**2014-15**

**Career Clusters**

**and**

**Pathways**

**CAMERON HIGH SCHOOL**

**2014-15 Career Clusters**

1. **Agriculture, Food, and Natural Resources Cluster**
2. **Architecture and Construction Cluster**
3. **Arts, Audio-Visual, and Communications Cluster**
4. **Business Management and Administration Cluster**
5. **Education and Training Cluster**
6. **Finance Cluster**
7. **Government and Public Administration Cluster**
8. **Health Sciences Cluster**
9. **Hospitality and Tourism Cluster**
10. **Human Services Cluster**
11. **Information Technology Cluster**
12. **Law, Public Safety, Corrections and Security Cluster**
13. **Manufacturing Cluster**
14. **Marketing Cluster**
15. **Science, Technology, Engineering, and Mathematics Cluster**
16. **Transportation, Distribution, and Logistics Cluster**

**AGRICULTURE, FOOD, AND NATURAL RESOURCES CLUSTER**

**Cluster Description:**

The agricultural education program is built on the three core areas of classroom/laboratory instruction, supervised agricultural experience programs and FFA student organization activities/opportunities. The program is designed for delivery through these three components as follows:

* Classroom/Laboratory Instruction – quality instruction in and about agriculture that utilizes a "learning by doing" philosophy.
* Supervised Agricultural Experience Programs – all students are expected to have an agriculturally related work-based learning experience while enrolled in agricultural education courses.
* FFA Student Organization activities/opportunities – FFA activities are an integral part of the agricultural education program that all agricultural education students should participate in if they are to fully benefit from their enrollment in the program.

A quality agricultural education program has a balanced utilization of these three core components. These components are best carried out when the following strategies are employed:

* Community-Based Planning – involvement of the school administration and community in the planning and coordination of the program is essential to success.
* Professional Development – agriculture teachers take advantage of opportunities for professional development and growth.
* Partnerships – the development of alliances with community and business leaders is essential for program success.
* Marketing – every agricultural education program needs a successful marketing strategy in place to attract and retain students and the support of the community that is being served.

When these components and strategies are in place, program success will occur.

**Possible Pathways:**

* Agribusiness Systems

The Agribusiness Systems pathway focuses on entrepreneurial and technical skills and careers in the broad spectrum of Agriculture, Food, and Natural Resources.

* Animal Processing

The Animal Processing Systems pathway focuses on entrepreneurial and technical skills and careers in the animal processing industry. Specializations for this concentration prepare students for the retail industry and the commercial plant industry.

* Plant Systems

The Plant Systems pathway focuses on entrepreneurial and technical skills and careers in the areas of plant science, greenhouse management and production, fruit and vegetable production, floriculture and turf and landscape systems.

* Power, Structural and Technical Systems

The Power, Structural and Technical Systems pathway focuses on entrepreneurial and technical skills and careers in the agricultural mechanics industry.

**ARCHITECTURE AND CONSTRUCTION CLUSTER**

**Cluster Description:**

The Architecture and Construction Cluster focuses on careers in designing, planning, managing, building and maintaining the built environment.

**Possible Pathways:**

* Construction Pathway

Employees in construction literally build our future! These are the people who build and remodel houses, apartments, industrial buildings, warehouses, office buildings, churches, schools and recreational facilities. This pathway also includes the builders of highways, streets, bridges, tunnels and airports as well as power plants, chemical plants, refineries and mills.

* Design/Pre-Construction Pathway *(Drafting)*

People with careers in design/pre-construction create our future! They turn a concept into a set of plans. Their plans guide other construction professionals as they continue the building process.

* Maintenance Operations Pathway

Employees with careers in maintenance/operations keep our future intact! These are the people who unload, inspect, and move new equipment into position. They determine the optimal placement of machines in a plant, assemble machinery, install machinery, repair machinery and perform preventive maintenance. They detect, diagnose and correct minor problems on machinery. They keep the structure of an establishment in good repair. They maintain the smooth operation of refineries, power plants, chemical plants and mills.

**ARTS, A/V TECHNOLOGY AND COMMUNICATIONS CLUSTER**

Cluster Description:

The Arts, A/V Technology and Communications Cluster introduce students to the knowledge

base and technical skills for careers in broadcasting, graphic communications and designs.

Taught by industry credentialed teachers, courses offer real world project based learning

activities to develop an understanding of course concepts. Emphasis is placed on career

exploration, job seeking skills, and personal and professional ethics. Safety instruction is

integrated into all activities. Students are encouraged to become active members of Skills USA

for additional co‐curricular opportunities that enhance student achievement, develop student

leadership, and support experiential learning.

**Possible Pathways:**

* Journalism and Broadcasting Technology Pathway

The Journalism and Broadcasting Pathway focuses on preparing students with the skills

necessary to succeed in a journalism or broadcasting field of work. The Broadcasting Technology concentration focuses on careers related to the broadcasting

industries of both television and radio. Students obtain skills to work in program production, news‐related, technical, sales, and management occupations in broadcasting. The Radio Broadcasting concentration focuses on careers such as general manager, on air host, radio programming, radio marketing, program directors, producers, and board operators.

* Performing Arts Pathway

The Performing Arts Pathway focuses on preparing students with the skills necessary to succeed in a performing arts field of work (instrumental, vocal, theatre).

* Printing Pathway

The Printing Technology Pathway focuses on preparing students with the skills necessary to succeed in a printing technology field of work. The Graphic Communications concentration focuses on careers in general commercial printing,

quick printing, digital imaging, magazine, newspaper and book printing, financial and legal printing, screen printing, thermography, business forms printing, label and tap printing, packaging, greeting cards, prepress technician, and trade and finishing services.

* Visual Arts Pathway

The Visual Arts focuses on preparing students with the skills necessary to succeed in a visual arts field of work.

**BUSINESS MANAGEMENT AND ADMINISTRATION CLUSTER**

**Cluster Description:**

The Business Management and Administration Cluster prepares students for careers in planning, organizing, directing and evaluating business functions essential to efficient and productive business operations.

**Possible Pathways:**

* Administrative Support Pathway

The Administrative Support Pathway facilitates business operations through a variety of administrative and clerical duties including information and communication management, data processing collection and project tracking.

* Management Pathway

The Management Pathway focuses on careers that plan, organize, direct and evaluate all or part of a business organization through the allocation and use of financial, human and material resources.

* Business Finance and Accounting Pathway

The Business Finance and Accounting Pathway focuses on careers in a company that manages policies and strategies for (and implementation of) capital structure, budgeting, acquisition and investment, financial modeling and planning, funding, dividends and taxation.

* Operations Management Pathway

The Operations Management Pathway focuses on planning, organizing, coordinating and controlling the resources needed to produce/provide a business’s goods and/or services. Examples of activities in Operations Management are quality control, scheduling, procurement and warehousing.

**EDUCATION AND TRAINING CLUSTER**

**Cluster Description:**

The Education & Training Cluster prepares students for planning, managing and providing education and training services, and related learning support services such as administration, teaching/training, administrative support, and professional support services.

**Possible Pathway:**

* Teaching/Training

In addition to being knowledgeable in their subject, teachers and trainers must have the ability to communicate, inspire trust and confidence, motivate learners, as well as understand their educational and emotional needs. Teachers must be able to recognize and respond to individual differences in diverse learners and employ different teaching/training methods that will result in higher learner achievement.

**FINANCE CLUSTER**

**Cluster Description:**

The Finance Cluster focuses on careers that manage policy and strategy/implementation of capital structure, budgeting, acquisition and investment, financial modeling and planning, funding, dividends, and taxation.

**Possible Pathways:**

**GOVERNMENT AND PUBLIC ADMINISTRATION CLUSTER**

**Cluster Description:**

The Government and Public Administration Cluster prepares students for careers in planning and executing governmental functions at the local, state and federal levels including governance, national security, foreign service, planning, revenue and taxation and regulations.

**Possible Pathways:**

* National Security Pathway

The National Security Pathway includes occupations focused on keeping the country's people, institutions, systems, technology and economy safe from physical or cyber-attack.

**HEALTH SCIENCES CLUSTER**

**Cluster Description:**

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

**Possible Pathways:**

* Biotechnology Research and Development Pathway

The Biotechnology Research and Development Pathway includes medical laboratory careers including phlebotomy and laboratory technologist.

* Diagnostic Services Pathway

The Diagnostic Services Pathway includes careers that are part of the diagnostic process from the technical assessment to the doctors who provide the diagnosis, e.g., Blood Bank Technology Specialist, Cardiovascular Technologist, Cardiologist, Clinical Lab Technician, Computer Tomography (CT) Technologist, Dentist, Exercise Physiologist, Geneticist, Geriatrician, Nuclear Medicine Technologist, Ophthalmologist, Pathologist, Pediatrician, Radiologic Technologist, Radiologist, Speech-Language Pathologist

* Health Informatics Pathway

Health Informatics Pathway includes careers in areas such as: Certified Health Unit Coordinator, Admitting Clerk, Medical Biller/Coder, Electronic Health Record Specialist, Applied Researcher, Compliance Technician, Hospital Administrator, Medical Illustrator, Medical Librarian, Patient Advocate, Risk Manager, Unit Coordinator

* Support Services Pathway

The Support Services Pathway includes careers in areas such as Nutrition and Wellness, Personal Fitness, and Dietetics.

* Therapeutic Services Pathway

The Therapeutic Services Pathway includes careers in areas such as Nursing, Medical Assisting, Paramedics, Veterinary Medicine, Dental Hygiene, Pharmacy, and Physical Therapy.

**HOSPITALITY AND TOURISM CLUSTER**

**Cluster Description:**

The Hospitality & Tourism Cluster prepares students for careers in the management, marketing and operations of restaurants and other food services, lodging, attractions, recreational events and travel-related services.

**Possible Pathways:**

* Lodging Pathway

Individuals pursuing a career in the Lodging Pathway perform tasks related to the operation of lodging facilities and guest service through direct guest contact or by providing services that enhance the guest experience.

* Recreation, Amusements and Attractions Pathway

The recreation, amusements and attractions pathway includes occupations related to the operation or maintenance of facilities, locales, and services designed for recreation or amusement.

* Restaurants and Food/Beverage Services Pathway

The restaurants and food and beverage services pathway includes workers who perform a variety of tasks to maintain operations and promote guest services in eating and drinking establishments. These operations may be in the business or nonprofit sectors.

* Travel and Tourism Pathway

Individuals pursuing a career in the Travel and Tourism Pathway focus on the development, research, packaging, promotion and delivery of a traveler's experiences. Employees may be involved in developing a heritage area for the enjoyment and education of visitors, creating guide books, planning trips and events, managing a client's travel plans or planning large events.

**HUMAN SERVICES CLUSTER**

**Cluster Description:**

The Human Services Cluster focuses on careers related to assisting and empowering individuals, families, groups and communities to meet their needs and live more satisfying and productive lives.

**Possible Pathways:**

* Counseling and Mental Health Services Pathway

The counseling and mental health services pathway includes workers who assist people with personal, family, educational, mental health and career decisions and problems.

* Early Childhood Development and Services Pathway

The early childhood development and services pathway involves caring for the psychological, physical and emotional growth of children from infancy through adolescence. It includes occupations related to the nurturing or teaching of infants and young children in child care centers, nursery schools, preschools, public schools, private households, and before- and after-school programs.

* Family and Community Services Pathway

The family and community services pathway includes occupations related to strengthening family and community life by helping disabled, elderly, impoverished or other underrepresented populations secure housing, employment, financial assistance and/or other social services.

* Personal Care Services Pathway

The personal care services pathway includes occupations providing services related to helping people feel and look better and to making people’s lives more convenient.

**INFORMATION TECHNOLOGY CLUSTER**

**Cluster Description:**

The Information Technology Cluster prepares students for careers in entry level, technical and professional careers related to the design, development, support and management of hardware, software, multi-media and systems integration services.

**Possible Pathways:**

* Information Support and Services Pathway

The Information Support and Services Pathway involves IT deployment, including implementing computer systems and software, providing technical assistance and managing information systems. Successful IT deployment – implementation of computer systems and software, provision of technical assistance, creation of technical documentation and management of information systems – is critical to the success of most 21st century organizations. People with expertise in Information Support and Services are in high demand for a variety of positions in organizations of all sizes and types, doing work such as integrating multiple databases at a global investment company, enabling employees to share information between the New York, Paris and Hong Kong offices and improving service to customers.

* Network Systems Pathway

The Network Systems Pathway involves network analysis, planning and implementation, including design, installation, maintenance and management of network systems. Successful establishment and maintenance of information technology infrastructure is critical to the success of almost every 21st century organization. People with expertise in Network Systems are in high demand for a variety of positions in organizations of all sizes and types, doing work such as creating and maintaining the infrastructure in medical facilities that enables multiple doctors to view the same patient’s X-rays in real-time to determine the diagnosis and the best treatment.

* Interactive Media Pathway

Interactive Media Pathway involves careers in creating, designing and producing interactive multimedia products and services, including development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing. Organizations of all types and sizes use digital media (the World Wide Web, CD-ROM, DVD) to communicate with existing and potential customers, to track transactions and to collaborate with colleagues. Web and digital communications experts can find employment opportunities in organizations of all sizes and types, doing work such as creating e-business auction Web sites that allow people around the world to buy and sell items in real-time.

**LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY CLUSTER**

**Cluster Description:**

The Law, Public Safety, Correction & Security Cluster prepares students for careers in planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services.

**Possible Pathway:**

* National Security Pathway

The National Security Pathway includes occupations focused on keeping the country's people, institutions, systems, technology and economy safe from physical or cyber-attack.

**MANUFACTURING CLUSTER**

**Cluster Description:**

The Manufacturing Cluster focuses on careers planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.

**Possible Pathways:**

* Maintenance, Installation and Repair Pathway

People with careers in Maintenance, Installation and Repair perform preventive maintenance procedures on machines tools and equipment. These are performed routinely and on a regular basis. They also troubleshoot and repair electrical, electronic and mechanical systems. This will include mechanical repair as well as using computer-based inventory control systems, retrieving information histories on each machine from computer records, and recording repair activities on the system to keep accurate records of repairs performed on each machine.

* Manufacturing Production Process Development

Employees in Manufacturing Production Process Development are responsible for product design and design of the manufacturing process. They work with customers to ensure the manufacturing process produces a product that meets or exceeds customer expectations. They also monitor the manufacturing process and the materials used to manufacture the product.

* Production Pathway

People with careers in production, work on the shop floor making parts or assembling them. They work with machines, making or assembling electronic parts, constructing or assembling modular housing, performing welding jobs, or printing various materials.

**MARKETING CLUSTER**

**Cluster Description:**

The Marketing Cluster prepares students for careers in planning, managing and performing marketing activities to reach organizational objectives such as brand management, professional sales, merchandising, marketing communications and market research.

**Possible Pathway:**

* Marketing Management

The Marketing Management Pathway involves students in marketing management to formulate policies and direct the operations of businesses and corporations, nonprofit institutions and other organizations. In small firms, the owner or chief executive officer may assume all advertising, promotions, marketing, sales and public relations responsibilities. In large firms, which may offer numerous products and services nationally or even worldwide, an executive vice president directs overall advertising, promotions, marketing, sales and public relations policies.

**SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS CLUSTER**

**Cluster Description:**

The Science, Technology, Engineering and Mathematics Cluster focuses on careers in planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.

**Possible Pathway:**

* Engineering Technology Pathway

For a future in the Engineering and Technology pathway, students should study and apply principles from advanced mathematics life sciences physical science, earth and space science, and technology. In addition, future engineers and technologists should learn certain processes in mathematics, science and technology. In Grades 9-12, all future engineers and technologists should study mathematics each year, learning important mathematical concepts and processes defined by the National Council of Teachers of Mathematics in Principles and Standards for School Mathematics. With such knowledge and skills, students will be able to demonstrate the following competencies: 1.) Apply mathematics, science and technology concepts to solve problems quantitatively in engineering projects involving design, development or production in various technologies; and 2.) Recognize the core concepts of technology and their relationships with engineering, science and math, and other subjects. All future engineers and technologists should learn important science concepts and processes with an understanding of physics, chemistry and biology as a minimal set. These concepts and processes are defined by the National Research Council in the National Science Education Standards and by the American Association for the Advancement of Science in Benchmarks for Science Literacy. Additionally, learners should become proficient in the areas of technology defined by the Standards for Technological Literacy.

**TRANSPORTATION, DISTRIBUTION AND LOGISTICS CLUSTER**

**Cluster Description:**

The Transportation, Distribution and Logistics Cluster focuses on careers in the planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

**Possible Pathways:**

* Facility and Mobile Equipment Maintenance Pathway

Careers in the Facility and Mobile Equipment Maintenance pathway include the maintenance, repair, and servicing of vehicles and transportation facilities, as well as the refueling of mobile equipment. All transportation relies on equipment which must function as designed, whenever needed. The people in this pathway keep the equipment and machinery running while looking for more efficient, safe, and cost-effective ways to do so.

* Transportation Systems/Infrastructure Planning, Management and Regulation Pathway

Careers in the Transportation Systems/Infrastructure Planning, Management and Regulation pathway deal with all aspects of the design and operation of our public transportation systems – road, air, sea and rail. These functions are primarily the responsibility of people who are employed by federal, state and local transportation agencies. Many businesses work to assist these agencies in their efforts (includes civil engineers, airport managers, air traffic controllers, maritime and shipping agents, and the Merchant Marines.

* Warehousing and Distribution Center Operations Pathway

Careers in Warehousing and Distribution Center Operations focus on the operation of transportation and distribution facilities including ports, terminals, warehouses, and other types of facilities. All cargo needs to be tracked, sorted, labeled, and loaded accurately and safely. Timing is also important, since many loads must adhere to a schedule in order to satisfy the needs of the customer.