Vocational Technical Education Framework

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Health Services Occupational Cluster

Health Assisting (VHEAL)

CIP Code 510000

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Massachusetts Department of Elementary and Secondary Education
Office for Career/Vocational Technical Education
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Mitchell D. Chester, Ed.D.
Commissioner

July 2014

Dear Colleagues,

I am pleased to present to you the *Massachusetts Vocational Technical Education Frameworks,* adopted by the Department of Elementary and Secondary Education in June 2014. These frameworks, one for each of the 44 vocational technical programs, include standards in multiple strands representing all aspects of the industries that students in the vocational technical education program are preparing to enter.

The frameworks also include a crosswalk between the technical standards and relevant standards in Massachusetts Curriculum Frameworks to support effective integration of academic and technical content.

The comments and suggestions received during revision of the 2007 *Massachusetts Vocational Technical Education Frameworks* have strengthened these frameworks. We will continue to work with schools and districts to implement the 2014 *Massachusetts Vocational Technical Education Frameworks* over the next several years, and we encourage your comments.

I want to thank everyone who worked with us to create challenging learning standards for Massachusetts students. I am proud of the work that has been accomplished.

Sincerely,

Mitchell D. Chester, Ed.D.
Commissioner of Elementary and Secondary Education

Introduction

Overview & Organization and Key Changes

Overview

The Massachusetts Department of Elementary and Secondary Education understands the necessity of maintaining current Vocational Technical Education Frameworks which ensure career/vocational technical education students across the Commonwealth are taught the most rigorous standards aligned to the needs of business and industry.

With the advent of the Massachusetts Teaching & Learning System the Office for Career/Vocational Technical Education (CVTE) recognized the significance of including career/vocational technical education in the system and developed a comprehensive plan for including vocational technical education. The plan was designed in a Two Phase Process. Phase One included the revision of strands two, three, and six, of all of the Vocational Technical Education Frameworks. Phase Two consisted of three major components (projects) all equally crucial;

1. The revision of Strands One, Four, and Five to complete the revision of all six strands of the Vocational Technical Education Frameworks;

2. Statewide Professional Development on all revised strands, with training on strands two, three, and six delivered fall 2013, and training on strands one, four, and five delivered spring 2014;

3. The creation and development of additional Model Curriculum Unit (MCU) Teams.

The Office for Career/Vocational Technical Education Framework Team, with support from consultants, began Phase One in the 2012-2013 school year, to revise three of the six strands contained in all of the Vocational Technical Education (VTE) Frameworks. The state was organized into "Collaborative Partnerships" comprised of teams of project administrators, highly qualified subject matter educators, and business and industry partners, whose task was to revise Strand Two – Technical, Strand Three – Embedded Academics, and Strand Six – Technology Literacy. Each team met with a vocational advisory committee which included business and industry representatives and postsecondary education professionals, whose mission was to review and revise the team's draft document during the revisionary process. Once strand two was revised, academic teachers (typically one English Language Arts teacher, one Mathematics teacher, and one Science teacher) worked with the technical subject matter teachers to develop a crosswalk between academic curricula standards and the technical standards, and provided examples of embedded academic content.

The Office for Career/Vocational Technical Education solicited statewide input from technical and academic teachers and administrators at the annual Massachusetts Association of Vocational Administrators (MAVA)/Massachusetts Vocational Association (MVA) - Connecting for Success Conference. Each framework team met with their content colleagues and reviewed the draft revisions and obtained valuable feedback. Additionally, all drafts were reviewed and revised by the Massachusetts Vocational Technical Teacher Testing Program, to ensure appropriate measurable language.

Project consultants designed a new template to ensure all framework teams entered new standards and additional resources in a consistent manner. The framework teams created an "Appendix" listing potential industry recognized credentials attainable by secondary students; lists of professional, student, and relevant government organizations; and useful resources and websites. *It is important to note that although most Framework Teams provided information for the "Appendix", not all teams did. Therefore, sub-headings within the "Appendix" without information have been deleted. Disclaimer: Reference in the Appendices Section to any specific commercial products, processes, or services, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.*

The Office for Career/Vocational Technical Education facilitated a comprehensive vetting process throughout the Commonwealth. During the fall of 2012 districts throughout Massachusetts solicited feedback from each Vocational Program's Advisory Committee members at the Fall Board meetings. Additionally, the Office for Career/Vocational Technical Education met with various licensing boards at the Massachusetts Division of Professional Licensure and provided the applicable draft framework to each board for review. All framework drafts were posted on the CVTE website for public comment. Comments and suggested revisions received were shared with each framework team for response and edits, as appropriate.

The Phase I Process was completed on an accelerated timetable and resulted in all Vocational Technical Education Frameworks; Stand Two and Strand Six, revised with current, rigorous, relevant standards. Strand Three has been redesigned into a crosswalk which directly correlates academic and technical standards. An appendix of useful material for technical teachers recommended by their peers was added to each framework.

Phase II of the Framework Revision Process consisted of three major projects;

1. The Strands One, Four & Five Project, to complete the revision of all six strands of the Vocational Technical Education Frameworks;
2. Statewide Professional Development on all revised strands, with training on strands two, three, and six delivered fall 2013, and training on strands one, four, and five delivered spring 2014;
3. The creation and development of additional Model Curriculum Unit (MCU) Teams.

The Strands One, Four, & Five Project began in the fall of 2013 with the formation of a leadership team and three work groups. Co-Managers led the leadership team comprised of three Strand Coordinators who facilitated work teams and reviewed, researched, and revised these common strands. All skills specific to the vocational technical program have been included into Strand Two Technical.

The Strand One Team revised the safety knowledge and skills that all students need to acquire. The team included relevant issues (i.e., bullying, climate), laws, regulations, guidelines and policies pertaining to safety.

The Strand Four Team revised the Employability Knowledge and Skills that all students need to acquire. Teams considered current research on career readiness, including the work of the College Career Readiness Task Force convened by the Department, changes in workplace, technological changes that impact how people perform their work (i.e., communications methods), and included standards that

emphasize the need for lifelong learning and adaptability given the multiple career changes over and an individual's working life. The team recommended this strand be renamed to: Career Readiness.

The Strand Five Team revised the Management & Entrepreneurship Knowledge and Skills that all students need to acquire. All business owners and employees must possess management and financial skills to be productive members of society. Skills included financial knowledge and basic business management skills.

All Strand One, Four and Five Project Teams worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Massachusetts Career and Technical Student Organizations to crosswalk standards to national Career & Technical Student Organizations Curricula, as applicable.

The Office for Career/Vocational Technical Education contracted the MAVA Consultant Team to work closely with the office to complete all of the work accomplished during Phase II of the Project.

A remarkable amount of work was accomplished through the efforts of hundreds of professionals who collaborated and diligently supported this work. The Office for Career/Vocational Technical Education is grateful for all the support received from the field, particularly all of the teachers (technical and academic), administrators, advisory committee members, business and industry representatives, the Division of Professional Licensure - boards, the Massachusetts Association of Vocational Administrators, the MAVA Consultants, and the Massachusetts Vocational Association, whose contributions were tremendous.

Special thanks to all staff in the Office for Career/Vocational Technical Education and the CVTE Framework Revision Team who provided guidance and numerous contributions during Phase One of the project.

Organization and Key Changes

This section contains the following:

- Highlights of Changes to the Vocational Technical Education Frameworks; which includes a summary of changes made to each strand.
- Organization of the Frameworks – Strand Two illustrates structure of topic headings, standards and objectives, and performance examples.

Highlights of Changes to the Vocational Technical Education Frameworks:

Strand One:

Safety and Health Knowledge and Skills have been revised to contain the safety standards that are common to all programs. The Strand One Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Career and Technical Student Organizations (CTSO) to crosswalk standards to national CTSO Curricula, as applicable.

- No objectives were deleted, only modified.
- Language and wording was clarified.
- Additions included a focus on maintaining a safe school and workplace in terms of creating a positive climate/environment.
- Student safety credential program has been revised.
- Safety attire has been revised.
- Emergency equipment and fire safety has been revised.
- Many new Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: "Organization of the Frameworks – Strand Two". All strands were organized in that manner, with the exception of the former Strand Three.

Strand Two:

The Technical Standards Knowledge and Skills have been revised to reflect business and industry changes since the adoption of the 2007 Vocational Technical Education Frameworks (VTEF). There are additional changes to Strand Two below:

- The Technical Knowledge and Skills (Strand Two) section contains standards specific to the particular vocational program; suffix "a" (as common to all programs) and suffix "c" (as common within a cluster) have been removed.
- Each VTEF Strand Two begins with safety and health knowledge and skills specific to the particular vocational program.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below

titled: "Organization of the Frameworks – Strand Two". All strands were organized in that manner, with the exception of the former Strand Three.

- Strand Two of the Frameworks for Animal Science, Environmental Science and Technology, and Horticulture, begin with core standards required for all participants in the programs, followed by a series of standards organized in concentrations. See the section below titled: "Organization of the Frameworks – Strand Two" for more information.
- An update to some of the vocational programs framework is the addition of advanced or supplemental standards which are noted in Strand Two by an asterisk (*). *These standards are not required, but are provided as suggestions that districts may choose to use to increase the depth of a particular topic, or add additional topics, particularly for advanced students or for those seniors who do not participate in cooperative education.* See the section below titled: "Organization of the Frameworks – Strand Two" for more information.

Strand Three:

Since the purpose of Strand Three was to correlate academic content that was *embedded* in the knowledge and skills necessary to perform certain technical skills, it was logical to highlight those connections through a crosswalk between the academic curriculum standards and the technical standards (Strand Two). The crosswalk directly correlates the English Language Arts (2011) and Mathematics (2011) Frameworks, incorporating the Common Core Standards and the Science and Technology/Engineering Frameworks. The crosswalk can be found in the appendix of each vocational framework. The crosswalk also includes performance examples which illustrate integrated academic and technical content.

- Embedded Academics has been replaced with a crosswalk between the academic curriculum standards and the technical knowledge and skills standards. The crosswalk is located in the Appendices.

Strand Four:

Employability (and Career Readiness) Knowledge and Skills focused on providing students with general knowledge and skills to be college and career ready. The Strand Four Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Career and Technical Student Organizations to crosswalk standards to national CTSO Curricula, as applicable.

- Language and wording were clarified.
- Additions included a focus on providing students with skills for employability/career readiness.
- Modifications included Career Exploration & Navigation, Communication in the Workplace, and Work Ethic & Professionalism.
- New Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: "Organization of the Frameworks – Strand Two". All strands were organized in that manner, with the exception of the former Strand Three.

Strand Five:

Strand Five contains Management and Entrepreneurship Knowledge and Skills that are general for all students. The Strand Five Team worked collaboratively with staff from the Department of Elementary and Secondary Education and the Advisors of the Massachusetts Career and Technical Student Organizations to crosswalk standards to national Career & Technical Student Organizations Curricula, as applicable.

- Language and wording were clarified and organized into a logical format.
- The Strand Five Team felt that the 2007 curriculum remained valid.
- Additions included a focus on providing students with skills for management and entrepreneurship applicable to all vocational programs.
- Modifications included Starting and Managing a Business, Marketing, and Financial Concepts & Applications in Business, and Legal/Ethical/Social Responsibilities.
- New Performance Examples have been included.
- Within each strand, standards and objectives were grouped under Topic Headings, which are displayed in bold. Each standard is followed by a performance example. See the section below titled: "Organization of the Frameworks – Strand Two". All strands were organized in that manner, with the exception of the former Strand Three.

Strand Six

Strand Six Technology Literacy Knowledge and Skills has been replaced with the 2008 Massachusetts Technology Literacy Standards and Expectations Framework.

Appendix[1]

Each framework contains an "Appendix" section which includes an Embedded Academic Crosswalk, Industry Recognized Credentials, Statewide Articulation Agreements, Professional, Governmental, and Student Organizations, Resources, and relevant websites.

The Appendix[2] contains:

- Embedded Academic crosswalks for English Language Arts, Mathematics, and Science & Technology/Engineering.
- Statewide Articulations: Current statewide Articulation Agreements and/or Apprenticeship Programs available to the specific vocational program are listed on this page. The development of new statewide articulations continues, and therefore these pages will be revised as new agreements are finalized.

- Industry-Recognized Credentials: Technical Teacher Teams generated lists of credentials for the vocational programs. Program Advisory Committees throughout the state reviewed and provided recommendations through the validation process. *The credential list has been provided as a resource only and districts are not obligated to provide all of the specified credentials for students.*

- Other: These pages provide lists of reference materials, government agencies, professional and student organizations, and useful websites created by each framework team. These are intended as helpful resources for technical teachers, identified by peers. These are not recommended or required by the Department of Elementary & Secondary Education.

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[1] *Note:* Although most Framework Teams provided information for the "Appendix", not all teams did. *Therefore, sub-headings within the "Appendix" without information have been deleted.*

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Organization of the Frameworks – Strand Two

The Vocational Technical Education Frameworks contain knowledge and skills covering all aspects of industry, reflected in six strands: Safety and Health, Technical, Embedded Academics, Employability, Management and Entrepreneurship, and Technological.

Within each strand, standards and objectives were grouped under topic headings, which are displayed in bold. Each standard is followed by a performance example. In the excerpt below, 2.A is the topic; 2.A.01 is the first standard and 2.A.01.01 and 2.A.01.02 are the objectives under that standard.

2.A   Automotive Technology Specific Safety Practices
2.A.01   Identify and describe safety procedures when dealing with different types of automotive lifts according to current industry standards.
       2.A.01.01   Demonstrate procedures for safe lift operations.
       2.A.01.02   Demonstrate safe use, placement and storage of floor jacks and jack stands.

> 2.A.01   Performance Example:
>
> - Student will set up lift using manufacturer's suggested lift points.

2.A.02   Demonstrate and describe safety procedures when dealing with high pressure systems including necessary ventilation according to current industry standards.
       2.A.02.01   Describe and demonstrate the importance of safety procedures to be used when servicing high pressurized systems (fuel systems, brakes, air conditioning, suspension, hydraulic systems, etc.).
       2.A.02.02   Describe and demonstrate safe use of oxygen/acetylene torches and electric welding equipment.
       2.A.02.03   Demonstrate ventilation procedures to be followed when working in the lab/shop area.

> 2.A.02   Performance Example:
>
> - Student will relieve fuel system pressure to perform necessary repairs.

2.A.03   Identify and describe safety procedures when dealing with electrical circuits according to current industry standards.
       2.A.03.01   Describe safety procedures to be followed when servicing supplemental restraint systems.
       2.A.03.02   Demonstrate safety awareness of high voltage circuits of electric or hybrid electric vehicles and related safety precautions.

> 2.A.03   Performance Example:
>
> - Safely disable Supplemental Restraint System (SRS) air bag for repair using manufacturer's recommendations.

There are additional changes to some of the Frameworks Strand Two (Technical Knowledge and Skills). Specifically, Strand Two of the Frameworks for Animal Science, Environmental Science and Technology and Horticulture begin with core standards required for all participants in the programs, followed by a series of standards organized in concentrations. For example, Strand Two of the Horticulture Framework begins with the core standards required of all Horticulture students

(Topics 2.A through 2.I). These standards are followed by the three concentrations: Arboriculture (Topics 2.J through 2.L), Greenhouse Management and Floriculture (Topics 2.J. through 2.L) and Landscape and Turf Management (Topics 2.M through 2.Q).

Advanced / Supplemental Standards (Not Required)

Another variation that is new to the revised Strand Two Frameworks is the addition of advanced or supplemental standards which are noted with the use of an asterisk (*). *These standards are not required, but are provided as suggestions that districts may choose to use to increase the depth of a particular topic, or add additional topics, particularly for advanced students or for those seniors who do not participate in cooperative education.*

The following is an example from Automotive Technology, where entire topics were added:

Advanced Automotive Technology Technical Knowledge and Skills
Note: The following competencies are optional, supplementary competencies suitable for advanced students. These are not required.

2.CC   Demonstrate appropriate engine repair techniques.
    2.CC.01   Perform appropriate cylinder Head Repair.
        2.CC.01.01*   Diagnose, remove and replace cylinder head(s).
        2.CC.01.02* Clean and visually inspect a cylinder head for cracks; check gasket surface areas for warpage and surface finish; check passage condition; determine necessary action.

The following is an example from the Strand Two Radio and Television Broadcasting Framework that shows the addition of an advanced objective, 2.B.04.08*:

    2.B.04   Explain concepts fundamental to shooting in cinema and video.

2.B.04.01	Compare and contrast a single-camera and a multiple-camera production.
2.B.04.02	Explain the importance of shooting for the edit (i.e., match on action, sequencing, coverage).
2.B.04.03	Explain the importance of continuity.
2.B.04.04	Explain the 180° Rule line, and its application in various cinema scenarios.
2.B.04.05	Identify and establish a specific point-of-view when shooting from a script.
2.B.04.06	Analyze the methods in which specific shots can evoke emotion from an audience.
2.B.04.07	Define drop frame and non-drop frame code shooting and explain how to account for both when preparing for an edit.
2.B.04.08*	Describe various cinematographic methods necessary when shooting scenes that incorporate post-production visual effect

2.B.04   Performance Examples:

- Students will list similarities and differences of single-camera and multiple-camera shoots.
- Students will describe multiple shooting considerations that are useful in streamlining the editing process.

Strand 1: Safety and Health Knowledge and Skills

1.A Fundamentals of Health and Safety

1.A.01   Describe and apply health and safety regulations.

    1.A.01.01   Identify, describe and apply health and safety regulations that apply to specific tasks and jobs. Students must complete a safety credential program, e.g., Occupational Safety and Health Administration 10, CareerSafe and ServSafe.

    1.A.01.02   Identify, describe and apply Environmental Protection Agency (EPA) and other environmental protection regulations that apply to specific tasks and jobs in the specific occupational area.

    1.A.01.03   Identify, describe and apply Right-To-Know (Hazard Communication Policy) and other communicative regulations that apply to specific tasks and jobs in the specific occupational area.

    1.A.01.04   Explain procedures for documenting and reporting hazards to appropriate authorities.

    1.A.01.05   Identify and describe potential consequences for non-compliance with appropriate health and safety regulations.

    1.A.01.06   Identify and list contact information for appropriate health and safety agencies and resources.

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1. A.01   Performance Examples:
- List and define OSHA Health and Safety Regulations, EPA and other environmental protection regulations to occupational area.
- List and define Right-to-Know regulations and reporting of hazards and contact information for appropriate health and safety agencies.
- List the laws and rules of regulatory agencies governing sanitation and safety.
- Utilize OSHA as well as health and safety websites for purposes of research.

1.A.02   Demonstrate appropriate health and safety practices based on the specific occupational area.

    1.A.02.01   Identify, describe and demonstrate the effective use of Safety Data Sheets (SDS).

    1.A.02.02   Read and interpret chemical, product and equipment labels to determine appropriate health and safety considerations.

    1.A.02.03   Identify, describe and demonstrate personal, shop and job site safety practices and procedures.

    1.A.02.04   Demonstrate safe dress and use of relevant safety gear, personal protective equipment (PPE) and ergonomics, e.g., wrist rests, adjustable workspaces, equipment, gloves, proper footwear, earplugs, eye protection and breathing apparatus.

    1.A.02.05   Demonstrate appropriate safe body mechanics, including appropriate lifting techniques and ergonomics.

    1.A.02.06   Locate emergency equipment, first aid kit, SDS information directories and emergency action/response plan/escape routes in your lab, shop and

classroom, including labels and signage that follow OSHA Hazard Communication Program (HAZCOM), eyewash stations, shower facilities, sinks, fire extinguishers, fire blankets, telephone, master power switches and emergency exits.

1.A.02.07   Demonstrate the safe use, storage, and maintenance of every piece of equipment in the lab, shop and classroom, e.g., the OSHA Lockout/Tagout Program (LOTO).

1.A.02.08   Describe safety practices and procedures to be followed when working with and around electricity, e.g., ground fault circuit interrupter (GFCI) and frayed wiring.

1.A.02.09   Handle, store, dispose of and recycle hazardous, flammable and combustible materials, according to EPA, OSHA and product specifications.

1.A.02.10   Demonstrate appropriate workspace cleaning, sanitation, disinfection and sterilization procedures required in specific occupational areas, e.g., Workplace Housekeeping OSHA Regulations.

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1. A.02   Performance Examples:
- Identify, describe and demonstrate the use of SDS.
- List and demonstrate shop dress code, safety procedures and location of emergency equipment in labor classroom.
- Define and demonstrate safe storage and maintenance of equipment and proper disposal or recycling of hazardous, flammable and combustible materials.
- Identify, describe and demonstrate the Universal Precautions set of guidelines.

1.A.03   Demonstrate appropriate responses to situations that may threaten health and safety.

1.A.03.01   Describe First Aid procedures for potential injuries and other health concerns in the specific occupational area.

1.A.03.02   Describe the importance of emergency preparedness and an emergency action/response plan.

1.A.03.03   Describe procedures used to handle emergency situations, defensive measures and accidents, including identification, reporting, response, evacuation plans and follow-up procedures.

1.A.03.04   Identify, describe and demonstrate safety practices in specific occupational areas used to avoid accidents.

1.A.03.05   Identify and describe fire protection, protection, precautions and response procedures.

1.A.03.06   Discuss the role of the individual and the company/organization in ensuring workplace safety including transportation to and from school, school activities and the workplace.

1.A.03.07   Discuss ways to identify, prevent and report school and workplace violence, discrimination, harassment and bullying.

1.A.03.08   Demonstrate positive and appropriate behavior that contributes to a safe and healthy environment in school and the workplace.

1. A.03   Performance Example:
- Define first aid procedures and protocols used to handle emergency situations and practices used to avoid accidents.
- View safety videos and discuss the role of workplace safety.
- Attend or participate in a human rights alliance organization presentation.
- Observe and/or demonstrate the appropriate use of a fire extinguisher using the (PASS) technique: Pull, Aim, Squeeze, Sweep.
- Review and discuss specific policies, procedures and protocols regarding discrimination, harassment and bullying.
- Discuss and/or role-play proper and respectful behavior that contributes to a positive climate.
- Discuss and/or demonstrate behavior that contributes to a collaborative/teamwork environment.

Selected Websites

- Bullying Prevention and Intervention Resources : www.doe.mass.edu/bullying
- Centers for Disease Control and Prevention: www.cdc.gov
- Environmental Protection Agency : www.epa.gov
- "Lost Youth – Four Stories of Injured Young Workers"– WorkSafeBC: http://www2.worksafebc.com/Publications/Multimedia/Videos.asp?reportid=34291
- Massachusetts Department of Elementary and Secondary Education. (2011). Career/Vocational Technical Education Safety Guide: www.doe.mass.edu/cte
- Massachusetts Department of Elementary and Secondary Education: www.doe.mass.edu
- Massachusetts Emergency Management Agency: www.mass.gov/eopss/agencies/mema
- Massachusetts General Law: www.malegislature.gov
- Massachusetts Health and Human Services: www.mass.gov/dph
- Massachusetts Right to Know Law Summary: http://www.mass.gov/lwd/docs/dos/mwshp/hib397.pdf
- Safety Data Sheet: www.sdsonline.com
- National Fire Protection Association: www.nfpa.org
- Protection of Student Rights: Massachusetts General Law: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXII/Chapter76/Section5
- Occupational Safety and Health Administration: www.osha.gov
- Readiness and Emergency Management for Schools: www.rems.ed.gov
- Safe and Healthy Learning Environments: www.doe.mass.edu/ssce/safety.html

Strand 2: Technical Knowledge and Skills

2.A   **Health and Safety Related to Health Careers**

2.A.01   Demonstrate health and safety practices following professional medical protocols and OSHA standards.

    2.A.01.01   Demonstrate medical asepsis hand wash technique.

    2.A.01.02   Identify methods of transmission of microorganisms.

    2.A.01.03   Demonstrate use of personal protective equipment.

    2.A.01.04   Remove and dispose of contaminated gloves.

    2.A.01.05   Identify, recognize and comply with signage in the health care environment.

    2.A.01.06   Observe and report signs of infection and utilize isolation techniques as needed.

    2.A.01.07   Use industry recommended procedure for client identification.

    2.A.01.08   Demonstrate safe practices while administering patient care activities.

    2.A.01.09   Transfer client with a mechanical lift following all state and federal requirements.

    2.A.01.10   Identify and define emergency codes used in office/medical facility.

    2.A.01.11   Demonstrate needle safety and sharps disposal.

    2.A.01.12   Explain handling and disposal of bio-hazardous materials.

> **2.A.01**   Performance Example:
> - Students will demonstrate application and removal of personal protective equipment followed by medical aseptic hand washing.

2.A.02   Obtain First Aid Certification

    2.A.02.01   Identify the general principles of first aid.

    2.A.02.02   Identify and demonstrate skills for medical emergencies.

    2.A.02.03   Identify and demonstrate skills for injury emergencies.

    2.A.02.04   Identify and demonstrate skills for environmental emergencies.

> **2.A.02**   Performance Examples:
> - Students will demonstrate the care of a person having a seizure.
> - Students will measure a wound and apply the appropriate size bandage.

2.A.03   Obtain Healthcare Provider CPR.

    2.A.03.01   Identify and demonstrate adult CPR.

    2.A.03.02   Identify and demonstrate child and infant CPR.

    2.A.03.03   Identify and demonstrate skills for the removal of foreign-body airway obstruction.

    2.A.03.04   Identify and demonstrate use of automated external defibrillation with CPR.

> **2.A.03**   Performance Example:
> - Students will successfully complete a course in Health care Provider CPR.

2.B   **Communication Skills Related to Health Careers**

2.B.01   Summarize the fundamentals of the healthcare industry.

    2.B.01.01   Identify settings in which health care is provided.

    2.B.01.02   Identify the organizational structure of the health care team.

2.B.01.03	Demonstrate professional and ethical behavior in clinical practice.
2.B.01.04	Demonstrate telephone techniques appropriate to a health care setting.
2.B.01.05	Summarize the residents'/patients' Bill of Rights.
2.B.01.06	Summarize and demonstrate HIPAA regulations.
2.B.01.07	Describe the role of the mandated reporter.
2.B.01.08	List the steps for resident/client identification.
2.B.01.09	Demonstrate verbal and non-verbal communication.
2.B.01.10	Identify barriers to open communication.
2.B.01.11	Explain and demonstrate techniques used to effectively communicate with a patient who has a visual or hearing deficit.
2.B.01.12	Demonstrate observation skills.
2.B.01.13	Give a verbal client report.
2.B.01.14	Complete a written client report.
2.B.01.15	Demonstrate organization of the information in a patient file, electronic file or chart and describe how to process the correction of an error.
2.B.01.16	Demonstrate the maintenance of or write technical information in a patient file.
2.B.01.17	Complete incident/variance report.
2.B.01.18	Use appropriate medical terminology and abbreviations.
2.B.01.19	Identify professional healthcare workers' organizations and credentialing requirements.
2.B.01.20	Demonstrate and list compliance with appropriate health and safety regulations.
2.B.01.21	List reasons for the use of electronic medical records for documentation of assessments and interventions for client care.

> 2.B.01   Performance Example:
> - Students will document observations made in the patients chart, demonstrating how to correct an error.

2.C   Responding to Clients Needs

2.C.01   Demonstrate procedures used when responding to client needs.

2.C.01.01	Explain importance of responding to client needs in a timely, compassionate and professional manner.
2.C.01.02	List strategies used to maintain client dignity and list strategies to maintain client privacy at all times.
2.C.01.03	Explain and demonstrate procedures used to position and drape clients.
2.C.01.04	Demonstrate respect for diverse orientations.
2.C.01.05	Describe the normal ranges for each of the vital signs.
2.C.01.06	Measure and record body temperature using electronic, glass, digital thermometers but not limiting to.
2.C.01.07	Measure and record pulse from the eight pulse sites.
2.C.01.08	Measure and record vital signs.
2.C.01.09	Measure pain by utilizing a pain scale.
2.C.01.10	Measure and record height and weight.

2.C.01.11   Demonstrate procedure for measuring finger stick blood sugar.

2.C.01   Performance Examples:
- Students will monitor and record vital signs/height and weights in the patient's medical record.
- Students will take vital signs and a pulse for 15 seconds and convert to one minute.
- Students will convert Fahrenheit temperature to Celsius.
- Students will record vital signs on a graphing sheet.
- Students will record patients' height and weight on a growth chart.

2.C.02   Assist the client in the activities of daily living.
        2.C.02.01   Identify and list ways to encourage independence in personal care for the client.
        2.C.02.02   Demonstrate bed making appropriate to patient's needs.
        2.C.02.03   Assist client with appropriate personal hygiene.
        2.C.02.04   Assist with undressing/dressing needs of the client.
        2.C.02.05   Provide daily routine hair care.
        2.C.02.06   Provide routine foot care.
        2.C.02.07   Provide fingernail care.
        2.C.02.08   Assist with shower.
        2.C.02.09   Perform complete bed bath.
        2.C.02.10   Provide client skin care.
        2.C.02.11   Shave facial hair.
        2.C.02.12   Assist with care of dental appliances.
        2.C.02.13   Provide oral hygiene.
        2.C.02.14   Explain the use and care of hearing appliances.
        2.C.02.15   Demonstrate routine uses and care of glasses.
        2.C.02.16   Assist with range of motion exercises.

2.C.02   Performance Example:
- Students will demonstrate a bed bath including hair, nail and mouth care.

2.C.03   Assist, perform, and document skills related to elimination.
        2.C.03.01   Assist client to bathroom.
        2.C.03.02   Assist client with bed pan/urinal.
        2.C.03.03   Assist client with use of commode.
        2.C.03.04   Empty urinary drainage bag.
        2.C.03.05   Provide Foley catheter care.
        2.C.03.06   Identify and report urine abnormalities.
        2.C.03.07   Demonstrates straining urine when required.
        2.C.03.08   Describe care of ostomy drainage system.
        2.C.03.09   Provide skin care for ostomy client.
        2.C.03.10   Identify and report stool abnormalities.
        2.C.03.11   Record intake and output according to facility.
        2.C.03.12   Collect specimens for laboratory analysis.
        2.C.03.13   Perform urine dipstick test.
        2.C.03.14   Collect specimens for occult blood testing.

	2.C.03.15	Assist in skin care for the incontinent client.
	2.C.03.16	Describe and document bowel movements.

2.C.03	Performance Example: ▪ Student will assist a client to the bathroom and identify and report any abnormalities. Student will empty a catheter every shift, record output and intake on an output sheet over a 24 hour period. Calculate the output and interpret for dehydration.

2.C.04   Demonstrate the performance of special procedures.

	2.C.04.01	Apply and remove elastic stockings.
	2.C.04.02	Demonstrate procedure for applying restraints.
	2.C.04.03	Demonstrate use of alarm devices.
	2.C.04.04	Prepare and assist client for physical examination.
	2.C.04.05	Identify positions used for special examinations.
	2.C.04.06	Demonstrate proper use of transfer/Gait Belt.
	2.C.04.07	Demonstrate use of assistive equipment for ambulation.
	2.C.04.08	Demonstrate use of adaptive devices and assistive equipment.
	2.C.04.09	Demonstrate safe use of a wheel chair.
	2.C.04.10	Demonstrate the transfer of a client to chair or wheelchair.
	2.C.04.11	Transport client on stretcher.
	2.C.04.12	Describe post-mortem care procedures.

2.C.04	Performance Examples: ▪ Students will ambulate a client using a gait belt and walker. ▪ Students will determine the circumference on a calf and the length from below the knee to determine the correct elastic stocking size.

2.C.05   Demonstrate the administration of comfort measures.

	2.C.05.01	Utilize devices to reduce skin pressure.
	2.C.05.02	Demonstrate hot or cold applications.
	2.C.05.03	Describe procedures used with a whirlpool bath.
	2.C.05.04	Explain care for the dying client/family.

2.C.05	Performance Example: ▪ Sample Students will provide a back rub and repositioning a patient every 2 hours.

2.C.06   Assist a client with nutrition and hydration.

	2.C.06.01	Setup and serve patient tray.
	2.C.06.02	Identify appropriate tray for patient according to their prescribed diet as noted on their care plan.
	2.C.06.03	Identify therapeutic diets.
	2.C.06.04	Prepare client for mealtime.
	2.C.06.05	Assist in helping patient feed self.
	2.C.06.06	Feed client requiring complete assistance.
	2.C.06.07	Adapt nutrition to patients with physical problems as ordered.
	2.C.06.08	Measure the patient's intake and output of fluids and record using approved documentation tool.
	2.C.06.09	Report signs of dehydration.

2.C.06.10   Record patient's food intake using appropriate documentation tool.

2.C.06	Performance Examples: ▪ Students will assist a client in feeding and document the intake, output and food percentage in an appropriate documentation tool. ▪ Students will calculate fluid intake in ounces and calculate amounts in milliliters. ▪ Students will calculate the shift intake and output as well as the 24 hour total.

2.C.07   Assist a client with cognitive or memory impairments.

     2.C.07.01   Describe forms, symptoms, and causes of cognitive impairment.

     2.C.07.02   Recognize and report mental status changes.

     2.C.07.03   Demonstrate safety techniques used in caring for cognitive impaired clients.

     2.C.07.04   Describe behavior interventions used in caring for cognitive impaired client.

2.C.07	Performance Example: ▪ Students will demonstrate ways to shower a confused client in a way that the client will be cooperative.

2.D Growth and Development Principles across the Lifespan

2.D.01   Demonstrate knowledge of principles of growth and development.

     2.D.01.01   List factors that promote a healthy pregnancy.

     2.D.01.02   Name factors that may have an adverse effect on pregnancy.

     2.D.01.03   Describe the growth and development characteristics across the lifespan.

     2.D.01.04   Describe the nutritional needs across the lifespan.

     2.D.01.05   List health promoting activities across the lifespan.

     2.D.01.06   Identify procedures used with pediatric patients and patients with special needs.

2.D.01	Performance Example: ▪ Students will create a scrap book illustrating their own growth and development from birth to current age. ▪ Students will record patients' height and weight on a growth chart.

2.E Certification/Specialty programs.

2.E.01   Complete Certification/Specialty Programs consisting of at least 280 hours of instructional time.

     2.E.01.01   Complete specialty programs which meet required state and national standards. A specialty program, or combination of programs, should consist of no less than 280 hours in length

Strand 3: Embedded Academics, a critical piece of a Vocational Technical Education Framework, are presented as Crosswalks between the Massachusetts Vocational Technical Education Frameworks and the Massachusetts Curriculum Frameworks. These Crosswalks are located in the Appendix of this Framework.

Academic Crosswalks

Appendix A: English Language Arts
Appendix B: Mathematics
Appendix C: Science and Technology/Engineering
                        Earth and Space Science
                        Life Science (Biology)
                        Physical Science (Chemistry and Physics)
                        Technology/Engineering

Strand 4: Employability and Career Readiness

4.A   **Career Exploration and Navigation**

4.A.01   Develop a career plan and portfolio.

4.A.01.01   Develop and revise career plan annually based on workplace awareness and skill attainment.

4.A.01.02   Assess personal strengths and interest areas to determine potential careers, career pathways and career ladders.

4.A.01.03   Examine potential career field(s)/discipline(s) and identify criteria to select, secure and keep employment in chosen field(s).

4.A.01.04   Research and evaluate a variety of careers utilizing multiple sources of information and resources to determine potential career(s) and alternatives.

4.A.01.05   Identify training and education requirements that lead to employment in chosen field(s) and demonstrate skills related to evaluating employment opportunities.

4.A.01.06   Explore and evaluate postsecondary educational opportunities including degrees and certifications available, traditional and nontraditional postsecondary pathways, technical school and apprenticeships, cost of education, financing methods including scholarships and loans and the cost of loan repayment.

4.A.01.07   Create a portfolio showcasing academic and career growth including a career plan, safety credential, resume and a competency profile demonstrating the acquisition of the knowledge and skills associated with at least two years of full-time study in the Chapter 74 program.

4.A.02   Demonstrate job search skills.

4.A.02.01   Conduct a job search and complete written and electronic job applications, resumes, cover letters and related correspondence for a chosen career path.

4.A.02.02   Explore and evaluate postsecondary job opportunities and career pathways specific to career technical areas.

4.A.02.03   Identify role and use of social media and networking for staying current with career and employment trends as well as networking, job seeking and career development opportunities.

4.A.02.04   Demonstrate ability to use social media and networking to develop useful occupational contacts, job seeking and career development opportunities.

4.A.03   Demonstrate all phases of the job interview process.

4.A.03.01   Gather relevant information about potential employer(s) from multiple print and digital sources, assessing the credibility and accuracy of each source.

4.A.03.02   Identify employment eligibility criteria, such as drug/alcohol free status, clean driving record, etc.

| 4.A.03.03 | Practice effective interviewing skills: appearance, inquiry and dialogue with interviewer, positive attitude and evidence of work ethic and skills. |
| 4.A.03.04 | Explore and evaluate employment benefit packages including wages, vacation, health care, union dues, cafeteria plans, tuition reimbursement, |

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4. A   Performance Examples:
- Conduct research to analyze and present on specific careers within a cluster.
- Conduct web-based job search using sites such as Monster.com, CareerBuilder.com, Indeed.com, Snagajob.com, Simplyhired.com and others.
- Create profile on social media/networking site such as LinkedIn and/or LinkedIn University for postsecondary research and employment opportunities.
- Complete online job application.
- Conduct and videotape practice interviews for instructor and student analysis.
- Provide students with sample employment and benefit packages for evaluation.

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retirement and 401K.

4.B   Communication in the Workplace

4.B.01   Demonstrate appropriate oral and written communication skills in the workplace.

4.B.01.01	Communicate effectively using the language and vocabulary appropriate to a variety of audiences within the workplace including coworkers, supervisors and customers.
4.B.01.02	Read technical and work-related documents and demonstrate understanding in oral discussion and written exercise.
4.B.01.03	Demonstrate professional writing skills in work-related materials and communications (e.g., letters, memoranda, instructions and directions, reports, summaries, notes and/or outlines).
4.B.01.04	Use a variety of writing/publishing/presentation applications to create and present information in the workplace.
4.B.01.05	Identify, locate, evaluate and use print and electronic resources to resolve issues or problems in the workplace.
4.B.01.06	Use a variety of financial and data analysis tools to analyze and interpret information in the workplace.
4.B.01.07	Orally present technical and work-related information to a variety of audiences.
4.B.01.08	Identify and demonstrate professional non-verbal communication.

4.B.02   Demonstrate active listening skills.

4.B.02.01	Listen attentively and respectfully to others.
4.B.02.02	Focus attentively, make eye contact or other affirming gestures, confirm understanding and follow directions.
4.B.02.03	Show initiative in improving communication skills by asking follow-up questions of speaker in order to confirm understanding.

4.C   Work Ethic and Professionalism

4.C.01   Demonstrate attendance and punctuality.

    4.C.01.01   Identify and practice professional time-management and attendance behaviors including punctuality, reliability, planning and flexibility.

4.C.02   Demonstrate proper workplace appearance.

    4.C.02.01   Identify and practice professional appearance specific to the workplace.

    4.C.02.02   Identify and practice personal hygiene appropriate for duties specific to the workplace.

    4.C.02.03   Identify and wear required safety gear specific to the workplace.

4.C.03   Accepts direction and constructive criticism.

    4.C.03.01   Demonstrate ability (both verbally and non-verbally) to accept direction and constructive criticism and to implement solutions to change behaviors.

    4.C.03.02   Ask appropriate questions to clarify understanding of feedback.

    4.C.03.03   Analyze own learning style and seek instructions in a preferred format that works best for their understanding (such as oral, written or visual instruction).

4.C.04   Demonstrate motivation and initiative.

    4.C.04.01   Evaluate assigned tasks for time to completion and prioritization.

    4.C.04.02   Demonstrate motivation through enthusiasm, engagement, accurate completion of tasks and activities.

    4.C.04.03   Demonstrate initiative by requesting new assignments and challenges.

    4.C.04.04   Explain proposed solutions to challenges observed in the workplace.

    4.C.04.05   Demonstrate the ability to evaluate multiple solutions to problems and challenges using critical reasoning and workplace/industry knowledge and select the best solution to the problem.

    4.C.04.06   Implement solution(s) to challenges and/or problem(s) observed in the workplace.

    4.C.04.07   See projects through completion and check work for quality and accuracy.

4.C.05   Demonstrate awareness of workplace culture and policy.
    4.C.05.01   Display ethical behavior in use of time, resources, computers and information.
    4.C.05.02   Identify the mission of the organization and/or department.
    4.C.05.03   Explain the benefits of a diverse workplace.
    4.C.05.04   Demonstrate a respect for diversity and its benefit to the workplace.

4.C.06   Interact appropriately with coworkers.
    4.C.06.01   Work productively with individuals and in teams.
    4.C.06.02   Develop positive mentoring and collaborative relationships within work environment.
    4.C.06.03   Show respect and collegiality, both formally and informally.
    4.C.06.04   Explain and follow workplace policy on the use of cell phones and other forms of social media.
    4.C.06.05   Maintain focus on tasks and avoid negative topics or excessive personal conversations in the workplace.
    4.C.06.06   Negotiate solutions to interpersonal and workplace conflicts.

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4. C   Performance Examples:
- Complete a learning style analysis tool.
- Develop a rubric to assess work ethic and professionalism as detailed in the standards above.

Student Organizations

Business Professionals of America   www.bpa.org

Selected Websites

- 5 Ways to Ace a Job Interview: http://kidshealth.org/teen/school_jobs/jobs/tips_interview.html
- America's Career Resource Network: http://acrn.ovae.org/teachers/careerexpclassrm.htm
- Career Cruiser – Florida Department of Education: http://www.fldoe.org/workforce/pdf/cruiser.pdf
- Career Development Guide and Glossary: http://www.doe.mass.edu/connect/cde.html
- Career One Stop: http://www.careeronestop.org/
- Career Plan: http://www.doe.mass.edu/cd/plan/intro.html
- Career Plan Model: http://www.doe.mass.edu/ccr/epp/samples/cpmodel_11x17.pdf
- Checklist: http://www.doe.mass.edu/cd/plan/checklist.pdf
- Career Tech: http://www.okcareertech.org/cac/Pages/resources_products/ethics_web_sites.htm
- Ethics Resource Center: http://www.ethics.org/
- Interaction in the Workplace: http://hrweb.berkeley.edu/guides/managing-hr/interaction/communication

- Individual Learning Plans: How-to Guide: "Promoting Quality Individualized Learning Plans: A How to Guide on the High School Years" http://www.ncwd-youth.info/ilp/how-to-guide
- ILP Fact Sheet: http://www.ncwd-youth.info/fact-sheet/individualized-learning-plan
- ILP Policy Brief: http://www.ncwd-youth.info/ilp/produce-college-and-career-ready-high-school-graduates
- ILP Resources Home Page: http://www.ncwd-youth.info/ilp
- Interview Skills Lesson Plans: http://www.amphi.com/media/1220281/interview%20skills%20lesson%20plan.doc
- Labor and Workforce Development: http://www.mass.gov/lwd/employment-services/preparing-for-your-job-search/
- Maine Community College System – Center for Career Development: http://www.ccd.me.edu/careerprep/CareerPrepCurriculum_LP-6.pdf
- Massachusetts Work-Based Learning: http://skillspages.com/masswbl
- North Dakota Association of Agriculture Educators: http://www.ndaae.org/attachments/File/Preparing_students_for_a_Job_Interview.pptx
- NY CTE Learning Standards—Career Development and Occupational Studies (CDOS) Resource Guide with Core Curriculum : http://www.p12.nysed.gov/cte/cdlearn/cdosresourceguide.html
- Occupational Outlook Handbook: http://www.bls.gov/ooh/
- Purdue OWL Job Search Resources (for writing resumes, applications, and letters): https://owl.english.purdue.edu/engagement/34/
- Soft Skills to Pay the Bills — Mastering Soft Skills for Workplace Success: http://www.dol.gov/odep/topics/youth/softskills/
- US Department of Labor: http://www.dol.gov/dol/audience/aud-unemployed.htm
- Workplace Communication: http://www.regionalskillstraining.com/sites/default/files/content/WC%20Book%201.pdf
- Your Plan For the Future: http://www.yourplanforthefuture.org

Strand 5: Management and Entrepreneurship Knowledge and Skills

5.A **Starting a Business**

5.A.01 Demonstrate an understanding of the practices required to start a business.

    5.A.01.01 Define entrepreneurship and be able to recognize and describe the characteristics of an entrepreneur.

    5.A.01.02 Compare and contrast types of business ownership (i.e., sole proprietorships, franchises, partnerships, corporations).

    5.A.01.03 Identify and explain the purpose and contents of a business plan.

    5.A.01.04 Demonstrate an understanding of the principles and concepts of a business's supply chain (i.e., suppliers, producers and consumers.

> 5. A   Performance Examples:
> - Develop a presentation pertaining to an entrepreneur and their business.
> - Communicate with a business owner and discuss the pros and cons of starting and owning a business. Summarize the main points of the discussion.
> - Choose a product or service and describe the process leading to distribution.
> - Write a business plan for a business in your community.

5.B **Managing a Business**

5.B.01 Demonstrate an understanding of managing a business.

    5.B.01.01 Formulate short- and long-term business goals.

    5.B.01.02 Demonstrate effective verbal, written and visual communication skills.

    5.B.01.03 Utilize a decision-making process to make effective business decisions.

    5.B.01.04 Identify a business's chain of command and define its organizational structure.

    5.B.01.05 Identify and apply effective customer service skills and practices.

    5.B.01.06 Identify, interpret and develop written operating procedures and policies.

    5.B.01.07 Track inventory, productivity and labor cost.

    5.B.01.08 Demonstrate business meeting skills.

    5.B.01.09 Identify professional organizations and explore their benefits.

> 5. B   Performance Examples:
> - Working as a team, role-play situations that an entrepreneur might face in dealing with customers or employees.
> - Contact a relevant professional organization and request information about its benefits, membership requirements and costs.
> - Plan and conduct a business meeting.
> - Identify companies that are known for customer service and list the practices that help differentiate themselves from all others in their industry.

5.C **Marketing a Business**

5.C.01 Demonstrate an understanding of marketing and promoting a business.

    5.C.01.01 Explain the role of business in the economy.

    5.C.01.02 Describe the relationship between business and community.

    5.C.01.03 Describe methods of market research and identifying target markets.

5.C.01.04	Describe and apply the concepts of a marketing mix (the 4Ps of marketing: product, price, place and promotion).
5.C.01.05	Compare and contrast the promotional tools and techniques used to sell products, services, images and ideas.
5.C.01.06	Describe the impact of supply and demand on a product or business.
5.C.01.07	Identify direct and indirect competition on a business.
5.C.01.08	Identify and use sales techniques to meet client needs and wants.
5.C.01.09	Discuss strategies to acquire and retain a customer base.

> 5. C   Performance Examples:
> - Research reliable sources to identify marketing and industry data related to a business.
> - Conduct market research by developing a survey and presenting the results.
> - Create a promotional campaign using a variety of media.
> - Write a marketing plan for a product.

5.D   Financial Concepts and Applications in Business

5.D.01   Demonstrate an understanding of financial concepts and applications.

5.D.01.01	Identify essential financial reports and understand their purpose (i.e., budget, balance sheet and income statement).
5.D.01.02	Describe payroll practices (i.e., deductions – federal, FICA and state taxes and insurances).
5.D.01.03	Identify the importance of maintaining accurate records.
5.D.01.04	Apply practices related to pricing, purchasing and billing.
5.D.01.05	Maintain and reconcile a checking account.
5.D.01.06	Identify the options for funding a business.

> 5. D   Performance Examples:
> - Given an employee time card and rate of pay, calculate gross pay, taxes, deductions and net pay.
> - Develop a budget for a simulated business or project.
> - Analyze and discuss financial documents from a company.
> - Research various methods of funding a business.

5.E   Legal/Ethical/Social Responsibilities

5.E.01   Demonstrate an understanding of legal, ethical and social responsibility for businesses.

5.E.01.01	Identify state and federal laws and regulations related to managing a business.
5.E.01.02	Describe and identify ethical business practices.
5.E.01.03	Demonstrate an understanding of business contracts.
5.E.01.04	Explain the role of diversity in the workplace.
5.E.01.05	Explain the role of labor organizations.
5.E.01.06	Identify practices that support clean energy technologies and encourage environmental sustainability.
5.E.01.07	Demonstrate an understanding of how technology advancements impact business practices.

Selected Websites

- CVTE Strand 1, 4, and 5 Resources: https://sites.google.com/a/mccanntech.org/cvte-strands-1-4-and-5-resources/
- Entrepreneur: http://www.entrepreneur.com
- Inc. Magazine: http://www.inc.com/
- Junior Achievement "Be Entrepreneurial Program": https://www.juniorachievement.org/web/ja-usa/home
- Kahn Academy Interviews with Entrepreneurs: https://www.khanacademy.org/economics-finance-domain/entrepreneurship2/interviews-entrepreneurs
- Kauffman Founders School: http://www.entrepreneurship.org/en/founders-school.aspx
- National Federation of Independent Business: www.nfib.com
- National Foundation for Teaching Entrepreneurship (NFTE): www.nfte.com
- SBA Loans: http://www.sba.gov
- SkillsUSA Professional Development Program Competency List: http://www.skillsusa.org/downloads/PDF/lessons/professional/PDPPreview.pdf
- Small Business Administration: www.sba.gov

Glossary

Term	Definition
Balance sheet	A statement of the assets, liabilities and capital of a business at a particular point in time.
Budget	An estimate of income and expenditure for a set period of time.
Business Ownership	Types of business ownership refer to the legal structure of an organization. Legal structures include: Sole Proprietorship, Partnerships, Corporations and Limited Liability Companies.
Business Plan	A written document that describes in detail your business goals and how you are going to achieve them from a marketing, operational and financial point of view.

Term	Definition
Chain of Command and Organizational Structure	Refers to the management structure of an organization. It identifies lines of authority, lines of communication, and reporting relationships. Organizational structure determines how the roles, power and responsibilities are assigned and coordinated and how information flows between the different levels of management. (A visual representation of this structure is called an org chart).
FICA	Federal Insurance Contributions Act requires taxes deducted from pay for supporting Social Security.
Income Statement	A financial statement providing operating results for a specific time period showing a business's revenues, expenses and profit or loss.
Market Research	- Primary: Surveys, Focus Groups, Observation - Secondary: Websites, Internet
Marketing Mix	A set of controlled variables that formulate the strategic position of a product or service in the marketplace. These variables are known as the 4 P's of marketing and include product, place, price and promotion.
Methods to Track Inventory, Productivity and Labor Cost	Refers to the processes a business uses to account for: 1) the inflows and outflows of inventory and materials related to inventory; 2) the efficiency of operations and 3) the cost of labor including salary and benefits.
Promotional Tools and Techniques	The six elements of a promotional mix are: advertising, visual merchandising, public relations, publicity, personal selling and sales promotion.
Supply Chain	The supply chain, or channel of distribution, describes how the product is handled and/or distributed from suppliers with materials, to the manufacturer, wholesaler or retailer and finally to the consumer.
Target Market	Those who are most likely to buy your product or service.

Strand 6: Technology Literacy Knowledge and Skills

6.A   Technology Literacy Knowledge and Skills (Grades 9 through 12)

6.A.01   Demonstrate proficiency in the use of computers and applications, as well as an understanding of the concepts underlying hardware, software, and connectivity.

6.A.01.01   Use online help and other support to learn about features of hardware and software, as well as to assess and resolve problems.

6.A.01.02   Install and uninstall software; compress and expand files (if the district allows it).

6.A.01.03   Explain effective backup and recovery strategies.

6.A.01.04   Apply advanced formatting and page layout features when appropriate (e.g., columns, templates, and styles) to improve the appearance of documents and materials.

6.A.01.05   Use editing features appropriately (e.g., track changes, insert comments).

6.A.01.06   Identify the use of word processing and desktop publishing skills in various careers.

6.A.01.07   Identify the use of database skills in various careers.

6.A.01.08   Define and use functions of a spreadsheet application (e.g., sort, filter, find).

6.A.01.09   Explain how various formatting options are used to convey information in charts or graphs.

6.A.01.10   Identify the use of spreadsheet skills in various careers.

6.A.01.11   Use search engines and online directories.

6.A.01.12   Explain the differences among various search engines and how they rank results.

6.A.01.13   Explain and demonstrate effective search strategies for locating and retrieving electronic information (e.g., using syntax and Boolean logic operators).

6.A.01.14   Describe good practices for password protection and authentication.

6.A.02   Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society.

6.A.02.01   Demonstrate compliance with the school's Acceptable Use Policy.

6.A.02.02   Explain issues related to the responsible use of technology (e.g., privacy, security).

6.A.02.03   Explain laws restricting the use of copyrighted materials.

6.A.02.04   Identify examples of plagiarism, and discuss the possible consequences of plagiarizing the work of others.

6.A.03   Design and implement a personal learning plan that includes the use of technology to support lifelong learning goals.

6.A.03.01   Evaluate the authenticity, accuracy, appropriateness, and bias of electronic resources, including Web sites.

6.A.03.02   Analyze the values and points of view that are presented in media messages.

6.A.03.03   Describe devices, applications, and operating system features that offer accessibility for people with disabilities.

6.A.03.04   Evaluate school and work environments in terms of ergonomic practices.

6.A.03.05   Describe and use safe and appropriate practices when participating in online communities (e.g., discussion groups, blogs, social networking sites).

6.A.03.06   Explain and use practices to protect one's personal safety online (e.g., not sharing personal information with strangers, being alert for online predators, reporting suspicious activities).

6.A.03.07   Explain ways individuals can protect their technology systems and information from unethical users.

6.A.04   Demonstrate the ability to use technology for research, critical thinking, problem solving, decision making, communication, collaboration, creativity, and innovation.

6.A.04.01   Devise and demonstrate strategies for efficiently collecting and organizing information from electronic sources.

6.A.04.02   Compare, evaluate, and select appropriate electronic resources to locate specific information.

6.A.04.03   Select the most appropriate search engines and directories for specific research tasks.

6.A.04.04   Use a variety of media to present information for specific purposes (e.g., reports, research papers, presentations, newsletters, Web sites, podcasts, blogs), citing sources.

6.A.04.05   Demonstrate how the use of various techniques and effects (e.g., editing, music, color, rhetorical devices) can be used to convey meaning in media.

6.A.04.06   Use online communication tools to collaborate with peers, community members, and field experts as appropriate (e.g., bulletin boards, discussion forums, listservs, Web conferencing).

6.A.04.07   Plan and implement a collaborative project with students in other classrooms and schools using telecommunications tools (e.g., e-mail, discussion forums, groupware, interactive Web sites, video conferencing).

Appendices

The framework teams created an "Appendix" listing potential industry recognized credentials attainable by secondary students; lists of professional, student, and relevant government organizations; and useful resources and websites. *It is important to note that although most Framework Teams provided information for the "Appendix", not all teams did. Therefore, sub-headings within the "Appendix" without information have been deleted*.

Disclaimer: Reference in the Appendices Section to any specific commercial products, processes, or services, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.

Embedded Academic Crosswalks

Embedded English Language Arts and Literacy

CVTE Learning Standard Number	Strand Coding Designation Grades ELAs Learning Standard Number	Text of English Language Arts Learning Standard
2.B.01.02	WHST 2e	Provide a concluding statement or section that follows from and supports information or explanation provided
Performance Example: • Research and present on a power point the various jobs in Health care that are specifically involved in providing immediate first aid to an injured person. Explain the role of the providers.		
2.D.01.05	WHST 1.d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
Performance Examples: • Describe the emotional impact a baby has on a family and the social impact a baby has on a family. • Explain the expense of an infant. Develop a budget which includes: food expenses, clothing expenses, medical expenses, furniture and play expenses, and accessory expenses (diapers, sheets, blankets, etc.).		
2.C.01.04	WHST2.6	Use technology, including the internet, to produce, publish, and update individual or shared writing projects in response to ongoing feedback, including anew arguments or information.
Performance Example: • Students discuss cultural diversity and how it impacts health care. Each student will research and present one specific culture in detail.		
2.C.02.01 2.C.02.03	WHST 2.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating an understanding of the subject under investigation.
Performance Example: • Students will prepare and submit a paper on the impact hygiene has on self-esteem.		
2.B.01.01	WHST 2b	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic
Performance Example: • Students will research a problem or current trend in their technical field and will write a four- to five-page paper that studies and analyzes the issue, including suggestions for a solution or expectations for the future. The topic must be chosen in consultation with technical program teachers and must meet the basic requirements of being a "problem" or a "current trend" in the field.		
2.C.06.03	WHST 2.e	Provide a concluding statement or section that follows from or supports the argument presented.
Performance Example: • Each student will research and present a therapeutic diet. Illustrate in a power point the reason for the diet, foods that are allowed and foods that are prohibited on the diet		
2.D.01.01	WHST 1.b	Develop claims and counterclaims fairly, and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claims and counterclaims in a discipline appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.

Performance Example: • Students will research and illustrate in a research paper how good nutrition in pregnancy influences the overall health of mom and the fetus		
2.B.01.13	RH 2	Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
Performance Example: • Students will read a current health article and will be able to summarize in a coherent and organized way to ascertain reading comprehension.		
2.D.01.03	WHST 2.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Performance Example: • Students will write a research paper on a disease and treatments for the disease that include quotations using the APA format.		
2.B.01.17	WHST 1.c.	Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claims, and reasons, between reasons and evidence and between claims and counterclaims.
Performance Example: • Students will identify key prefixes, suffixes, and root words of medical terminology in each unit.		
2.B.01.13	WHST 2.c	Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
Performance Example: • Students will write an essay on describing the importance of accurate reports and what are the necessary topics to include in the reporting.		
2.C.02.06	WHST 2.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Performance Example: • Students will research and present on the importance of foot care in a diabetic clinic.		
2.D.01.03	WHST 2.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing, on addressing what is most significant for a specific purpose and audience.
Performance Example: • Students will write an essay explaining the sensory changes that occur while aging. Students will document resources using APA format.		
2.C.04.02 2.C.04.03	WHST 2.a	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that in which it precedes it to create a unified whole; include formatting (e.g. headings), graphics (e.g. figures and tables) and multimedia when useful to aiding comprehension.
Performance Example: • Students will create a diagram while comparing the similarities and differences between the uses of alarms as restraints versus conventional restraints.		
2.C.05.05	WHST 2.8	Gather relevant information from multiple authoritative print and digital sources, using, and advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard of format for citation.
Performance Example: • Students will research and write an essay on the stages of grieving.		

2.C.07.02	WHST 2. 10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline specific tasks, purposes, and audiences.
Performance Example: • Students will document daily any mental status changes or cognitive impairment noted in clients.		
2.D.01.01	WHST 2.6	Use technology, including the internet, to produce, publish, and update individual or shared writing projects in response to ongoing feedback, including anew arguments or information.
Performance Example: • Students will create a PowerPoint displaying infants' needs for the first year in life; All sources including websites must be included in the presentation.		
2.A.01.01	WHST 2.9	Draw evidence from informational text to support analysis, reflection, and research.
Performance Example: • Students will research nosocomial infections and how as a Health Care Provider we can protect patients from them.		
2.A.03.01 2.A.03.02	WHST 3.0	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Performance Example: • Students will document in table format, the differences between adult and pediatric CPR.		

Embedded Mathematics

CVTE Learning Standard Number	Math Content Conceptual Category and Domain Code Learning Standard Number	Text of Mathematics Learning Standard
2.A.02.01	G.CO.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
Performance Example: • Students will measure a wound and apply the appropriate size bandage.		
2.C.01.05, 2.C.01.07	N.Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays
Performance Example: • Students will take vital signs, a pulse for 15 seconds and convert to one minute. Students will convert Fahrenheit temperatures to Celsius.		
2.B.01.15	S.ID.1	Represent data with plots on the real number line (dot plots, histograms, and box plots)
Performance Example: • Students will record the vital signs on a graphing sheet.		
2.B.01.15 , 2.C.01.09, 2.D.01.03	S.ID.6 , N.Q.3	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Describe the effects of approximate error in measurement and rounding on measurements and on computed values from measurements. Identify significant figures in recorded measures and computed values based on the context given and the precision of the tools used to measure

Performance Example:
• Students will record a patient's height and weight on a growth chart and analyze the data accurately.

2.C.03.04, 2.C.03.11	N.Q.2	Define appropriate quantities for the purpose of descriptive modeling.

Performance Example:
• Students will empty a Foley catheter every shift and record output on intake and output sheet, calculating a 24 hour output and interpreting for dehydration.

2.C.04.01	S.ID.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

Performance Example:
• Students will determine the circumference of a calf and the length from below the knee to determine the correct elastic stocking size.

2.C.06.08	A.CED.1, A.REI.3	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

Performance Example:
• Students will calculate fluid intake in ounces and calculate amounts in milliliters. Students will also be able to determine amounts when only partial intake. Students will calculate the shift intake and output as well as the 24 hour total.

2.C.01.09	N.Q.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays

Performance Example:
• Students will compare the weekly weight of a resident over a month and determine weight gain or loss for the month.

2.D.01.05	S-CP 1	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

Performance Example:
• Students will calculate the total expense in meeting the infant's needs in the first year of life.

Embedded Science and Technology/Engineering

Life Science (Biology)

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Biology Learning Standard
2.C.06	Biology 4.1	Explain generally how the digestive system (mouth, pharynx, esophagus, stomach, small and large intestines, rectum) converts macromolecules from food into smaller molecules that can be used by cells for energy and for repair and growth.

Performance Example:
• Students will be able to state how a piece of food is digested in our body and is used for the health of our bodies.

2.C.02.15	Biology 4.5	Explain how the muscular/skeletal system (skeletal, smooth and cardiac muscles, bones, cartilage, ligaments, tendons) works with other systems to support the body and allow for movement. Recognize that bones produce blood cells.
Performance Example: • Students will draw and label the muscle arrangements of each part of the body and attach them together to construct an entire body and will describe muscle structure, locations and functions.		
2.C.01.07	SIS4	Communicate and apply the results of scientific investigations.
Performance Example: • Research vital sign changes that occur with dehydration.		
2.A.01.02	Biology 2.8	Compare and contrast a virus and a cell in terms of genetic material and reproduction.
Performance Example: • Describe the reason why a patient develops pressure ulcers and the stages of ulcer development.		
2.D.01.03 2.C.02.15 2.C.05.02	Biology A &P- 4.4.08	Recognize that the body's systems interact to maintain homeostasis. Describe the basic function of a physiological feedback loop.
Performance Example: • Students will compare and contrast the growth and development characteristics of both healthy clients and clients with congenital genetic defects. Students will base their comparison on both research and patients in the clinical setting. • Describe what benefits Range of Motion has on the cardiovascular and the musculoskeletal systems. • Describe the reason why a patient develops pressure ulcers and the stages of ulcer development.		
2.C.06.03	Chemistry- 1.1.3	Describe the three normal states of matter (solid, liquid, gas) in terms of energy, particle motion, and phase transitions.
Performance Example: • Students will explain in writing why a lactose intolerant patient must follow a therapeutic diet. Students will include the necessity of lactose breakdown, the deficiency of the enzyme lactase, and the symptoms that will occur if the patient is noncompliant with the therapeutic diet.		
2.B.01.17	BiologyA&P-4.0	
Performance Example: • Students will diagram the body planes, directional terms, quadrants and cavities in the human body.		
2.C.07.01 2.C.07.02 2.B.01.11	Biology A & P- 4.4.08	
Performance Example: • When given a written scenario the student will identify and explain the significance of signs and symptoms to be reported to the charge nurse. Signs and symptoms may include changes in mental, physical, social, and behavior issues. • Students will prepare a research paper on a disease selected from one of the body systems. The paper will include the disease, cause, diagnostic procedures, therapies, and or treatments and care. Students will include their personal reaction on how this disease impacts the patient and their family.		
2.C.01.07	Biology A & P -4.4.08	Analyze and interpret results of scientific investigations.
Performance Example: • Students will research and describe the vital sign changes that occur with dehydration.		
2.C.07.01	SIS3.	Analyze and interpret results of scientific investigations.
Performance Example: • Students will describe the changes that occur in the brain with Alzheimer's disease.		

ARTICULATION AGREEMENT

Between

Massachusetts Community Colleges

And

Massachusetts Chapter 74-Approved Secondary
Career/Vocational Technical Health Assisting Programs
Effective Date: November 13, 2014
for more information, click

http://www.masscc.org/partnerships-initiatives/voc-schools-articulation-agreements

Industry Recognized Credentials (Licenses and Certifications/Specialty Programs)

Certified Nursing Assistant	80 Hours	www.bostonredcross.org/general
Home Health Aid	50 Hours	www.mahomecareaides.com
Patient Care Technician	50 Hours	www.nhaow.com
Activity Assistant – Certified AAC	180 Hours	www.nccap.org/certification/levels/aac
EKG Technician	75 Hours	www.nhaow.com
Pharmacy Technician	100 Hours	www.nationaltechexam.org www.mass.gov/Eeohhs2
Emergency Medical Technician	140 Hours	www.mass.gov
Alzheimer's Care Provider	12 Hours	www.alz.org/MA
Medication Administration Program	30 Hours	www.medicationadministration.com
Direct Care Specialist	75 Hours	http://providers.org/pages/human-services-credentialing-program

Other

Reference Materials

- Applied Educational Systems (AES) Curriculum Resources of online lessons, assessments and activities for Healthcare

- Growth and Development- Journey across the Lifespan

- Nutrition: Nutrition and Wellness (Glencoe- McGraw Hill) Supplements Myplate.gov.

- Nursing Assistants- Overall healthcare intro Diversified Health Occupations 6th edition Louise Simmers

- Hartman 10th edition Nursing Assistant and Home Care

- Diversified Health Occupation 7th edition

- Nursing Assistant, A Nursing Process Approach 10th edition

- Successful Nursing Assistant

- Mosby Textbook for Nurse Assistants (Sorrentino)

- Health Science Career Exploration

- Medical Terminology: Medical terminology in a Flash

- Exploring Medical Language 8th edition (Myrna LaFleur Brooks and Danielle LaFleur Brooks)

- Introduction to Medical Terminology (Ann Ehrlich and Carol L. Schroeder)

- Home Health Aide: Providing Safe Home Care

- Homemaker Home Health Aide 6Th edition (Audree Spatz and Suzann Balduzzi)

- A&P: The Human Body in Health and Illness 2nd edition (Barbara Herlihy and Nancy Maebius)

- Administering Medication the Right Way (Casey Medeiros)

- Assisting Long Term Care (Gerich)

- American Heart Association BLS for Health Care Providers

- American Heart Association First Aid

- Electrocardiography for Health Care Personnel (Booth, Dios, and O'Brien)

- The Pharmacy Technician (Morton Publishing)

- Mosby Textbook for Medication Assistants (Sorrentino and Remert)

Related National, Regional, and State Professional Organizations

www.bostonredcross.org/general

www.mahomecareaides.com
www.nhaow.com
www.nccap.org/certification/levels/aac
www.nationaltechexam.org
www.mass.gov
www.alz.org/MA
www.medicationadministration.com

Nurse's Aide Registry
http://www.mass.gov/eohhs/gov/departments/dph/programs/hcq/nurse-aides/

Student Organizations

HOSA- Health Occupations Students of America www.hosa.org
Skills USA www.maskillsusa.org

Selected Websites

- http://masscis.intocareers.org/
- www.armoredpenguin.com
- www.nih.gov
- www.medicalvideos.us
- www.nlm.nih.gov/medlineplus
- www.getbodysmart.com
- www.cast.org
- www.glogster.com
- www.quizlet.com