

Subject: Science

Resources: Discovery works Textbook

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***The Long-Range Plans are based on the NAD and NYS Curriculum Learning Standards.**

There will be an integration of faith and learning as per SDA beliefs. Summative final grades are based on select assignments (homework, class work, quiz, projects, essays, etc.) Exams – There will be at least 2 test each marking period.

Students will be tested on the following standards for science:

Physical Setting

The Earth and celestial phenomena can be described by principles of relative motion and perspective.

Many of the phenomena that we observe on Earth involved interactions among components of air, water, and land.

Matter is made up of particles whose properties determine the observable characteristics of matter and its relativity.

Energy exists in many forms, and when these forms change, energy is converted.

Energy and matter interact through forces that result in changes in motion.

The Living Environment

Living things are both similar to and different from each other and from nonliving things.

Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.

Individual organisms and species change over time.

The continuity of life is sustained through reproduction and development.

Plants and animals depend on each other and their physical environment.

Human decisions and activities have had a profound impact on the physical and living environment.

NAD Standards

Life Science

Heredity: Inheritance and Variation of Traits

S.3-5.LS.7 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1) Level 4 – Ch. 1.1, 1.4 Level 4 - ATBD

S.3-5.LS.8 Use evidence to support the explanation that traits can be influenced by the environment (e.g., Galapagos finches, peppered moth). (3-LS3-2) Level 4 – Ch. 2.1, 2.2, Ch. 3.3 Level 4 - ATBD

Life: Origins, Unity, and Diversity

S.3-5.LS.9 Analyze and interpret data (e.g., type, size, distributions) from fossils to provide evidence of the organisms and the environments (e.g., marine fossils on dry land, tropical plant fossils in Arctic areas, fossils of extinct organisms) in which they lived long ago. Level 4 – Ch. 8.2 Level 4 - ATBD

S.3-5.LS.10 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing (e.g., plants with larger thorns are less likely to be eaten by predators, animals with better camouflage coloration are more likely to survive and to reproduce). Level 4 – Ch. 2.1, 2.2 Level 4 - ATBD

S.3-5.LS.11 Construct an argument with evidence (e.g., needs, characteristics) that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. (3-LS4-3) Level 4 – Ch. 2.1, 2.2, Ch. 3.3 Level 4 - ATBD

S.3-5.LS.12 Make a claim about the merit of a plant or animal adaptation in response to an environmental change (e.g., land characteristics, water distribution, temperature, food, other organisms). Level 4 – Ch. 2.1, 2.2, Ch. 3.2, 3.3 Level 4 - ATBD

S.3-5.LS.13 Construct an argument with evidence to support that God has created within living things a pool of variations that allows organisms to adapt to changes in the environment. Level 4 – Ch. 2.1, 2.2 Level 4 - ATBD

S.3-5.LS.14 Apply scientific principles to construct a personal model that explains origins of life on earth and acknowledges God as the Creator. Level 4 – Ch. 1.1, 1.2, Ch. 4.1

Health Science

Health Resources

S.3-5.HS.7 Construct a model that illustrates the various influences that impact personal health. Level 4 – Ch. 4.2, 4.3, Ch. 5.3 Level 4 – ATBD

S.3-5.HS.8 Construct a model that demonstrates the ability to use decision-making skills to enhance health. Level 4 – Ch. 5.3, Ch. 6.1, 6.2, 6.3

Level 4 – ATBD

S.3-5.HS.10 Select a personal health goal, evaluate health resources to develop and implement a plan aimed at achieving the goal, and monitor progress toward the goal. Level 4 – Ch. 4.2, Ch. 5.1, 5.3, Ch. 6.2 Level 4 – How Can I Take Care of My Body to Stay Healthy TE 121/SJ 4; Balanced Diet SE 137/SJ 12; Exercise Journal TE 141/SJ 16, LA 142, LA 143; Choices We Make SE 159/ SJ 26; Making Decisions SE 179/SJ 38; Peer Pressure TE 179/SJ 40, LA 183, LA 185, LA 203

S.3-5.HS.11 Gather, synthesize, and present information from the Bible about God’s plan for healthy living. Level 4 – Ch. 4.2, Ch. 5.3, Ch. 6.2

Earth & Space Science

Earth and Human Activity

S.3-5.ES.8 Obtain and combine information to describe that energy and fuels are derived from natural resources (e.g., wind energy, water behind dams, sunlight, fossil fuels, fissile materials) and their uses affect the environment (e.g., loss of habitat due to dams, surface mining, air pollution). (4-ESS3-1) Level 4 – Ch. 3.4, Ch. 8.1, 8.3 Level 5 – Ch. 10.3, 10.4 Level 3 – Water Monitor TE 107/SJ 54; Connecting to Resources SE

113/SJ 56; What's Inside TE 113/SJ 58; Pollution in the Air TE 117/SJ 60, EAL 119, EAL 120 Level 4 – The Game of Life SE 109/SJ 56; Locally Threatened Species TE 109/SJ 58, EAL 112

S.3-5.ES.9 Generate and compare multiple solutions (e.g., earthquake resistant building, monitoring volcanic activity) to reduce the impacts of natural Earth processes on humans. (4-ESS3-2) Level 4 – Ch. 7.2, 7.3 Level 4 – Stand Up to Earthquakes SE 228/ SJ 4; A Strong Up to Earthquakes TE 228/SJ 14, Mudflow in a Jar TE 245/SJ 20

S.3-5.ES.10 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1) Level 4 – Ch. 8.3 Level 3 – TT 112;

S.3-5.ES.11 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1) Level 4 – Ch. 7.1, 7.2, 7.4, Ch. 8.2 Level 4 – TT 262; Changing a Rock SE 263/S J30; TT 272; Fossil Layers SE 273/SJ 38; Indoor Fossil Dig TE 273/SJ 40, EAL 275 S.3-

5.ES.12 Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. (5-ESS1-1) Level 4 – Ch. 9.4 Level 4 – ATBD

S.3-5.ES.13 Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. (5-ESS1-2) Level 4 – Ch. 9.2 Level 5 – Ch. 8.4

Matter & its Interaction

S.3-5.PS.1 Develop a model to describe that matter is made of particles too small to be seen (e.g., add air to expand a basketball, compress air in a syringe, dissolve sugar in water, evaporate salt water). (5-PS1-1) Level 4 – Ch. 10.1, 10.2, 10.3

S.3-5.PS.2 Measure and graph quantities to provide evidence that the total weight of matter is conserved regardless of the type of change (e.g., phase changes, dissolving, mixing) that occurs when heating, cooling, or mixing substances. (5-PS1-2) Level 4 – Ch. 10.1, 10.4, 10.5

S.3-5.PS.3 Make observations and measurements to identify materials (e.g., powders, metals, minerals, liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility). (5-PS1-3) Level 4 – Ch. 8.1, Ch. 10.1, 10.2, Ch. 11.1, 11.2

S.3-5.PS.4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4) Level 4 – Ch. 10.4, 10.5

Motion and Stability: Forces and Interactions

S.3-5.PS.7 Ask questions to determine cause and effect relationships (e.g., distance between objects affects strength of the force, orientation of magnets affect direction of magnetic force) of electric or magnetic interactions between two objects not in contact with each other. (3-PS2-3) Level 4 – Ch. 11.1, 11.2, 11.

S.3-5.PS.8 Define a simple design problem (e.g., constructing a door latch, creating a device to keep two moving objects from touching) that can be solved by applying scientific ideas about magnets. (3-PS2-4) Level 4 – Ch. 11.1, 11.2

S.3-5.PS.10 Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1

S.3-5.PS.11 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. (4-PS3-2)

S.3-5.PS.13 Apply scientific principles to design, test, and refine a device (e.g., electric motor, solar heater) that converts energy from one form to another. (4-PS3-4)

S.3-5.PS.14 Use models (e.g., diagrams, flow charts) to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. (5-PS3-1)

Engineering Design

S.3-5.ET.1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

S.3-5.ET.2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. (3-5-ETS1-2)

S.3-5.ET.3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. (3-5-ETS1-3)

Science

First Marking Period

Weeks	Topics	Objectives	Themes	Resources
Week 1	Unit 1: Life Science	Students will investigate and find out what plant cells look like and how they work together.	Plant cells	By Design Science pages 16 -33
Week 2	Life Science cont.	Students will learn what different kinds of plants are and how plants grow and reproduce.	Plant cells	By Design Science pages 34 - 54
Week 3	Life Science cont.	Students will learn about several plant adaptations and animal adaptations.	Adaptations	By Design Science pages 58 - 77
Week 4	Life Science cont.	Students will discuss and learn what ecosystems are and find out how organisms interact.	Ecology	By Design Science pages 82 - 99
Week 5	Life Science cont.	Students will learn and find out where plants and animals live and reasons why it is important to care for the environment.	Ecology	By Design Science pages 100 - 115
Week 6	Life Science Review	Students will review unit 1.	Unit 1 Review	By Design Science page 118.
Week 7 & 8	Unit 2: The Human Body	Students will learn and discussed the different systems that make up the body and the various factors that affect the body.	Your complex body	By Design Science pages 124 - 1145

Week 9	The Human Body Cont.	Students will find out what are the different aspects of health.	Your complex body	By Design Science pages 146 - 153
Second Marking Period				
Week 1 & 2	The Human Body cont.	Students will learn more about what drugs are and how they affect your body.	Drugs affect your body	By Design Science pages 158 – 177
Week 3 &4	The Human Body cont.	Students will examine, discuss and learn how a person can avoid drug abuse.	Drugs affect your body	By Design Science pages 178 – 187
Week 5 & 6	The Human Body cont.	Students will learn how their values and character affect them.	Communicating your thoughts and feelings	By Design Science pages 192 – 199
Week 7 & 8	The Human Body cont.	Students will learn how their state of mind affects them and why good communication is important.	Communicating your thoughts and feelings.	By Design Science pages 200 – 211
Week 9	Unit 2 review and submission of project			
Week 10	Mid-Year Local Exam in Core Subjects			
Third Marking Period				
Week 1	Unit 3: Earth and Space Science	Students will learn and investigate what earth structure is.	Changes to earth	By Design Science pages 220 - 127
Week 2	Earth and Space Science cont.	Students will share and learn what causes earthquakes and volcanoes.	Changes to earth	By Design Science pages 228 - 237

Week 3	Earth and Space Science cont.	Students will discuss and investigate how weathering and erosion reshape the land.	Changes to earth	By Design Science pages 238 - 249
Week 4	Earth and Space Science cont.	Students will learn what happened in earth's past.	Changes to earth	By Design Science pages 250 - 257
Week 5	Earth and Space Science cont.	Students will share and learn what are rocks.	Earth's rocks and resources	By Design Science pages 262 - 271
Week 6	Earth and Space Science cont.	Students will learn and investigate what are fossils.	Earth's rocks and resources	By Design Science pages 272 - 279
Week 7	Earth and Space Science cont.	Students will discuss and learn why natural resources are important.	Earth's rocks and resources	By Design Science pages 280 - 287
Week 8	Earth and Space Science cont.	Students will learn and investigate how scientist explores space.	Exploring space	By Design Science pages 292 - 299
Week 9	Earth and Space Science cont.	Students will discuss and learn what is in our solar system.	Exploring space	By Design Science pages 300 - 311
Week 10	Earth and Space Science cont.	Students will learn and share what makes up the universe.	Exploring space	By Design Science pages 312- 319
Fourth Marking Period				
Week 1	Unit 4: Physical Science	Students will learn and discuss what properties of matter are.	Matter	By Design Science pages 328 - 337
Week 2	Physical Science cont.	Students will discuss the various states of matter.	Matter	By Design Science pages 338 - 345
Week 3	Physical Science cont.	Students will discuss and learn what the atomic theory is.	Matter	By Design Science pages 346 - 351
Week 4	Physical Science cont.	Students will learn and discover what mixtures	Matter	By Design Science pages 352 - 357

		and solutions are.		
Week 5	Physical Science cont.	Students will investigate what physical and chemical changes are.	Matter	By Design Science pages 358 - 363
Week 6	Physical Science cont.	Students will discuss and learn what magnets are.	Magnetism and electricity	By Design Science pages 368 - 375
Week 7	Physical Science cont.	Students will investigate what electricity is.	Magnetism and electricity	By Design Science pages 376 - 383
Week 8	Physical Science cont.	Students will investigate and discuss how magnets and electricity related.	Magnetism and electricity	By Design Science pages 384 - 391
Week 9	Final Examination			