Secondary Science Curriculum

ACKNOWLEDGEMENT

In June of 2004, a committee of teachers and administrators was formed to develop a Science and Health Curriculum with a K-12 continuum. The committee members combined their unique competencies and interests in a joint effort to develop this curriculum, which is the result of the interactions and idea exchanges among the committee members, from teachers and administrators within the school system.

This curriculum should assist teachers in determining the expected concept and performance level at the various grades. It is not designed to restrict or limit the creativity or imagination of the teachers. The guide serves as a springboard for the development of additional concepts and masters of skills, depending on the ability and interests of each student.

This project was successfully completed because of the dedication and consistent efforts of the committee members who participated in this project.

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Secondary – Science
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We are grateful to these committee members, and support and compliment their fine efforts.

Code No. 608

FREEDOM TO TEACH, TO LEARN, AND TO EXPRESS IDEAS IN THE PUBLIC SCHOOLS

The freedom to teach, to learn, and to express ideas without fear of censorship are fundamental rights held by public school teachers and students as well as all other citizens. These freedoms, expressed and guaranteed in the First Amendment to the U.S. Constitution, must be preserved in the teaching/learning process in a society of diverse beliefs and viewpoints and shared freedoms. Public schools must promote an atmosphere of free inquiry and a view of subject matter reflecting a broad range of ideas so that students are prepared for responsible citizenship. However, criticism of educational resources and teaching methods and the advocacy of additional educational resources are also essential First Amendment rights of students, faculty, parents, and other members of the community.

Public school personnel should:

1. Select curriculum, teaching methods, resources, and materials appropriate to the education objectives and the maturity and skill levels of the students based on their professional competence as educators and according to established school board policies and procedures. However, teachers should not be allowed to indoctrinate students with their own personal views.

2. Provide students with access to a broad range of ideas and viewpoints.

3. Encourage students to become decision makers, to exercise freedom of thought, and to make independent judgments through the examination and evaluation of relevant information, evidence, facts, and differing viewpoints.

4. Support students' rights to present their ideas even if some people might find the ideas objectionable.

5. Discuss issues, including those viewed by some as controversial, since such discussion is essential to students' development of critical thinking and other skills which prepare them for full participation as citizens in a democratic society.

Individuals or groups outside the public schools should not be allowed to:

1. Use the public schools to indoctrinate students with particular viewpoints or beliefs.

2. Determine which viewpoints will be presented or avoided in public schools.

3. Require the disciplining of professional staff for including issues or resources considered controversial in their classes if the reasons for including them are educationally sound.

Date of Adoption: August 13, 1986

Date of Review: March 14, 2001

Date of Revision: _____

FORWARD

The purpose of this guide is to assist teachers in the organization and instruction of Science classes in the Van Buren Community School District.

This guide provides direction for teachers of grades kindergarten through sixth, and is adaptable for individual and class needs. It is, however, important that teachers follow the suggested Standards and Benchmarks of lesson content to ensure systematic and comprehensive instruction concepts and skills.

Committee members established basic agreement on the philosophy and goals of Science in our school system.

This guide, prepared by classroom teachers, for use by classroom teachers, provides Standards and Benchmarks for instruction which reflects a sense of wonder and appreciation for the gifts within and around us.

DIVISION V
EDUCATION PROGRAM

281-12.5(256) Education program. The following education program standards shall be met by schools and school districts for accreditation with the start of the 1989-1990 school year.

12.5(4) *Junior high program, grades 7 and 8.* The following shall be taught in grades 7 and 8: English-language arts, social studies, mathematics, **science**, health, human growth and development, physical education, music, visual art, family and consumer education, career education, and technology education. Instruction in the following areas shall include the contributions and perspectives of persons with disabilities, both men and women, and persons from diverse racial and ethnic groups, and shall be designed to eliminate career and employment stereotypes.

In implementing the junior high program standards, the following general curriculum definitions shall be used.

d. Science. Science instruction shall include life, earth, and physical science and shall incorporate hands-on process skills; scientific knowledge; application of the skills and knowledge to students and society; conservation of natural resources; and environmental awareness.

12.5(5) *High school program, grades 9-12.* In grades 9-12 a unit is a course or equivalent related components or partial units taught throughout the academic year as defined in subrule 12.5(18). The following shall be offered and taught as the minimum program: English-language arts, six units; social studies, five units; mathematics, six units as specified in 12.5(5)"c"; **science, five units**; health, one unit; physical education, one unit; fine arts, three units; foreign language, four nits; and vocational education, 12 units as specified in 12.5(5)"i."

In implementing the high school program standards, the following general curriculum definitions shall be used.

d. Science (five units). Science instruction shall include biological, earth, and physical science, including physics and chemistry. Full units of chemistry and physics shall be taught but may be offered in alternate years. All science instruction shall incorporate hands-on process skills; scientific knowledge; the application of the skills and knowledge to students and society; conservation of natural resources; and environmental awareness.

EDUCATIONAL PHILOSOPHY

The Board of Directors of the Van Buren Community School District is committed to the operation of schools whose purpose is to serve by assisting each learner to develop into a mature individual and contributing member of society. The goals of education and the goals of democracy are fundamentally the same. The board believes the nature of learning is a continuous experience throughout the life of each individual. This experience is influenced by a variety of factors including the environment surrounding the learner. The Board also believes, and recognizes, the stages of development associated with growth. It is believed all have the capability of learning given appropriate opportunity.

The Board of Directors recognizes the guardianship of public education is a trust and an obligation. Consequently, the Board believes that a desirable learning atmosphere must be provided which includes the following: (1) Appropriate facilities; (2) Competent staff; (3) Appropriate educational and instructional materials; (4) Assurance of safety; (5) Recognition of individual dignity and worth; (6) A scope of educational experiences to challenge each student; and (7) Periodic review, revision, and evaluation.

The Board further believes the scope of educational experience should meet the needs of varied learners and include experience should meet the needs of varied learners and include experiences that encompass the intellect and associated basic and developmental skills, as well as aesthetic, physical, civic, social, vocational, multicultural, and technological awareness.

EDUCATIONAL EQUITY POLICY

1. It is the policy of Van Buren Community School District to provide equal educational and employment opportunities and not to illegally discriminate on the basis of gender, race, national race, creed, age, marital status or disability in its educational programs, activities or its employment and personnel policies.

2. This district shall provide program activities, a curriculum and instructional resources which will reflect the racial and cultural diversity present in the United States and the variety of careers, roles and life styles open to both men and women in our society. One of the objectives of the district's programs, curriculum, services and teaching strategies is to reduce stereotyping and to eliminate bias on the basis of gender, race, ethnicity, religion, age, marital status and disability. The curriculum, programs and services shall foster respect and appreciation for the cultural diversity found in our country and an awareness of the rights, duties and responsibilities of each individual as a member of a pluralistic society.

3. It is the policy of this district to affirmatively recruit women and men, members of diverse racial/ethnic groups and persons with disabilities for job categories where they are underrepresented. A fair and supportive environment will be provided for all students and employees regardless of their gender, race, national origin, creed, age, marital status or disability. Harassment of sexual nature or with demeaning intent related to race, national origin, gender, disability, age or religion, made from one employee to another, from an employee to a student or vice versa, and from one student to another is a violation of this policy.

4. Inquiries regarding compliance of equity policies may be directed to the following:
Title IX – High School Principal; Title VI and Section 504 – Associate Superintendent, Van Buren Jr/Sr. High School, 503 Henry Street, Keosauqua, Iowa 52565, 319-293-3334, to the Director of the Iowa Civil Rights Commission, Des Moines, Iowa, or to the Director of the Region VII Office of Civil Rights, Department of Education, Kansas City, Missouri.

5. The Affirmative Action Coordinator for the district shall be the Superintendent. The Educational Equity Coordinator for the district will be the Associate Superintendent. Inquiries concerning a grievance procedure should be addressed to either coordinator.

Federal and state regulations require that the non-discrimination policy, the identity of the designated local coordinator and notification about the existence of the grievance procedure be disseminated to employees, students and parents on an annual or ongoing basis. This notification must be included in major annual or general publications such as:

Student Handbooks	*School Newsletters*	*Teacher Handbooks*
Local Newspapers	*Employee (Staff) Handbooks*	*Employment Application Forms*
Registration Handbook	*Program Brochures & Publications*	

Agreement forms with labor organizations and businesses which hold professional agreements with the school or agency.

Date of Adoption: May 9, 1990

Date of Review: August 14, 2002

Date of Revision: September 16, 2002

A PHILOSOPHY OF SCIENCE

Science education is the link between science and society. Its ultimate goal is to DEVELOP SCIENTIFICALLY LITERATE CITIZENS who understand the impact, and uses the knowledge and processes of science to solve problems and improve life within the limits of the total environment. Science education is any set of activities that develop scientific literacy.

A new generation of scientifically literate citizens is needed to cope with our scientific and technological society and to deal with a complex set of technical and ethical questions. It is recommended that all students receive an appropriate education in science to develop the intellectual skills that are basic to critical observation, problem resolution, decision-making, and valuing.

The study of science offers a KNOWLEDGE OF NATURAL PHENOMENA that uniquely rests upon the notion that humans can test and understand the orderly nature of the universe. Fundamental to this proposition is a need for students to develop and apply the logical thought PROCESSES OF SCIENCE AS A PART OF THEIR BASIC LEARNING. These processes are best developed through a well-articulated science program that includes experimentation and manipulation of materials.

Science activities built upon each individual's natural curiosity allows for self-motivation. This involvement can result in personal gain for students who discover and developed a confidence in their own ability to make the decisions that can form a basis for COMPREHENDING THE IMPACT of science and technology on the individual, cultural and society.

In addition to the development of logical thought and personal growth, research indicates that involvement with activities in science facilities growth in the other curricular areas. The Science curriculum should further reading readiness, the motivation to learn, and the ability to acquire oral and written communication skills.

RATIONALE

Science education is essential in the total education process. We live in a scientific and technological society; therefore science must occupy a place of prominence in the total curriculum.

Science education is the study of the processes of investigation, the knowledge such investigations provide, and the impact and use of such knowledge upon the individual society. The science curriculum reflects a balance of these three components

EDUCATIONAL OBJECTIVES

I. OUR FRAME OF REFERENCE

We believe that the school as a public institution should provide insofar as possible:

1. A well-qualified and efficient corps of teachers.
2. A physical plant and equipment adequate to meet the needs of every learner.
3. Experiences for effective learning.
4. An educational leadership which leads to continuous improvement of the school.

We believe there is a common set of skills, knowledge, and attitudes essential to the total development of all Van Buren students. These learning's have intrinsic value, independent of a student's background, for the fulfillment of future aspirations. We further believe that these skills, knowledge and attitudes constitute a set of expectations that all students can achieve regardless of diverse learning rates and styles. Such achievement will help students create and attain meaningful goals and engage in life long learning.

The skills and competencies, later listed, establish a vision of what a Van Buren High School graduate should know and be able to do within the identified areas. Recognizing that students begin their schooling at different levels of readiness, and some have developmental handicaps, the listed skills and competencies are not meant to define minimum competencies but set a standard for an educated citizen that is essential to becoming a productive and contributing member of society.

II. SKILLS AND COMPETENCIES Reading

As a result of education in grades K-1 2, each student should be able to:

* identify and comprehend the main and subordinate ideas, details and facts in written work and summarize the ideas in his/her own words;
* identify, comprehend and infer comparisons, contrasts, sequences and conclusions in written work;
* recognize different purposes and methods of writing, identify a writer's point of view and tone, and interpret a writer's meaning inferentially as well as literally;
* set purposes, ask questions and make predictions prior to and during reading and draw conclusions from reading;
* make critical judgments about written work including separating fact from opinion, recognizing propaganda, stereotypes and statements of bias, recognizing inconsistency and judging the validity of evidence and sufficiency of support;
* vary his/her reading speed and method based on the type of material and the purpose for reading;
* use the feature of books and other reference materials, such as table of contents, preface, introduction, titles and subtitles, index, glossary, appendix and bibliography.

Writing

As a result of education in gradesK-12, each student should be able to

* write standard English sentences with correct sentence structure, verb forms,

punctuation, capitalization, possessives, plural forms, word choice and spelling;
* select, organize and relate ideas and develop them in coherent paragraphs;
* organize sentences and paragraphs into a variety of forms and produce writing of an appropriate length using a variety of composition types;
* use varying language, information, style and format appropriate to the purpose and the selected audience;
* conceive ideas and select and use detailed examples, illustrations, evidence and logic to develop the topic;
* gather information form primary and secondary sources; write a report using that information; quote, paraphrase and summarize accurately, and cite sources properly;
* improve his or her own writing by restructuring, correcting errors and rewriting.

Speaking and Listening

As a result of education in grades K- 12, each student should be able to

* engage critically and constructively in an oral exchange of ideas;
* ask and answer questions correctly and concisely;
* understand spoken instructions and give spoken instructions to others;
* distinguish relevant from irrelevant information and the intent from the details of an oral message;
* identify and comprehend the main and subordinate ideas in speeches, discussions, audio and video presentations, and report accurately what has been presented;
* comprehend verbal and nonverbal presentations at the literal, inferential and evaluative levels;
* deliver oral presentations using a coherent sequence of thought, clarity of presentation, suitable vocabulary and length, and nonverbal communication appropriate for the purpose and audience.

Mathematics

As a result of education in gradesK-12, each student should be able to

* add, subtract, multiply and divide using whole numbers, decimals, fractions and integers;
* make and use measurements in both traditional and metric units to measure lengths, areas, volumes, weights, temperatures and times;
* use ratios, proportions and percents, powers and roots;
* understand spatial relationships and the basic concepts of geometry;
* make estimates and approximations, and judge the reasonableness of results;
* understand the basic concepts of probability and statistics;
* organize data into tables, charts and graphs, and read and interpret data presented in these forms;
* formulate and solve problems in mathematical terms.

Reasoning

As a result of education in grades K-12, each student should be able to:

* recognize and use inductive and deductive reasoning, recognize fallacies and examine arguments from various points of view;
* draw reasonable conclusions from information found in various sources, and defend his/her conclusions rationally;
* formulate and test predictions and hypotheses based on appropriate data;

* comprehend, develop and use concepts and generalizations;
* identify cause and effect relationships;
* identify and formulate problems;
* gather, analyze, synthesize and evaluate information pertinent to the problem;
* develop alternative solutions to problems, weight relative risks and benefits, make logical decisions and verify results;
* use critical and creative thinking skills to respond to unanticipated situations and recurring problems.

Studying

As a result of education in grades K-1 2, each student should be able to

* set learning goals and priorities consistent with stated objectives and progress made, and allocate the time necessary to achieve them.
* determine what is needed to accomplish a task and establish habits conducive to learning independently or with others;
* follow a schedule that accounts for both short- and long-term project accomplishment;
* locate and use a variety of sources of information including print and nonprint materials, computers and other technologies, interview and direct observations;
* reader listens to specific information and takes effective and efficient notes.

Technological Literacy

As a result of education in gradesK-12, each student should be able to:

* identify and design techniques for recognizing and solving problems in science, including the development of hypotheses and the design of experiments to test them - the gathering of data, presenting them in appropriate formats, and drawing inferences based upon the results;
* use observation and analysis of similarities and differences in the study of natural phenomena;
* demonstrate the ability to work with laboratory measuring, manipulating and sensing devices;
* understand the implications of existing and emerging technologies on our society and our quality of life; including personal, academic and work environments;
* recognize the potential and the limitations of science and technology in solving societal problems.

III. ATTRIBUTES AND ATTITUDES

A positive self-image and self-esteem are crucial to learning. These attributes determine goals, behaviors and responses to others. Furthermore, people depend on and influence one another. Therefore, it is important that students take responsibility for their lives and set appropriate goals for themselves. In doing so, they develop lifelong attitudes.

The family and societal forces other than schools play major roles in fostering student growth, and schools can provide a supportive climate for that growth. While it is inappropriate for schools to accept the sole or even primary responsibility for developing these attributes and attitudes, it is also inappropriate to deny the critical importance of these factors as preconditions to learning, as consequences of the teaching of all disciplines, and as desired out comes for all students.

Positive Self-Concept

As a result of education in gradesK-12, each student should be able to:

* appreciate his/her worth as a unique and capable individual and exhibit self esteem;
* develop a sense of personal effectiveness and a belief in his/her ability to shape his/her future;
* develop and understanding of his/her strengths and weaknesses and the ability to maximize strengths and rectify or compensate for weaknesses.

Motivation and Persistence

As a result of education in grades K-1 2, each student should be able to:

* experience the pride of accomplishment that results from hard work and persistence;
* act through a desire to succeed rather than a fear of failure, while recognizing that failure is part of everyone's experience
* strive toward and take the risks necessary for accomplishing tasks and fulfilling personal ambitions.

Responsibility and Self-Reliance

As a result of education in gradesK-12, each student should be able to:

* assume the primary responsibility for identifying his/her needs and setting reasonable goals;
* initiate actions and assume responsibility for the consequences of those actions;
* demonstrate dependability;
* demonstrate self-control.

Intellectual Curiosity

As a result of education in gradesK-12, each student should be able to:

* demonstrate a questioning attitude, open-mindedness and curiosity;
* demonstrate independence of thought necessary for leadership and creativity;
* pursue lifelong learning.

Interpersonal Relations

As a result of education in grades K-1 2, each student should be able to:

* develop productive and satisfying relationships with others based upon mutual respect;
* develop a sensitivity to and an understanding of the needs, opinions, concerns and customs of others;
* participate actively in reaching group decisions;
* appreciate the roles and responsibilities of parents, children and families.

Sense of Community

As a result of education in grades K-12, each student should be able to:

* develop a sense of belonging to a group larger than friends, family and coworkers;

* develop an understanding of the importance of each individual to the improvement of the quality of life for all in the community;
* examine and assess the values, standards and traditions of the community;
* understand and appreciate his/her own historical and ethnic heritage as well as that of others represented within the larger community.

Moral and Ethical Values

As a result of education in grades K-1 2, each student should be able to:

* recognize the necessity for moral and ethical conduct in a society;
* recognize that values affect choices and conflicts;
* develop personal criteria for making informed moral judgments and ethical decisions.

Science Standards and Benchmarks

Standard 1:

SCIENTIFIC INQUIRY- The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks

A. **Processes and Skills** - {Nature of scientific knowledge- experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem)}
B. **Analysis and Interpretation**- Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions.

Standard 2:

LIFE SCIENCES- **The students know about the diversity and unity that characterizes life both inside and outside an organism**

Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (Organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standard 3:

EARTH AND SPACE SCIENCES - The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon and stars)

Standard 4:

PHYSICAL UNIVERSE - The students understand the physical and chemical properties that govern the universe.

Benchmarks

A. **Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
B. **Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

7th Grade Science
Curriculum Overview & Evaluation

Text – Life Science © 2005
Prentice Hall

Supplemental Materials
- Food, Land and People
- Food for America
- PSU – human Development
- Ethics Issues
- Anatomy
- Project Wild
- Biotechnology Issues

Evaluation

Homework, discussion questions, quizzes, unit tests, personal performance, student logs

Van Buren Community Schools
Course Outline: 7th Grade Science

Week	Topics	Objectives	Activities
1	Introduction	Science overview	Scientific method, conduct scientific experiment, studies of careers
2 & 3	Cell Structure & Function	Basics of cell structure & functions	Draw & describe cell structure, design an experiment
4 & 5	Cell Process and energy	Process of photosynthesis, DNA	Fermentation, diffusion activity
6 & 7	Genetics	Applications to heredity	Punnett squares, DNA code lab
8	Modern Genetics	Genotype/phenotype, pedigree	Plant cloning, ethics, pedigree study
9	Change over Time	Evolution	Study of Darwin and evolution, fossils
10 & 11	Bacteria & Viruses	Classifications, relationships	Model a virus
12 & 13	Protists & Fungi	Applications in society	Mold evaluations, drawings
13 & 14	Intro to Plants	Characteristics of Plants	Study of moss, Food for America
15 & 16	Seed Plants	Compare seed plants	Gymnosperm/angiosperm lab
17 & 18	Sponges, Cnidarians, Worms	Characteristics of organisms	Tooth activity, parasite filmstrip
19 & 20	Mollusks, Arthropods, Echinoderms	Impact on humans, structure and function	Insect lab, sniff tests
21 & 22	Fishes, amphibians, reptiles	Traits, adaptations	Bone lab, skills lab
23 & 24	Birds & mammals	Applications to flight, characteristics	Egg lab, wing models
25	Animal Behavior	Study of behaviors	Communication activity
26 & 27	Bones, Muscles, Skin	Levels of organization in the body	Microscopic cell slides lab, bone lab
28 & 29	Food & Digestion	Study of nutrient needs	Rumen development video, deciphering food labels
29 & 30	Circulation	Structure & function of cardiovascular system	Heart dissection, vein dissection, pulse rate calculations
31	Respiration & Excretion	Structure & function of respiratory system	Lung slides, kidney slides
32 & 33	Fighting disease	Basics of infectious & noninfectious disease	Disinfectant activity, disease spread activity
34 & 35	The Nervous system	Structure & function of nervous system	Body diagram, skills lab
36	Endocrine system	Structure & Function of endocrine system	Dissections, video
37 & 38	Populations and communities	Understanding of habitats	Overpopulation activity
39 & 40	Ecosystems and biomes	Basics of biomes	Water cycle lab, classification of food
41	Living resources	Environmental issues	Issue debates

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2C	Chapter 1, Introduction to Life science	What is Life Science Understand function and structure of living systems Understand regulation and behavior, and the diversity of life Safety in the laboratory	Understand definitions Scientific method; designing and conducting an experiment	HOTS, CS, LS, HGD, Media,
2C	Careers in science	Understanding of various careers in science	Study of life science careers, and activities the science careers are involved in	Media, Tech, MCGF, special, HGD

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
C. The Universe (Properties of sun, moon and starts)

Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.

A. **Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
B. **Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B, 2A, 2B, 3B, 4B	Chapter 2 –Cell Structure and Function - Section 1	1. List the characteristics all living things share 2. Explain how scientists use controlled experiments to disprove spontaneous generation 3. Identify what all living things need to survive	Demonstration, design an experiment, chapter 1 skills lab, section 1 review	HGD, CS, LS, HOTS, MEDIA, TECH
1A, 1B 2A, 2B	Section 2: Discovering cells	1. Explain how the invention of the microscope contributed to science understanding living things 2. State the three points of the cell theory	Section 2 review, performance assessment	CS, MCGF, GS, T&G
1B, 2A	Section 3: Looking inside cells	1. Identify cell structures and describe their functions 2. Compare plant, animal and bacterial cells	Draw and describe cell structure and function	CS, HGD, HOTS
1B, 2A	Section 4: Origin of Life	Compare atmospheres of earth, understand how scientists hypothesize the origins of life on earth	Discuss various hypothesis of earth life origin, skills lab	GS, LS, MCGF, HOTS
1, 2, 3, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
- **B. Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
- **B. Life Cycles** (organisms are growing, dying, new ones produced)
- **C. Health and Safety** (nutrition, personal safety, growth and development)

Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.
Benchmarks:

- **A. Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
- **B. Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B **2A, 2B**	Chapter 3 – Cell Processes and Energy - Section 1	1. Describe the four main kinds of organic molecules in living things 2. Explain how water is essential to function of cells	What is a compound, taste test	CS, HOTS, LS, HGD
1A, 1B **2A. 2B**	Section 2	1. Describe 3 methods materials move in and out of cells 2. Compare active and passive transport Explain why cells are small	Diffusion activity, class demonstration, section 2 review	MCGF, HGD, CS
1B. 4B	Section 3	1. Describe the process of photosynthesis 2. Explain how sun supplies all living things with energy they need	Making models, stomata functions	TECH, T&G, SPECIAL, CS, LS
4A, 4B	Section 4	1. Describe events that occur during respiration 2. Describe relation between photosynthesis and respiration 3. Describe lactic acid and alcoholic fermentation	Describe similarities/differences of alcoholic and lactic acid fermentation; sample fermented foods	HOTS, MEDIA, TECH, CS, LS
1B, 2A	Section 5	1. Identify the events that take place during the three stages of the cell cycle 2. Describe the structure of DNA and DNA replication	Section 5 review; meiosis activity	Tech, HGD, CS, SPECIAL
1, 2, 3, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
C. The Universe (Properties of sun, moon and starts)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B, 2A, 2B, 2C 3B	Chapter 4 – The Science of Heredity - Section 1	1. Describe Mendel's genetics experiments 2. Identify the factors that control inheritance of traits in organisms 3. Explain how scientists use symbols to represent alleles	Heredity of family traits; skills lab of class survey	CS, MCGF, GS, HOTS
1B 2A, 2B, 2C	Section 2	1. Describe the principles of probability and how Mendel applied them to inheritance 2. State how geneticists use Punnett squares 3. Explain the meaning of terms *phenotype, genotype, homozygous, heterozygous, codominance*	Punnett square activity, coin toss activity	GS, LS, MCGF, HOTS
1B 2B 3A	Section 3	1. Describe chromosomes and their role in inheritance 2. Identify and describe events that occur during meiosis	Model of meiosis steps	TECH, HGD
2C, 2B	Section 4	1. Explain the term *genetic code* 2. Describe the process where cells produce proteins 3. Describe different types of mutations and impacts on organisms	DNA Code Lab	HGD, HOTS, LS
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
C. The Universe (Properties of sun, moon and starts)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
2A, 2B	Chapter 5 – Modern Genetics - Section 1	1. Explain what multiple alleles are 2. Explain why some human traits show wide variety of phenotypes 3. Explain how environmental factors alter effects of a gene 4. Identify what determines sex, explain sex linked traits 5. Explain how pedigrees are used	Height lab and graphing; sex linked allele activity	MCGF, GS, CS,
1A, 1B 2A	Section 2	1. Describe causes and symptoms of 5 genetic disorders 2. Explain how genetic disorders are diagnosed	Section 2 review, pedigrees	HOTS, LS, MCGF
1A, 1B 2A, 2B	Section 3	1. Identify some uses of DNA fingerprinting 2. State the goal of the human genome project 3. Describe three ways people have developed organisms with desired traits	Seed hybrid activity, plant cloning lab, class discussion of fingerprinting	LS, HOTS, TECH, MEDIA
3B	Science and society	1. Decide who should have access to genetic test results	Ethics discussion based upon logical explanations of views on issue	LS, CS, HGD, HOTS
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
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Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
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Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B, 2A, 2B, 2C	Chapter 6 – Changes Over Time - Section 1	1. State how Darwin explained variations among similar species 2. Explain how natural selection leads to evolution and explain the role of genes in evolution 3. Describe how new species form	Discovery activity, skills lab	GS, CS
2A **3B**	Section 2	1. Describe how most fossils form 2. Explain how a scientist determines a fossil's age 3. Explain what fossils reveal 4. Describe main events of Geologic Time Scale Distinguish between gradualism and punctuated equilibria	Section 2 review	GS, CS, HOTS, Media
2A	Section 3	1. State evidence from modern day organisms that scientists use to determine evolutionary relationships among groups 2. Explain what a branching tree diagram is	Section 3 review, classifying activity	GS, LS, HOTS
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
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Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
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- C. The Universe (Properties of sun, moon and starts)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
2A, 2B 3A	Chapter 7 –Bacteria & Virus' – Section 1	1. Explain why scientists organize living things into groups 2. Describe early classification systems, including Linnaeus 3. Name the seven levels of classification used by scientists 4. Explain the relationship between classification and evolution	Organization activity	SPECIAL, TECH, CS, LS, T&G
2A	Section 2	1. Name and describe the six kingdoms into which organisms are grouped	Section 2 review	Tech, CS, LS
1B	Section 3	1. Describe ways which bacteria cells are different from all other organism cells 2. Name the two kingdoms of bacteria; explain how each reproduce and survive 3. List positive roles bacteria play in people's lives	Bacterial multiplication lab	HOTS, GS, CS
1A, 1B	Section 4	1. Give reasons why viruses are considered to be nonliving 2. Describe the sizes and shapes of viruses 3. Describe the basic structure of a virus 4. Explain how viruses multiply	Model a virus	GUID, TECH, MCGF
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1.5 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A	Chapter 8 – Protists and Fungi –Section 1	1. Describe the characteristics of animal-like, fungus-like, and plantlike protists	Evaluate pond water under microscope	HOTS, HGD, TECH
2A, 2B	Section 2	1. Describe how red tides occur and explain why they are dangerous 2. Explain how rapid growth of algae affects a pond or lake	Real world lab-explosion of life	HOTS, TECH, LS
2A, 2B	Section 3	1. Name the characteristics all fungi share 2. Describe how fungi obtain food 3. List roles fungi play in the world 4. Describe the way fungi reproduce	Mold evaluations, drawings	MEDIA, MCGF, HGD
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1.5 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.
Benchmarks:

A. **Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
B. **Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
2A	Chapter 9 – Introduction to Plants Section 1	1. Identify the characteristics all plants share 2. Name all things plants need to live successfully; describe plant life cycle	Section 1 review	CS, LS, HGD
1A, 1B 2A 4B	Section 2	1. Name some nonvascular plants; list characteristics they share 2. Describe the structure of a moss plant and the importance of mosses on earth	Skills lab, mass of mosses	HOTS, MCGF
2A	Section 3	1. Name some seedless vascular plants; list characteristics they share 2. Describe the structure of a fern plant; how ferns reproduce; importance of ferns on earth	Examining a fern	HOTS, TECH, LS
1B 2A, 2B	Section 4	Describe some methods that might help farmers produce more crops	Food for America activity	GS, TECH, SPECIAL
1, 2, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
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Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B **2A, 2B**	Chapter 10 – Seed Plants – Section 1	1. List characteristics seed plants share 2. Name main parts of a seed, identify function of each part, describe how seeds disperse and germinate 3. Describe the function of stems, leaves, roots	Seed dissection and identification	**HGD, T&G, SPECIAL, CS**
1B **2A, 2B**	Section 2	1. Give examples of gymnosperms; list characteristics they share 2. Describe how gymnosperms reproduce	Gymnosperm/angiosperm classification lab	**CS, LS, MCGF, HOTS**
1B **2A, 2B**	Section 3	1. Name types of angiosperms; list characteristics they share 2. Describe structure/function of a flower 3. Describe life cycle of an angiosperm 4. Compare monocots and dicots	Gymnosperm/angiosperm classification lab	**HOTS, LS, GUID**
2B	Section 4	1. Identify 3 stimuli that produce plant responses 2. List functions plant hormones control	Section 4 review	**TECH, HOTS**
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	**SPECIAL, MCGF, CS**

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
2A	Chapter 11 – Sponges, Cnidarians, and Worms – Section 1	1. List and describe 4 major characteristics all animals share 2.Describe what animals need from their environment in order to live 3. Describe animal adaptations for getting food and escaping predators	Section 1 review, tooth activity	MCGF, HOTS, CS, GS
2B	Section 2	Distinguish between bilateral and radial symmetry; describe how animals exhibit these kinds of symmetry	Section 2 review	SPECIAL, HGD
1B 2A, 2C	Section 3	1. Describe the organization of a sponge's body 2. Identify the main characteristics of cnidarians 3. Describe a coral reef is formed and the life that exists on a coral reef	Section 3 review	CS, MCGF, HOTS
1B, 2A, 2C	Section 4	1. Identify the 3 main groups of worms 2. List and identify the characteristics of the 3 groups of worms	Parasite filmstrip with questions	TECH, HOTS, CS
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2C	Chapter 12 – Mollusks, Arthropods, and Echinoderms	1. Describe the main characteristics of mollusks and evidence of their early existence on earth 2.describe the major groups of mollusks	Section 1 review	**HOTS, MCGF, GS**
1A, 1B 2A, 2B	Section 2	1. Describe major characteristics of arthropods 2. Identify and describe the major groups of arthropods	Hair and skin evaluation and questions	**LS, CS, HGD**
1A, 1B 2A, 2C	Section 3	1. Describe characteristics of insects; body structure, how they feed, how they defend 2. Explain metamorphosis 3. Describe the impact of insects on humans	Insect lab	**MEDIA, TECH**
1A, 1B 2A	Section 4	1. Describe how animals use pheromones to communicate 2. Explain bioluminescence	Sniff tests	**Tech, LS, CS**
1A 2A, 2C	Section 5	1. Describe the typical echinoderm characteristics 2. Name and describe some types of echinoderms	Section 5 review	**HOTS, T&G, Special**
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

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Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

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- B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B **2A, 2C** **3A, 3B**	Chapter 13 – Fishes, Amphibians, and Reptiles – Section 1	1. Describe the main characteristics vertebrates share 2. Describe how vertebrates differ in the way they control body temperatures 3. Explain what fossil evidence indicates about vertebrate evolution	Bone lab	**TECH, SPECIAL, T&G, GUID**
1A, 1B **2A, 2C**	Section 2	1. Explain how fish use their gills, move, feed and reproduce 2. Describe the three major groups of fish 3. Identify and describe the groups of amphibians	Section 2 review	**HOTS, HGD, CS, MCGF**
1A, 1B **2A, 2C**	Section 3	1. Describe the characteristics of amphibians and their life cycles 2. Explain how amphibians are adapted for land and current threats to their survival 3. Identify and describe the groups of amphibians	Section 3 review	**LS, HOTS, CS**
1A, 1B **2A, 2C**	Section 4	1. Describe some adaptations that allow reptiles to live on dry land 2. State how reptiles' eggs are different from amphibian eggs 3. Describe the major groups of reptiles	Skills lab: soaking up those rays	**CS, LS, HGD**
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	**SPECIAL, MCGF, CS**

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

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Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.
Benchmarks:

A. **Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
B. **Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B **2A, 2C** **3A, 3B**	Chapter 14 – Birds & Mammals	1. Identify the common characteristics of birds 2. Explain how birds are adapted to and affect their environments	Egg lab with questions and discussion	HOTS, TECH, CS
1A, 1B **2A, 2C** **4B**	Section 2	1. Explain how a bird is able to fly	Paper airplanes, models of wings	LS, TECH
1A, 1B **2A, 2C** **4B**	Section 3	1. Describe characteristics all mammals share	Section 3 review, bone lesson	CS, MCGF, HGD
1A, 1B **2A, 2C** **4B**	Section 4	1. Identify the characteristic used to classify mammals into 3 groups 2. Describe the characteristics of monotremes, marsupials, and placental mammals	Placental dissection with questions	
1, 2, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

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Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

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Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A	Chapter 15 – Animal Behavior – Section 1	1. Describe the functions of most of an animals behavior 2. Compare instinctive and learned behavior 3. Explain the process called imprinting	Section 1 review	GS, LS, CS
1A, 1B 2A	Section 2	1. Explain competition and aggression and the role they play in establishing a territory 2. Explain the purpose of courtship behavior 3. Describe the benefits animals receive from living in groups 4. Describe animal behavior cycles and explain how they may affect an animal's survival	Communication activity	GS, MCGF, LS, CS
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

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Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
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Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1B **2A, 2B, 2C**	Chapter 16 – Bones, Muscles and Skin – Section 1	1. Identify the levels of organization in the body 2. Identify and describe the four basic types of tissues in the human body 3. Define homeostasis and describe its importance to the body	Microscopic cell slides lab	TECH, MEDIA
1B **2A, 2B, 2C**	Section 2	1. Identify the functions of the skeleton 2. Describe the structure of bones and how they grow and form 3. Explain the role of movable joints in the body 4. List ways that individuals can keep their bones strong and healthy	Bone lab	TECH, CS, LS
1B **2A, 2B, 2C**	Section 3	1. Identify three types of muscles found in the body and describe the function of each 2. Explain how skeletal muscles work in pairs 3. List ways in which people can keep their muscles healthy	Microscopic cell slides lab	TECH, MCGF, GS, LS
1A **2A, 2B**	16.4	1. Describe the functions of skin 2. Identify and describe the layers of the skin 3. List ways that individuals can keep skin healthy	Section 4 review	CS, LS, HGD, HOTS
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (*nutrition, personal safety, growth and development*)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2C	Chapter 17 – Food and Digestion – Section 1	1. List and describe each of six nutrients needed by the body 2. Describe how the Food Guide Pyramid and food labels help make food choices for nutrient and caloric value	Deciphering food labels	MCGF, HGD, HOTS
1A, 1B 2A, 2C	Section 2	1. Describe the general functions carried out by the digestive system and the specific functions of the mouth, esophagus, and stomach	Section 2 review, rumen development video	TECH, MEDIA, HGD
1A 2A	Section 3	1. Explain the role of the small intestine in digestion 2. Explain the role of the large intestine in digestion	Section 3 review	HGD, CS, LS
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
- **B. Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
- **B. Life Cycles** (organisms are growing, dying, new ones produced)
- **C. Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

- A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
- B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
- C. The Universe (Properties of sun, moon and starts)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B **2A, 2B**	Chapter 18 – Circulation – Section 1	1. Describe the function of the cardiovascular system 2. Describe the structure of the heart and explain its function 3. Describe the origin of the heartbeat and why the heart rate changes during exercise 4. Trace the path taken by blood through the circulatory system	1. Flowchart of blood through the body 2. Heart dissection and questions 3. Artery and vein dissection	HGD, HOTS, LS, CS
1A, 1B **2A, 2C**	Section 2	1. Describe the functions of the arteries, capillaries, and veins 2. Identify the cause of blood pressure	Pulse rate calculations, section 2 review	TECH, HGD
1A, 1B **2A, 2B, 2C** **3A**	Section 3	1. Name and describe the 4 components of blood 2. Explain blood type and how it determines what blood a person can receive in a transfusion 3. Describe the structure and function of the lymphatic system	Real world lab-Do you know you're A-B-O's?	HOTS, TECH
1A, 1B **2A, 2C**	Section 4	1. Identify and describe types of cardiovascular disease 2. Describe behaviors that maintain cardiovascular health	Section 4 review	HGD, CS, LS
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
- **B. Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
- **B. Life Cycles** (organisms are growing, dying, new ones produced)
- **C. Health and Safety** (nutrition, personal safety, growth and development)

Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.
Benchmarks:

- **A. Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
- **B. Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A 4A	Chapter 19 – Respiration and Excretion – Section 1	1. Identify the functions of the respiratory system 2. Identify the structures that air passes through as it travels to the lungs 3. Describe how oxygen, carbon dioxide, and water move in the lungs 4. Explain the process by which people breathe and speak	Blowing up a balloon and measuring volume, lung slides	CS, HGD, LS
2A, 2B, 2C	Section 2	1. List the harmful chemicals contained in tobacco smoke 2. Explain how tobacco smoke harms the respiratory and circulatory systems 3. Define passive smoking and identify its effects on health 4. Identify reasons why some people choose to smoke	Lung slides, section 2 review	HGD, HOTS, LS
1A, 1B 2A 4A, 4B	Section 3	1. Identify the function of the excretory system 2. State how urine is produced in the kidneys' nephrons 3. Explain how the kidneys help maintain water balance in the body 4. Name the organs involved in excretion and describe their roles	Kidney slides, section 3 review	CS, MCGF, T&G, SPECIAL
1, 2, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2B, 2C	Chapter 20 – Fighting Disease – Section 1	1. Explain the cause of infectious disease and identify the kinds of organisms that cause disease 2. Describe methods in which pathogens enter the body	Disease spread activity (handshake)	MCGF, CS, LS, GS
1A, 1B 2A, 2C	Section 2	1. Identify the body's barriers against pathogens 2. Describe the role of the inflammatory response in fighting disease 3. State how the immune system responds to pathogens 4. Describe HIV and list the ways it an be spread	Real world lab-Skin as a Barrier, section 2 review	GS, GUID, HOTS
1A, 1B 2A, 2B, 2C	Section 3	1. Define and explain active immunity 2. Define and explain passive immunity 3. Identify some strategies for staying healthy	Disinfectant activity with questions, skills lab-Causes of death, then and now	HOTS, LS, CS
1A, 1B 2A, 2B, 2C	Section 4	1. Define an allergy 2. Explain how diabetes affects the body 3. Explain how cancer affects the body	Section 4 review, noninfectious disease discussion	HGD, MCGF, MEDIA
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 2 weeks

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. **Life Cycles** (organisms are growing, dying, new ones produced)
C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2B, 2C	Chapter 21 – The Nervous System – Section 1	1. Identify the functions of the nervous system 2. Describe the structure of a neuron 3. List the three types of neurons and tell how a nerve impulse travels	Section 1 review, skills lab-ready or not	MCGF, HGD, HOTS
1A, 1B 2A, 2B, 2C	Section 2	1. Identify the function of the central nervous system; describe its parts; explain how to keep it safe from injury 2. Identify the functions of the peripheral nervous system and its parts 3. Describe a reflex 4. List activities that can harm a nervous system, and describe how to protect the nervous system	Section 2 review; science in society-wearing bike helmets discussion	HOTS, CS, MCGF
1A, 1B 2A, 2B, 2C	Section 3	1. Name the senses and state the overall function performed by the senses 2. Describe how eyes enable people to see 3. Describe how people hear sounds and maintain balance 4. Describe how people experience the senses of touch, taste, smell	Ear diagram, draw and label; sense lab	T&G, SPECIAL, GUID, HGD
1A, 1B 2A, 2B, 2C	Section 4	1. Name some commonly abused drugs and state how they affect the body 2. Explain how alcohol abuse harms the body	Drug abuse commercial	CS, LS, HOTS
1,2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).

B. **Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

B. **Life Cycles** (organisms are growing, dying, new ones produced)

C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
2A, 2B, 2C	Chapter 22 – The Endocrine System and Reproduction	1. Identify the organs of the endocrine system and their functions 2. Describe hormones and the effects they have on the body 3. Describe how negative feedback controls hormone levels	Diagram and explain the organs and hormones of the endocrine system	HOTS, HGD, MCGF
1A, 1B 2A, 2B, 2C	Section 2	1. List the organs of the male and female reproductive systems and identify their functions 2. Describe the events that occur during the menstrual cycle	Male/female animal repro tract dissections	MCGF, HOTS, CS, LS
1A, 1B 2A, 2B, 2C	Section 3	1. List the stages of human development that occur before birth 2. Describe what happens during childbirth 3. Describe the physical changes that occur during infancy and childhood 4. Describe the changes that occur during adolescence 5. Describe the changes that occur during adulthood	Pregnancy development slides and questions	CS, MEDIA TECH
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks:

A. **Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).

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Benchmarks:

A. **Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

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C. **Health and Safety** (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A	Chapter 23 – Populations and Communities – Section 1	1. Identify the needs that are met by an organism's habitat 2. Identify biotic and abiotic parts of an ecosystem 3. Describe the levels of organization within an ecosystem 4. Define ecology and state what ecologists do	Section 1 review	TECH, CS, HOTS
1B 2A, 2B, 2C	Section 2	1. Describe how ecologists determine the size of a population 2. Explain what causes populations to change in size 3. identify factors that limit population growth	Section 2 review, science in society- animal overpopulation	CS, LS, GS
1A, 1B 2A, 2B, 2C	Section 3	1. Explain how an organism's adaptations help it to survive 2. Describe the major types of interactions among organisms 3. Identify the 3 forms of symbiotic relationships	Section 3 review	HOTS, MEDIA
1, 2	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
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Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
- **B. Life Cycles** (organisms are growing, dying, new ones produced)
- **C. Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

- A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
- B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
- C. The Universe (Properties of sun, moon and starts)

Standard 4: Physical Universe – The students understand the physical and chemical properties that govern the universe.

- **A. Mechanics force and motion** (Understands energy types, sources, conversions, motion, sound, electricity, gravity and magnets).
- **B. Characteristics of matter** (Knows the structure, function & properties of matter that can be measured and has different states).

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2B, 2C 4A, 4B	Chapter 24 – Ecosystems and Biomes - Section 1	1. Describe the energy roles of organisms in an ecosystem 2. Explain food chains and food webs 3. Describe how much energy is available at each level of an energy pyramid	Classify where your food comes from, section 1 review	GS, HGD, MEDIA
1B 3A, 3B 4A, 4B	Section 2	1. Describe the processes that make up the water cycle 2. Describe the carbon-oxygen cycle and nitrogen cycle	Draw, label, explain water cycle diagram; section 2 review	CS, TECH, T&G, SPECIAL
1B 3A, 3B 4A, 4B	Section 3	1. Describe some different means that disperse organisms 2. Identify the factors that limit the distribution of a species	Section 3 review	GUID, HGD, CS
2A, 3B, 2C 4A, 4B	Section 4	1. List and describe earth's major land biomes 2. List and describe earth's major freshwater and ocean biomes	Explain biomes, describe characteristics; model biomes; skills lab-change in a tiny community	CS, LS, MCGF
2A, 2B, 2C 3A, 3B	24.5	1.Describe the differences between primary and secondary succession	Section 5 review	GS, HOTS
1, 2, 3, 4	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (T & G); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD)

Subject Area: 7th Grade Life Science **Length of Unit:** 1 week

Standard 1: Scientific Inquiry – The student knows that scientific knowledge is gained through experiments, research and use of technology
Benchmarks:

- **A. Processes and Skills** – {Nature of scientific knowledge-experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem}).
- **B. Analysis and Interpretation** – Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions

Standard 2: Life Sciences – The students know about the diversity and unity that characterizes life both inside and outside an organism
Benchmarks:

- **A. Structure of living things** (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
- **B. Life Cycles** (organisms are growing, dying, new ones produced)
- **C. Health and Safety** (nutrition, personal safety, growth and development)

Standard 3: Earth and Space Sciences – The students understand basic earth features and processes and the earth's position in the galaxy
Benchmarks:

- A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
- B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly
- C. The Universe (Properties of sun, moon and starts)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B	Chapter 25 – Living Resources – Section 1	1. Identify the main types of environmental issues 2. Define environmental science	Issues debate, recycling paper activity	GS, CS, HGD, MCGF
1A, 1B **3A, 3B**	Section 2	1. Describe different ways forests and fisheries can be managed to provide resources	Section 2 review, skills lab-tree cookie tales	GS, CS, LS
1B, 2A	Section 3	1. Identify factors that affect biodiversity 2. Explain the value of biodiversity 3. Name some human activities which threaten biodiversity 4. List some ways biodiversity can be protected	Section 3 review	GS, MCGF, HGD, TECH, MEDIA
1, 2, 3	Chapter assessment	Provide strategies to improve science reading skills	Class review	SPECIAL, MCGF, CS

Earth Science
Syllabus

Instructor: Mr. Moews
Length of class: One year

In earth science we will be exploring the dynamic processes that occur in our unique planet. We will study the basic structures of elements to the complex movements of entire continents. We will also see how the earth effects the air and water patterns as well as where we fit in the universe. In addition to that, we will learn how physical, chemical, and geological factors that occur on the earth force change and adaptation of earth's organisms.

Unit:	Chapters:	Length:
Introduction to Science	1	One Week
I. Exploring Planet Earth	2-4	Five Weeks
II. Inside the Earth	5-7	Five Weeks
III. Earth's Changing Surface	8-11	Five Weeks
IV. Earth's Waters	12-15	Six Weeks
V. Weather and Climate	16-19	Six Weeks
VI. Astronomy	20-23	Six Weeks

Textbook: Prentice Hall, 2005; Prentice Hall; Earth Science.

Subject Area: 8th Grade Earth Science **Length of Course:** One year

Standard 1: Scientific Inquiry (The student knows the scientific knowledge is gained through experiments, research, and use of technology)

Benchmarks:

A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)

B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text-Unit (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	Introduction (1)	Vocabulary – Scientific Method	Practice Lab – Evaporation Lab Report, Vocabulary	HOTS, LS LS, MCGF
	1 (2)	Mineral Lab – Identification through testing and experiment		
	3 (4)	Soil – Horizons – make up of different soils	Lab Report from soil lab – Exam	HOTS, CS
B	2 (3)	Proving Plate Tectonics – learn scientific methods used for trying to prove this theory	Worksheets, Exam	LS, GUID
	2 (3)	Reading seismographs – triangulation – earthquake predictions	Virtual Earthquake Lab – online quiz	TECH, T&G
	3 (4)	Geologic Time	Travel Brochure and presentation	CS, HOTS, TECH

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES (The students know about the diversity and unity that characterizes life both inside and outside and organism)

Benchmarks:

A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text-Unit (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	4 (5)	Diversity of Life in Oceans and Wetlands – their importance to earth systems	Worksheets, Exam	LS, HOTS
	5 (6)	Climatic variances cause life to adapt/evolve	Case study, Exam	LS, MEDIA
B	3 (4)	Fossils represent clues to life in Earth's History	Identify reasons for changes in dominant life forms, "Create a Dinosaur"	HOTS, LS, TECH, SPECIAL
	6 (7)	Discover possibilities of life on other planets and in space	NASA Web Site, Exam	TECH, LS, CS
C	Introduction (1) 5 (6)	Basic Lab Safety	Worksheet, Exam	LS
		Flood Safety – Dangers of Living by a River	Personal experiences report, discussion	CS, HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: Earth and Space Sciences (The students understand basic earth features and processes and the earth's position in the galaxy)

Benchmarks:
A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text-Unit (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	1 (2)	Mapping of Earths surface – many perspectives and techniques	Map creation, Exam	LS, HOTS
	1 (2)	Earth's Composition – properties of rocks and minerals	Worksheets, Vocabulary, Lab, Exam	LS, HOTS, GS
	2 (3)	Understand the fractured Earth – Earthquakes, Volcanoes, Plate Tectonics	Worksheets, Video quiz, Exam	LS
	3 (4)	Soil Formation	Worksheets, Exam, Lab	GS, LS
	4 (5)	Differences in Water – Fresh and Marine	Lab, Vocabulary, Exam	LS, MEDIA
B	3 (4)	Major Forces of Erosion – Water, Wind, Glaciers, Gravity	Discussion, Worksheets, Exam, Glacier Lab	HOTS, LS, CS
	5 (6)	Effects of the constant change in weather and its impact on the elements	Weather Station Model, Exam	HOTS, LS
C	6 (7)	Properties and Relationships of the Earth, Moon, and Sun	Note taking, Worksheets, Exam	CS, LS
	6 (7)	NASA Technology and Exploration of the Solar System	Internet project, Vocabulary of solar system components, Exam	HOTS, LS, TECH
	6 (7)	Life Cycles of Stars	Vocabulary, Worksheets, Exam	LS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: Physical Universe (The students understand the physical and chemical properties that govern the universe)

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)
B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	2 (3)	How Convection Currents work in the Mantle	Vocabulary, Worksheets, Exam	LS, HOTS
	3 (4)	Discovering Earth's Energy Reserves	Research in conservation, Paper	CS, HOTS, MEDIA
	2 (3)	Energy Transfer in Seismic Waves	Vocabulary, Exam, Virtual Lab	TECH, LS, GS
	4 (5)	Energy Transfer in Water – Waves	Discussion, Worksheets, Exam	CS, LS
	5 (6)	Energy in the Atmosphere – Lightning and Density	Vocabulary, Exam, Weather Lab	MEDIA, LS
B	Introduction (1)	Matter and its Properties – Basic Science Principles	Vocabulary, Worksheet, Exam	LS, HOTS
	4 (5)	Properties of Water as a Liquid – Freshwater systems and ocean systems	Labs, Vocabulary, Exam	GS, LS, MCGF
	5 (6)	Atmosphere Composition – Gases, solids, and liquids	Discussion, Worksheet, Exam	LS, CS
	3 (4)	Glaciers – Structure, Varieties, Locations, Power	Vocabulary, Worksheets, Glacier Lab, Exam	LS, HOTS, GS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Earth Science Unit Plans
8th Grade

STANDARD/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
	Introduction to Science Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 1	Tests, quizzes, and homework
1-A	Discovery using Scientific Method – skills and techniques. Lab safety rules	Reproducible activity sheets, lab equipment, transparencies Activity sheets	Activity questions
2-C	Measuring in SI units		
4-B	Matter and its Properties Mini-lab: What are some different forms of matter? Scales of measurement		
1-A	Mini-Lab: Evaporation of water	Reproducible lab sheets, lab equipment	Lab write up, questions
	Unit I Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 2-4 Film	Tests, quizzes, and homework Video quiz
3-A	Using a topographic map	Reproducible activity sheets, lab equipment	Activity questions
3-A	Mini-lab: How are latitude and longitude used to locate places on a map?		
3-A	Properties of Minerals		
1-A	Mineral Video		
	Mineral Lab	Reproducible lab sheets, lab equipment	Lab write up, questions
3-A	Classifying rocks Rock Cycle		
	Unit II Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 5-7	Tests, quizzes, and homework
1-B	Film: Plate Dynamics	Film/video player	Questions over film
3-A	Theory of Plate Tectonics-prove and question		
4-A	How convection currents in mantle move the plates Film: Earthquakes Film: Volcanism		
1-B	Internet Activity: Virtual Earthquake Lab	Computers	Internet based
4-A	Epicenter location Volcano demonstration Chapter review questions	Reproducible activity sheets, lab equipment	Activity questions
	Unit III Teacher Lecture	Student text: "Glencoe: Earth Science" Ch. 12-13	Tests, quizzes, and homework
3-A	Film: Soil	Film/video equipment	Questions about film
1-A	Soil Formation Soil Lab	Lab equipment	Lab questions
3-B	Erosion and Deposition		
3-B, 4-B	Glacier Lab	Lab Equipment	
2-B	What types of fossils will we leave behind? Relative age dating and geologic features Evolution within a species	Reproducible activity sheets, lab equipment	Activity questions

STANDARD/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
1-B	Geologic time line		
4-A	Earth's energy resources Fossil fuels alternative fuels		
	Unit IV Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 12-15	Tests, quizzes, and homework
	Film: The Blue Planet	Film/video equipment	Questions about film
3-A	Freshwater systems: surface and ground water	Stream table demonstration	
4-B	Freshwater resources	Reproducible activity sheets, lab equipment, transparencies	
4-A	Ocean energy: waves, tides, and currents	Reproducible activity sheets, lab equipment, transparencies	Activity questions
2-A	Ocean and freshwater zones: life at various levels		
	Unit V Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 16-19	Tests, quizzes, and homework
4-B	Video: Atmosphere Atmosphere composition	Film/video equipment	Questions about film
4-A	Energy in the atmosphere: density and lightning	Activity sheets, observation materials	Activity questions
3-B	Weather patterns-our changing weather		
2-A	Climate and climate change: causes and adaptations Chapter review questions	Reproducible lab sheets, lab equipment	
	Unit VI Teacher Lecture	Student text: "Prentice Hall: Earth Science" Ch. 20-23	Tests, quizzes, and homework
	Film: Apollo 13	Film/video equipment	Questions about film
3-C	Properties of the earth, moon and sun. Moon phases and eclipses	Reproducible activity sheets, lab equipment	Activity questions
3-C	The inner and outer planets – NASA guide to the solar system.	Computers	Internet based
3-C	Characteristics and life cycles of stars.		
2-B	If there was life on other planets, what would it look like?		

General Science

Instructor: Mr. Plecker
Length of Course: One Year

General science is a course designed for the student who does not have a strong background in science. It will introduce the concepts of physical science to give a general understanding of science.

Syllabus

Unit 1.....The Nature of Science ..... 3 weeks
Chapter 1: The Nature of Science (What is science?; Science Methods)
Chapter 2: Measurement (SI units; Tables and Graphs)

Unit 2.....Matter ..... 6 weeks
Chapter 3: Atoms, Elements, and the Periodic Table (structure of matter)
Chapter 4: States of Matter (Changes in state, Behavior of fluids)
Chapter 5: Properties and Changes of Matter (Physical and chemical properties)

Unit 3.....Motion and Forces..... 4 weeks
Chapter 6: Motion and Momentum (motion, acceleration, and collisions)
Chapter 7: Force and Newton's Laws (Newton's three laws of motion)

Unit 4.....Energy..... 6 weeks
Chapter 8: Energy (What is energy and conversions of energy)
Chapter 9: Work and Simple Machines (Work, Power and Machines)
Chapter 10: Thermal Energy (Temperature, heat, and refrigerators)

Unit 5.....Waves, Sound, and Light ..... 10 weeks
Chapter 11: Waves (Waves and wave behavior)
Chapter 12: Sound (Sound and music)
Chapter 13: Electromagnetic Waves (Electromagnetic spectrum)
Chapter 14: Light, Mirrors, and Lenses (Refraction and reflection)

Unit 6.....Electricity and Magnetism ..... 7 weeks
Chapter 15: Electricity (Charge, currents, and circuits)
Chapter 16: Magnetism (Magnetism and electromagnetism)

Text: Glencoe/McGraw-Hill; 2005; Introduction to Physical Science; by National Geographic Society, et.al.

Subject Area: General Science **Length of Course:** One year

Standard 1: SCIENTIFIC INQUIRY - The student knows the scientific knowledge is gained through experiments, research, and use of technology

Benchmarks:

A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)

B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Throughout Course	1. Evaluate scientific thinking that leads to particular conclusions	-Laboratory investigations -Chapter tests -Demonstrations/Observation	HOTS, MCGF, LS, GUID, SPECIAL. T&G
	Unit 1, 3-6	2. Understands science methods	-Classroom instruction -Laboratory investigations	HOTS, LS, MCGF, HGD
	Throughout Course	3. Knows how to use basic laboratory equipment	-Laboratory investigations -Demonstrations/Observation	LS, TECH, MCGF
B	Unit 1, 3-6	1. Demonstrates the ability to from and test a hypothesis.	-Laboratory investigations -Chapter tests	HOTS, LS, GUID
	Throughout course	2. Understands how to use information gathered to form a conclusion.	-Laboratory investigations -Research project -Making and interpreting charts and graphs	HOTS, MEDIA, TECH, LS, MCGF, SPECIAL, T&G

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES - The students know about the diversity and unity that characterizes life both inside and outside and organism

Benchmarks:

A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 1, 4, 5,	1. Knows the relationship between the structure of internal and external body structures and how they work.	-Chapter tests -Section reinforcement exercises -Observation/Demonstration	LS, HGD, MCGF
B	Unit 1	1. Knows the branch of science called Life Science	-Chapter tests -Section reinforcement exercises	LS, HOTS
C	Unit 1	1. Understands laboratory safety	-Observation/Demonstration -Chapter test	LS, HGD, MCGF, SPECIAL, T&G

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: EARTHAND SPACE SCIENCES--The students understand basic earth features and processes and the earth's position in the galaxy.

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as solid, liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 2	1. Knows the physical states of soil, air and water	-Chapter test -Section reinforcement exercises	LS, GS, MCGF
B	Unit 2	1. Understands physical and chemical weathering	-Chapter test -Section reinforcement exercises	LS, HOTS, GS
	Unit 5	2.Understands how waves move on water	-Laboratory investigations -Chapter tests -Section reinforcement exercises	LS, MEDIA
C	Unit 5	1. Understands the nature of electromagnetic waves in the universe.	-Chapter tests -Section reinforcement exercises	LS, HOTS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: PHYSICAL UNIVERSE--The students understand the physical and chemical properties that govern the universe
Benchmarks:
A. Mechanics, force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)
B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 4-6	1. Understands the different forms of energy and the conversions between them.	-Laboratory activities -Chapter tests -Research project	HOTS, LS, MCGF, MEDIA, CS
	Unit 3	2. Knows the laws of motion	-Demonstration/Observation -Laboratory activities -Chapter tests -Section reinforcement exercises	HOTS, LS, HOTS
	Unit 6	3. Understands electricity	-Demonstration/Observation -Laboratory activities -Chapter tests -Section reinforcement exercises	LS, MCGF
	Unit 6	4. Knows the nature of magnets	-Demonstration/Observation -Laboratory activities -Chapter tests -Section reinforcement exercises	LS, HOTS, MCGF
B	Unit 2	1. Knows the structure of matter (atoms)	-Chapter tests -Section reinforcement exercises	HOTS, MCGF, LS
	Unit 2	2. Knows the properties of matter	-Demonstration/Observation -Chapter tests -Section reinforcement exercises	HOTS, LS, MCGF
	Unit 2	3. Understands the different states of matter and the changes between them.	-Laboratory activities -Chapter tests -Section reinforcement exercises	HOTS, LS, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

General Science

SUBJECT: General Science
UNIT 1: The Nature of Science
TEACHER: Mr. Plecker
TIME: 3 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 1-2	Teacher lecture	Student text: "Introduction to Physical Science" Ch. 1-2 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 1	Mini Lab: Forming a hypothesis	Lab materials	Observation Analysis
Ch. 2	Measurement Lab	Lab materials	Written report

SUBJECT: General Science
UNIT 2: Matter
TEACHER: Mr. Plecker
TIME: 6 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 3-5	Teacher Lecture	Student text: "Introduction to Physical Science" Ch 3-5 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 3	Make a periodic table	Lab materials	Completion of project
Ch. 3	Paper chromatography	Lab materials	Analysis questions
Ch. 4	A spin around the water cycle	Lab materials	Written report
Ch. 4	Demo: Bernoulli's Principle	Lab materials	Observation
Ch. 4	Lab: Archimedes' Principle	Lab materials	Written report
Ch. 5	Lab: Sunset in a Bag	Lab materials	Analysis questions

SUBJECT: General Science
UNIT 3: Motion and Forces
TEACHER: Mr. Plecker
TIME: 4 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 6-7	Teacher Lecture	Student text: "Introduction to Physical Science" Ch. 6-7 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 6	Demo: Conservation of Momentum	Lab materials	Observation
Ch. 6	Lab: Collisions	Lab materials	Analysis questions
Ch. 6	Lab: Motion of a Bowling Ball	Lab materials	Written report
Ch. 7	Lab: Balloon Races	Lab materials	Analysis questions
Ch. 7	Lab: Static and Sliding Friction	Lab materials	Written report
Ch. 7	Lab: Newton's Second Law	Lab materials	Written report

SUBJECT: General Science
UNIT 4: Energy
TEACHER: Mr. Plecker
TIME: 6 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 8-10	Teacher Lecture	Student text: "Introduction to Physical Science" Ch. 8-10 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 8	Demo: Kinetic Energy	Lab materials	Observation
Ch. 8	Alternative Energy Report	Poster materials Internet Library	Completion of report/presentation
Ch. 9	Lab: Measuring Work and Power	Lab materials	Analysis questions
Ch. 9	Lab: Levers	Lab materials	Written report
Ch. 9	Lab: Pulleys	Lab materials	Written report
Ch. 10	Demo: Observing Convection	Lab materials	Observation

SUBJECT: General Science
UNIT 5: Waves, Sound, and Light
TEACHER: Mr. Plecker
TIME: 10 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 11-14	Teacher Lecture	Student text: "Introduction to Physical Science" Ch 11-14 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 11	Demo: Model for Waves	Lab materials	Observation
Ch. 12	Demo: Resonance	Lab Materials	Observation
Ch. 14	Demo: The Color of Light	Lab materials	Observation
Ch. 14	Lab: Reflection and Mirrors	Lab materials	Written report
Ch. 14	Lab: Convex Lenses	Lab materials	Written report
Ch. 14	Demo: Lasers	Lab materials; Laser	Observation

SUBJECT: General Science
UNIT 6: Electricity and Magnetism
TEACHER: Mr. Plecker
TIME: 7 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 15-16	Teacher Lecture	Student text: "Introduction to Physical Science" Ch 15-16 Teaching resources Computer test bank	Tests, quizzes, and homework
Ch. 15	Lab: Current in a Parallel Circuit	Lab materials	Written report
Ch. 15	Lab: Construct a Wet Cell Battery	Lab Materials	Written report
Ch. 16	Lab: Mapping Magnetic Field Lines	Lab materials	Analysis questions
Ch. 16	Lab: Make a Compass	Lab materials	Analysis questions
Ch. 16	Lab: Assembling and Electromagnet	Lab materials	Analysis questions

Human Anatomy and Physiology

Instructor: Mr. Plecker
Length of Course: One Year

The goal of Human Anatomy and Physiology is to introduce the student to the structure and function of the human body. This text is especially written for students who have a strong background in physical and biological sciences, and who may pursue a career in allied health fields.

Evaluation will be based on daily participation in class, participation in the laboratory activities, projects assigned during the year, chapter tests and quizzes.

Syllabus

Unit 1.....Organization of the Body..... 7 weeks
- Chapter 1: The Human Body: An Orientation
- Chapter 2: Basic Chemistry
- Chapter 3: Cells and Tissue

Unit 2.....Covering, Support, and Movement of the Body ..... 9 weeks
- Chapter 4: Skin and Body Membranes
- Chapter 5: The Skeletal System
- Chapter 6: The Muscular System

Unit 3.....Maintenance of the Body ..... 13 weeks
- Chapter 14: The Digestive System and Body Metabolism
- Chapter 13: The Respiratory System
- Chapter 10: Blood
- Chapter 11: The Cardiovascular System
- Chapter 12: The Lymphatic System and Body Defenses

Unit 4.....Regulation and Integration..... 5 weeks
- Chapter 7: The Nervous System
- Chapter 8: Special Senses

Unit 5.....Continuity..... 2 weeks
- Chapter 16: The Reproductive System

Text: Pearson Benjamin Cummings; 2003; Essentials of Human Anatomy and Physiology (7th ed); by Elaine N. Marieb

Subject Area: Human Anatomy and Physiology **Length of Course** One year

Standard 1: SCIENTIFIC INQUIRY- The student knows the scientific knowledge is gained through experiments, research, and use of technology

Benchmarks:

A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)

B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 2 Chapter 4, 6 Unit 3 Chapter 11, 13, 14	1. Demonstrates knowledge of the location of major organs within systems through the dissection of a cat.	-Laboratory investigations -Laboratory practicals -Quizzes -Demonstrations/Observation	HOTS, MCGF, LS, T&G, HGD
	Unit 1 Chapter 3 Unit 2 Chapter 5, 6	2. Demonstrates the ability to distinguish between different types of tissue by viewing prepared slides.	-Classroom Observation -Laboratory investigations -Quizzes	HOTS, LS, MCGF
	Throughout Course	3. Knows how to use most laboratory equipment, including microscopes and dissecting tools	-Laboratory investigations -Demonstrations/Observation	LS, TECH, MCGF
B	Unit 2 Chapter 6 Unit 3 Chapter 11, 13, 14	1. Demonstrates the ability to solve scientific problems using science methods.	-Case Study Reports -Chapter tests	HOTS, LS, GUID, CS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES--The students know about the diversity and unity that characterizes life both inside and outside and organism

Benchmarks:

A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 1 Chapter 1 Unit 2 Chapter 4-6 Unit 3 Chapter 10, 11, 12, 13, 14 Unit 4 Chapter 7, 8 Unit 5 Chapter 16	1. Understand the interactions and functions of many of the systems of the human body	-Chapter tests -Review exercises -Observation/Demonstration	LS, HGD, MCGF, HOTS
	Unit 1 Chapter 1	2. List the functional characteristics necessary to maintain life in humans and the survival needs of the body.	-Chapter tests -Review exercises	LS, HOTS, MCGF
B	Unit 1 Chapter 1 Unit 2 Chapter 4-6 Unit 3 Chapter 10, 11, 12, 13, 14 Unit 4 Chapter 7, 8 Unit 5 Chapter 16	1. Understand the effects of aging on the human body and it's systems	-Observation/Demonstration -Chapter test -Review exercises	LS, HGD, MCGF, HOTS
	Unit 1 Chapter 3	2. Knows that many cells within the body are continually growing, dying, and being replaced.	-Observation/Demonstration -Chapter test -Review exercises	HOTS, HGD, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
C	Unit 2 Chapter 4-6 Unit 3 Chapter 10, 11, 12, 13, 14 Unit 4 Chapter 7, 8 Unit 5 Chapter 16	1. Knows how the body changes as it grows, and the development of systems	-Chapter test -Review exercises	HGD, HOTS, MCGF, LS
	Unit 1 Chapter 2 Unit 3 Chapter 14	2. Understands some of the basic concepts of nutrition as it relates to where the energy for body functions comes from	-Chapter test -Review exercises	GUID, SPECIAL, HOTS, LS, MCGF, HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: EARTHAND SPACE SCIENCES--The students understand basic earth features and processes and the earth's position in the galaxy.

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as solid, liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 1 Chapter 1	1. Knows the importance of water to the human organism	-Chapter test -Review exercises	LS, GS, MCGF, HGD
C	Unit 2 Chapter 4	1. Understands the how exposure to ultraviolet rays from the sun can lead to skin cancers	-Chapter tests -Review exercises	LS, HOTS, HGD, GUID, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: PHYSICAL UNIVERSE--The students understand the physical and chemical properties that govern the universe

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Unit 1 Chapter 3	1. Understands how the body uses energy to dive physiological processes.	-Laboratory activities -Chapter tests -Review exercises	HOTS, LS, MCGF
	Unit 1 Chapter 3	2. Knows how the cells of the body convert the energy from food into stored energy or ATP	-Chapter tests -Review exercises	MCGF, LS, HOTS
	Unit 2 Chapter 5	3. Understands how the movement of the body requires the use of simple machines (levers)	-Chapter tests -Review exercises	LS, MCGF, HOTS
B	Unit 1 Chapter 2	1. Knows the structure of atoms, molecules, and compounds	-Chapter tests -Review exercises	HOTS, MCGF, LS
	Unit 1 Chapter 2	2. Understands the different states of matter and the changes between them.	-Chapter tests -Review exercises	HOTS, LS, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Human Anatomy and Physiology

SUBJECT: Human Anatomy and Physiology
UNIT 1: Organization of the Body
TEACHER: Mr. Plecker
TIME: 7 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 1-3	Teacher lecture	Student Text: "Essentials of Human Anatomy and Physiology, 7e" Ch. 1-3 Teacher resources Computer test bank	Tests, quizzes, and homework
Ch. 1	Students locate various anatomical regions on their bodies	Student text	Quiz
Ch. 1	Compare negative feedback mechanisms to the home heating/cooling system	Student text	Written report
Ch. 3	Make a model of a cell and label it.	Student text	Involvement/ Completion of project
Ch. 3	Demo: protein synthesis	Protein synthesis model	Observation/ Participation
Ch. 3	Look at prepared slides of various tissues	Slides Microscopes	Lab report
Ch. 3	Design a chart showing the differences between tissues and examples of each.	Text	Project

SUBJECT: Human Anatomy and Physiology
UNIT 2: Covering, Support, and Movement of the Body
TEACHER: Mr. Plecker
TIME: 9 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 4-6	Teacher Lecture	Student Text: "Essentials of Human Anatomy and Physiology, 7e" Ch. 4-6 Teacher resources Computer test bank	Tests, quizzes, and homework
Ch. 4	Label drawing of skin	Drawing of skin Skin model	Completion of project
Ch. 5	Observe prepared slides of bone tissue	Slides Microscopes	Lab report
Ch. 5	Learn names of bones	Skeleton Student text	Tests, quizzes
Ch. 6	Make a table of the characteristics of joints and the class of lever they represent.	Student text Poster board	Completion of project
Ch. 6	Observe prepared slides of muscle tissue	Slides Microscopes	Lab report
Ch. 6	Make a labeled model of the sliding filament theory of muscle contraction	Student text Lab materials	Completion of project
Ch. 6	Learn the names of major muscles	Student text Charts	Tests, quizzes
Ch. 4-6	Cat Dissection	Cats Dissection tools	Lab practical quiz
Ch. 5-6	Case Study Report	Book: "Case Histories in Human Physiology"	Report

SUBJECT: Human Anatomy and Physiology
UNIT 3: Maintenance of the Body
TEACHER: Mr. Plecker
TIME: 13 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 10-14	Teacher Lecture	Student Text: "Essentials of Human Anatomy and Physiology, 7e" Ch. 10-14 Teacher resources Computer test bank	Tests, quizzes, and homework
Ch. 14	Learn the names of the major organs of the alimentary canal	Student text	Tests, quizzes
Ch. 14	Learn the names of the accessory organs of the alimentary canal	Student text	Tests, quizzes
Ch. 13	Demo: Dissection of trachea and lungs	Sheep pluck Dissection materials	Observation
Ch. 13	Label and color diagram of the pathway of blood through the pulmonary branch	Student text Colored pencils	Completion of project
Ch. 10	Make a list of all major cell types in blood	Student text	Completion of project
Ch. 10	Describe the ABO and Rh blood groups	Student text	Test, quizzes
Ch. 10	Make a list of common blood disorders	Student text	Test, quizzes
Ch. 11	Label and color a diagram of the pathway of blood through the heart	Student text Colored pencils	Completion of project
Ch. 11	Demo: Heart dissection	Sheep pluck Dissection materials	Observation
Ch. 11	Label and color a diagram of the major arteries and veins of the body	Student text Colored pencils	Completion of project
Ch. 11	Learn the names of major arteries and veins	Student text Charts	Tests, quizzes
Ch. 12	Make a chart showing the functions of lymph nodes, tonsils, the thymus, and spleen	Student text Poster board	Completion of project
Ch. 12	Describe the inflammatory process	Student text	Test, quizzes
Ch. 12	Name the two arms of the immune response	Student text	Tests, quizzes
Ch. 11, 13, 14	Cat dissection	Cat; Dissection materials	Lab practical quiz
Ch 10-14	Case Study Reports	Book: "Case Histories in Human Physiology"	Report

SUBJECT: Human Anatomy and Physiology
UNIT 4: Regulation and Integration
TEACHER: Mr. Plecker
TIME: 5 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 7-8	Teacher Lecture	Student Text: "Essentials of Human Anatomy and Physiology, 7e" Ch. 7-8 Teacher resources Computer test bank	Tests, quizzes, and homework
Ch. 7	Cat dissection	Cat Dissection materials	Lab practical quiz
Ch. 7	Know the general functions of the nervous system	Student text	Tests, quizzes
Ch. 7	Make a labeled drawing of a neuron	Student text Colored pencils Poster board	Completion of project
Ch. 7	Name the three meningeal layer	Student text	Tests, quizzes
Ch. 7	Learn the major parts of the brain	Student text	Test
Ch. 7	Cat dissection	Cat Dissection materials	Lab practical quiz
Ch. 8	Trace the pathway of light through the eye to the retina	Student text Colored pencils	Completion of project
Ch. 8	Identify structures in a drawing of the outer, middle, and inner ear	Student text Colored pencils	Completion of project
Ch. 8	Describe the location, structure, and function of olfactory and taste receptors	Student text	Tests, quizzes

SUBJECT: Human Anatomy and Physiology
UNIT 5: Continuity
TEACHER: Mr. Plecker
TIME: 2 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 16	Teacher lecture	Student Text: "Essentials of Human Anatomy and Physiology, 7e" Ch. 16 Teacher resources Computer test bank	Tests, quizzes, and homework
Ch. 16	Go to veterinary clinic to observe a spay or neuter operation	None	Reaction paper
Ch. 16	Learn the parts of the male and female reproductive system	Student text Charts	Tests, quizzes

Chemistry

Instructor: Mr. Plecker
Length of class: One year

Chemistry is the study of matter and its interactions. This course will look at the basis of chemical reactions and the structure of matter from a sub atomic, atomic, and molecular level. The class will include a laboratory component that will help the student explore the world of chemistry for themselves.

Syllabus

Unit 1.....Atomic Structure..... 10 weeks

Chapter 1: Introduction to Chemistry
Chapter 2: Matter and Change
Chapter 3: Scientific Measurement
Chapter 4: Atomic Structure
Chapter 5: Electrons in Atoms

Unit 2.....Elements, Compounds, and Molecules..... 8 weeks

Chapter 6: The Periodic Table
Chapter 7: Ionic and Metallic Bonding
Chapter 8: Covalent Bonding
Chapter 9: Chemical Names and Formulas

Unit 3.....Moles, Reactions, and Stoichiometry ..... 6 weeks

Chapter 10: Chemical Quantities
Chapter 11: Chemical Reactions
Chapter 12: Stoichiometry

Unit 4.....The Many Forms of Matter ..... 8 weeks

Chapter 14: The Behavior of Gases
Chapter 15: Water and Aqueous Solutions
Chapter 16: Solutions
Chapter 19: Acids, Bases, and Salts

Unit 5.....Carbon and its Compounds..... 4 weeks

Chapter 22: Hydrocarbon Compounds
Chapter 23: Functional Groups

Text: Prentice Hall; 2005; Chemistry; by Wilbraham, Staley, Matta, and Waterman

Subject Area: Chemistry Length of Course: One year

Standard 1: SCIENTIFIC INQUIRY- The student knows the scientific knowledge is gained through experiments, research, and use of technology

Benchmarks:

A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)

B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Throughout Course	1. Uses scientific thinking and data analysis to arrive at a particular conclusion.	-Laboratory investigations -Laboratory report -Making and interpreting charts and graphs	HOTS, MCGF, LS, GUID, SPECIAL. T&G, TECH
	Throughout Course	2. Demonstrates mastery science methods	-Classroom observation -Laboratory investigations -Chapter test	HOTS, LS, MCGF
	Throughout Course	3. Knows how to use chemistry laboratory equipment	-Laboratory investigations -Demonstrations/Observation	LS, TECH, MCGF
B	Chapter 1	1. Demonstrates the ability to form and test a hypothesis.	-Laboratory investigations -Chapter tests -Review exercises	HOTS, LS
	Throughout course	2. Knows how to use and interpret various sources of information to answer questions.	-Laboratory investigations -Laboratory report -Demonstration/Observation	HOTS, MEDIA, TECH, LS, MCGF, SPECIAL, T&G

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES--The students know about the diversity and unity that characterizes life both inside and outside and organism

Benchmarks:

A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Chapter 1	1. Knows that chemistry affects all aspects of life and natural events.	-Chapter tests -Section review exercises -Observation/Demonstration	LS, HGD, MCGF
	Chapter 1	2. Understands that the study of chemistry is essential to all other science disciplines.	-Chapter tests -Section review exercises	LS, HOTS, MCGF
B	Chapter 22	1. Understands that many hydrocarbons, including coal, come from once living organisms.	-Section review exercises -Chapter test	LS, HGD, MCGF
C	Throughout Course	1. Knows how to be safe in the laboratory	-Laboratory activities -Chapter tests	LS, MCGF, HGD, GUID
	Chapter 22, 23	2. Understands how chemistry plays a role in the human body and is essential to health.	-Chapter tests -Section review exercises	LS, GUID, HGD, HOTS, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: EARTH AND SPACE SCIENCES--The students understand basic earth features and processes and the earth's position in the galaxy.

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as solid, liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Chapter 2,14, 16, 19	1. Knows the physical states of matter and how they change	-Chapter test -Section review exercises -Laboratory activities	LS, HOTS, MCGF
	Chapter 14	2. Understands the behavior of gases including air.	-Chapter test -Section review exercises	LS, HOTS, GS, MCGF
	Chapter 15, 16	3. Knows the properties of water and its role in solutions	-Laboratory investigations -Chapter tests -Section review exercises	LS, HOTS, MCGF
B	Chapter 2, 11	1. Understands that matter can and will undergo changes in both chemical and physical properties.	-Chapter tests -Section review exercises -Laboratory activities	LS, HOTS, GUID

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: PHYSICAL UNIVERSE--The students understand the physical and chemical properties that govern the universe

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
A	Chapter 1, 2, 11	1. Understands that energy is conserved in all chemical changes.	-Laboratory activities -Chapter tests	HOTS, LS, MCGF, MEDIA, CS
	Chapter 4, 7	2. Understands the nature of electric charges as it relates to the behavior of atoms in structure and bonding.	-Demonstration/Observation -Laboratory activities -Chapter tests -Section review exercises	HOTS, LS, MCGF
	Chapter 4, 7, 8	3. Understands the forces involved in bonding atoms together and in holding the nucleus together.	-Laboratory activities -Chapter tests -Section review exercises	LS, MCGF, HOTS
B	Chapter 2, 4, 5	1. Mastery of the structure of matter (atoms)	-Chapter tests -Section review exercises	HOTS, MCGF, LS
	Chapter 2	2. Knows and understands the properties of matter both chemical and physical.	-Demonstration/Observation -Chapter tests -Section review exercises	HOTS, LS, MCGF
	Chapter 1, 2	3. Understands the different states of matter and the changes between them.	-Laboratory activities -Chapter tests -Section review exercises	HOTS, LS, MCGF, GS
	Chapter 11	4. Will predict the changes matter will go through under specific circumstances.	-Chapter tests -Section review exercises -Laboratory activities	HOTS, LS, MCGF
	Chapter 3, 11, 12	5. Knows how to manipulate various units and quantities used to measure matter and its changes.	-Chapter tests -Section review exercises	HOTS, LS, TECH, MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Chemistry

SUBJECT: Chemistry
UNIT 1: Atomic Structure
TEACHER: Mr. Plecker
TIME: 10 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 1-5	Teacher Lecture	Student text: "Chemistry" Ch. 1-5 Teacher resource materials Computer test bank	Tests, quizzes, and homework
Ch. 1	Laboratory Safety	Student text Lab materials	Observation Written report
Ch. 1	Demo: Chemistry Areas of Study (Slide Show)	Slides of pictures of natural and man made phenomena that relate to chemistry	Observation
Ch. 1	Mini Lab: Bubbles	Lab materials Student text	Analysis questions
Ch. 2	Classifying Matter	Student text Lab materials	Observation
Ch. 2	Chromatography Lab	Student text Lab materials	Observation
Ch. 2	Lab: Observing a Chemical Reaction	Lab manual Laboratory materials	Lab exercise Written report
Ch. 2	Demo: Electrolysis of Water	Lab materials	Observation
Ch. 3	Lab: Mass, Volume, and Density	Lab manual Laboratory materials	Observation Written report
Ch. 4	Lab: Finding the charge of an electron	Lab materials Reproducible lab worksheet	Written report
Ch. 5	Flame Tests	Student text Lab Materials	Analysis questions

SUBJECT: Chemistry
UNIT 2: Elements, Compounds, and Molecules
TEACHER: Mr. Plecker
TIME: 8 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 6-9	Teacher Lecture	Student text: "Chemistry" Ch. 6-9 Teacher resource materials Computer test bank	Tests, quizzes, and homework
Ch. 8	Shapes of Molecules	Balloons Student text	Observation
Ch. 8	Lab: Molecular Models	Molecular model sets Lab manual	Written report

SUBJECT: Chemistry
UNIT 3: Moles, Reactions, and Stoichiometry
TEACHER: Mr. Plecker
TIME: 6 Weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 10-12	Teacher lecture	Student text: "Chemistry" Ch. 10-12 Teacher resource materials Computer test bank	Tests, quizzes, and homework
Ch. 10	Demo: Display various mole quantities	Lab materials	Observation
Ch. 10	Lab: Counting by measuring mass	Student text Lab materials	Analysis questions
Ch. 10	Lab: Percent water in a hydrate	Lab manual Lab materials	Written report
Ch. 11	Demo: Combustion of iron	Lab materials	Observation
Ch. 12	Lab: Percent yield of copper	Lab materials Lab manual	Written report

SUBJECT: Chemistry
UNIT 4: The Many Forms of Matter
TEACHER: Mr. Plecker
TIME: 8 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 14-16, 19	Teacher Lecture	Student text: "Chemistry" Ch. 14-16, 19 Teacher resource materials Computer test bank	Tests, Quizzes, and homework
Ch. 14	Demo: Effect of changing pressure has on volume	Lab materials Marshmallows Vacuum pump	Observation
Ch. 15	Lab: Distillation	Lab materials Lab manual	Written report
Ch. 15	Demo: Water of Hydration	Lab materials	Observation
Ch. 16	Demo: Freezing point depression	Lab materials	Observation
Ch. 19	Lab: Titration of Clear Sodas	Lab materials Lab manual	Written report

SUBJECT: Chemistry
UNIT 5: Carbon and Its Compounds
TEACHER: Mr. Plecker
TIME: 4 weeks

TEXT REF.	ACTIVITIES	MATERIALS	EVALUATION
Ch. 22-23	Teacher Lecture	Student text: "Chemistry" Ch. 22-23 Teacher resource materials Computer test bank	Tests, quizzes, and homework
Ch. 23	Lab: Making polymers	Lab materials Lab manual	Written report

TEXT

BIOLOGY A COMMUNITY CONTEXT

I. P.T.
Leonard Penick
2003

SUPPLEMENTAL MATERIALS

Project Wet
Project Wild
Environmental Issues
Aquatic
Food, Land, and People

EVALUATION

Homework, Discussion questions, Quizzes, Unit Tests, Logs, Personal Performances

BIOLOGY SYLLABUS

UNITS

1.	Matter and Energy for Life	weeks 1-4
2.	Ecosystems	weeks 5-9
3.	Populations	weeks 10-14
4.	Homeostasis: The Body in Balance	weeks 15-18
5.	Inheritance	weeks 19-23
6.	Behavior and the Nervous System	weeks 24-30
7.	Biodiversity	weeks 31-34
8.	Biosphere	weeks 35-36

Subject Area: Biology **Length of Course:** One year

Standard 1: Scientific Inquiry (The student knows the scientific knowledge is gained through experiments, research, and use of technology)

Benchmarks:

A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)

B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A,B	All Chapters	Learns to ask questions, collect data, make up explanations, and communicate ideas to others Can define and explain the term variable Explain the relationship between cause and effect Develop ideas of how advances in technology may effect society	Classroom discussion and observation Lab write ups Chapter tests ITBS ACT	HOTS, SPECIAL MEDIA, TECH, MCGF LS, CS, GS, HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES (The students know about the diversity and unity that characterizes life both inside and outside and organism)

Benchmarks:

A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	(9) Unit 2	Knows the components of the energy pyramid and how energy flows through the system	Classroom discussion and observation	HOTS, SPECIAL MEDIA, TECH, MCGF
	(10) Unit 2	Determine land needed to grow students food for one year	Lab write ups Chapter tests	LS, CS, GS, HGD
	Unit 3	Gain an appreciation for the interdependency of all species and their physical environment	ITBS ACT	
	(13) Unit 4	Knows homeostasis as it relates to the body creating a stable internal environment		
	(14) Unit 4	Knows cell parts and organelle functions		
	(15) Unit 4	Has a general knowledge to the human urinary, digestive, circulatory, respiratory, endocrine, and immune systems		
A	(16) Unit 5	Understanding of chromosomes and genes and their role with inheritance		
	(17) Unit 5	Understands the processes of mitosis and meiosis		
	(18) Unit 5	Has a general understanding of the human reproductive systems		
	(19) Unit 5	Knows of Gregor Mendel's works		
	(20) Unit 5	Knows of DNA and its role in protein synthesis		
	(21) Unit 6	Understands that behavior is the result of the interaction between genetics and environment		
	Unit 6	Has a general understanding of the human nervous, muscular, and skeletal systems		
	(23) Unit 7	Knows that biological diversity is classified into groups and subgroups by the science of taxonomy		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	(24) Unit 7	Knows of Charles Darwin's work on natural selection and that it is the result of the interplay between environmental changes and genetics	Classroom discussion and observation Lab write ups	HOTS, SPECIAL MEDIA, TECH, MCGF LS, CS, GS, HGD
	(25) Unit 8	Gains a perspective of how humans have and will have an impact on their environment	Chapter tests ITBS	
	(26) Unit 8	Identify positive actions that humans can take locally and globally to preserve the environment	ACT	
B	(2) Unit 1	Understands how air, water, and organisms influence decomposition of organic materials		
	(4) Unit 1	Understands photosynthesis and respiration with respect to the carbon cycle		
	(7) Unit 2	Explain the nitrogen cycle		
	(11) Unit 3	Gain a understanding of population dynamics		
	(12) Unit 3	General understanding of human population growth and the issues that face us		
	(22) Unit 7	Understands the geological and biological time lines of the earth		
C	Units 4, 5, 6	Gains an appreciation of general health from the knowledge of human systems		
	Unit 5	Exposed to a few human genetic diseases		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: Earths and Space Sciences (The students understand basic earth features and processes and the earth's position in the galaxy)

Benchmarks:
A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
B	(5) Unit 2 (8) Unit 2	Gain an appreciation of the raw materials taken from the earth by humans and its effects Knows the major biomes of the earth a some characteristics of each	Classroom discussion and observation Lab write ups Chapter tests ITBS ACT	HOTS, SPECIAL MEDIA, TECH, MCGF LS, CS, GS, HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: Physical Universe (The students understand the physical and chemical properties that govern the universe)

Benchmarks:
A. Mechanics, force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)
B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	(1) Unit 1	Knows that nothing "goes away" ; that matter is transferred from one organism to another repeatedly and between organisms and their physical environment; as in all material systems, the total amount of matter remains constant, even though its form and location change	Classroom discussion and observation Lab write ups Chapter tests ITBS ACT	HOTS, SPECIAL MEDIA, TECH, MCGF LS, CS, GS, HGD
	(6) Unit 2	Understands the laws of thermodynamics		
B	(3) Unit 1	Knows that atoms react chemically to form compounds with new characteristics		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

STANDARDS/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
	Unit 1		
4-A	Discuss trash; how we produce it, remove it, dispose of it, and recycle it students will make an audit of their own trash and produce their own compost pile	inquiry 1.2, 1.3	lab write up
2-B	Students will observe microscopic life in the their compost pile	Microscopes	Pictures drawn of organisms found
4-B	explanation of simple chemistry-production of compounds and chemical equations.	Molecular models	Teacher observation
2-B	look at photosynthesis, fermentation, and decomposition		
2-C	look at modern day sewage treatment techniques		
			unit homework quiz logs unit test
	Unit 2		
3-B	discuss the Tennessee Copper Basin project		discussion questions
4-A	explain the light energy used in photosynthesis		worksheet
2-B	explain how plants get nitrogen	inquiry 2.3	lab write up
3-B	Student presentation of different biomes	Poster material	presentation
2-A	discuss energy pyramids from different ecosystems	VCR- Salmon and Bears	lab write up
2-A	compare land needs of students in the class in terms of calories	inquiry 2.6	lab write up
3-B	water pollution	WET – point sources of pollution	
2-A	Read Dr. Seuss "The Lorax"		
			unit discussion questions quiz logs unit test
	Unit 3		
2-B	describe a population growth, sampling, density students will grow a populations of animals	fruit flies meal worms yeast paramecium	lab write up

STANDARDS/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
2-B	students will work with a predator prey simulation	inquiry 3.4	lab write up
2-B	discussion on human populations and the problems we face students will draw double histograms	Inquiry 3.5	worksheets unit questions quiz logs unit test
	Unit 4		
2-A	explanation of how the body maintains balance through the process of homeostasis	inquiry 4.2	lab write up
2-A,C	explain the human urinary system and how it relates to water and salt balance		
2-A,C	explain the human circulatory system	inquiry 4-5 extended inquiry 4-3	lab write up worksheet
2-A,C	explain human respiratory system	Inquiry 4.6 extended inquiry 4-2	worksheet
2-A,C	explain human endocrine system	Inquiry 4.7 FLP-Germ Busters	
2-A,C	explain human immune system; discuss some infectious diseases	Inquiry 4.7 FLP – Germ Busters	worksheet unit review questions quiz logs unit test
	Unit 5		
2-A	explanation of human chromosomes and karyotyping discuss techniques to detect genetic disorders	human chromosomes (students make a karyotype)	
2-A	describe mitosis and meiosis	Inquiry 5.2 mitosis slides microscopes	Microscope quiz
2-A	work with pedigrees to determine dominate and recessive traits	Inquiry 5.4	worksheets
2-A	discuss Mendel's works and punnett squares		worksheets
2-A	describe DNA and it controls protein synthesis lab – extract DNA from onions	Inquiry 5.6	worksheets lab write up
2-A	Make model of DNA	Inquiry 5.7	model

STANDARDS/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
1-A,B	discussion of genetic birth defects from environmental hazards and genetic engineering		unit discussion questions quiz logs unit test
	Unit 6		
2-A	explain the human nervous system to include the senses		
2-A	discuss the connection between genetics and the environment as it relates to behavior		
2-A	Observe regeneration	Live Brown Planarians	
2-A	activities on improving memory, reaction time, and reflex	inquiry 6.3,4,5	lab write up
2-A	discuss human skeletal and muscular systems build muscles showing origin and insertion	Human skeleton Construction paper	presentation unit discussion questions quiz logs unit test
	Unit 7		
2-B	explanation of biological and geological time lines lab – student will make time lines	adding paper meter sticks	timelines
2-B	Construct an animal skeleton from fossil	HBJ Biology	
2-A	discuss Linneaus's classification system and the five kingdoms create poster of kingdoms and phylums	Pictures of assorted organisms	poster
2-A	Simpsons diversity index	Inquiry 7.3	Lab write up
2-A	gather data on human characteristics to show variation	inquiry 7.4	lab write up
2-A	discuss Darwin's contribution to the understanding of evolution and natural selection		
	case studies of ecosystems that have changed because of natural selection	extended inquiry 7.3	

STANDARDS/ BENCHMARKS	ACTIVITIES	MATERIALS	EVALUATION
	Unit 8		
2-A	case study of local human impact	inquiry 8.1	discussion questions
2-A	Demonstration	Extended inquiry 8.4 apples	
2-A	discussion on energy consumption of humans comparing U.S. to other countries	inquiry 8.3	discussion questions
	Discuss p. 520, 525		
			unit questions quiz logs unit test

TEXT

Prentice Hall Physical Science Concepts in Action

Wysession Frank Yancopoulos

2004

SUPPLEMENTAL MATERIALS

PRISMS

Project Wild

EVALUATION

Homework

Labs

Quizzes

Chapter Tests

Personal Performances

Physical Science Syllabus

MATTER	CHAPTERS 1-4	4 WKS
CHEMISTRY	CHAPTERS 5-10	14 WKS
MOTION & FORCES	CHAPTERS 11-13	6 WKS
WORK & ENERGY	CHAPTERS 14-15	3 WKS
WAVES, SOUND, LIGHT	CHAPTERS 17-19	5 WKS
ELECTRICITY & MAGNETISM	CHAPTERS 20-21	4 WKS

Subject Area: PHYSICAL SCIENCE **Length of Unit:** One Year

Standard 1: Scientific Inquiry (The student knows the scientific knowledge is gained through experiments, research, and use of technology)

Benchmarks:
A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)
B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	(4)1.3 1.4	Understands metric system Use mathematics and graphing skills	Lab practicum ITBS - graphing	HOTS SPECIAL MCGF LS CS
B	(1) 1.1 (2) 1.2	Discuss technology and its advancements Understands the nature of scientific inquiry	Class Discussion Group presentation	TECH HOTS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES (The students know about the diversity and unity that characterizes life both inside and outside and organism)

Benchmarks:
A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	(7) 3.2	Human lungs and how it relates to gas laws		HGD
C	(3) 1.2 (13) 7.2 (16) 8.4 (31) 19.4	Discuss Safety in the Lab Explanation of car air bags PH of human blood Explanation of the human eye and corrective measures	Safety test Discussion Discussion	SPECIAL TECH HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: Earths and Space Sciences (The students understand basic earth features and processes and the earth's position in the galaxy)

Benchmarks:
A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A B C	(10) 5.3	Understands the earth is the resource for elements		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: Physical Universe (The students understand the physical and chemical properties that govern the universe)

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
A	(14) 7.3	Understands endothermic and exothermic reactions and the factors that control them	Demonstrations – teacher observation	HOTS SPECIAL
	(21) Chapter 11	Knows the difference between velocity and acceleration and can calculate each with given information	Chapter test Worksheets Lab write-ups	TECH MCGF LS
	(22) 12.1	Understands what a force is and that an unbalanced force will cause acceleration	Teacher questioning	
	(23) 12.2 & 12.3	Understands Newton's 3 laws of motion and can calculate with given information	Chapter tests and Homework	
	(24) Chapter 13	Understands what is meant by a fluid and how they cause pressure	Chapter test	
	(25) Chapter 14	Knows the 6 simple machines and can calculate work, power, and mechanical advantage	Lab write-up Rube Golberg Machine	
	(26) 15.1	Knows the difference between kinetic and potential energy and can calculate each	Chapter test Worksheets	
	(27) 16.1	Define heat and calculate heat changes using specific heat values	Lab Write-up	
	(28) 17.1-17.3	Distinguish between the two types of waves and describe them using their properties	Demonstrations Homework	
	(29) 17.4	Understands how sound is produced and transmitted	Chapter test	
	(30) Chapter 18	Aware of the electromagnetic spectrum and properties of light	Classroom discussion and demonstrations	
	(31) Chapter 19	Knows that mirrors reflect light and lenses refract light and how they both form images	Lab write-up Worksheets	
	(32) 20.1	Understands how electric charge and static electricity relates to the atom	Chapter test	

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Benchmarks	Section from Text (Sequence)	Critical Objectives	Assessments	Infusions/ Provisions
	(33) 20.2, 20.3	Knows the two different types of circuits and can use Ohms Law to calculate	Homework Lab write-up Chapter test	
	(34) Chapter 21	Understand how magnetic fields and electric fields are related and the interplay of these two make motors and generators possible	Lab Chapter test	
B	(5) Chapter 2	Understands that matter has properties and how it is classified	Group concept map	HOTS
	(6) 3.1	Knows the states of matter and phase changes	Chapter Test	
	(7) 3.2	Knows the gas laws	Chapter Test ITBS	LS
	(8) 4.1	Realizes the sequence of atomic theory	Group presentations	
	(9) 4.3	Knows the structure of the atom to include the nucleus and electron cloud	Chapter Test	SPECIAL
	(10) Chapter 5	Knows and understands the design of the periodic chart and how it relates to the properties of atoms	Construct a periodic chart	
	Chapter 6	Demonstrates how atoms bond to form compounds and how they are balanced and named	Chapter Test	
	7.1	Demonstrates the ability to balance a chemical equation	Lab – chemical reaction	
	7.2	Recognizes types of chemical reactions	Chapter Test	
	(15) 8.2	Understands solubility	Lab write-up	
	(16) 8.3	Knows the properties of acids and bases and can do a modified titration	Chapter Test Lab write-up	
	(17) Chapter 9	Knows the different groups of hydrocarbons and can draw structural formulas of each	Chapter test	HOTS
	(18) Chapter 10	Understands radioactivity and half-life	Lab write-up	
	(19) 10.3	Demonstrates the ability to write a nuclear equation	Chapter test	
	(20) 10.4	Distinguishes between fission and fusion		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
C-1	Lab safety		Safety test
	Scientific Method		Class presentation
	Metric Conversions		worksheets
C-2	Graphic Organizers – classify matter	Paper, colors	poster
	lab - measure mass, volume and calculate density of certain objects	objects of different shapes and sizes graduated cylinders overflow cans rulers calipers balances	lab write up
C-3	Explain Boyle's, Charles, and combined gas laws	worksheets	
	Phase Changes p.92		Lab Write up
C-4	Atomic structure, number, mass		Worksheets
	Students begin making their own periodic chart		
	Electron configuration		
C-5	Fill out student periodic chart with groups		
C-6	Draw pictures and make models of ionic , covalent, and metallic bonding	Atomic model kits	worksheets
C-7	describe three types of chemical reactions		worksheets
	student practice on writing and balancing chemical reactions		worksheets
	Lab - FeS	Iron, sulfur Lab equipment	Lab write up
C-8	describe solutions explain solubility curves		
	lab - solubility of a salt	KNO3 lab equipment	lab write up
	Acid and base titration	Lab equipment NaOH Sprite	Lab write up
C-9	Draw Structural formulas of hydrocarbons		worksheets
	Make superballs	Polymer lab Sodium silicate Isopropyl alcohol	
C-10	Radioactive half-life	Shoe boxes Candy corn	Lab write up
	Nuclear equations		worksheets
C-11	Measure speed	Wind up cars Tape measures Stop watches	Lab write up
	Measure acceleration	Hot wheel cars' Ramps Stop watches	Lab write up

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
C-12	Newton's 2nd law	PRISMS II-5	Lab write up
	Momentum	PRISMS II-17	Lab write up
C-13	Demonstrations		
	Pascal's principle		
	Archimedes principle		
	Bernoulli's principle		
C-14	Levers, incline planes, wheel and axle, pulleys	Lab equipment	Lab write up
C-16	Specific heat	Calorimeter cups	Lab write up
C-17	Demonstration of waves	slinky	
	Solve the speed of sound	Starters pistol	
C-19	Law of reflection	Mirrors	
		PRISMS V-6 thru 9	
	Law of refraction	Lens, candles	Lab write up
C-20	Demonstrations		
	Electrostatic generators		
	Ohm's law	Batteries and bulbs	Lab write up
C-21	Demonstrations magnetic fields		
	Electromagnetism	PRISMS VI-16	

TEXT

Prentice Hall Conceptual Physics

Paul Hewitt
2002

SUPPLEMENTAL MATERIALS

PRISMS

EVALUATION

Homework, Labs, Quizzes, Chapter test, Personal Performances

Physics Syllabus

Mechanics	
Chapters 2 - 8	1st Quarter
Chapters 9 - 16	2nd Quarter
Sound and Light	
Chapters 25, 26, 27, 28, 29, 30,	3rd Quarter
Electricity and Magnetism	
Chapters 32 - 37	4th Quarter

Subject Area: Physics **Length of Course:** One year

Standard 1: Scientific Inquiry (The student knows the scientific knowledge is gained through experiments, research, and use of technology)

Benchmarks:
A. Processes and Skills (Nature of scientific knowledge-experiments, equipment, tools, methods, inquiry, make inferences based on data, infer unstated relationships, define problem)
B. Analysis and Interpretation (Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	One project per quarter	Students will design and construct: Model rocket Mousetrap car Toothpick bridge Hickory Dickory Shot Soda straw arm	Compete at Physics Olympics	HOTS TECH MCGF
B	C-5, 8, 9, 10, 12, 13	Understands that general properties exist for all matter		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 2: LIFE SCIENCES (The students know about the diversity and unity that characterizes life both inside and outside and organism)

Benchmarks:
A. Structure of living things (knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)
B. Life Cycles (Organisms are growing, dying, new ones produced)
C. Health and Safety (nutrition, personal safety, growth and development)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A,B,C	All chapters	Students are taught to realize no matter what field of endeavor, that physics is useful		MCGF

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 3: Earths and Space Sciences (The students understand basic earth features and processes and the earth's position in the galaxy)

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)
B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)
C. The Universe (Properties of sun, moon, and stars)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	C-9, 10, 12, 13	Gain a general understanding of the earth's makeup	Teacher questioning	
B	(8) C-13	Understands how gravity controls tides	Teacher questioning Team worksheets Chapter test	
	(11) C-28	Understands the physics behind the color of the earth's atmosphere and oceans		
C	(8) (9) C 13, 14, 15, 16	Knows that gravity controls the motion of all bodies in the universe	Teacher questioning	

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Standard 4: Physical Universe (The students understand the physical and chemical properties that govern the universe)

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets)

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
A	(1) C-2	Understands motion in a straight line, the principles behind it, and can calculate Knows that motion can be described both graphically and mathematically according to its position, direction, and speed	Lab write up Partner worksheets Homework Chapter test Teacher questioning	HOTS SPECIAL TECH MCGF LS CS
	(2)C-3	Understands motion in two directions and can calculate		
	(3) C-4, 5, 6	Knows Newton's 3 laws of motion and understands the principle that govern them		
	(4) C-7, 8	Understands the laws of conservation of momentum and energy and can use them to solve unknown quantities Knows that all energy can be considered either kinetic or potential		
	(5) C-9	Understands circular motion		
	(6) C-10	Can determine center of gravity		
	(7) C-11	Understands and can calculate torque and angular momentum		
	C-12, 13, 14	Knows that gravity is the universal force that each mass exerts on all other masses		
	(9) C-15,16	Can discuss the special theory of relativity		
	(10) C-25, 26	Knows that waves carry energy and can interact with matter and other waves Knows wavelength, frequency, period, amplitude, and speed of a wave		
	(11) C-27, 28	Has a general knowledge of the properties of light		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Benchmarks	Section from Text (SEQUENCE)	Critical Objectives	Assessments	Infusions/ Provisions
	(12) C-29	Knows that light is reflected by mirrors and refracted by lenses in a precise manner		
	(13) C-32	Knows that materials mostly contain equal proportions of positive and negative charges, but small excess or deficit of negative charges produce noticeable electric forces		
	(14) C-33	Has a general understanding of electrical fields		
	(15) C-34, 35	Understand series and parallel circuits and can use Ohm's law to solve mathematically		
	(16) C-36	Knows that electric forces and magnetic forces are closely related and each produce fields; The interplay of these is the basis for electric motors, generators, and many other technologies		
B	C-5, 8, 0, 12, 13	Understands that certain laws and principles exist for all matter in the universe		

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL), Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
	Class Projects		
1,2,3	Students will be required to complete one project each quarter. Projects will be chosen by the instructor.		
	1 - soda straw arm longest arm that can be made and still hold up a 100 g mass	20 soda straws 20 straight pins	
	2 - mouse trap car car built to certain specifications that is solely power by a mouse trap	student picks materials	
	3 - hickory dickory shot machine that propels a ping pong ball at a target	student picks materials	
	4 - toothpick bridge bridge made of toothpicks with certain specifications to see who can hold the most weight	round toothpicks	
	5 – model rocket		
2	Observe object traveling at constant speed. Students will graph and solve mathematically.	battery powered car meter sticks stop watches	lab write up
	Observe object traveling at accelerated motion Students will graph and solve mathematically	ball rolling down a ramp meter sticks stop watches instructors car	lab write up
3	Students will make vector diagrams	PRISMS 1-9 , 1-14, 1-16	hand in diagrams
	Understand projectile motion	projectile motion lab	
4	Explain inertia	inertia lab	lab write up
5	Explain F=ma	PRISMS II-4, II-5, II-6, II-17	lab write up
6	Explain action reaction		demonstrations
7	Explain momentum and impulse		
	Explain conservation of momentum	Teacher demo Large ball bearings collision balls	
	Momentum in two directions	Lab materials	Vector diagram
8	Explain work, kinetic energy, and potential energy		
	Explain conservation of energy	PRISMS III-2, III-4, III-5	lab write up

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
9	Describe circular motion teacher demo - compare circular motion to pendulum motion	record player pendulum light source	
	Explain centripetal force	PRISMS II-21	
10	Explain center of gravity students will find center of mass of several objects		lab write up
11	Describe torque and rotation as it relates to angular momentum teacher demo lab	weighted wheel gyroscope smoke rings	
	Rotational inertia	Hoops, spheres, cylinders	
12, 13, 14	Explain orbital motion and the ellipse students will draw ellipses	paper, tacks, pencils	
	Explain seasons and tides		
15 & 16	teacher lecture and student discussion on relativity, space-time, speed of light, time dilation, and equivalence of mass and energy		
25	Describe waves in terms of wavelength, frequency, speed, period, and amplitude Describe the doppler effect	long coiled spring wave generator ripple tank PRISMS V-3	lab write up
26	Explain sound as a longitudinal wave	slinky	
	Determine speed of sound	water columns tuning forks	lab write up
	Explain resonance	PRISMS V-1	
27	Describe how the speed of light was first measured Explain the electromagnetic spectrum		
	Explain polarization and 3-D	polarized lenses	
29	Explain reflection and refraction as it pertains to waves		

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
	Describe how mirrors produce images	PRISMS V-6, V-7, V-8	
	Lab Snell's Law	PRISMS light source laser	lab write up
	Thin film lab	soap bubbles film frames PRISMS V-15	
	Explain total internal reflection and fiber optics	laser	
30	Describe converging and diverging lens. Explain how each form images. Labs Explanation of the human eye	Ray diagrams Images formed of a candle by lens	lab write up
31	Describe the laser and the making of a hologram	laser	
32	Explore static electricity Use Coulomb's law to calculate charge Explain conductors and insulators	pith balls electrostatic generators electroscope PRISMS VI-1, VI-2, VI-6	lab write ups
33	Explain electric fields and areas of varying potential difference	PRISMS VI-3, VI-5	lab write up
34	Explain electric current and resistance Use Ohms Law Calculate wattage Explain voltage sources	PRISMS VI-11 Batteries and bulbs	lab write up
35	Describe and calculate using Ohms Law series circuits	PRISMS VI-11, part II batteries and bulbs	lab write up
	Describe and calculate using Ohms Law parallel circuits	PRISMS VI-11 part III batteries and bulbs	lab write up
	Draw schematic diagrams of series, parallel, and combination circuits		homework
36	Explore magnetic fields around magnets	PRISMS VI-12	lab write up
	Explore magnetic fields around electric current	PRISMS VI-5	lab write up

CHAPTER	ACTIVITIES	MATERIALS	EVALUATION
	Students will study and build electric motors	PRISMS VI-16 D battery coated wire magnet	
37	Explain and demonstrate electromagnetic induction and Faraday's law		
	Describe generators and transformers and how they relate to electrical transmission	PRISMS VI-18 extension cord electric meters	

Animal Science

Like all agricultural education courses, encompasses the study of applied sciences and business management principles.

One of the major purposes of agricultural education is to apply the knowledge and skills learned in the seven different disciplines to agricultural situations. Students also develop an understanding of the significance of agriculture in a global society, and the U.S. society in particular, through the application of scientific principles and problem solving strategies.

This is the mission and philosophy of developing scientifically literate citizens who understand the impact and use the knowledge and process of science to solve problems and improve life within the limits of the total environment.

Science education is the study of the process of investigation, the knowledge such investigation provide and the impact and use of such knowledge upon the individual society. Animal science by its very name utilizes this as part of science education. Because it also deals with animals, Animal Science also ties directly into Agricultural Education as well.

Van Buren Community Schools
Animal Science I
Course Outline
Grade Level Recommended 9, 10, 11, and 12

Week	Topics	Objectives	Activities
1	Introduction	Course Overview	Policies, expectations, overview of the animal science industry
2	Animal science careers	Career opportunities in animal science	Swine breeder, veterinarian, vet tech, rancher, researcher, nutritionist
3	Diseases	Understanding diseases, vectors, and human impact	Review of diseases, symptoms, classifications, mechanisms, etiology
4	Diseases	Disease prevention, zoonotic diseases	PowerPoint on disease identification and treatment
5	Animal health	Diseases and parasites	Common parasites, mode of action, methods of control
6	Management practices	Care of domestic animals	Care and maintenance of pets, domestic food animals
7	Nutrition	Digestive systems	Monogastric, ruminant, poultry; how they function and develop
8	Nutrition	Digestive enzymes	Digestive enzymes and functions, mode of action and location
9	Nutrition	Digestive enzymes	Monogastric, ruminant, how they work
10	Nutrition	Nutrient needs	6 basic nutrients, functions, meeting nutrient needs, sources of nutrients, and information on nutrient requirements, hormones, regulations
11	Nutrition	Feed additives	Hormones, additives, use, purpose
12	Nutrition	Nutrition formulation	Pearson Squares, ration balancing
13	Nutrition	Nutrient regulation	Government regulation, health issues relative to additives
14	Genetics	Mitosis/meiosis	Understand hybrid vigor, additive gene effects, dominance/recessiveness, homo/heterozygous
15	Genetics	Sex determination	Unit 9 Gillespie text
15	Reproduction	Male reproductive system	System overview, system anatomy
16	Reproduction	Male reproductive system	Male system development, spermatogenesis
17	Reproduction	Male reproductive system	Embryonic and fetal stages of development
18	Reproduction	Male reproductive system	Dissection lab, Questions sheet

Van Buren Community Schools
Animal Science II
Course Outline
Grade level recommended: 10, 11, 0r 12

Week	Topics	Objectives	Activities
1	Introduction	Course Overview	Policies, expectations, overview of livestock housing advances
1, 2	Male reproductive system	Microstructure, Artificial Insemination	Methods of collection and extension
3, 4	Endocrinology	Understanding of the hormones of male/female reproduction	Pituitary role, adrenals, testosterone, estrogen, thyroid, development of puberty, negative feedback
5	Reproductive system	Female reproduction	Development of female reproduction system
6	Reproductive system	Female reproduction	Anatomy of female system
7	Female reproduction	Reproduction cycles	Estrous/estrus cycles, ovulation, poultry systems
8	Female reproduction	Pregnancy	Placentation, hormones of pregnancy
9	Business management	Business requirements	Interviewing, parliamentary procedure
10	Current events	Topics of importance	Country of origin labeling, issues and perceptions
11	New technologies	Applications of new technologies	Embryo transfer, uses; sexing of semen
12	Reproductive problems	Parturition and disease problems	Reproductive diseases, dystocia, reproductive physiology
13	Animal rights/welfare	Definitions	Stages of the spectrum, organizations, issues
14	Animal rights/welfare	Ethics	Discussion points, perspectives
14, 15	Biotechnology in agriculture	Overview	Definitions; DNA, cloning; computer activity
16	Applications of biotech to ag and society	Ethics	Class discussion; article on body transplants, use in medicine; insulin, heart valves
17	Human/animal medical applications and issues	Current and future applications	Xenotransplantation, stem cell research, genetic discrimination, cloning
18	Safety	Agriculture safety	Progressive Farmer Safety day camp

Subject Area: Animal Science **Length of Unit:** By Semester

Science Standards -

Standard 1: SCIENTIFIC INQUIRY- The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks

A. Processes and Skills - {Nature of scientific knowledge- experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem)}

B. Analysis and Interpretation- Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions.

Standard 2: LIFE SCIENCES- The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

A. Structure of living things (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

B. Life Cycles (Organisms are growing, dying, new ones produced)

C. Health and Safety (nutrition, personal safety, growth and development)

Standard 3: EARTH AND SPACE SCIENCES - The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)

B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)

C. The Universe (Properties of sun, moon and stars)

Animal Science – Ag Educational

Standard 1: Students will demonstrate problem-solving skills

Benchmarks:

1. Understand problem solving, analysis, and decision making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B **2A, 2B, 2C** 1-1	Reproduction units from Gillespie text	1. Interpret the results from a tissue text 2. Determine and use proper dissection methods	Dissection lab worksheet	HOTS, LS, CS
1A, 1B 1-2	Careers, labs	Delegate duties and manage conflict, facilitating group interaction (teamwork)	Self and teacher evaluation	CS, MCGF, LS, HGD
1A, 1B 1-2	Current events, professional journals	Recognize relevant ethical issues in businesses, and take responsibility for own mistakes	Current events discussion	HOTS, CS, LS, HGD, GS
1A, 1B, 2C 1-3	Careers unit Gillespie text	Define goals and objectives, identify skills, physical and emotional requirements for a job	Careers survey, successful completion of goals worksheet	HGD, Tech, MEDIA, GS, CS, LS, MCGF
1A, 1B **2A, 2B, 2C** **3A** 1-4	Safety unit	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively	Development of safety visit for safety camp, successful presentation	CS, MEDIA, LS, HGD, MCGF
1A, 1B **2A, 2B, 2C** **3A, 3B** 1-1	Disease unit	1. Analyze critical medical needs 2. Defend and explain analysis of disease symptoms, and probable means of control	Disease/illness treatment PowerPoint	CS, LS, MEDIA, HOTS, HGD

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Subject Area: Animal Science **Length of Unit:** By Semester

Science Standards -

Standard 1: SCIENTIFIC INQUIRY- The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks

A. Processes and Skills - {Nature of scientific knowledge- experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem)}

B. Analysis and Interpretation- Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions.

Standard 2: LIFE SCIENCES- The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

A. Structure of living things (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

B. Life Cycles (Organisms are growing, dying, new ones produced)

C. Health and Safety (nutrition, personal safety, growth and development)

Standard 3: EARTH AND SPACE SCIENCES - The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)

B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)

C. The Universe (Properties of sun, moon and stars)

Animal Science – Ag Educational

Standard 2: Students will demonstrate effective communication skills.

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral
2. Understand basic computational and informational technology

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B **2C** 2-1	Safety unit	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively	1. Successful presentation of safety information at safety camp 2. Development of safety visit for safety camp	CS, MEDIA, LS, HGD, MCGF, HOTS
1A, 1B **2A, 2B, 2C** 2-1	Selection Judging (Gillespie 14, 21, 40), food science materials (FFA website)	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear)	1. Oral reasons on livestock 2. Written notes for oral reasons, food product proposal for food science contest 3. Oral explanations of evaluations	HGD, HOTS, CS, LS
1A, 1B **2A, 2B, 2C** 2-1	Teacher materials on ethics, animal rights, biotechnology, and nanotechnology	1. Organize thoughts and write clearly 2. Demonstrate courtesy skills (tactful and clear) 3. Listen effectively, speak effectively	1. Successful student explanation of view on ethics, animal rights, biotechnology, nanotechnology	HOTS, HGD, CS, LS, GS, MCGF,
1A, 1B, 2A 2-1	Articles on employee management	Identify human relations factors in agribusiness (marketing and management)	Class discussions, unit quiz	HOTS, HGD, CS, LS, MCGF
1A, 1B, **2A,2B, 2C** 2-2	Teacher materials on precision agriculture technology	Explain and discuss electronic identification, thermal imaging in animal management and disease prevention	Web search and class discussion	HOTS, CS, LS, MCGF, TECH, MEDIA
1A, 1B **2A, 2B, 2C** **3A, 3B** 2-1, 2-2	FFA leadership contest materials	1. Organize thoughts, write clearly, explain effectively 2. Working and interacting together in small groups and teams	1. Class preparation and demonstration 2. Successful contest presentation	HOTS, MCGF, HGD, LS, CS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Subject Area: Animal Science **Length of Unit:** By Semester

Science Standards -

Standard 1: SCIENTIFIC INQUIRY- The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks

A. Processes and Skills - {Nature of scientific knowledge- experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem)}

B. Analysis and Interpretation- Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions.

Standard 2: LIFE SCIENCES- The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

A. Structure of living things (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

B. Life Cycles (Organisms are growing, dying, new ones produced)

C. Health and Safety (nutrition, personal safety, growth and development)

Standard 3: EARTH AND SPACE SCIENCES - The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)

B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)

C. The Universe (Properties of sun, moon and stars)

Standard 4: PHYSICAL UNIVERSE – The students understand the physical and chemical properties that govern the universe.

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets).

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states).

Animal Science – Ag Educational

Standard 3: Students will demonstrate knowledge and skills of subject area

Benchmarks:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills & knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B **2A, 2C** **3A, 3B** **4A** 3-1	Gillespie Unit 8, Oklahoma State University website, teacher materials	1. Balance livestock rations 2. Classify feed as roughages/ concentrates 3. Explain characteristics of a good ration	1. Completion of ration formulations 2. ID of feedstuffs 3. Accurately explain nutrient needs in animals	HOTS, CS, LS, MEDIA, TECH, SPECIAL
1A, 1B **2A, 2B, 2C** 3-2	Gillespie unit 7, teacher material	1. Demonstrate proper procedures for administering animal health and nutritional (feedstuff and additives) products	Unit quiz, administration worksheet	HOTS, CS, LS, MCGF
1A, 1B **2A, 2B, 2C** **4A** 3-2	Gillespie unit 5 and 6; Penn State Univ. website, rumen dev. video	Explain and identify functions and location of parts in monogastric, poultry and ruminant digestive system	Dissection of digestive system, ID and explain parts; draw and explain functions of digestive systems and developmental processes	HOTS, MEDIA, TECH, CS, LS, SPECIAL,
1A, 1B **2A, 2B, 2C** 3-2	Unit 24 Parker Text, unit 4 Gillespie text	Explain methods for the proper handling and disposal of animal waste	Student activities and end of unit quiz	HOTS, CS, GS, Media
1A, 1B **2A, 2B,2C** **4A** 3-2	Teacher materials	Identify procedures for developing quality disease prevention	Unit quiz	HOTS, CS, LS, GS
1A, 1B **2A, 2B, 2C** 3-2	Parker text, teacher materials	Identify types of wholesale and retail cuts of meat	ID quiz of cuts and muscles	HOTS, CS, HGD, GS
1A, 1B **2A, 2B, 2C** **4A** 3-3	Teacher materials, teacher videos	Identify opportunities for the development of diversified livestock enterprises, in relation to biotechnology	Ethics discussion, unit quiz, PowerPoint presentation on biotech applications	HOTS, MCGF, LS, CS, HGD, GS, Tech, Media
1A, 1B **2A, 2B, 2C** 3-4	Dissection unit, nutrition unit	Proper use of equipment and safety procedures after demonstration	Labs	HOTS, LS, CS

Higher Order Thinking Skills (HOTS), Special Education (SPECIAL),Media Information Skills (MEDIA), Technology (TECH), Multi-Cultural Gender Fair (MCGF), Guidance (GUID), Talented and Gifted (T & G), Learning Skills (LS), Communication Skills (CS), Global Studies (GS), Human Growth and Development (HGD)

Subject Area: Animal Science **Length of Unit:** By Semester

Science Standards -

Standard 1: SCIENTIFIC INQUIRY- The student knows that scientific knowledge is gained through experiments, research and use of technology

Benchmarks

A. Processes and Skills - {Nature of scientific knowledge- experiments (equipment, tools, methods, inquiry, makes inferences based on data, infer unstated relationships, define problem)}

B. Analysis and Interpretation- Scientific enterprise, technology, distinguish among hypotheses, judge relevance, reliability of sources, science answers questions.

Standard 2: LIFE SCIENCES- The students know about the diversity and unity that characterizes life both inside and outside an organism

Benchmarks:

A. Structure of living things (Knows major categories of living organisms, variety of internal and external structures, inherited characteristics, evolution, how species depend on one another and the environment)

B. Life Cycles (Organisms are growing, dying, new ones produced)

C. Health and Safety (nutrition, personal safety, growth and development)

Standard 3: EARTH AND SPACE SCIENCES - The students understand basic earth features and processes and the earth's position in the galaxy

Benchmarks:

A. Earth's composition (Knows characteristics of water, soil & air as liquid, gas)

B. Changes in Earth (Knows wind, water, ice, waves, soil change constantly)

C. The Universe (Properties of sun, moon and stars)

Standard 4: PHYSICAL UNIVERSE – The students understand the physical and chemical properties that govern the universe.

Benchmarks:

A. Mechanics force and motion (Understands energy types, sources, conversions, motion, sound, electricity, gravity, and magnets).

B. Characteristics of matter (Knows the structure, function & properties of matter that can be measured and has different states).

Animal Science – Ag Educational

Standard 4: Students will demonstrate knowledge of careers in agriculture

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1A, 1B 2A, 2B, 2C 1	Careers Unit (teacher material)	Awareness of careers in animal science; skills needed; opportunities available	Resume, cover letter	HOTS, CS, LS, HGD, MCGF
1A, 1B 2A, 2C 2	Personnel management/ employee management articles, job interview contest	1. Explain the relationship between public and private sector 2. Explain dependability, responsibility and punctuality on the job 3. Accept supervisions willingly, asking for help when needed	Unit quiz, contest completion	HOTS, CS, LS, HGD, MCGF
1A, 1B 2A, 2B, 2C	Bone Unit	Respect property and cooperate with others	Unit quiz	HOTS, CS, LS, HGD, MCGF
1A, 1B 2A, 2B, 2C 3	Reproduction Unit	1. Accept new challenges 2. Adapt to change, demonstrate flexibility, adapt to environment and situation	Dissection lab	HOTS, TECH, T&G, HGD, CS
1A, 1B 3	Biotechnology unit (Teacher materials)	1. Make ethical decisions based upon personal ideals 2. Understand changes in the scientific world	Ethics discussions, debate on scientific changes and advancement, video questions	HOTS, CS, LS, MEDIA, HGD
1A, 1B, 3A, 4A 3	Nanotechnology unit (Teacher materials)	Understand cutting edge technology in science and applications of technology	Class discussion, ethics discussion, applications in science worksheet	HOTS, CS, LS, T&G, TECH, Media, GS
1A, 1B, 2B, 2C 4	Unit 27 Parker text	Identify types of production systems used worldwide	Production worksheet	MCGF, GS
1A, 1B 2A, 2B, 2C	Teacher materials, current event articles	Identify monetary & measurement systems of selected countries & impact on US	Exchange rate worksheet, internet search, current events	MCGF, GS, LS, CS, TECH
1A, 1B 2A, 2B, 2C 3A, 3B	Unit 26, 27 Parker text; World Food Prize information	1. Explain linkage between culture, diet, production of one country in relation to another	Consumption worksheet	MCGF, GS, LS, CS, TECH, GUID, Special
1A, 1B, 2A, 2B, 2C, 3A, 3B	Food for America information	2. Biotechnology, international trade	Class discussion	MCGF, GS, LS, CS, TECH, HOTS
1A, 1B, 3A		3. Be able to locate major agricultural areas and countries of the world	Production worksheet, map ID	MCGF, GS, LS, CS, TECH, HOTS
1A, 1B 3A, 4A		4. Explain political role in agriculture (commodities, price guarantees)	Unit test	MCGF, GS, LS, CS, TECH, HGD

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