meiosis Cancer
2. Understands reproduction and heredity (e.g., growth and development, patterns of inheritance of traits, molecular basis of heredity)	Fertilization terminology: gametes, zygotes, haploid, diploid Zygote differentiating into somatic and germ cells Introduction to heredity Alleles and genes Worked example: Punnett squares Thomas Hunt Morgan and fruit flies Cellular specialization (differentiation)
3. Understands change over time in living things (e.g., life cycles, mutations, adaptation and natural selection)	Introduction to evolution and natural selection Variation in a species Evidence for evolution DNA spells evolution Species Biodiversity and natural selection Genetic variation, gene flow, and new species
4. Understands regulation and behavior (e.g., life cycles, responses to external stimuli, controlling the internal environment)	Homeostasis Animal communication Animal behavior: foraging
5. Understands unity and diversity of life, adaptation, and classification	Variation in a species Fossils: Rocking the Earth

***Praxis* Elementary Education: Science (5005) Content Topics**	**Study Resources**
Understands unity and diversity of life, adaptation, and classification *(continued)*	Taxonomy and the tree of life Biodiversity and natural selection Discovering the tree of life How biodiversity is distributed globally Why biodiversity is distributed globally Prokaryotic and eukaryotic cells Bacteria
6. Understands the interdependence of organisms (e.g., ecosystems, populations, communities)	Ecology introduction Interactions between populations Predator-prey cycles Ecosystems and ecological networks Ecosystems and biomes Flow of energy and matter through ecosystems Example identifying roles in a food web
7. Knows about personal health (e.g., nutrition, communicable diseases, substance abuse)	LeBron Asks: Why does sweating cool you down? Viruses Cancer
8. Understands science as a human endeavor, process, and career	
9. Understands science as inquiry (e.g., questioning, gathering data, drawing reasonable conclusions)	The scientific method Data to justify experimental claims examples Introduction to experimental design
10. Understands how to use resource and research material in science	
11. Understands the unifying processes of science (e.g., systems, order, and organization)	

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C. Physical Science	
1. Understands the physical and chemical properties and structure of matter (e.g., changes of states, mixtures and solutions, atoms and elements)	Elements and atoms Elements and atoms Introduction to the atom Groups of the periodic table Ionic, covalent, and metallic bonds Chemical reactions introduction Hydrogen bonding in water Water as a solvent Liquid water denser than solid water (ice) Definition of pH Introduction to buffers
2. Understands forces and motions (e.g., types of motion, laws of motion, forces and equilibrium)	Introduction to physics Calculating average velocity or speed Position vs. time graphs Acceleration Newton's first law of motion introduction Newton's second law of motion Newton's third law of motion Balanced and unbalanced forces Unbalanced forces and motion Introduction to gravity Mass and weight clarification Gravity for astronauts in orbit Would a brick or feather fall faster? Archimedes principle and buoyant force

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3. Understands energy (e.g., forms of energy, transfer and conservation of energy, simple machines)	Introduction to energy Conservation of energy
4. Understands interactions of energy and matter (e.g., electricity, magnetism, sound)	Triboelectric effect and charge Introduction to magnetism Introduction to waves Production of sound Sound Properties: Amplitude, period, frequency, wavelength Doppler effect introduction
5. Understands science as a human endeavor, process, and career	
6. Understands science as inquiry (e.g., questioning, gathering data, drawing reasonable conclusions)	The scientific method Data to justify experimental claims examples Introduction to experimental design
7. Understands how to use resource and research material in science	
8. Understands the unifying processes of science (e.g., systems, order, and organization)	