Parks and Recreational Management
Subject Code: 010735
Course & Unit Description

Course Description:

Students will design facilities, develop educational programs and manage resources for use in public recreation. Students will maintain and operate equipment for maintaining wildlife habitat and supporting a variety of public recreational activities. Students will develop marketing and programming skills for park development, apply management practices to park operations and learn the systems required to maintain public safety.

Unit: Safety and Equipment Operation

Students will safely inspect, perform basic maintenance and operate machinery needed for maintaining parks and recreational fields.

Benchmark: 4.1 Safety Procedures
Level 1: Follow safety procedures in general situations with basic tools and equipment, evaluate work environment and seek assistance to rectify the problem
Level 2: Follow safety procedures in specific situations with specialized tools and equipment, evaluate situation and take corrective action

Indicators
4.1.01 Demonstrate knowledge of safety rules and regulations
4.1.02 Interpret safety signs and symbols
4.1.03 Model safe attitudes and behaviors (e.g., lifting, climbing)
4.1.04 Identify safety hazards and take corrective measures
4.1.05 Use safety equipment in accordance with established procedures
4.1.06 Follow established procedures for the administration of first aid and contact emergency medical personnel when necessary

Academic Standards
English: Demonstrate comprehension of print and electronic text by responding to questions (e.g., literal, inferential, evaluative and synthesizing). (Reading Process B, 8-10; Reading Process B, 11-12)

Benchmark: 4.2 Stationary and Mobile Equipment Maintenance
Level 1: Inspect and provide basic maintenance to basic machinery, instruments, stationary and mobile equipment and facility
Level 2: Inspect and maintain specialized machinery and equipment according to schedule

Indicators
4.2.01 Perform a machine condition inspection
4.2.02 Lubricate machinery and equipment
4.2.03 Ensure presence and function of safety systems and hardware
4.2.04 Service basic electrical systems (e.g., fuses and bulbs)
4.2.05 Perform machine adjustments (e.g., belts, clippers, drive chains)
4.2.06 Service filtration systems
4.2.07 Identify, select and maintain fluid levels
4.2.08 Maintain machinery, equipment, instruments and facility cleanliness, appearance, and safety

4.2.09 Inspect and maintain fluid conveyance and storage components (e.g., hoses and lines, valves, nozzles)
4.2.10 Conduct preventative maintenance and identify causes of malfunctions and failures
4.2.11 Calibrate metering, monitoring, and sensing equipment
4.2.13 Maintain lifting equipment (e.g., cranes, chains, slings)

Academic Standards

English: Use appropriate self-monitoring strategies for comprehension. (Reading Process C, 8-10; Reading Process C, 11-12)
Math: Apply mathematical knowledge and skills routinely in other content areas and practical situations. (Mathematical Processes B, 8-10)

Benchmark: 4.3 Equipment Operation

Level 1: Inspect and safely operate precalibrated equipment
Level 2: Inspect and safely operate specialized equipment with some limitations to adjustments and functions

Indicators

4.3.01 Follow manufacturer's recommended operating procedures and adjustment specifications
4.3.02 Describe function, limitations, and proper use of equipment, equipment controls and instrumentation
4.3.03 Perform pre-operation inspection and adjustments
4.3.04 Perform appropriate start-up, operating and shut-down procedures
4.3.05 Identify, select and exhibit the desired application of hand and power tools
4.3.06 Perform post-operating inspection and adjustments

Academic Standards

English: Demonstrate comprehension of print and electronic text by responding to questions (e.g., literal, inferential, evaluative and synthesizing). (Reading Process B, 8-10; Reading Process B, 11-12)
Math: Apply mathematical knowledge and skills routinely in other content areas and practical situations. (Mathematical Processes B, 8-10)

Unit: Recreational Area Development and Maintenance

Using design and mapping principles, students will develop recreational areas utilizing plant and soil materials. Students will construct the area using the plans developed and maintain the project once completed.

Benchmark: 4.10 Design and Estimate

Level 1: Utilize elements and principles of design for an agricultural application
Level 2: Design a basic agricultural application for a desired outcome

Indicators

4.10.01 Identify, interpret and use symbols, lines, dimensions, views, sections, site plans, floor plans, specifications, common scales, detail drawings and abbreviations on drawings and prints
4.10.02 Complete a site inventory and analysis (e.g., physical conditions, design needs, code requirements, environmental impact, utilities requirements)
4.10.03 Develop a program list, including intended use, budget, economics, customer wants and needs, and maintenance
4.10.04 Apply principles of balance, proportion and scale, focal point, emphasis, rhythm, harmony and unity in creating a design
4.10.05 Apply the elements of line, form, texture and color in creating a design
4.10.06 Incorporate principles of design (e.g., space, scale, proportion, order) and apply organizational and spatial principles to a design

4.10.07 Calculate the space requirements and compute various attributes, including length, angle measurement, surface area and volume
4.10.08 Prepare sketches, drawings, prints, specifications and construction details
4.10.10 Identify construction documents, common scales and specifications and select materials used in construction/fabrication
4.10.11 Estimate material, construction and equipment needs and costs
4.10.12 Establish the sequential steps of construction/installation

Academic Standards

English: Produce functional documents that report, organize and convey information and ideas accurately, foresee readers' problems or misunderstandings and that include formatting techniques that are user friendly. (Writing Applications C, 11-12)

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Social Studies: Use appropriate data sources and geographic tools to analyze and evaluate public policies (Geography C, 11-12)

Benchmark: 4.11 Surveying and Mapping

Level 1: Interpret maps/topographic site plans
Level 2: Use surveying equipment to construct a basic site plan

Indicators

4.11.01 Identify civil drafting symbols and abbreviations
4.11.02 Read maps, topographic site plans, deeds and/or aerial/satellite imagery
4.11.03 Perform site measurements
4.11.04 Integrate map and surveying data in Geographic Information System (GIS) or Computer Aided Design (CAD)

Academic Standards

English: Use multiple resources to enhance comprehension of vocabulary. (Vocabulary F, 8-10; Vocabulary E, 11-12)

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Social Studies: Use appropriate data sources and geographic tools to analyze and evaluate public policies. (Geography C, 11-12)

Benchmark: 4.12 Construction

Level 1: Identify tools and materials and perform operations fundamental to construction
Level 2: Construct a scale-model to illustrate various construction components

Indicators

4.12.01 Lay out, cut, smooth, shape, and bore construction materials
4.12.02 Join similar and dissimilar construction materials (e.g., wood to wood, wood to concrete, wood to steel)
4.12.03 Lay out, cut and install decks/floors

Academic Standards

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Science: Describe the identifiable physical properties of substances e.g., color, hardness, conductivity, density, concentration and ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance. (Physical Sciences C, 9-10)

Benchmark: 5.1 Soils

Level 1: Determine and analyze the physical, biological and chemical properties of soils and other plant

growing media
Level 2: Utilize knowledge of soil characteristics and soil information resources to overcome any existing soil use limitations

Indicators
5.1.01 Classify soil types based on composition (e.g., aggregate size, organic matter, texture)
5.1.02 Inventory soils and determine land use capabilities
5.1.03 Interpret soil survey data to implement conservation practices
5.1.04 Select techniques that reduce soil erosion and compaction based on soil and land properties (e.g., no till, subsurface and watershed drainage)
5.1.05 Evaluate soil limitations (e.g., wildlife/wetlands habitats, septic systems, drainage, agriculture and socioeconomic considerations, preservation easements)

Academic Standards
English: Use multiple resources to enhance comprehension of vocabulary. (Vocabulary F, 8-10; Vocabulary E, 11-12)
Math: Describe and interpret rates of change from graphical and numerical data. (Algebra J, 8-10)
Science: Describe the finite nature of Earth's resources and those human activities that can conserve or deplete Earth's resources. (Earth and Space Sciences D, 9-10)
Social Studies: Use appropriate data sources and geographic tools to analyze and evaluate public policies. (Geography C, 11-12)

Benchmark: 5.10 Solid Waste and Renewable Resource Management
Level 1: Collect and dispose of solid waste using best available technology
Level 2: Control and process solid waste using available and alternative technology

Indicators
5.10.06 Describe and implement waste management methods (e.g., composting facility, waste incineration, recycling)

Academic Standards
English: Use multiple resources to enhance comprehension of vocabulary. (Vocabulary F, 8-10; Vocabulary E, 11-12)
Math: Estimate and compute various attributes, including length, angle measure, area, surface area and volume, to a specified level of precision. (Measurement E, 8-10)
Science: Describe the finite nature of Earth's resources and those human activities that can conserve or deplete Earth's resources. (Earth and Space Sciences D, 9-10)

Benchmark: 7.4 Plant Production and Management
Level 1: Manage growth of common types of plants
Level 2: Manage growth of specific types of plants using specialized equipment

Indicators
7.4.11 Determine maintenance schedule for plant management plan
7.4.12 Analyze and satisfy plant water requirements

Academic Standards
English: Apply knowledge of roots, affixes and phrases to aid understanding of content area vocabulary. (Vocabulary D, 11-12)
Math: Construct convincing arguments based on analysis of data and interpretation of graphs. (Data Analysis F, 8-10)
Science: Explain the flow of energy and the cycling of matter through biological and ecological systems (cellular, organismal and ecological). (Life Sciences D, 9-10)

Unit: Natural History - I.D. of plants, birds, mammals, reptiles, invertebrates

Students will identify plants, birds, mammals, reptiles and invertebrates that may be located in the areas they are managing. Students will care, manage, and identify restoration procedures.

Benchmark: 1.3 Care and Management

Level 1: Describe the fundamental care and management practices for animals and select, handle, mark, manage environmental conditions, and provide general care for a limited number of animals or animal species

Level 2: Describe comprehensive care practices for animals and apply advanced management procedures to select, handle, mark, and manage environmental conditions

Indicators

1.3.01 Identify, classify, evaluate and select animal species and/or breeds

Academic Standards

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Science: Explain the structure and function of ecosystems and relate how ecosystems change over time. (Life Sciences F, 9-10)

Benchmark: 5.14 Habitat Management and Restoration

Level 1: Monitor an area to determine what characteristics currently exist in a specific habitat

Level 2: Establish goals for remediating a specific habitat

Indicators

5.14.01 Identify properties and characteristics of habitats

5.14.03 Explain the function of wetlands, forests, grasslands and other habitats.

Academic Standards

English: Use multiple resources to enhance comprehension of vocabulary. (Vocabulary F, 8-10; Vocabulary E, 11-12)

Math: Construct convincing arguments based on analysis of data and interpretation of graphs. (Data Analysis F, 8-10)

Science: Describe the finite nature of Earth's resources and those human activities that can conserve or deplete Earth's resources. (Earth and Space Sciences D, 9-10)

Social Studies: Evaluate the consequences of geographic and environmental changes resulting from governmental policies and human modifications to the physical environment. (Geography B, 11-12)

Benchmark: 5.3 Ecosystems

Level 1: Identify ecosystems and compare components of ecosystems

Level 2: Inventory and evaluate habitats of specific ecosystems

Indicators

5.3.01 Explain and illustrate basic ecological principles and cycles (e.g., nitrogen cycle, food web, energy pyramid)

5.3.02 Explain biotic (plant and animal) interactions with the abiotic (non-living) environment

5.3.03 Differentiate between renewable and nonrenewable components of ecosystems

5.3.04 Model positive environmental practices for sustainability of resources

5.3.05 Inventory and evaluate characteristics of different ecosystems (e.g., pond, stream, crop lands, open land, brush lands, grasslands, woodlands, wetlands)

5.3.06 Discuss restoration ecology and its role in repairing damaged landscapes

5.3.07 Identify and contrast biomes globally

5.3.08 Determine the factors that affect ecological succession

5.3.09 Determine the impact that native and non-native invasive species have on ecosystems

Academic Standards

Math: Construct convincing arguments based on analysis of data and interpretation of graphs. (Data Analysis F, 8-10)

Science: Explain that many processes occur in patterns within the Earth's systems. (Earth and Space Sciences B, 9-10)

Social Studies: Evaluate the consequences of geographic and environmental changes resulting from governmental policies and human modifications to the physical environment. (Geography B, 11-12)

Unit: Outdoor Recreation Skills

Students will demonstrate skills in operating machinery and equipment needed to maintain their park or recreation area.

Benchmark: 4.1 Safety Procedures

Level 1: Follow safety procedures in general situations with basic tools and equipment, evaluate work environment and seek assistance to rectify the problem

Level 2: Follow safety procedures in specific situations with specialized tools and equipment, evaluate situation and take corrective action

Indicators

4.1.01 Demonstrate knowledge of safety rules and regulations
4.1.02 Interpret safety signs and symbols
4.1.03 Model safe attitudes and behaviors (e.g., lifting, climbing)
4.1.04 Identify safety hazards and take corrective measures
4.1.05 Use safety equipment in accordance with established procedures
4.1.06 Follow established procedures for the administration of first aid and contact emergency medical personnel when necessary

Academic Standards

English: Demonstrate comprehension of print and electronic text by responding to questions (e.g., literal, inferential, evaluative and synthesizing). (Reading Process B, 8-10; Reading Process B, 11-12)

Benchmark: 4.3 Equipment Operation

Level 1: Inspect and safely operate precalibrated equipment

Level 2: Inspect and safely operate specialized equipment with some limitations to adjustments and functions

Indicators

4.3.01 Follow manufacturer's recommended operating procedures and adjustment specifications
4.3.02 Describe function, limitations, and proper use of equipment, equipment controls and instrumentation
4.3.03 Perform pre-operation inspection and adjustments
4.3.04 Perform appropriate start-up, operating and shut-down procedures

Academic Standards

English: Demonstrate comprehension of print and electronic text by responding to questions (e.g., literal, inferential, evaluative and synthesizing). (Reading Process B, 8-10; Reading Process B, 11-12)

Math: Apply mathematical knowledge and skills routinely in other content areas and practical situations. (Mathematical Processes B, 8-10)

Unit: Recreational Programming

Students will create and promote recreational activities utilizing the strengths of their park and recreational area. Students will package and deliver their activities using available technology and communication skills.

Benchmark: 3.1 Marketing
Level 1: Promote a product or service using basic strategies for packaging, display and publicity
Level 2: Develop and market a product or service to maximize profits and optimize cost

Indicators
3.1.01 Select target market and consumers
3.1.03 Conduct market research and analysis
3.1.06 Identify and evaluate methods of marketing products and services
3.1.07 Promote products and services
3.1.08 Develop public relations campaigns

Academic Standards
English: Produce functional documents that report, organize and convey information and ideas accurately, foresee readers' problems or misunderstandings and that include formatting techniques that are user friendly. (Writing Applications C, 11-12)
Math: Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (Algebra D, 8-10)
Social Studies: Analyze how scarcity of productive resources affects supply, demand, inflation and economic choices. (Economics A, 11-12)

Benchmark: 3.2 Sales and Customer Service
Level 1: Use customer service and sales techniques to foster positive relationships with customers and conduct sales
Level 2: Use sales techniques to close the sale of a product/service and handle complex customer issues

Indicators
3.2.03 Forecast sales and delivery times
3.2.04 Prospect for new customers
3.2.05 Discuss and evaluate the appropriateness of different sales techniques/approaches in specific situations
3.2.06 Develop and conduct sales presentation
3.2.07 Utilize suggestive selling and selling up techniques
3.2.08 Build and develop customer relationships
3.2.09 Apply appropriate questioning techniques to determine client needs and wants
3.2.13 Handle customer complaints

Academic Standards
English: Use a variety of strategies to enhance listening comprehension. (Communication A, 8-10; Communication A, 11-12)
Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Benchmark: 3.3 Management
Level 1: Select and organize resources to develop a product or a service to be rendered
Level 2: Analyze performance of an enterprise and reallocate resources to achieve goals

Indicators
3.3.01 Evaluate management styles
3.3.02 Explain the characteristics of business plans

3.3.03 Develop business goals/objectives and mission statement
3.3.04 Identify organizational structures of businesses
3.3.05 Plan operational capacity
3.3.06 Develop a continuous-improvement management program
3.3.07 Establish business relationships
3.3.08 Document business activities
3.3.09 Track performance of business plan
3.3.10 Assess the profitability of a product
3.3.11 Analyze operating results in relation to budget/industry
3.3.12 Perform human-resource management functions (e.g., recruit, select, evaluate, terminate employees)
3.3.13 Identify crisis management techniques

Academic Standards

English: Analyze the features and structures of documents and critique them for their effectiveness. (Reading: Informational Text A, 11-12)

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Social Studies: Identify factors, which inhibit or spur economic growth and cause expansions or recessions. (Economics B, 11-12)

Benchmark: 3.7 Communication Skills

Level 1: Integrate a variety of communication techniques to gather and convey information to an individual or small group

Level 2: Conduct a business meeting using decision-making techniques

Indicators

3.7.01 Apply techniques to participate in/facilitate a group discussion
3.7.02 Apply active listening strategies
3.7.03 Develop and deliver formal and informal presentations
3.7.04 Articulate ideas and impact audience through verbal and nonverbal communication
3.7.05 Communicate directions in an organized manner appropriate to the audience
3.7.07 Extract relevant, valid information from materials and cite sources of information
3.7.08 Develop reports and documents that organize information accurately and use formatting techniques for user friendliness
3.7.09 Select and use appropriate channel for workplace communication
3.7.10 Practice etiquette when using communication techniques

Academic Standards

English: Produce functional documents that report, organize and convey information and ideas accurately, foresee readers' problems or misunderstandings and that include formatting techniques that are user friendly. (Writing Applications C, 11-12)

Math: Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (Algebra D, 8-10)

Social Studies: Evaluate the reliability and credibility of sources. (Social Studies Skills and Methods A, 9 -10)

Benchmark: 3.9 Emotional Intelligence

Level 1: Exhibit desirable personal and professional appearance, attitudes, behaviors, and work habits

Level 2: Exhibit techniques to control emotional reactions to people and situations

Indicators

3.9.02 Identify how individual actions impact others
3.9.03 Manage personal emotions, behavior and appearance to maintain professionalism
3.9.04 Describe and exhibit appropriate ethical behavior
3.9.05 Accept and use constructive feedback to improve work habits

3.9.06 Employ appropriate coping skills to prevent/handle workplace conflicts
3.9.07 Recognize, respect and utilize the diversity among people and cultures
3.9.08 Foster positive working relationships

Academic Standards

English: Use a variety of strategies to enhance listening comprehension. (Communication A, 8-10; Communication A, 11-12)

Social Studies: Analyze how issues may be viewed differently by various cultural groups. (People in Societies A, 11-12)

Unit: Business Law and Enforcement

Following all local, state, and federal laws, students will enforce the rules required in operating and maintaining their park or recreational area.

Benchmark: 3.10 Business Regulation, Law and Related Issues

Level 1: Identify and describe government regulations and societal issues related to a specific business enterprise or environmental project

Level 2: Determine the impact of government regulations and societal issues on an environmental project or the performance of a business enterprise

Indicators

3.10.01 Explain the nature and appropriateness of different types of business contracts
3.10.02 Explain the purpose and impact of government regulations
3.10.03 Identify local, state and federal regulations relative to compliance
3.10.04 Assess business liability and describe the consequences of noncompliance
3.10.05 Adhere to business-related documentation requirements
3.10.06 Identify governmental agencies and non-governmental organizations that impact agricultural/environmental issues
3.10.07 Research history, politics and policies related to issues
3.10.08 Assess the impact of issues affecting the industry and recommend solutions

Academic Standards

English: Demonstrate comprehension of print and electronic text by responding to questions (e.g., literal, inferential, evaluative and synthesizing). (Reading Process B, 8-10; Reading Process B, 11-12)

Math: Construct convincing arguments based on analysis of data and interpretation of graphs. (Data Analysis F, 8-10)

Social Studies: Evaluate the consequences of geographic and environmental changes resulting from governmental policies and human modifications to the physical environment. (Geography B, 11-12)

Benchmark: 3.12 Agrosecurity and Biosecurity

Level 1: Identify agrosecurity and biosecurity risks for an enterprise

Level 2: Implement a security plan addressing facility needs and tampering points

Indicators

3.12.04 Assess facility security, classify level of risk and recommend improvements

Academic Standards

English: Apply knowledge of roots, affixes and phrases to aid understanding of content area vocabulary. (Vocabulary D, 11-12)

Unit: Emergency Response

Complying with all local, state, and federal regulations, students will identify potential hazards in their park or recreational area and treat appropriately. Students will adhere to all emergency procedures required for accidents or hazards.

Benchmark: 5.13 Hazardous Materials Management
Level 1: Differentiate between restricted and non-restricted hazardous materials
Level 2: Follow handling, storage, and recording procedures for hazardous materials

Indicators
5.13.01 Describe health and safety practices to reduce risks from hazardous materials (i.e., MSDS forms, employer notification forms, personal protective equipment)
5.13.02 Demonstrate appropriate responses for major types of hazardous materials disasters (e.g., chemical, fire and explosion, general safety hazards)
5.13.05 Detect and identify hazardous materials

Academic Standards
English: Apply reading comprehension strategies to understand grade-appropriate text. (Reading Process A, 8-10; Reading Process A, 11-12)
Math: Construct convincing arguments based on analysis of data and interpretation of graphs. (Data Analysis F, 8-10)
Science: Describe the finite nature of Earth's resources and those human activities that can conserve or deplete Earth's resources. (Earth and Space Sciences D, 9-10)

Benchmark: 5.6 Emergency Response
Level 1: Comply with all components of an emergency response plan
Level 2: Simulate the appropriate response to an emergency situation

Indicators
5.6.01 Analyze factors that influence environmental conditions
5.6.02 Identify responses to emotional, physiological and environmental stress
5.6.03 Identify and implement various emergency response plans
5.6.04 Identify and contact local emergency response teams

Academic Standards
English: Use appropriate self-monitoring strategies for comprehension. (Reading Process C, 8-10; Reading Process C, 11-12)

Unit: Exhibit Design and Construction

Using design and construction principles, students will design and build a recreational area identifying all materials and costs associated.

Benchmark: 4.10 Design and Estimate
Level 1: Utilize elements and principles of design for an agricultural application
Level 2: Design a basic agricultural application for a desired outcome

Indicators
4.10.01 Identify, interpret and use symbols, lines, dimensions, views, sections, site plans, floor plans, specifications, common scales, detail drawings and abbreviations on drawings and prints
4.10.02 Complete a site inventory and analysis (e.g., physical conditions, design needs, code requirements, environmental impact, utilities requirements)
4.10.03 Develop a program list, including intended use, budget, economics, customer wants and needs, and maintenance

4.10.04 Apply principles of balance, proportion and scale, focal point, emphasis, rhythm, harmony and unity in creating a design
4.10.05 Apply the elements of line, form, texture and color in creating a design
4.10.06 Incorporate principles of design (e.g., space, scale, proportion, order) and apply organizational and spatial principles to a design
4.10.07 Calculate the space requirements and compute various attributes, including length, angle measurement, surface area and volume
4.10.08 Prepare sketches, drawings, prints, specifications and construction details
4.10.10 Identify construction documents, common scales and specifications and select materials used in construction/fabrication
4.10.11 Estimate material, construction and equipment needs and costs
4.10.12 Establish the sequential steps of construction/installation

Academic Standards

English: Produce functional documents that report, organize and convey information and ideas accurately, foresee readers' problems or misunderstandings and that include formatting techniques that are user friendly. (Writing Applications C, 11-12)

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Social Studies: Use appropriate data sources and geographic tools to analyze and evaluate public policies (Geography C, 11-12)

Benchmark: 4.12 Construction

Level 1: Identify tools and materials and perform operations fundamental to construction
Level 2: Construct a scale-model to illustrate various construction components

Indicators

4.12.01 Lay out, cut, smooth, shape, and bore construction materials
4.12.02 Join similar and dissimilar construction materials (e.g., wood to wood, wood to concrete, wood to steel)

Academic Standards

Math: Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (Number G, 8-10)

Science: Describe the identifiable physical properties of substances e.g., color, hardness, conductivity, density, concentration and ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance. (Physical Sciences C, 9-10)