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Title 28 EDUCATION

Part LXIX. Bulletin 107—Health Occupations Content Standards Curriculum Framework

Chapter 1. General

§101. Introduction

A. Health Occupations Education in Louisiana is composed of subject matter and clinical learning experiences designed to prepare students with competencies required to assist qualified health professionals in providing diagnostic, therapeutic, preventive, and rehabilitative services to patients in health care facilities and in the community. Like many states, Louisiana is facing a shortage of health care professionals, particularly in rural areas. Training nurses, doctors, dentists, and allied health professionals requires students who have an interest in science and technology and who enjoy working with people. Health care offers an array of career opportunities that is continually expanding.

B. The health occupations education programs vary throughout the state, but they can be grouped into the following occupational cluster areas: Allied Health, Dental, Emergency Medical Services, Medical Information Systems, Nursing, and Physician Services. Clinical articulations among educational institutions and health care facilities are integral and critical components of these educational programs. There is an effective integration of didactic and clinical learning which is a result of contract affiliations among the secondary educational institutions and the health care agencies.

C. Both nationwide and statewide, there are regulations that have been established and administered as a means of safeguarding the public against unqualified health care workers. These regulatory procedures include certification, registration, and licensure in certain health occupations. There are several industry-based certifications taught within the secondary education system: nursing assistant, emergency first responder, dental radiology (certification received in dental assistant course), professional provider CPR, and OSHA certification (dental assistant course). These students, who obtain certification upon completion of various health science related courses, are essentially employable upon their meeting the mandated course criteria and skill standards. Requiring high standards in all areas of education supports efforts to improve and enhance education in Louisiana. What teachers teach and how they teach should be organized around established standards, while student assessment should be based on benchmarks relating to these standards. For health science education at the secondary level, industry specific skill standards based on National Health Care Skill Standards (NHCSS) have been designed. This document provides a guideline to be utilized by school systems throughout the state in the development of local curricula. Based upon approved curricula, course content, instruction, and assessment,

methods should be approached by the individual teacher at the school level.

D. The hierarchal framework for development of these standards includes the following: subject area, strands, standards, benchmarks, and suggested exemplar performance activities. *Health Occupations* is the *subject area* or content area for this document. A *strand* is a category of knowledge as it applies to a specific subject area. *Standards* are described as general statements of expected learner achievement within each strand. A *benchmark* describes learner expectations: that is, what a student should know and be able to do. Exemplars of things a student could do to demonstrate achievement of the benchmark are sample *performance activities*. The hierarchal structure overview is as follows.

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§103. Hierarchic Structure of Subject Area

A. Strands, Standards, Benchmarks, and Performance Activities

	Definition	Example
Subject Area	domain or content area	Health Occupations
Strand	major category	1.0 Communication
Standard	description of what students should know and be able to do through subject matter, knowledge, and proficiencies gained as a result of their education	2.1 Health Occupations students will use appropriate verbal and nonverbal communication to establish an effective therapeutic relationship.
Benchmark	broad statement of process and/or content that is used as a reference to develop curriculum and to assess student progress	5. Adapt to individual needs, including paraphrasing or translating.
Sample Performance Activity	exemplar of things students could do to demonstrate achievement of the benchmark	Students will role play situations in which they must provide information to a variety of clients

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§105. Louisiana Content Standards Foundation Skills*

A. The following foundation skills have been identified as essential competencies needed to meet the demands of the classroom and the world beyond. These skills apply to all students in all disciplines.

1. Communication. A process by which information is exchanged and a concept of "meaning" is being created and

shared between individuals through a common system of symbols, signs, or behavior. Students should be able to communicate clearly, fluently, strategically, technologically, critically, and creatively in society and in a variety of workplaces. This process can best be accomplished through use of the following skills: reading, writing, speaking, listening, viewing, and visually representing.

2. **Problem Solving.** The identifying of an obstacle or challenge and the application of knowledge and thinking processes which include reasoning, decision making, and inquiry in order to reach a solution using multiple pathways, even when no routine path is apparent.

3. **Resource Access and Utilization.** The process of identifying, locating, selecting, and using resource tools to help in analyzing, synthesizing, and communicating information. The identification and employment of appropriate tools, techniques, and technologies are essential to all learning processes. These resource tools include pen, pencil, and paper; audio/video material; word processors; computers; interactive devices; telecommunication; and other emerging technologies.

4. **Linking and Generating Knowledge.** The effective use of cognitive processes to generate and link knowledge across the disciplines and in a variety of contexts. In order to engage in the principles of continual improvement, students must be able to transfer and elaborate on these processes. *Transfer* refers to the ability to apply a strategy or content knowledge effectively in a setting or context other than that in which it was originally learned. *Elaboration* refers to monitoring, adjusting, and expanding strategies into other contexts.

5. **Citizenship.** The application of the understanding of the ideals, rights, and responsibilities of active participation in a democratic republic that includes working respectfully and productively together for the benefit of the individual and the community; being accountable for one's choices and actions and understanding their impact on oneself and others; knowing one's civil, constitutional, and statutory rights; and mentoring others to be productive citizens and lifelong learners.

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§107. Information Literacy Model for Lifelong Learning*

A. Students must become competent and independent users of information to be productive citizens of the 21st century. They must be prepared to live in an information-rich and changing global society. Due to the rapid growth of technology, the amount of information available is accelerating so quickly that teachers are no longer able to impart a complete knowledge base in a subject area. In addition, students entering the workforce must know how to access information, solve problems, make decisions, and work as a part of a team. Therefore, information literacy, the ability to recognize an information need, and then locate,

evaluate, and use the needed information, is a basic skill essential to the 21st century workplace and home. Information literate students are self-directed learners who, individually or collaboratively, use information responsibly to create quality products and to be productive citizens. Information literacy skills must not be taught in isolation; they must be integrated across all content areas, utilizing fully the resources of the classroom, the school library media center, and the community. The Information Literacy Model for Lifelong Learning is a framework that teachers at all levels can apply to help students become independent lifelong learners.

1. **Defining/Focusing.** The first task is to recognize that an information need exists. Students make preliminary decisions about the type of information needed based on prior knowledge.

2. **Selecting Tools and Resources.** After students have decided what information is needed, they then develop search strategies for locating and accessing appropriate, relevant sources in the school library media center, community libraries and agencies, resource people, and others as appropriate.

3. **Extracting and Recording.** Students examine the resources for readability, currency, usefulness, and bias. This task involves skimming or listening for key words, "chunking" reading, finding main ideas, and taking notes.

4. **Processing Information.** After recording information, students must examine and evaluate the data in order to utilize the information retrieved. Students must interact with the information by categorizing, analyzing, evaluating, and comparing for bias, inadequacies, omissions, errors, and value judgments. Based on their findings, they either move on to the next step or do additional research.

5. **Organizing Information.** Students effectively sort, manipulate, and organize the information that was retrieved. They make decisions on how to use and communicate their findings.

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§109. The Role of Skill Standards in Education and Workforce Preparation

A. In the face of a thriving global economy, expectations for workforce preparation have shifted over the past decade. At least two factors are influencing the shift. The first is that today's complex workplace demands workers who are more flexible and more highly skilled than ever before. The second is a fear that the U.S. may be losing its competitive edge to nations that are more successful in training their workforce to meet high-level standards.

B. Concerns over workforce preparation have been echoed by worries about educational achievement. An alarm bell sounded in the 1980's when the U.S. Department of Education report, *A Nation at Risk*, alerted the country to the need to upgrade academic achievement levels and set a broad program for doing so. The response to this and other critical

documents was a new national reform effort represented by several reports and pieces of legislation, such as *America 2000: An Education Strategy* (which set goals for students to acquire "world class" academic and career preparation skills as a means of enhancing national economic well-being) and the *Carl D. Perkins Vocational and Applied Technology Education Act of 1990* (which initiated federal efforts to reshape vocational education). Another closely related reform initiative is represented by the U.S. Department of Labor's 1991 report from its *Secretary's Commission on Achieving Necessary Skills* (SCANS). The SCANS report expressed concerns that American students lack basic academic skills, knowledge about the work world, and the ability to adjust to a changing environment. The report set forth standards deemed necessary for success in a high performance workplace: i.e., the modern workplace characterized by teamwork and a goal orientation. SCANS laid much of the groundwork for a national movement promoting the use of voluntary skill standards. The standards developed by the National Health Care Skills Standards Project overlap with

SCANS, but they are specific to the health services industry (Table 1).

C. Concern about the effectiveness of schools in preparing students for the workplace led to increasing calls for greater accountability. In turn, this concern also led to an emphasis on the development of skill standards, which have become the focus of numerous national and state initiatives. For example, the *Goals 2000: Educate America Act* called for states to develop challenging standards systems. It further established a National Skills Board to oversee the development and use of national skill standards. In summary, well articulated skill standards are key to the national strategy to upgrade worker skills and increase American economic competitiveness. With the utilization of skill standards, educators and industry can work together to produce work-ready, entry-level employees whose efficiency, productivity, and flexibility will compete favorably in the global market.

D. Table 1. Summary of SCANS Employability Skills and the National Health Care Core Skill Standards SCANS Foundation Skills SCANS Competencies: Ability to Use.

Health Care Core Standards	Basic Skills	Thinking Skills	Personal Qualities	Resources	Inter-Personal Skills	Information	Systems	Technology
Academic Foundation	*	*				*	*	
Communication	*	*	*		*	*		
Systems		*		*	*		*	
Employability Skills	*	*	*		*			*
Legal Responsibilities		*	*			*	*	
Ethics		*	*	*	*	*	*	
Safety Practices	*	*	*	*				*
Teamwork	*	*	*	*	*		*	

*Indicates areas where NHCSSP core standards overlap with SCANS, but are specific to the health services industry.

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§111. SCANS Foundation Skills and Workplace Competencies

A. Listed below are the foundation skills and workplace competencies identified by the SCANS commission and published in its first report, *What Work Requires of Schools: A SCANS Report for America 2000*, a publication of the U.S. Department of Labor, June 1991. Health Occupations educators are encouraged to incorporate the SCANS skills and competencies throughout the curriculum.

1. SCANS Three-Part Foundation Skills

Basic Skills	Reads, writes, performs arithmetic and mathematical operations, listens, and speaks
Reading	locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules to perform tasks
Writing	communicates thoughts, ideas, information, and messages in writing; and creates documents such as letters, directions, manuals, reports, graphs, and flow charts

Arithmetic/Mathematics	performs basic computations and approaches practical problems by choosing appropriately from a variety of mathematical techniques
Listening	receives, attends to, interprets, and responds to verbal messages and other cues
Speaking	organizes ideas and communicates oral messages appropriate to listeners and situations
Thinking Skills	Thinks creatively, makes decisions, solves problems, visualizes, knows how to learn, and reasons
Creative Thinking	uses imagination freely, combines ideas or information in new ways, makes connections between seemingly unrelated ideas, and reshapes goals in ways that reveal new possibilities
Decision Making	specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative
Problem Solving	recognizes problems, devises and implements plan of action, evaluates and monitors progress, and revises plan as indicated by findings
Seeing Things in the Mind's Eye	organizes and processes symbols, pictures, graphs, objects, and other information
Knowing How to Learn	uses efficient learning techniques to acquire and apply new knowledge and skills in both familiar and changing situations

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Reasoning	discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem
Personal Qualities Displays	responsibility, self-esteem, sociability, self management, and integrity and honesty
Responsibility	exerts a high level of effort and perseveres toward goal attainment through high standards, attention to details, work, concentration and high standards of attendance, punctuality, enthusiasm, vitality, and optimism
Self-Esteem	believes in own self-worth and maintains a positive view of self
Sociability	demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings
Self-Management	assesses self accurately, sets personal goals, monitors progress, and exhibits self-control
Integrity/Honesty	can be trusted and chooses an ethical course of action

2. Five Workplace Competencies

Resources	identifies, organizes, plans, and allocates resources
Time	selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules
Money	uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
Material and Facilities	acquires, stores, allocates, and uses materials or space efficiently
Human Resources	assesses knowledge and skills and distributes work accordingly, evaluates performance, and provides feedback
Interpersonal	works with others
Participates as Member of a Team	works cooperatively with others and contributes to group effort
Teaches Others New Skills	helps others learn
Serves Clients/Customers	works to satisfy customers' expectations
Exercises Leadership	communicates ideas to justify position, persuades and convinces others, and responsibly challenges existing procedures and policies
Negotiates	works toward agreements involving exchange of resources, resolves divergent interests
Works with Diversity	works well with men and women from diverse backgrounds
Information	acquires and uses information
Acquires and Evaluates Information	identifies need for data, obtains or creates data, and evaluates their relevance and accuracy
Organizes and Maintains Information	organizes, processes, and maintains written or computerized records and other forms of information in a systematic fashion
Interprets and Communicates Information	selects and analyzes information and communicates the results to others
Uses Computers to Process Information	employs computers to, acquire, organize, analyze, and communicate information
Systems	understands complex interrelationships
Understands Systems	knows how social, organizational, and technological systems work and operates effectively with them
Monitors and Corrects Performance	distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance, and corrects malfunctions

Improves or Designs Systems	suggests modifications to existing systems and develops new or alternative systems to improve performance
Technology	works with a variety of technologies
Selects Technology	chooses procedures, tools, or equipment including computers and related technologies to produce the desired results
Applies Technology to Task	understands overall intent and proper procedures for setup and operation of equipment
Maintains and Troubleshoots Equipment	prevents, identifies, or solves problems with equipment, including computers and other technologies

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Chapter 3. National Health Care Skill Standards Project

§301. Background Context

A. The National Health Care Skill Standards Project brought together an innovative group of health, industry, labor, and educational organizations to develop skill standards for health care workers. The project, conducted in 1992–1996, was directed by WestEd (formerly Far West Laboratory). As one of the original 22 pilot projects sponsored by the U.S. Department of Labor and Education to identify skill standards for different industries, WestEd partnered with a host of organizations, including the National Consortium of Health Science and Technology Education, the Service Employees International Union, and over 100 industry and education organizations. These diverse groups were convened with the goal of improving the nation's health care system by identifying and disseminating information on those skills required to deliver high quality health care.

B. Over the past 10 years, health care has been one of the nation's fastest growing industries, currently accounting for approximately 13 percent of the U.S. Gross Domestic Product. According to recent reports of the Bureau of Labor Statistics, over nine percent of the total workforce is employed in the health care field. Rapid technological and biomedical advances have made the U.S. health care system the finest in the world. Yet it faces many challenges in the decades ahead, including an increasingly diverse client population, remodeled delivery systems, and new technology. To meet such challenges, health services of tomorrow must be radically different from those of today. Inpatient care will come to mean "intensive care." If current trends continue, most care will be delivered in outpatient centers or even in the client's home.

C. The decade of the 1990's has brought increasing awareness that revisions in health care delivery and financing are needed. Health care reform proposals have been written at the national, state, and organizational levels all across the nation. The ultimate goal is to deliver quality care at a price society can afford. To achieve this goal, one element of health care reform stands out as fundamental and essential: the education and training of the nation's over 10 million health

care workers. Their level of knowledge and skill is critical. The National Health Care Skills Standards Project was a cooperative effort that resulted in national standards for the health care industry. These standards describe skills essential and appropriate for workers in health services. Furthermore, it has provided important information on how these standards can be tailored and implemented for local use in a variety of industry and educational applications. Educational institutions can apply the standards as a framework for linking academic curricula to actual teaching practices, school-to-work, secondary education to post-secondary education, and students to their community. In using the standards to develop curricula and assessments, educators can be confident that their students are well-prepared to find jobs and to be successful in building careers.

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§303. Standards for All Health Care Workers

A. The National Health Care Skill Standards are a broad set of standards that serve as a foundation for occupations and functions across the health services. These standards specify the knowledge and skills that the vast majority of health care workers should have. They are as follows.

1. Health care workers will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role.

2. Health care workers will know the various methods of giving and obtaining information. They will communicate effectively, both in speaking and in writing.

3. Health care workers will understand how their role fits into their department, their organization, and the overall health care environment. They will identify how key systems affect services they perform and quality of care.

4. Health care workers will understand how employability skills enhance their employment opportunities and job satisfaction. They will demonstrate key employability skills and will maintain and upgrade skills, as needed.

5. Health care workers will understand their legal responsibilities, limitations, and the implications of their actions within the health care delivery setting. They will perform their duties according to regulations, policies, laws, and legislated rights of clients.

6. Health care workers will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the health care environment. They will perform their duties within established ethical guidelines, supporting sensitive and quality health care delivery.

7. Health care workers will understand the existing and potential hazards to clients, coworkers, and self. They will prevent injury or illness through safe work practices and follow health and safety policies and procedures.

8. Health care workers will understand the role and responsibilities of individual members as part of the health

care team, including their ability to promote the delivery of quality health care. They will interact effectively and sensitively with all members of the health care team.

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§305. Standards for Direct Client Care

A. These standards apply to therapeutic and diagnostic occupations and functions. The standards focus, for the most part, on direct client care.

1. Therapeutic and diagnostic workers will understand the fundamentals of wellness and the prevention of disease processes. They will encourage the practice of preventive health behaviors among their clients.

2. Therapeutic and diagnostic workers will understand how to explain planned procedures and goals to clients. They will use various strategies to respond to client's questions and concerns.

3. Therapeutic and diagnostic workers will understand how to communicate client information within a team. They will convey this information to appropriate team members in a timely manner.

4. Therapeutic and diagnostic workers will understand the process for monitoring client health status. They will assess health status according to respective professional standards and report results to the treatment team.

5. Therapeutic and diagnostic workers will understand the principles of body mechanics for positioning, transferring, and transporting clients. They will perform these activities efficiently and without injury to clients or self.

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§307. Standards for Therapeutic Cluster

A. These standards apply to occupations or functions involved primarily in changing the health status of the client over time. The standards specify the knowledge and skills that the worker in the therapeutic cluster should have.

1. Therapeutic workers will understand the facility protocol and guidelines for collecting data.

2. They will participate in identifying client health care needs, strengths and problems, and report results.

3. Therapeutic workers will understand the general purpose and components of the treatment plan. They will assist in planning procedures according to facility protocol.

4. Therapeutic workers will understand the procedures within their scope of practice and the ways that these procedures relate to the goals and objectives of the treatment plan. They will complete procedures accurately and in a timely fashion, supporting the treatment team.

5. Therapeutic workers will know the client's needs, strengths, and problems. They will assist in the evaluation of client status in order to determine whether treatment goals are being reached.

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§309. Standards for Diagnostic Cluster

A. These standards apply to occupations or functions involved primarily in creating a picture of the health status of the client at a single point in time. The standards specify the knowledge and skills that the worker in the diagnostic cluster should have.

1. Diagnostic workers will understand the components and implications of requests for procedures. They will read the requests for services and plan when and how to implement the services.

2. Diagnostic workers will know the steps of procedural set-ups. They will prepare the supplies, equipment, and client for procedures, according to facility protocol.

3. Diagnostic workers will understand the logic and sequences of the procedures, including alternative methods. They will perform procedures to create precise and accurate products.

4. Diagnostic workers will understand the principles of quality assurance. They will continuously evaluate the procedures and their products.

5. Diagnostic workers will understand the need for precise, accurate, and timely reporting. They will produce and report results using appropriate communication channels.

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HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2667 (December 2003).

§311. Standards for Information Services Cluster

A. These standards apply to occupations or functions that document client care. The standards specify the knowledge and skills that workers in the information services cluster should have.

1. Information service workers will know the quantitative and qualitative requirements for client information. They will analyze that information for various purposes.

2. Information service workers will know how to read and interpret a medical record, using knowledge of medical terminology. They will extract required information from the medical record.

3. Information service workers will understand the sources, routes, and flow of information within the health care environment. They will contribute to the design and implementation of new or revised systems or processes within their scope of work.

4. Information service workers will understand the content and multiple uses of health information. They will document appropriate information.

5. Information service workers will understand the operations used to enter, retrieve, and maintain information. They will use health information equipment and materials safely and efficiently in daily operations.

AUTHORITY NOTE: Promulgated in accordance with R.S.6(A)(10) and R.S. 17:10.

HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2667 (December 2003).

§313. Standards for Environmental Services Cluster

A. These standards apply to occupations or functions involving direct or indirect client care that create a therapeutic environment for providing that care. The standards specify the knowledge and skills that workers in the environmental services cluster should have.

1. Environmental service workers will understand the responsibilities of their assigned role. They will perform their tasks safely, following established internal and external guidelines.

2. Environmental service workers will know the work practices that maintain a clean and healthy environment. They will follow recommended practices to reduce or eliminate pathogenic organisms.

3. Environmental service workers will understand the principles and techniques of resource management. They will ensure the careful use of available resources to make timely decisions.

4. Environmental service workers will understand the importance of maintaining an environment that is aesthetically appealing. They will uphold facility standards for service, maintenance, and upkeep.

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Chapter 5. Curriculum

§501. Curriculum Development and Design

A. Job restructuring is a fact of life in today's continually changing health care industry. New health care roles demand a higher level of skill than ever before. Anticipating the increasing breadth of knowledge required by health care workers, the National Health Care Skills Standards Project developed standards that have been broadly drawn and that reflect higher-order thinking and performance skills. To train future health care workers to meet these standards, educators in all settings must rethink the ways in which they design curricula and courses.

B. Since the NHCSSP standards are neither basic skills checklists nor duty-task lists, but are instead broad statements of what students should know and be able to do to provide quality health care, they provide a template or starting point

for the development and design of curriculum. Suggested steps for standards-based curriculum design are as follows:

1. establish project goals;
2. examine the standards;
3. consult with industry and labor partners;
4. investigate existing materials;
5. identify learning outcomes;
6. create course outline;
7. create individual lesson plans.

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HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2668 (December 2003).

§503. Health Occupations Strands and Standards Overview

A. Health Occupations Strands

Strands	Standards
1. Academic Foundation	1.1 Health occupations students will know the subject matter required for proficiency within their area and utilize this knowledge as needed in their role.
2. Communication	2.1 Health occupations students will use appropriate verbal and nonverbal communication to establish an effective therapeutic relationship.
3. Health Care System	3.1 Health occupations students will understand how their role fits into the overall health care environment. 3.2 Health occupations students will identify how key systems affect services performed and quality of care.
4. Employability Skills	4.1 Health occupations students will understand how employability skills enhance their employment opportunities and career satisfaction. 4.2 Health occupations students will demonstrate key employability skills and will maintain and upgrade skills as needed.
5. Ethics and Legal Responsibilities	5.1 Health occupations students will understand their legal responsibilities, limitations, accepted ethical practices, and the implications of their actions within the health care environment. 5.2 Health occupations students will perform their duties according to regulations, policies, laws, ethical codes, and legislated rights of patients, residents, and clients.
6. Safety Practices/ Infection Control	6.1 Health occupations students will understand the rationale, regulations, recommendations, and training that govern safety practices and infection control in health care facilities. 6.2 Health occupations students will prevent injury or illness by following approved health and safety policies and procedures.
7. Interpersonal Skills and Teamwork	7.1 Health occupations students will understand the role and responsibilities of each member of the health care team and interact professionally.
8. Procedure Implementation	8.1 Health occupations students will perform procedures within their scope of career-specific practice, utilizing criteria as established by governmental agencies and industry-specific standards.

AUTHORITY NOTE: Promulgated in accordance with R.S.6(A)(10) and R.S. 17:10.

HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2668 (December 2003).

§505. Strand 1.0: Academic Foundation

A. Standard 1.1—Health occupations students will know the subject matter required for proficiency within their area and utilize this knowledge as needed in their role.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Read and write proficiently.	ELA 1-1, 2, 3, 4, 5	1, 2, 3, 4, 5
2. Interpret charts, graphs, reports, and manuals.*	2-3, 4, 5, 6 3-1, 2, 3	
3. Perform mathematical operations, including computations and conversions, weights and measures.*	5-1, 2, 3, 4, 6 Math N-1, 2, 3, 4, 5, 6, 7 A-1, 2, 3, 4	
4. Master use of health care terminology, symbols, and abbreviations specific to career area.	M-1, 2, 4 G-6 D-1, 2, 3, 6, 7, 8, 9	
5. Apply knowledge of life sciences such as biology, anatomy and physiology, chemistry, physics, and human growth and development.*	P-2, 3, 4 Science PS-A2, C1, D7 LS-A1, B2, C6, C7, E3, F1, F2, F4, G1, G2, G3, G4, G5	
6. Utilize knowledge of disease processes relating to body systems.*	SE-A11 Social Studies	
7. Research the history and current trends specific to career health occupations.	E-A-3 E-C-3 H-A-2, 5	
8. Identify career challenges, responsibilities, and specific health occupations skills.		

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HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2668 (December 2003).

§507. Strand 2.0: Communication

A. Standard 2.1—Health occupations students will use appropriate verbal and nonverbal communication to establish an effective therapeutic relationship.

EDUCATION

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Recognize the importance of effective communication. 2. Evaluate others' ability to communicate and comprehend.* 3. Demonstrate a knowledge of attitudes and behaviors that act as communication barriers. 4. Identify elements necessary for meaningful communication to take place. 5. Adapt to individual needs, including paraphrasing or translating.* 6. Demonstrate an understanding of multicultural and multilingual needs and capabilities.* 7. Use tools of communication specific to each facility's policy and procedures. 8. Access and process electronically produced information. 9. Practice confidentiality in all facets of communication.*	ELA 3-1, 2 4-1, 2, 3, 4, 5, 6 5-4 7-1, 2 Math N-1, 2, 3, 4, 5, 7 A-1, 3, 4 M-4 D-2, 7, 8 Science SI-A3, A6, B3, B5 ESS-D7 SE-D2 Social Studies G-B-2 G-C-6 H-B-7, 16, 17 H-C-3	1, 2, 3, 4, 5

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§509. Strand 3.0: Health Care Systems

A. Standard 3.1—Health occupations students will understand how their role fits into the overall health care environment.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Explain the organizational structure in health care facilities. 2. Utilize facility resources, staff, policy, and procedure manuals.* 3. Participate in career and technological student organizations, such as VICA and HOSA.	ELA 1-1, 2, 3, 4, 5 4-1, 2 5-1, 2, 6 7-1, 4 Math D-3, 8 Science LS-C5, D3, E3 SE-A7, A10 Social Studies C-A-1, 4, 7 C-B-1 C-D-3, 4	1, 2, 3, 4, 5

B. Standard 3.2—Health occupations students will identify how key systems affect services performed and quality of care.

Benchmarks	Academic Cross-References	Louisiana Foundation Skills
1. Explain the array of services available to clients, patients, and residents. 2. Identify methods of reimbursements affecting the quality of health care delivery.	ELA 1-1, 3, 4, 5 4-1, 2, 4, 6 5-2 7-1, 2, 4 Math M-4 D-7, 8, 9 Science SI-B3 LS-D3, D4, G4, G5 SE-A10 Social Studies E-A-1, 4, 7 E-B-1, 2, 3 E-C-4	1, 2, 3, 4, 5

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§511. Strand 4.0: Employability Skills

A. Standard 4.1—Health occupations students will understand how employability skills enhance their employment opportunities and career satisfaction.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Research various health occupations, career opportunities, employer expectations, and employment outlook. 2. Investigate various health occupations career options and educational requirements. 3. Contrast certification, registration, and licensure.*	ELA 1-1, 2, 3, 4, 5 2-1, 2, 3, 4 3-1, 2, 3 4-1, 4 5-1, 2, 3, 4, 5 7-4 Math A-1 D-1, 3, 8 Science SI-A1, A2, A3, B3, B5 LS-D3 SE-A10 Social Studies E-A-3 E-B-2, 6 H-C-15	1, 2, 3, 4, 5

B. Standard 4.2—Health occupations students will demonstrate key employability skills and will maintain and upgrade skills as necessary.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Utilize analytical skills to solve problems and make decisions regarding employment.* 2. Exhibit personal skills, such as attendance, time management, and individual responsibility. 3. Demonstrate professional conduct, integrity, and appearance. 4. Acquire technology skills. 5. Practice flexibility in adapting to changing situations. 6. Develop and complete professional portfolio.	ELA 1-1, 2, 3, 5 2-1, 2, 3, 4, 5, 6 3-1, 2, 3 4-1, 2, 3, 4, 5, 6 5-1, 2, 3, 4, 5 7-1, 2 Math N-1, 2 M-4 D-1, 8 Science SI-B3 LS-D3 SE-B4, B5, B6 Social Studies G-B-4 C-A-1, 4 E-A-6 H-C-15	1, 2, 3, 4, 5

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HISTORICAL NOTE: Promulgated by the Board of Elementary and Secondary Education, LR 29:2669 (December 2003).

§513. Strand 5.0: Ethics and Legal Responsibilities

A. Standard 5.1—Health occupations students will understand their legal responsibilities, limitations, accepted ethical practices, and the implications of their actions within the health care environment.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Understand malpractice, negligence, and other liability issues. 2. Demonstrate an understanding of the importance of the Patient's Bill of Rights and Code of Ethics.* 3. Contrast "Scope of Practice" for specific careers. 4. Recognize the significance of patients', residents', and clients' confidentiality.*	ELA 1-1, 3, 4, 5 3-2 4-1, 4, 6 5-2, 3 Science LS-D3, F3, F4 SE-A10 Social Studies C-A-5 D-1, 2, 3	1, 2, 3, 4, 5

B. Standard 5.2—Health occupations students will perform their duties according to regulations, policies, laws, ethical codes, and legislated rights of patients, residents, and clients.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Operate within the scope of practice.* 2. Comply with legal requirements for documentation. 3. Report any activity that adversely affects the health, safety, or welfare of clients or fellow workers. 4. Recognize and respect the patient's rights associated with religious and cultural differences. 5. Promote justice and equal treatment for all persons. 6. Maintain patient confidentiality.	ELA 1-3 2-1, 2, 4 3-1, 2, 3 7-1, 2, 4 Science LS-G1, G2, G4, G5 SE-A10, A11, C2, C3, C4, C5 Social Studies C-A-4, 5 D-1, 2, 3	1, 2, 3, 4, 5

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§515. Strand 6.0: Safety Practices/Infection Control

A. Standard 6.1—Health occupations students will understand the rationale, regulations, recommendations, and training that govern safety practices and infection control in health care facilities.

Benchmarks	Academic Cross-References	Louisiana Foundation Skills
1. Identify the functions of OBRA, OSHA, and other governing agencies. 2. Describe OSHA mandates and Standard Precautions to control the spread of infection and prevent injury. 3. Identify principles for proper body mechanics for patient and self. 4. Identify proper procedures in the event of fire and other emergencies.	ELA 1-1, 3, 4 2-1, 2, 3, 4, 5 3-1, 2, 3 4-1, 2, 3, 4, 5, 6 5-1, 3, 4, 6 7-1, 2 Math N-1 A-1 M-1, 4 Science SE-C5 PS-G4, F1, G3, D7 LS-C4, C7 SE-C1 Social Studies C-A-1, 2, 3, 4, 5, 7	1, 2, 3, 4, 5

B. Standard 6.2—Health occupations students will prevent injury or illness by following approved health and safety policies and procedures.

EDUCATION

Benchmarks	Academic Cross-References	Louisiana Foundation Skills
1. Demonstrate standard precautions to control the spread of infection. 2. Safely operate commonly used equipment. 3. Demonstrate proper emergency procedures and protocols. 4. Apply the principles of proper body mechanics for patient and self. 5. Comply with pertinent regulatory guidelines.	ELA 1-1, 3, 4, 5 5-1 7-2, 4 Math N-1 A-1 M-4 Science PS-G4 LS-B2, B3, C4, C7, E3, G1, G3 ESS-D6 SE-D3 Social Studies C-A-1, 2, 4, 5 C-D-1, 2	1, 2, 3, 4, 5

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§517. Strand 7.0: Interpersonal Skills and Teamwork

A. Standard 7.1—Health occupations students will understand the role and responsibilities of each member of the health care team and interact professionally.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Respect interdisciplinary, cultural, and religious differences among team members and health care recipients. 2. Practice team membership skills, such as cooperation, leadership, and communication. 3. Effectively manage conflict within the workplace.* 4. Interact consistently within the facility guidelines and lines of authority.	ELA 1-1, 2, 3, 4, 5 2-1, 2 3-1, 2, 3 4-1, 2, 3, 4, 6 6-1 7-1, 2, 4 Math M-4 D-7, 8 Science SE-D1, D2 LS-F4 SE-A8, A10 Social Studies C-B-1, 3 C-C-2 H-A-1, 6 H-C-3	1, 2, 3, 4, 5

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§519. Strand 8.0: Procedure Implementation

A. Standard 8.1—Health occupations students will perform procedures within their scope of career-specific practice, utilizing criteria as established by governmental agencies and industry-specific standards.

Benchmarks *Denotes benchmarks that encourage critical thinking.	Academic Cross-References	Louisiana Foundation Skills
1. Gather necessary equipment and supplies for specific procedure. 2. Perform procedures accurately in a timely manner. 3. Clean and properly maintain equipment and work area. 4. Document and report all actions, observations, and results of procedures to instructor/supervisor. 5. Make suggestions to supervisor regarding procedure modifications, if appropriate.*	ELA 1-3, 4, 5 2-2, 6 3-1, 2, 3 4-1, 2, 4, 6 5-1 7-2 Math N-1, 2, 3, 4, 5, 7 A-1 M-4 Science LS-D2, F3 SE-B5, C3, D2, D5, D6 Social Studies E-C-4 H-A-4, 5 H-B-3, 9, 16	1, 2, 3, 4, 5

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§521. Secondary Health Occupations Curriculum Course Titles

Course Code Number	Course Title	Recommended Grade Level	Units	Bulletin
090100	Allied Health	9-12	1/2 or 3	1635
090201	Dental Assistant I	10-12 1, 2, or 3	1635	
090202	Dental Assistant II	11-12	2 or 3	1635
090211	Nursing Assistant/Geriatric Aide	9-12	1, 2, or 3	1635
090210	Pre-Nursing (Introduction to Nursing)	9-12	1, 2, or 3	1635
090212	Medical Office Assistant (Physician's Office)	9-12	1, 2, or 3	1635
090220	Home Health Aide	9-12	1, 2, or 3	1635
090600	Hospital Ward Clerk	9-12	1, 2, or 3	1635
090960	Medical Terminology for the Health Professional	9-12	1 or 2	1635
090931	Health Occupations General Cooperative	12	2 or 3	1635
090921	Health Services I	10-12	1, 2, or 3	1635
090922	Health Services II	11-12	1, 2, or 3	1635
090930	Introduction to Health Occupations I	9-12	1, 2, or 3	1635
090933	Introduction to Health Occupations II	9-12	1, 2, or 3	1635
090901	Introduction to Health Science I	9-12	1, 2, or 3	1635
090902	Introduction to Health Science II	10-12	1, 2, or 3	1635
090903	Introduction to Health Science III (Respiratory Therapy Assisting, Occupational Therapy Assistant, Physical Therapist Assisting)	12	1, 2, or 3	1635

090940	Introduction to Emergency Medical Technician (CPR)	9-12	1/2 or 1	1635
090950	Introduction to Health Insurance as a Career	10-12	1/2 , 1, or 2	1635
090230	Psychiatric Aide	9-12	1/2 , 1, or 2	1689

090962	Medical Specialties	9-12	1/2 or 3	1635
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NOTE: Level I courses shall be prerequisites for Level II courses.

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§523. Health Occupations Career Majors and Course Titles

A. Health Occupations Career Majors

Course Titles	Allied Health	Dental	Emergency Medical Services	Medical Information Systems	Nursing	Physician Services
Allied Health	*		*	*		
Dental Assistant I		*				*
Dental Assistant II		*				*
Health Occupations Gen. Coop.	*	*	*	*	*	*
Health Services I	*	*	*	*	*	*
Health Services II	*	*	*	*	*	*
Home Health Aide	*		*	*		
Hospital Ward Clerk	*		*	*		
Intro. Emergency Medicine (CPR)	*	*	*		*	*
Intro. Health Science I	*	*	*	*	*	*
Intro. Health Science II	*	*	*	*	*	*
Intro. Health Science III	*	*	*	*	*	*
Intro. Health Insurance				*		
Intro. Health Occupation I	*	*	*	*	*	*
Intro. Health Occupation II	*	*	*		*	*
Medical Specialties	*	*	*	*	*	*
Medical Terminology	*	*	*	*	*	*
Medical Office Assisting			*		*	
Nursing			*		*	
Pre-Nursing	*					
Psychiatric Aide						

*indicates courses in career major areas

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Chapter 7. Referenced Content Standards

§701. General

A. The Health Occupations Content Standards listed in this document were reinforced by cross referencing with academic standards in the areas of English-Language Arts, mathematics, science, and social studies. A comprehensive list of academic standards utilized, along with area specific codes, are listed below.

B.1. The five Louisiana foundation skills developed by the Louisiana Content Standards Task Force which apply to all students in all disciplines were also referenced in the Health Occupations Content Standards. The foundation skills are:

- a. communication;
- b. problem solving;

- c. resource access and utilization;
- d. linking and generating knowledge; and
- e. citizenship.

2. All referenced content area standards and benchmarks relate to students in grades 9-12.

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§703. Area Specific Codes

A. English/Language Arts (ELA). The standard number is given; then the benchmark number.

B. Mathematics. The strand letter is given; then the benchmark number.

- N Number and Number Relations
- A Algebra
- M Measurement
- G Geometry
- D Data Analysis, Probability, and Discrete Math
- P Patterns, Relations, and Functions

C. Science. The strand letter is given; then the benchmark letter and number are given.

- SI Science As Inquiry
- PS Physical Science
- LS Life Science
- ESS Earth and Space Science
- SE Science and the Environment

D. Social Studies. The strand letter is given; then the benchmark letter and number are given.

- G Geography
- C Civics
- E Economics
- H History

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§705. Standards

A. English Language Arts (ELA)

Standard One: Students read, comprehend, and respond to a range of materials using a variety of strategies for different purposes.

- 1—Using knowledge of word meaning and extending basic and technical vocabulary, employing a variety of strategies
- 2—Analyzing the effects of complex literary devices and complex elements on a selection
- 3—Reading, responding to, and critiquing written, spoken, and visual texts
- 4—Interpreting texts to generate connections to real-life situations
- 5—Applying reading strategies to achieve a variety of objectives

Standard Two: Students write competently for a variety of purposes and audiences.

- 1—Writing a composition of complexity that clearly implies a central idea with supporting details in a logical, sequential order
- 2—Focusing on information, concepts, and ideas that show an awareness of an intended audience and/or purpose
- 3—Applying the steps of the writing process, emphasizing revising and editing in final drafts
- 4—Using narration, description, exposition, and persuasion to develop various modes of writing
- 5—Recognizing and applying literary devices and various stylistic elements
- 6—Responding to text and life experiences as a basis for writing

Standard Three: Students communicate using conventional grammar, usage, sentence structure, punctuation, capitalization, spelling, and handwriting.

- 1—Writing legibly
- 2—Using the grammatical and mechanical conventions of standard English
- 3—Spelling accurately using strategies and resources

Standard Four: Students demonstrate competence in speaking and listening as tools for learning and communicating.

- 1—Speaking intelligibly
- 2—Giving and following directions/procedures
- 3—Demonstrating a command of the features of speaking when giving prepared and extemporaneous presentations
- 4—Speaking and listening for a variety of audiences and purposes
- 5—Listening and responding to a wide variety of media
- 6—Participating in a variety of roles in group discussions

Standard Five: Students locate, select, and make use of information from a variety of texts, media, references, and technological sources.

- 1—Recognizing and using organizational features of printed text, other media, and electronic information
- 2—Locating and evaluating information sources
- 3—Accessing information and conducting research using outlining, note taking, summarizing, interviewing, and surveying to produce documented texts and graphics
- 4—Using available technology to produce, revise, and publish a variety of works
- 5—Citing references using various formats
- 6—Interpreting charts/graphs, tables/schedules, diagrams /maps, and organizational charts/flow-charts

Standard Six: Students read, analyze, and respond to literature as a record of life experiences.

- 1—Identifying, analyzing, and responding to United States and world literature that represents the experiences and traditions of diverse ethnic groups
- 2—Analyzing distinctive elements of ancient, American, British, and world literature
- 3—Identifying, analyzing, and responding to a variety of classic and contemporary literature from many genres
- 4—Analyzing various genres as records of life experiences

Standard Seven: Students apply reasoning skills to their reading, writing, speaking, listening, viewing, and visually representing.

- 1—Using comprehension strategies in all contexts
- 2—Problem solving by analyzing, prioritizing, categorizing, and evaluating; incorporating life experiences; and using available information
- 3—Analyzing the effects of an author's life, culture, and philosophical assumptions and an author's purpose and point of view
- 4—Distinguishing fact from opinion, skimming and scanning for facts, determining cause and effect, generating inquiry, and making connections with real-life situations

B. Mathematics

(N) Number and Number Relations: In problem-solving investigations, use estimation, mental arithmetic, number lines, graphs, appropriate models, manipulatives, calculators, and computers to help develop an intuitive understanding of the real number system and communicate the relationships within that system.

N.1—Demonstrating an understanding of number systems

N.2—Demonstrating that a number can be expressed in many forms, and selecting an appropriate form for a given situation

N.3—Using number sense to estimate and determine reasonableness of solutions

N.4—Determining whether an exact or approximate answer is necessary

N.5—Selecting and using appropriate computational methods for given situations

N.6—Applying ratios and proportional thinking in a variety of situations

N.7—Justifying reasonableness of solutions and verifying results

(A) Algebra: In problem-solving investigations, use appropriate manipulatives, models, graphs, tables, and technology to develop the understanding of concepts and to explore the applications of algebra.

A.1—Demonstrating the ability to translate real-world situations into algebraic expressions, equations, and inequalities

A.2—Recognizing the relationship between operations involving real numbers and operations involving algebraic expression

A.3—Using tables and graphs as tools to interpret algebraic expressions, equations and inequalities

A.4—Solving algebraic equations and inequalities using appropriate techniques

(M) Measurement: In problem-solving investigations, use appropriate manipulatives and available technology to develop the understanding of the concepts, processes, and real-life applications of measurement.

M.1—Selecting and using appropriate units, techniques, and tools to measure quantities in order to achieve specified degrees of precision, accuracy, and error of measurement

M.2—Demonstrating an intuitive sense of measurement

M.3—Estimating, computing and applying physical measurement using suitable units

M.4—Demonstrating the concept of measurement as it applies to real-world experiences

(G) Geometry: In problem-solving investigations, use appropriate models, drawings, manipulatives, and technology to understand concepts and explore real-world applications of one-, two-, and three-dimensional geometry, and justify solutions.

G.1—Identifying, describing and comparing to explore and make conjectures about geometric concepts and figures

G.2—Representing and solving problems using geometric models and the properties of those models

G.3—Solving problems using coordinate methods, as well as synthetic and transformational methods

G.4—Using inductive reasoning to predict, discover, and apply geometric properties and relationships

G.5—Classifying figures in terms of congruence, similarity, and applying these relationships

G.6—Demonstrating deductive reasoning and justification

(D) Data Analysis, Probability, and Discrete Math: In problem-solving investigations, use appropriate collecting and organizational techniques, manipulatives, and technology in order to discover trends, to formulate conjectures regarding cause-and-effect relationships, and to develop critical-thinking skills that enable the student to make informed decisions.

D.1—Designing and conducting statistical experiments that involve collecting and representing data in various forms

D.2—Recognizing data that relate two variables as linear, exponential, or otherwise in nature

D.3—Using simulations to estimate probability

D.4—Demonstrating an understanding of the calculation of finite probabilities using permutations, combinations, sample spaces, and geometric figures

D.5—Recognizing events as dependent or independent in nature and demonstrating techniques for computing multiple event probabilities

D.6—Demonstrating the concept of distributions and recognizing normal and non-normal distributions

D.7—Making inferences from data that are organized in charts, tables, and graphs

D.8—Demonstrating logical thinking procedures such as flow charts and truth tables

D.9—Using discrete math to model real-life situations

(P) Patterns, Relations, and Functions: In problem-solving investigations, use appropriate number sense, manipulatives, drawings, tables, graphs, symbolic formulas, and technology to organize information, recognize patterns which may develop, and use those patterns to make predictions.

P.1—Modeling the concepts of variables, functions, and relations as they occur in the real world and using the basic notations and terminology

P.2—Translating between tabular, symbolic, and graphical representations of functions

P.3—Recognizing behavior of elementary functions and using graphing technologies to represent them

P.4—Analyzing the changes in the graphs of functions caused by changing the coefficients and constants of arbitrary functions using technology whenever appropriate

P.5—Analyzing real-world relationships that can be modeled locally or globally by elementary functions

C. Science

(SI) Science As Inquiry: Students do science by engaging in partial and full inquiries that are within their developmental capabilities.

Benchmark A: The Abilities Necessary to do Scientific Inquiry

EDUCATION

- 1—Identifying questions and concepts that guide scientific investigations
- 2—Designing and conducting scientific investigations
- 3—Using technology to improve investigations and communications
- 4—Formulating and revising scientific explanations and models using logic and evidence
- 5—Recognizing and analyzing alternative explanations and models
- 6—Communicating and defending a scientific argument
- 7—Utilizing science safety procedures during scientific investigations

Benchmark B: Understanding Scientific Inquiry

- 1—Understanding that scientists usually base their investigations on existing questions or causal/functional questions
- 2—Understanding that scientists conduct investigations for a variety of reasons, such as exploration of new areas, discovery of new aspects of the natural world, confirmation of prior investigations, prediction of current theories, and comparison of models and theories
- 3—Understanding that scientists rely on technology to enhance the gathering and manipulation of data
- 4—Understanding that scientists must adhere to criteria such as: A proposed explanation must have a logical structure, abide by the rules of evidence, be open to questions and modifications, be based on formulas, and technology to organize information, recognize patterns which may develop, and use those patterns to make predictions
- 5—Understanding that results of scientific inquiry, new knowledge, and methods emerge from different types of investigations and public communication among scientists

(PS) Physical Science: Students develop an understanding of the characteristics and interrelationships of matter and energy in the physical world.

Benchmark A: Measurement and Symbolic Representation

- 1—Manipulating and analyzing quantitative data using the SI system
- 2—Understanding the language of chemistry (formulas, equations, symbols) and its relationship to molecules, atoms, ions, and subatomic particles

Benchmark B: Atomic Structure

- 1—Describing the structure of the atom and identifying and characterizing the particles that compose it (including the structure and properties of isotopes)
- 2—Describing the nature and importance of radioactive isotopes and nuclear reactions (fission, fusion, radioactive decay)
- 3—Understanding that an atom's electron configuration, particularly that of the outermost electrons, determines the chemical properties of that atom

Benchmark C: The Structure and Properties of Matter

- 1—Distinguishing among elements, compounds, and/or mixtures
- 2—Discovering the patterns of physical and chemical properties found on the periodic table of the elements
- 3—Understanding that physical properties of substances reflect the nature of interactions among its particles
- 4—Separating mixtures based upon the physical properties of their components
- 5—Understand that chemical bonds are formed between atoms when the outermost electrons are transferred or shared to produce ionic and covalent compounds
- 6—Recognizing that carbon atoms can bond to one another in chains, rings, and branching networks to form a variety of structures
- 7—Using the kinetic theory to describe the behavior of atoms and molecules during phase changes and to describe the behavior of matter in its different phases

Benchmark D: Chemical Reactions

- 1—Observing and describing changes in matter and citing evidence of chemical change
- 2—Comparing, contrasting, and measuring the pH of acids and bases using a variety of indicators
- 3—Writing balanced equations to represent a variety of chemical reactions (acid/base, oxidation/reduction, etc.)
- 4—Analyzing the factors that affect the rate and equilibrium of a chemical reaction
- 5—Applying the law of conservation of matter to chemical reactions
- 6—Comparing and contrasting the energy changes that accompany changes in matter
- 7—Identifying important chemical reactions that occur in living systems, the home, industry, and the environment

Benchmark E: Forces and Motion

- 1—Recognizing the characteristics and relative strengths of the forces of nature (gravitational, electrical, magnetic, nuclear)
- 2—Understanding the relationship of displacement, time, rate of motion, and rate of change of motion; representing rate and changes of motion mathematically and graphically
- 3—Understanding effects of forces on changes in motion as explained by Newtonian mechanics
- 4—Illustrating how frame of reference affects one's ability to judge motion

Benchmark F: Energy

- 1—Describing and representing relationships among energy, work, power and efficiency
- 2—Applying the universal law of conservation of matter, energy, and momentum, and recognizing their implications

Benchmark G: Interactions of Energy and Matter

- 1—Giving examples of the transport of energy through wave action
- 2—Analyzing the relationship and interaction of magnetic and electrical fields and the forces they produce

3—Characterizing and differentiating electromagnetic and mechanical waves and their effects on objects as well as humans

4—Explaining the possible hazards of exposure to various forms and amounts of energy

(LS) Life Science: Students become aware of the characteristics and life cycles of organisms and understand their relationships to each other and to their environment.

Benchmark A: The Cell

1—Observing cells, identifying organelles, relating structure to function, and differentiating among cell types

2—Demonstrating a knowledge of cellular transport

3—Investigating cell differentiation and describing stages of embryo logical development in representative organisms

Benchmark B: The Molecular Basis of Heredity

1—Explaining the relationship among chromosomes, DNA, genes, RNA, and proteins

2—Comparing and contrasting mitosis and meiosis

3—Describing the transmission of traits from parent to offspring and the influence of environmental factors on gene expression

4—Exploring advances in biotechnology and identifying possible positive and negative effects

Benchmark C: Biological Evolution

1—Exploring experimental evidence that supports the theory of the origin of life

2—Recognizing the evidence for evolution

3—Discussing the patterns, mechanisms, and rate of evolution

4—Classifying organisms

5—Distinguishing among the kingdoms

6—Comparing and contrasting life cycles of organisms

7—Comparing viruses to cells

Benchmark D: Interdependence of Organisms

1—Illustrating the biogeochemical cycles and explaining their importance

2—Describing trophic levels and energy flows

3—Investigating population dynamics

4—Exploring how humans have impacted ecosystems and the need for societies to plan for the future

Benchmark E: Matter, Energy, and Organization of Living Systems

1—Comparing and contrasting photosynthesis and cellular respiration, emphasizing their relationships

2—Recognizing the importance of the ATP cycle in energy usage within the cell

3—Differentiating among levels of biological organization

Benchmark F: Systems and the Behavior of Organisms

1—Identifying the structure and functions of organ systems

2—Identifying mechanisms involved in homeostasis

3—Recognizing that behavior is the response of an organism to internal changes and/or external stimuli

4—Recognizing that behavior patterns have adaptive value

Benchmark G: Personal and Community Health

1—Relating fitness and health to longevity

2—Contrasting how organisms cause disease

3—Explaining the role of the immune system in fighting disease

4—Exploring current research on the major diseases with regard to cause, symptoms, treatment, prevention, and cure

5—Researching technology used in prevention, diagnosis, and treatment of diseases/disorders (ESS) Earth and Space Science

Benchmark A: Energy in the Earth System

1—Investigating the methods of energy transfer and identifying the sun as the major source of energy for most of the Earth's systems

2—Modeling the seasonal changes in the relative position and appearance of the sun and inferring the consequences with respect to the Earth's temperature

3—Explaining fission and fusion in relation to the Earth's internal and external heat sources

4—Explaining how decay of radioactive isotopes and the gravitational energy from the Earth's original formation generate the Earth's internal heat

5—Demonstrating how the Sun's radiant energy causes convection currents within the atmosphere and the oceans

6—Describing the energy transfer from the Sun to the Earth and its atmosphere as it relates to the development of weather and climate patterns

7—Modeling the transfer of the Earth's internal heat by way of convection currents in the mantle which powers the movement of the lithospheric plates

Benchmark B: Geochemical Cycles

1—Illustrating how stable chemical atoms or elements are recycled through the solid earth, oceans, atmosphere, and organisms

2—Demonstrating Earth's internal and external energy sources as forces in moving chemical atoms or elements

Benchmark C: The Origin and Evolution of the Earth System

1—Explaining the formation of the solar system from a nebular cloud of dust and gas

2—Estimating the age of the Earth by using dating techniques

3—Communicating the geologic development of Louisiana

4—Examining fossil evidence as it relates to the evolution of life and the resulting changes in the amount of oxygen in the atmosphere

5—Explaining that natural processes and changes in the Earth system may take place in a matter of seconds or develop over billions of years

Benchmark D: The Origin and Evolution of the Universe

EDUCATION

- 1—Identifying scientific evidence that supports the latest theory of the age and origin of the universe
- 2—Describing the organization of the known universe
- 3—Comparing and contrasting the sun with other stars
- 4—Identifying the elements found in the sun and other stars by investigating the spectra
- 5—Describing the role of hydrogen in the formation of all the natural elements
- 6—Demonstrating the laws of motion for orbiting bodies
- 7—Describe the impact of technology on the study of Earth, the solar system, and the universe

(SE) Science and the Environment: In learning environmental science, students develop an appreciation of the natural environment, learn the value of environmental quality, and acquire a sense of stewardship through involvement in community action. As consumers and citizens, they are able to recognize how personal, professional, and political actions affect the natural world.

Benchmark A: Ecological Systems and Interactions

- 1—Demonstrating an understanding of the functions of Earth's major ecological systems
- 2—Investigating the flow of energy in ecological systems
- 3—Describing how habitat, carrying capacity, and limiting factors influence plant and animal populations (including humans)
- 4—Understanding that change is a fundamental characteristic of every ecosystem and that ecosystems have varying capacities for change and recovery
- 5—Describing the dynamic interactions between divisions of the biosphere
- 6—Describing and explaining the Earth's biochemical and geochemical cycles and their relationship to ecosystem stability
- 7—Comparing and contrasting the dynamic interaction with the biosphere
- 8—Analyzing evidence that plant and animal species have evolved physical, biochemical, and/or behavioral adaptations to their environments
- 9—Demonstrating an understanding of influencing factors of biodiversity
- 10—Explaining that all species represent a vital link in a complex web of interaction
- 11—Understanding how pollutants can affect living systems

Benchmark B: Resources and Resource Management

- 1—Comparing and contrasting the various types of renewable and nonrenewable resources and explaining the relationships between these resources and populations
- 2—Explaining how natural resources affect humans and how humans affect natural resources
- 3—Recognizing that people of the world consume disproportionate amounts of the Earth's resources, a factor of both population size and inequitable geographic or economic distribution of resources

- 4—Demonstrating an understanding that resource management issues and environmental problems may arise when resource use is motivated by short-term goals instead of long-term consequences
- 5—Comparing the benefits and the costs of various resource management methods
- 6—Analyzing how management of resources requires that they be viewed from a global, as well as a local, perspective
- 7—Recognizing that sustainable development is a process of change in which resource use, investment direction, technological development, and institutional change meet society's future as well as present needs

Benchmark C: Environmental Awareness and Protection

- 1—Evaluating the dynamic interaction of land, water, and air and its relationship to living things in maintaining a healthy environment
- 2—Evaluating the relationships between quality of life and environmental quality
- 3—Investigating and communicating how environmental policy is formed by the interaction of social, economic, technological and political considerations
- 4—Demonstrating that environmental decisions include analyses that incorporate ecological, health, social, and economic factors
- 5—Analyzing how public support effects the creation and enforcement of environmental laws and regulations

Benchmark D: Personal Choices and Responsible Actions

- 1—Demonstrating an understanding of the effects of personal choices and actions on the natural environment
- 2—Describing how a healthy environment depends upon responsible human actions
- 4—Demonstrating that the most important factor in prevention and control of pollution is education and the resulting change in values, attitudes, and behavior patterns
- 5—Explaining that responsible environmental decision making involves scientific and sociological research, consideration of value systems, investigation and evaluation of alternative, and long-term global perspectives
- 6—Demonstrating a knowledge that environmental issues should be an international concern
- 7—Recognizing that philosophies, objectives, and practices of various types of resource management are sometimes incompatible, often necessitating compromises and tradeoffs
- 8—Recognizing that the development of accountability toward the environment is essential for the continued health of the planet
- 9—Developing an awareness of personal responsibility as stewards of the local and global environment

D. Social Studies

(G) Geography: Physical and Cultural Systems: Students develop a spatial understanding of the Earth's surface and the processes that shape it, the connections between people and places, and the relationship between man and his environment.

Benchmark A: The World in Spatial Terms

1—Using geographic representations, tools, and technologies to explain, analyze and solve geographic problems

2—Organizing geographic information and answering complex questions by formulating mental maps of places and regions

Benchmark B: Places and Regions

1—Determining how social, cultural, and economic processes shape the features of places

2—Analyzing the ways in which physical and human characteristics of places and regions have affected historic events

3—Analyzing the different ways in which physical and human regions are structured and interconnected

4—Explaining and evaluating the importance of places and regions to cultural identity

Benchmark C: Physical and Human Systems

1—Analyzing the ways in which Earth's dynamic and interactive physical process affect different regions of the world

2—Determining the economic, political, and social factors that contribute to human migration and settlement and evaluating their impact on physical and human systems

3—Analyzing trends in world population numbers, patterns, and predicting their consequences

4—Analyzing the characteristics, distribution, and interrelationships of the world's cultures

5—Describing and evaluating spatial distribution of economic systems and how they affect regions

6—Analyzing how cooperation, conflict, and self-interests impact social, political, and economic entities on Earth

Benchmark D: Environment and Society

1—Evaluating the ways in which technology has expanded the human capability to modify the physical environment

2—Examining the challenges placed on human systems by the physical environment and formulating strategies to deal with these challenges

3—Analyzing the relationship between natural resources and the exploration, colonization, and settlement of different regions of the world

4—Evaluating policies and programs related to the use of natural resources

5—Developing plans to solve local and regional geographic problems related to contemporary issues

(C) Civics: Citizenship and Government: Students develop an understanding of the structure and purposes of government, the foundations of the American democratic system, and the role of the United States in the world while learning about the rights and responsibilities of citizenship.

Benchmark A: Structure and Purposes of Government

1—Analyzing the necessity and purposes of policies and government

2—Comparing and evaluating the essential characteristics of various systems of government and identifying historical and contemporary examples of each

3—Explaining and evaluating issues related to the distribution of powers and responsibilities within the federal system

4—Explaining the organization and functions of local, state, and national governments and evaluating their relationships

5—Evaluating the role and importance of law in the American political system

6—Examining the major responsibilities of the national government for domestic and foreign policy

7—Explain how government is financed through taxation

Benchmark B: Foundations of the American Political System

1—Analyzing ideas and origins of the American constitutional government and evaluating how these have helped to shape American society

2—Explaining constitutional and democratic beliefs in American society and applying them to the analyses of issues of conflicting beliefs and principles

3—Analyzing the nature of American political and social conflicts

4—Evaluating issues related to the differences between American ideals and the realities of American social and political life

5—Evaluating the roles of political parties, campaigns, and elections in American politics

6—Analyzing the historical and contemporary roles of associations and groups in local, state, and national politics

Benchmark C: International Relationships

1—Analyzing how the world is organized politically and evaluating how the interaction of political entities, such as nation-states and international organizations, affects the United States

2—Analyzing the major foreign policy positions of the United States and evaluating their consequences

3—Evaluating the impact of American ideas and actions on the world and analyzing the effects of significant international developments of the United States

Benchmark D: Roles of the Citizen

1—Evaluating and defending positions on issues regarding the personal, political, and economic rights of citizens

2—Evaluating and defending positions regarding the personal and civic responsibilities of citizens in American constitutional democracy

3—Explaining and evaluating the various forms of political participation that citizens can use to monitor and shape the formation and implementation of public policy

4—Analyzing and evaluating the importance of political leadership, public service, and a knowledgeable citizenry to American constitutional democracy

(E) Economics: Interdependence and Decision Making: Students develop an understanding of fundamental economic concepts as they apply to the interdependence and decision making of individuals, households, businesses, and governments in the United States and the world.

Benchmark A: Fundamental Economic Concepts

EDUCATION

- 1—Analyzing the impact of the scarcity of productive resources and examining the choices and opportunity costs that result
- 2—Analyzing the roles that production, distribution, and consumption play in economic decisions
- 3—Applying the skills and knowledge necessary in making decisions about career options
- 4—Comparing and evaluating basic economic systems
- 5—Explaining the basic features of market structures and exchanges
- 6—Analyzing the roles of economic institutions, such as corporations and labor unions, that compose economic systems
- 7—Analyzing the roles of money and banking in an economic system
- 8—Applying economic concepts to understand and evaluate historical and contemporary issues

Benchmark B: Individuals, Households, Businesses, and Governments

- 1—Identifying factors that cause changes in supply and demand
- 2—Analyzing how supply and demand, price, incentives, and profit influence production and distribution in a competitive market system
- 3—Analyzing the impact of governmental taxation, spending, and regulation on different groups in a market economy
- 4—Analyzing the causes and consequences of worldwide economic interdependence
- 5—Evaluating the effects of domestic policies on international trade
- 6—Analyzing Louisiana's role in the world economy

Benchmark C: The Economy as a Whole

- 1—Explaining the meanings of economic indicators such as Gross Domestic Product, per capita GDP, real GDP, CPI, and unemployment rate
- 2—Explaining how interest rates, investments, and inflation/deflation impact the economy
- 3—Analyzing unemployment and income distribution in a market economy
- 4—Explaining the basic concepts of United States fiscal policy and monetary policy and describing their effects on the economy

(H) History: Time, Continuity, and Change: Students develop a sense of historical time and historical perspective as they study the history of their community, state, nation, and world.

Benchmark A: Historical Thinking Skills

- 1—Applying key concepts, such as chronology and conflict, to explain and analyze patterns of historical change and continuity
- 2—Explaining and analyzing events, ideas, and issues within a historical context
- 3—Interpreting and evaluating the historical evidence presented in primary and secondary sources
- 4—Utilizing knowledge of facts and concepts drawn from history and methods of historical inquiry to analyze historical and contemporary issues.

- 5—Conducting research in efforts to analyze historical questions and issues
- 6—Analyzing cause/effect relationships

Benchmark B: United States History

- 1—Analyzing the significant changes that resulted from interactions among the peoples of Europe, Africa, and the Americas
- 2—Summarizing the process by which the United States was colonized and later became an independent nation
- 3—Analyzing the development of the American constitutional system
- 4—Tracing territorial expansion and reform movements in the United States
- 5—Analyzing the origins, major events, and effects of the Civil War and Reconstruction
- 6—Analyzing the development of industrialization and examining its impact on American society
- 7—Describing the immigration and internal migration patterns that have occurred in the history of the United States and examining the cultural and social changes that have resulted
- 8—Evaluating the significance of the Progressive Movement
- 9—Analyzing the rise of the labor and agrarian movements
- 10—Explaining the changing role of the United States in world affairs through World War I
- 11—Analyzing the significant changes that evolved in the United States between World War I and the Great Depression
- 12—Analyzing the causes, developments, and effects of the Great Depression and the New Deal
- 13—Analyzing the origins, events, and results of World War II
- 14—Examining and summarizing key developments in foreign and domestic policies during the Cold War era
- 15—Analyzing the economic, political, social, and cultural transformation of the United States since World War II
- 16—Explaining the major changes that have resulted as the United States has moved from an industrial to an information society
- 17—Analyzing developments and issues in contemporary American society
- 18—Discussing and demonstrating an understanding of recent developments in foreign and domestic policies

Benchmark C: World History

- 1—Analyzing the development of early human communities and civilizations
- 2—Making generalizations about the cultural legacies of both the ancient river and the classical civilizations
- 3—Analyzing the origins, central ideas, and worldwide impact of major religious and philosophical traditions
- 4—Summarizing the developments and contributions of civilizations that flourished in Europe, Asia, Africa, and the Americas

5—Analyzing the consequences of the economic and cultural interchange that increasingly developed among the peoples of Europe, Asia, and Africa

6—Analyzing the impact of transoceanic linking of all major regions of the world

7—Analyzing the political, cultural, and economic developments and trends that resulted in the transformation of major world regions

8—Explaining how the emergence of territorial empires in Europe, Asia, and Africa unified large areas politically, economically, and culturally

9—Tracing the expansion of European power and economic influence in the world and examining the impact of this expansion on societies in Asia and the Americas

10—Analyzing the impact that political revolutions and new ideologies had on societies around the world

11—Evaluating the economic, political, and social consequences of the agricultural and industrial revolutions on world societies

12—Analyzing the patterns of worldwide change that emerged during the era of Western military and economic domination

13—Analyzing the causes and international consequences of World War I, World War II, and other 20th century conflicts

14—Analyzing the international power shifts and the breakup of colonial empires that occurred in the years following World War II

15—Explaining the worldwide significance of major political, economic, social, cultural, and technological developments and trends

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Chapter 9. Definitions

§901. Glossary

Academic Cross-Reference—a reference to related academic content Standards.

AHEC—Area Health Education Center.

Articulation—the process of linking two or more educational systems to produce a smooth flow of students from one institution to another without experiencing delays, duplication of courses, or loss of credit.

Assessment—a process through which evidence is gathered in a range of content areas to determine both a student's understanding and ability to apply that understanding.

Benchmark—a broad statement of expected skills and knowledge that is used as a reference to develop curriculum and assess student progress.

Certification—a statement attesting some fact, especially the status and qualifications of the person holding it.

CNA—certified nursing assistant.

Code of Ethics—relating to morality of behavior, conforming with an accepted standard of behavior.

CPR—cardiopulmonary resuscitation.

Emergency First Responder—first person on the scene to provide care.

HOSA—health Occupations Students of America.

Licensure—a right formally granted in writing by an authority.

NHCSS—National Health Care Skill Standards.

OBRA—Omnibus Budget Reconciliation Act of 1987.

OSHA—United States Occupational Safety and Health Administration.

Performance Activities—actions students could perform to demonstrate achievement of a benchmark.

Registration—the placement of requested data on formal or official record.

SCANS—secretary's commission on Achieving Necessary Skills.

Scope of Practice—extent or range of acceptable practices.

Standard Precautions—practices used in health care facilities to prevent the spread of infection via blood, body fluids, secretions, excretions, mucous membranes, and non-intact skin.

Standards—descriptions of what students should know and be able to do through subject matter, knowledge, and proficiencies gained as a result of their education.

Strand—major category.

Subject Area—domain or content area.

VICA—Vocational Industrial Clubs of America.

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