



Vocational Technical Education Framework



Business & Consumer Services Occupational Cluster

Cosmetology (VCOSM)

CIP Code 120401

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Massachusetts Department of Elementary and Secondary Education

Office for Career/Vocational Technical Education

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Commissioner's Letter



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Mitchell D. Chester, Ed.D.
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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; Strand 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.

Appendix¹

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 Appendix² 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.

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.

Business & Consumer Services Occupational Cluster

Cosmetology Framework (VCOSM)

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.

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.

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 Infection Control and Safety

- 2.A.01 Identify, describe, and apply state laws and regulations regarding infection control and safety.
 - 2.A.01.01 Identify and apply Occupational Safety and Health Administration (OSHA) and other health and safety regulations that apply to specific tasks and jobs in the occupational area.
 - 2.A.01.02 Identify, describe and demonstrate the effective use of Material Safety Data Sheets (SDS).
 - 2.A.01.03 Identify and apply Environmental Protection Agency (EPA) and other environmental protection regulations that apply to specific tasks and jobs in the occupational area.
 - 2.A.01.04 Define, explain and follow Universal Precautions.

2.A.01 Performance Example:

- Students will identify, describe, and demonstrate safety and sanitation procedures for all services completed.

- 2.A.02 Identify and differentiate between the three levels of decontamination according to current industry and OSHA standards.
 - 2.A.02.01 Identify and describe sterilization procedures.
 - 2.A.02.02 Demonstrate disinfection procedures.
 - 2.A.02.03 Demonstrate sanitation procedures.

2.A.02 Performance Example:

- Students will identify, describe, and demonstrate professional decontamination procedures.

2.B Customer Service and Communication Skills

- 2.B.01 Greet and assist customers appropriately.
 - 2.B.01.01 Acknowledge clients in a timely manner.
 - 2.B.01.02 Demonstrate professional behavior through eye contact, hand shake, smile and appropriate introduction.
 - 2.B.01.03 Identify and describe the steps used to manage dissatisfied customers.

2.B.01 Performance Example:

- Students will demonstrate effective customer service skills and practices.

- 2.B.02 Conduct an effective client consultation.
 - 2.B.02.01 Assess and record the client's needs and preferences.
 - 2.B.02.02 Analyze the client's hair, skin, and/or nails.
 - 2.B.02.03 Employ reflective listening skills.
 - 2.B.02.04 Concur with the client on service to be performed.

2.B.02 Performance Example:

- Students will demonstrate a professional client consultation.

- 2.B.03 Perform and complete service.
 - 2.B.03.01 Ensure the client's comfort and safety throughout procedure.
 - 2.B.03.02 Meet the client's expectations.
 - 2.B.03.03 Advise the client on salon and home maintenance.
 - 2.B.03.04 Maintain accurate client records.

- 2.B.03 Performance Example:
- Students will complete a professional salon service and maintain accurate records.

- 2.B.04 Describe and demonstrate how to utilize telecommunication devices.
- 2.B.04.01 Demonstrate effective methods of communication through various technological devices.
- 2.B.04.02 Record messages accurately.

- 2.B.04 Performance Example:
- Students will demonstrate professional communication skills using technology.

2.C Marketing Products and Services

- 2.C.01 Demonstrate techniques to market products and services.
- 2.C.01.01 Demonstrate the selling process.
- 2.C.01.02 Prepare an advertising message incorporating multimedia, print and/or web based technologies.
- 2.C.01.03 Explain the qualities of good public relations.
- 2.C.01.04 Research and analyze market information.

- 2.C.01 Performance Example:
- Students will prepare an ad that will be used to sell a product or service in the salon according to market analysis.

2.D Professional Salon Business

- 2.D.01 Establish a salon's business plan.
- 2.D.01.01 Identify business regulations and laws.
- 2.D.01.02 Establish short and long term business goals.
- 2.D.01.03 Illustrate a salon's layout, and describe its functions.
- 2.D.01.04 Name and describe the types of ownership under which a business may operate.
- 2.D.01.05 Develop a mission statement or a company objective.
- 2.D.01.06 Describe how a company establishes a price structure.

- 2.D.01 Performance Examples:
- Students will research and create a business plan.
 - Students will identify a professional salons business finance structure.
 - Students will demonstrate professional conduct within a business.

- 2.D.02 Explain the management operations of a successful salon.
- 2.D.02.01 Develop a budget for a business.
- 2.D.02.02 Explain various business expenses, including staffing requirements.
- 2.D.02.03 Differentiate between hourly, commission, and booth rental salary structures.
- 2.D.02.04 Explain various ways to generate income from a business.
- 2.D.02.05 Describe appropriate cash and tip handling practices within a business.
- 2.D.02.06 Explain the importance of service, inventory and purchase records.

- 2.D.02 Performance Example:
- Students will identify a professional salons business finance structure.

- 2.D.03 Demonstrate professional conduct within a business.
- 2.D.03.01 Explain the difference between ethical values, business practices, and legal responsibility.
- 2.D.03.02 Explain the importance of both personal and professional conduct.
- 2.D.03.03 Identify strategies for improving professional conduct in specific business situations.

2.D.03 Performance Example:

- Students will demonstrate professional conduct within a business.

2.E Scalp Care, Shampooing and Conditioning

- 2.E.01 Demonstrate proper shampooing and conditioning procedures.
- 2.E.01.01 Demonstrate the appropriate draping for a basic shampoo service.
- 2.E.01.02 Analyze the hair and scalp through pre-brushing techniques.
- 2.E.01.03 Select appropriate products for hair's condition.
- 2.E.01.04 Apply shampoo and stimulate the scalp using the cushions of fingertips.
- 2.E.01.05 Clean and condition hair properly to prepare for desired service.
- 2.E.01.06 Safeguard client by continually monitoring the water temperature.
- 2.E.01.07 Rinse hair and scalp thoroughly.

2.E.01 Performance Examples:

- Students will demonstrate cleansing and conditioning techniques.

- 2.E.02 Perform hair and scalp treatment.
- 2.E.02.01 Identify and differentiate between various scalp treatments.
- 2.E.02.02 Perform treatment according to hair and scalp condition.
- 2.E.02.03 Demonstrate various scalp massage techniques.

2.E.02 Performance Example:

- Students will describe and demonstrate scalp treatments for various scalp conditions.

2.F Wet Hairstyling

- 2.F.01 Demonstrate sectioning and parting for roller placement.
- 2.F.01.01 Demonstrate the appropriate draping for a wet hairstyling service.
- 2.F.01.02 Choose roller appropriate for length of hair.
- 2.F.01.03 Part hair according to length and width of roller.
- 2.F.01.04 Explain various types of rollers.
- 2.F.01.05 Determine base to achieve proper volume.
- 2.F.01.06 Demonstrate securing rollers with clip.
- 2.F.01.07 Perform a comb out using teasing and smoothing techniques.

2.F.01 Performance Example:

- Students will demonstrate various roller setting techniques.

- 2.F.02 Create a finger wave.
- 2.F.02.01 Demonstrate combing hair in accordance to the planned style.
- 2.F.02.02 Apply waving lotion with an applicator bottle.
- 2.F.02.03 Demonstrate procedure for finding client's natural part.

- 2.F.02.04 Direct hair into C-shape.
- 2.F.02.05 Using index finger and comb shape first ridge.
- 2.F.02.06 Complete three ridges in an alternating pattern.

2.F.02 Performance Example:
 ▪ Students will complete a finger wave.

- 2.F.03 Combine use of finger waves and pin curls.
 - 2.F.03.01 Form ridge curl under last ridge of finger wave.
 - 2.F.03.02 Slice and ribbon strands to complete ridge curls.

2.F.03 Performance Example:
 ▪ Students will set the hair combining the use of finger waves and pin curls.

- 2.F.04 Demonstrate types and effects of various pin curls.
 - 2.F.04.01 Demonstrate and explain the parts of a pin curl.
 - 2.F.04.02 Demonstrate and explain the bases of pin curl.
 - 2.F.04.03 Demonstrate a sculptured curl, cascade curl and barrel curl.
 - 2.F.04.04 Perform and explain the relationship between bases and volume.

2.F.04 Performance Example:
 ▪ Students will identify and demonstrate various pin curling techniques.

2.G Blow Dry Styling

- 2.G.01 Demonstrate blow dry styling techniques.
 - 2.G.01.01 Apply appropriate styling products for the client's desired style.
 - 2.G.01.02 Demonstrate blow dry styling techniques using different shaped brushes.
 - 2.G.01.03 Safeguard client by continually monitoring the blow dry temperature.
 - 2.G.01.04 Produce a hairstyle that is completely dry from scalp to end.
 - 2.G.01.05 Complete a style that is complimentary to the client's features.

2.G.01 Performance Example:
 ▪ Students will use various products and techniques and complete a finished style that is complimentary to clients' features.

2.H Thermal Hair Styling

- 2.H.01 Perform a client consultation.
 - 2.H.01.01 Analyze the client's hair and scalp.
 - 2.H.01.02 Determine the client's desired style.
 - 2.H.01.03 Identify materials and implements (tools) necessary for the procedure.

2.H.01 Performance Example:
 ▪ Students will perform a consultation to determine the client's desired result.

- 2.H.02 Demonstrate safety while using thermal tools.
 - 2.H.02.01 Demonstrate draping for service with a non-flammable cape.
 - 2.H.02.02 Check temperature of thermal tool with white paper or towel.
 - 2.H.02.03 Place comb in between iron and scalp to prevent burns.

2.H.02 Performance Example:
 ▪ Students will demonstrate proper safety while operating thermal appliances.

- 2.H.03 Demonstrate styling hair using a pressing comb.
 2.H.03.01 Demonstrate soft, medium and hard pressing techniques.

2.H.03 Performance Example:
 ▪ Students will demonstrate the use of a pressing comb.

- 2.H.04 Demonstrate thermal curls, and identify the purpose of each.
 2.H.04.01 Demonstrate croquignole curl.
 2.H.04.02 Demonstrate spiral curl.
 2.H.04.03 Demonstrate various bases of curls, and explain their purpose.
 2.H.04.04 Demonstrate the use of Marcel and spring irons.

2.H.04 Performance Example:
 ▪ Students will demonstrate various types of thermal curls.

- 2.H.05 Demonstrate various uses of a flat iron.
 2.H.05.01 Demonstrate the use of a flat iron to achieve a smooth style.
 2.H.05.02 Demonstrate the use of a flat iron to add curl to the hair.

2.H.05 Performance Example:
 ▪ Students will curl and smooth hair using a flat iron.

2.I Braiding

- 2.I.01 Complete a professional hairstyle incorporating braiding techniques.
 2.I.01.01 Drape client.
 2.I.01.02 Demonstrate sectioning used for braiding.
 2.I.01.03 Demonstrate a visible braid.
 2.I.01.04 Demonstrate an invisible braid.
 2.I.01.05 Identify various braiding techniques (e.g., rope, fishtail, single braids, cornrows and braid extensions).

2.I.01 Performance Example:
 ▪ Students will perform various braiding techniques.

2.J Hair Removal

- 2.J.01 Explain, identify and perform various hair removal services.
 2.J.01.01 Conduct an appropriate client consultation prior to waxing service.
 2.J.01.02 Describe three methods of permanent hair removal (e.g., laser, electrolysis, and photo epilation).
 2.J.01.03 Describe various methods of temporary hair removal (e.g., tweezing, waxing, sugaring, and threading).
 2.J.01.04 Demonstrate eyebrow tweezing.
 2.J.01.05 Demonstrate facial waxing (e.g., upper lip and eyebrow).
 2.J.01.06 Research and identify other industry trends for hair removal procedures.

2.J.01 Performance Examples:
 ▪ Students will perform an eyebrow wax service in accordance to the client's desired shaping.
 ▪ Students will design the eyebrows using tweezers, in accordance to the client's desired shaping.

2.K Facial Treatment

- 2.K.01 Perform a professional facial treatment.

- 2.K.01.01 Drape client for facial procedure.
- 2.K.01.02 Perform and explain the importance of skin analysis and client consultation.
- 2.K.01.03 Select products for skin type.
- 2.K.01.04 Demonstrate and describe the three massage manipulations.
- 2.K.01.05 Follow all safety measures throughout the facial procedure to prevent cross-contamination.

2.K.01 Performance Example:
 ▪ Students will cleanse skin using appropriate products and proper techniques.

2.L Makeup Application

- 2.L.01 Perform a professional makeup application.
 - 2.L.01.01 Drape client for makeup application.
 - 2.L.01.02 Demonstrate and explain the importance of cosmetic color theory.
 - 2.L.01.03 Perform a makeup application for any occasion.
 - 2.L.01.04 Identify different facial types and demonstrate the procedure for corrective makeup.
 - 2.L.01.05 Follow all safety measures throughout makeup application to prevent cross-contamination.

2.L.01 Performance Example:
 ▪ Students will prepare skin prior to makeup application.
 ▪ Students will perform a basic makeup application.

2.M Nail Care

- 2.M.01 Perform professional nail services.
 - 2.M.01.01 Follow all safety and infection control procedures for manicuring.
 - 2.M.01.02 Analyze nails prior to service.
 - 2.M.01.03 Set-up manicure table.
 - 2.M.01.04 Demonstrate various hand and nail conditioning services.
 - 2.M.01.05 Follow appropriate procedures for treating nails and cuticles.
 - 2.M.01.06 Perform a hand and arm massage.
 - 2.M.01.07 Apply polish.

2.M.01 Performance Example:
 ▪ Students will shape, condition, and polish nails to satisfaction of client.

- 2.M.02 Perform a pedicure.
 - 2.M.02.01 Set-up equipment and implements.
 - 2.M.02.02 Follow appropriate procedures for treating toe nails and cuticles.
 - 2.M.02.03 Perform a foot and leg massage.
 - 2.M.02.04 Apply polish.

2.M.02 Performance Example:
 ▪ Students will shape, condition, and polish the toenails to satisfaction of client.

- 2.M.03 Apply nail enhancements.
 - 2.M.03.01 Identify and demonstrate various nail enhancement techniques.
 - 2.M.03.02 Research and identify current industry trends for nail enhancements.

2.M.03 Performance Example:
 ▪ Students will identify and demonstrate various nail enhancement techniques.

2.N Hair Shaping

- 2.N.01 Identify materials and implements needed to perform various haircuts.
 2.N.01.01 Identify and demonstrate the use of clippers and trimmers.
 2.N.01.02 Demonstrate safety and handling of all tools.

2.N.01 Performance Example:
 ▪ Students will demonstrate and differentiate between the implements used in hair shaping.

- 2.N.02 Identify and describe sectioning techniques.
 2.N.02.01 Explain the importance of anatomy as it relates to hair shaping.
 2.N.02.02 Recognize reference points on the head and understand their role in haircutting.
 2.N.02.03 Explain and demonstrate the importance of neat, uniform partings, sections, and subsections.

2.N.02 Performance Example:
 ▪ Students will create precise sections that are needed in hair cutting.

- 2.N.03 Explain the importance of guidelines and the various techniques used to achieve a design.
 2.N.03.01 Differentiate between traveling and stationary guidelines.
 2.N.03.02 Differentiate between horizontal, vertical, and diagonal lines.
 2.N.03.03 Explain and describe how different elevations and over direction determine different results.

2.N.03 Performance Example:
 ▪ Students will describe and demonstrate how guidelines and elevations affect a haircut.

- 2.N.04 Identify and perform different types of haircuts.
 2.N.04.01 Perform a one length, zero degree blunt haircut.
 2.N.04.02 Perform a 45 degree, graduated layered haircut.
 2.N.04.03 Perform a 90 degree, uniform layered haircut.
 2.N.04.04 Perform a 180 degree, long layered haircut.
 2.N.04.05 Perform a basic haircut using a razor.
 2.N.04.06 Perform haircutting techniques using clippers.

2.N.04 Performance Example:
 ▪ Students will complete both men's and women's haircuts using various hair shaping techniques.

- 2.N.05 Discuss and explain different texturizing techniques.
 2.N.05.01 Explain and demonstrate different techniques used to remove bulk or weight from a design.

2.N.05 Performance Example:
 ▪ Students will explain and demonstrate different texturizing techniques.

2.0 Hair Coloring

- 2.0.01 Prepare for various hair color services.
 2.0.01.01 Demonstrate safety and sanitation practices throughout service.
 2.0.01.02 Perform a patch test.
 2.0.01.03 Read and follow manufacturer's directions.
 2.0.01.04 Drape client for a chemical service.

2.0.01 Performance Example:
 ▪ Students will perform a hair coloring service according to the client's needs and expectations.

- 2.0.02 Differentiate among the various classifications of hair color.
- 2.0.02.01 Define temporary hair color.
 - 2.0.02.02 Define semi and demi permanent hair color.
 - 2.0.02.03 Define permanent hair color.
 - 2.0.02.04 Research and identify other industry trends for dimensional hair coloring techniques.

2.0.02 Performance Example:

- Students will be able to differentiate between the various classifications of hair color.

- 2.0.03 Formulate hair color for desired result.
- 2.0.03.01 Conduct a client consultation.
 - 2.0.03.02 Analyze hair for level, tone and condition.
 - 2.0.03.03 Explain the principles of color theory for formulation.
 - 2.0.03.04 Perform a preliminary strand test.

2.0.03 Performance Example:

- Students will explain and demonstrate proper color formulation.

- 2.0.04 Perform professional hair color application techniques.
- 2.0.04.01 Perform a virgin application.
 - 2.0.04.02 Perform a retouch application.
 - 2.0.04.03 Demonstrate knowledge of corrective hair color.

2.0.04 Performance Example:

- Students will perform various types of hair color application.

- 2.0.05 Demonstrate knowledge of double-process hair coloring.
- 2.0.05.01 Differentiate between on-the scalp and off the scalp lighteners.
 - 2.0.05.02 Apply a toner.

2.0.05 Performance Example:

- Students will demonstrate knowledge of double-process hair coloring.

- 2.0.06 Perform special effects highlighting.
- 2.0.06.01 Perform a foil highlight.
 - 2.0.06.02 Perform a cap highlight.

2.0.06 Performance Example:

- Students will perform special effects highlighting.

- 2.0.06.03 Perform balayage.
- 2.0.06.04 Perform slicing and weaving techniques.

- 2.0.07 Maintain accurate records.
- 2.0.07.01 Record client information in an accurate and timely manner.

2.0.07 Performance Example:

- Students will maintain client records.

2.P Permanent Waving

- 2.P.01 Perform a professional permanent waving service.
- 2.P.01.01 Conduct a hair analysis and client consultation.

- 2.P.01.02 Drape client for permanent wave service.
- 2.P.01.03 Identify and define texture, porosity, elasticity and density as it relates to permanent waving.
- 2.P.01.04 Determine appropriate rod size for desired results.
- 2.P.01.05 Perform neat and clean partings for sections and subsections.
- 2.P.01.06 Demonstrate even and smooth winding techniques.
- 2.P.01.07 Demonstrate various wrapping procedures: straight wrap, double tool wrap [i.e., piggyback], bookend, and spiral wrap.
- 2.P.01.08 Apply protective cream and cotton.
- 2.P.01.09 Demonstrate application of permanent waving solution.
- 2.P.01.10 Perform a test curl.
- 2.P.01.11 Demonstrate neutralizing techniques.
- 2.P.01.12 Record client information in an accurate and timely manner.

2.P.01 Performance Example:

- Students will complete a permanent waving service accordance to the clients' needs and expectations.

2.Q Chemical Relaxing and Smoothing Techniques

- 2.Q.01 Perform a client consultation for chemical relaxing.
 - 2.Q.01.01 Analyze the client's hair and scalp.
 - 2.Q.01.02 Identify texture, porosity, elasticity and density as it relates to chemical relaxing.
 - 2.Q.01.03 Determine the client's desired outcome.
 - 2.Q.01.04 Differentiate between the various types of relaxers.
 - 2.Q.01.05 Identify materials and implements necessary for procedure.
 - 2.Q.01.06 Demonstrate draping for service.
 - 2.Q.01.07 Prepare hair for hair relaxing method to be used.

2.Q.01 Performance Example:

- Students will perform a client consultation prior to completing a chemical relaxer.

- 2.Q.02 Perform a professional relaxer service.
 - 2.Q.02.01 Read and follow the manufacturer's directions for hair relaxing products.
 - 2.Q.02.02 Demonstrate sectioning.
 - 2.Q.02.03 Apply a protective cream on client.
 - 2.Q.02.04 Apply a relaxer and perform spreading method with brush, comb, and fingers.
 - 2.Q.02.05 Perform a virgin relaxer.
 - 2.Q.02.06 Perform a retouch relaxer.
 - 2.Q.02.07 Demonstrate a test strand.
 - 2.Q.02.08 Demonstrate neutralizing techniques.
 - 2.Q.02.09 Record client information in an accurate and timely manner.
 - 2.Q.02.10 Research and identify other industry trends for smoothing and relaxing hair.

2.Q.02 Performance Example:

- Students will complete a chemical relaxer in accordance with the client's needs and expectations.

2.R Wigs and Hair Enhancements

- 2.R.01 Perform a client consultation for wigs and hair enhancements.

- 2.R.01.01 Determine type of need (e.g., hair loss, fashion, photo shoot, theatrical, etc.).
- 2.R.01.02 Measure the client's head for a custom fit wig.
- 2.R.01.03 Identify materials and implements necessary for procedure.
- 2.R.01.04 Identify types of wigs (i.e. natural, synthetic, cap, capless).
- 2.R.01.05 Identify types of enhancement (i.e. fashion hair pieces, track and sew method, bonding method, fusion method).
- 2.R.01.06 Arrange necessary implements and supplies on work area.
- 2.R.01.07 Demonstrate proper draping for service.
- 2.R.01.08 Analyze the client's hair and scalp.
- 2.R.01.09 Prepare hair for method being used.
- 2.R.01.10 Record client information.

2.R.01 Performance Examples:

- Students will achieve the desired look using a proper fitting wig.
- Students will measure client for custom fit.

2.R.02 Demonstrate knowledge of wrapping techniques.

- 2.R.02.01 Mount wig in appropriate block size to fit.
- 2.R.02.02 Secure wig on mount with t-pins at temples, above each ear and each corner of nape.

2.R.02 Performance Examples:

- Students will demonstrate knowledge of wrapping techniques.

2.R.03 Identify various extension techniques.

- 2.R.03.01 Explain bonding techniques.
- 2.R.03.02 Explain fusing methods.
- 2.R.03.03 Explain beading techniques.

2.R.03 Performance Examples:

- Students will identify and demonstrate various extension techniques.

Strand 3: Embedded Academics

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, retirement and 401K.

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.

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. B Performance Examples:

- Read and analyze technical instructions to learn what makes them effective.
- Read and analyze technical instructions to follow directions and/or solve a problem.
- Examine a technical document and use it to write a set of instructions for another student to follow and evaluate.
- Analyze websites for effective technical writing and design.
- Create brochures and presentations using software and/or Web 2.0 tools to convey technical information.
- Conduct research using the Internet, print documents, observations and interviews to create a technical guide.

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.

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.

5.E Performance Example:

- Read and interpret a contract.
- Complete an application for a license, permit or certificate.
- Research federal, state and local regulations and laws required for a business.
- Participate in and summarize a discussion with a member of a labor or civil rights organization.

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

Chain of Command and Organizational Structure

**Definition**

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.

Academic Crosswalks: English Language Arts and Literacy

RELATED 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.02, 2B.04, 2.F.02, 2.F.03, 2.F.07, 2.K.01.02	SL 4 Grades 9 - 10	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
Performance Example: In a group “customer satisfaction” project, students will role play satisfactory client consultations and other appropriate customer service skills that demonstrate active and reflective listening, paying special attention to the client’s individual aesthetic preferences.		
2.B.03, 2.B.04, 2.I	WHST 2 Grades 9 -10 (a – e)	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
Performance Example: Students will accurately answer open response questions on salon and hairstyling procedures, demonstrating an understanding of client’s hairstyle preferences and outcomes.		
2.B.04, 2I,	WHST 4 Grades 9 -10	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Performance Example: Considering audience and task, students will write clearly and effectively about business and technical procedures, utilizing domain specific vocabulary and phrases.		
2.B.04	WHST 6 Grades 9 -10	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
Performance Example: Students will utilize technology in the career area setting to accurately and efficiently record various salon services.		
2.C.01.02, 2.D.02, 2.D.04, 2.D.01.04, 2.D, 2.J.06, 2.N.01.01,	WHST 2 Grades 11 – 12 (a – e)	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

2.N.02.02, 2.N.05, 2.O.08, 2.Q.11, 2.R.08		
Performance Example: Students will research and describe, using domain specific vocabulary and phrases, the most recent trends in business and professional salon services to demonstrate an understanding of how this attention to detail contributes to a stylist's and salon's success.		
2.C.01.03, 2.Q.11, 2.Q.12, 2.R.07, 2.R.08,	WHST 6 Grades 11 -12	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Performance Example: Students will enter various texts into technology to produce clear and understandable documents.		
2.C.01.03, 2.C.01.05, 2.D.03, 2.D.04, 2.Q.12, 2.R.07	WHST 7 Grades 11 - 12	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 understanding of the subject under investigation.
Performance Example: Students will research and report on immediate industry trends presenting their findings in a multimedia power point presentation.		
2.C.01.01, 2.C.01.04,2.J, 2.N, 2.O, 2.P, 2.Q	L 6 Grades 11 -12	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
Performance Example: Students will accurately use domain specific words and phrases when describing to clients, and/or instructors/peers, various business procedures, complex technical procedures or advanced technical techniques.		
2.D.04, 2.D, 2.M.01, 2.O.09	WHST 8 Grades 11 - 12	Gather relevant information from multiple authoritative print and digital sources, using 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 format for citation.
Performance Example: Students will research and write a 10 percent summary on their findings focusing on a variety of ethical business practices and procedures utilizing instructional manuals, articles, text books, and websites while paying attention to accuracy in laws and state regulations.		

2.D.01, 2.D.03, 2.D.04, 2.O.01.02, 2.P.11, 2.Q.04	RST 2 Grades 11 -12	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
Performance Example: Students will read about and briefly summarize various technical and professional processes.		
2.E.01, 2.D, 2.J, 2.O.02, 2.P.02, 2.Q.01.03, 2.R.01	SL 4 Grades 11 - 12	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
Performance Example: Working in groups, students will role play various salon procedures that involve managerial problem solving strategies including, but not limited to, client discussions in which the pros and the cons of various salon services are presented in an effort to help clients make informed aesthetic decisions on a variety of services.		
2.D	SL 2 Grades 11 - 12	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
Performance Example: Students will orally site to the instructor or in a class a demonstration, the professional process followed in order to make informed decisions in business finance, professional meetings and in setting professional goals.		
2.D, 2.J.02, 2.J.03, 2.J.06, 2.M.03 – 2.M.06, 2.N.04, 2.N.05, 2.O.09, 2.Q.11, 2.R.08	WHST 4 Grades 11 - 12	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
Performance Example: Students will write a multi-paragraph essay on a complex multistep process, using domain specific words and phrases, demonstrating knowledge of the specific details of the more complex technical procedures within these processes.		
2.D	WHST 5 Grades 11 - 12	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 create and revise over a period of time professional logs and/or journals that		

reflect individual career goals, and develop an understanding of a variety of professional practices.		
2.D	WHST 10 Grades 11 - 12	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 continue to update professional logs and/or journals as they develop and strengthen more professional and technical skills over time.		
2.D, 2.L.04, 2.L.05	RST 7 Grades 9 -10	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
Performance Example: Students will read and view a variety of instructional manuals and videos to answer a question that solves a problem within a technical task and/or business situation.		
2.D, 2.N, 2.O, 2.Q.02, 2.R.03	RST 4 Grades 11 - 12	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 11–12 texts and topics</i> .
Performance Example: Students will read technical texts and reports and record 2 column notes on domain specific words and phrases.		
2.D	SL 5 Grades 11 - 12	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
Performance Example: Students will orally present their findings pertinent to business finance, strategies, plans and approaches in a power point or smart board presentation comparing and contrasting different approaches to maintain a professionally lucrative career.		
2.D	SL 3 Grades 11 - 12	Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
Performance Example: Using a debate activity, students will practice listening and engaging in diplomatic responses, using professional language and ethically sound reasoning.		
2.D.03, 2.J.06	RST 8 Grades 11 -12	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
Performance Example: Students will research “current” strategies and trends for improving professional conduct in business and salon procedures and present these findings using a top down web or other graphic organizer.		

2.E.01, 2.H.08, 2.I.01.01,	RST 3 Grades 6 -8	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
Performance Example: Students will read textbook procedures and perform basic technical tasks accurately.		
2.E.02, 2.F, 2.G, 2.H.02- 07, 2.I.01.02 -05, 2.K, 2.L, 2.M.01 – 05, 2.O.01	RST 3 Grades 9 -10	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
Performance Example: Students will read technical manuals, texts, and documents and accurately perform more complex technical tasks taking into account special situations and aesthetic preferences of the client.		
2.E, 2.F, 2.H, 2.I, 2.K	L 6 Grades 9- 10	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
Performance Example: Students will use domain specific words and phrases accurately when performing technical tasks/procedures in the career area setting, whether working with clients, models, classmates or instructors.		
2.I, 2.L.02, 2.L.03, 2.L.04,	RST 4 Grades 9 - 10	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 9–10 texts and topics</i> .
Performance Example: Students will use a Venn diagram, or another graphic organizer, to identify various similarities and differences in technical techniques and tasks.		
2.J, 2.M.06, 2.N, 2.O.03, 2.O.04, 2.P, 2.Q, 2.R	RST 3 Grades 11 -12	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
Performance Example: Students will follow a variety of complex multistep procedures, taking into special considerations customer safety and satisfaction.		
2.J.06, 2.C.05, 2.M.06.02,	W 7 Grades 11 -12	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 understanding of the subject under investigation.

Performance Example: Students will create and research a question focusing on current industry trends, then demonstrate knowledge of the subject matter utilizing power point or other technology (i.e., video presentation).		
2.J.06, 2.C.05, 2.M.06.02	W 8 Grades 11 - 12	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the 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 format for citation.
Performance Example: Students will accurately document research using works cited pages, bibliographies and/or in text citations.		
2.N.03.01 - 2.N.03.04, 2.N.05.01, 2.O.05,	RST 9 Grades 11 - 12	Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
Performance Example: Students will read various texts on the variety of tools and techniques of the trade, and create a semantic web that demonstrates the understanding that different procedures and tools produce unique results.		

Academic Crosswalks: Mathematics

RELATED MATHEMATICS		
CVTE Learning Standard Number	Math Content Conceptual Category Code Domain Code Learning Standard Number	Text of Mathematics Learning Standard
2.A	G-MG MA.4	Use dimensional analysis for unit conversions to confirm that expressions and equations make sense.
	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.
	6.RP 1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
	6.RP 2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

Performance Example: Students will identify, describe, and demonstrate safety and sanitation procedures including the mixing of solutions whose components are stated in different units of measure.		
2.C	6.RP 1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
	6.RP 2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ $b \neq 0$, and use rate language in the context of a ratio relationship.
	6.RP 3.c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
Performance Example: Students will prepare an ad that will be used to sell a product or service in the salon according to market analysis. Include unit pricing and price comparisons.		
2.D	7.RP 3	Use proportional relationships to solve multi-step ratio and percent problems.
	7.G 1	Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
	6.RP 3.c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
Performance Example: Students will research and create a business plan including a salon layout and pricing structure for goods and services.		
2.D	8.EE 8.c	Solve real-world and mathematical problems leading to two linear equations in two variables.
	6.RP 3.c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
Performance Example: Students will identify a professional salon's business finance structure.		
2.F	G-CO 1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
	4.MD 6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
Performance Example: Students will complete a roller set that incorporates roller, pin curls, and finger waves.		

2.G, 2.H, 2.I	4.MD 6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
	4.G 3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
	G-CO 1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
Performance Examples: <ul style="list-style-type: none"> Using various products and techniques, students will complete a finished style that is complimentary to client's features. Students will finish hairstyle using thermal iron and appropriate base. Students will perform appropriate sectioning and techniques to achieve various types of braiding. 		
2.J	G-CO 1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
	4.G 3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
Performance Example: Students will perform an eyebrow wax service in accordance to the client's desired shaping.		
2.K, 2.L	G-CO 1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
	4.G 3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
	6.RP 1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
	K.G 2	Correctly name shapes regardless of their orientations or overall size.
Performance Example: Students will perform proper makeup application techniques including contouring.		
2.M	3.MD 4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.
	4.G 3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

	G-CO 1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
Performance Example: Students will shape, condition, and polish nails to satisfaction of client.		
2.N	G-CO 1 4.MD 6 4.G 3 3.MD 4	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.
Performance Example: Students will perform various haircuts incorporating 0-degree, 45-degree, 90-degree, and 180-degree cuts.		
2.O	7.RP 3 G.MG 2 4.G 3 G-CO 1	Use proportional relationships to solve multi-step ratio and percent problems. Apply concepts of density based on area and volume in modeling situations (e.g., hairs per square inch). Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
Performance Example: Students will conduct a hair coloring service according to the client's expectations.		
2.P	4.MD 6 4.G 1	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. Know precise definitions of angle, circle, perpendicular line,

	G-CO 1	parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
Performance Example: Students will conduct a permanent waving service in accordance with the client's needs and expectations.		
2.Q	<p>7.RP 3</p> <p>G.MG 2</p> <p>G-CO 1</p> <p>4.G 3</p>	<p>Use proportional relationships to solve multi-step ratio and percent problems.</p> <p>Apply concepts of density based on area and volume in modeling situations (e.g., hairs per square inch).</p> <p>Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</p> <p>Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>
Performance Example: Students will conduct a chemical relaxer in accordance with manufacturer directions.		
2.R	<p>G.MG 2</p> <p>G-CO 1</p> <p>4.G 3</p> <p>3.MD 4</p>	<p>Apply concepts of density based on area and volume in modeling situations (e.g., hairs per square inch).</p> <p>Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</p> <p>Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p> <p>Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.</p>
Performance Example: Students will perform measurements and calculations to properly fit a wig or complete a hair enhancement.		

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
2A	Biology 9-10	2.2- Compare and contrast, at the cellular level, prokaryotes and eukaryotes (general structures and degrees of complexity).
Performance Examples: <ul style="list-style-type: none"> Students will identify, describe, and demonstrate safety and sanitation procedures for all services completed. Students will mix and measure chemicals safely and effectively. 		
2.M	Biology 9-10	4.2 Explain how the circulatory system (heart, arteries, veins, capillaries, red blood cells) transports nutrients and oxygen to cells and removes cell wastes.
Performance Example: <ul style="list-style-type: none"> Students will shape, condition, and polish nails to satisfaction of client. 		
2.M-2.N	Biology 9-10	4.5 - Explain how the muscular/skeletal system (skeletal, smooth and cardiac muscle, bones, cartilage, ligaments, tendons) works with other systems to support and allow for movement. Recognize that bones produce both red and white blood cells.
Performance Examples: <ul style="list-style-type: none"> Students will shape, condition, and polish nails to satisfaction of client. Students will demonstrate and differentiate between the implements used in hair shaping. Students will complete both men's' and women's haircuts using various hair shaping techniques, while identifying the relation to human anatomy. 		
2.O	Biology 9-10	1.2 -Describe the basic molecular structures and primary functions of the 4 major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).
Performance Examples: <ul style="list-style-type: none"> Students will perform a hair coloring service according to the client's needs and expectations. Students will demonstrate knowledge of color theory and processing. 		
2.O	Biology 9-10	1.3 - Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors such as pH and temperature that have an effect on enzymes.
Performance Examples: <ul style="list-style-type: none"> Students will perform a hair coloring service according to the client's needs and expectations. Students will demonstrate knowledge of color theory and processing. 		

Physical Science (Chemistry)

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Chemistry Learning Standard
2.E	Chemistry 11-12 7.5	Identify the factors that affect the rate of a chemical reaction (temperature, mixing, concentration, particle size, surface area, catalyst).
Performance Examples: <ul style="list-style-type: none"> Students will demonstrate cleansing and conditioning techniques. 		

<ul style="list-style-type: none"> Students will describe and demonstrate scalp treatments for various scalp conditions. 		
2.E	Chemistry 11-12 7.1	Describe the process by which solutes dissolve in solvents.
Performance Examples: <ul style="list-style-type: none"> Students will demonstrate cleansing and conditioning techniques. Students will describe and demonstrate scalp treatments for various scalp conditions. Students will identify and implement the PH scale as it pertains to shampoo. 		
2.E, 2.P	Chemistry 11-12 8.2	Relate hydrogen ion concentrations to the pH scale, and to acids, basic, and neutral solutions. Compare and contrast the strength of various common acids and bases such as vinegar, baking soda, soap, and citrus juice.
Performance Examples: <ul style="list-style-type: none"> Students will demonstrate cleansing and conditioning techniques. Students will describe and demonstrate scalp treatments for various scalp conditions. Students will complete a permanent waving service accordance to clients' needs and expectations. 		
2.E	Chemistry 11-12 8.2	Explain how a buffer works.
Performance Examples: <ul style="list-style-type: none"> Students will demonstrate cleansing and conditioning techniques. Students will describe and demonstrate scalp treatments for various scalp conditions. 		
2.H, 2.O, 2.Q	Chemistry 11-12 1.1	Identify and explain physical properties (e.g. Density, melting point, boiling point, conductivity, malleability) and chemical properties (e.g. The ability to form new substances). Distinguish between chemical and physical changes.
Performance Examples: <ul style="list-style-type: none"> Students will create a hairstyle using thermal curling, and smoothing techniques. Students will perform a hair coloring service according to the client's needs and expectations. Students will complete a chemical relaxer in accordance with the client's needs and expectations. 		
2.O	Chemistry 11-12 1.2	Explain the difference between pure substances (elements and compounds) and mixtures. Differentiate heterogeneous and homogeneous mixtures.
Performance Examples: <ul style="list-style-type: none"> Students will perform a hair coloring service according to the client's needs and expectations. Students will prepare hair color mixture for service. 		
2.R	Chemistry 11-12 2.3	Compare and contrast nuclear fission and nuclear fusion.
Performance Examples: <ul style="list-style-type: none"> Students will achieve the desired look using a proper fitting wig. Students will measure client for custom fit. 		

DESE Statewide Articulation Agreements

No Statewide Articulation Agreements at this time.

Industry Recognized Credentials (Licenses and Certifications/Specialty Programs)

The following frameworks are to be implemented as guidelines for each school's curriculum. Advanced objectives have been added to meet current industry trends. These objectives may be introduced into individual curriculums once the Massachusetts State Board of Cosmetology's mandated 1,000 hour licensure course material has been covered. The grid below dictates the current hours needed in both practical and theory instruction:

NOTE: All students must complete 500 hours of basic instruction in Cosmetology before using chemicals of any kind.

Schedule of Hours	
Manicuring (including 12.5 hrs. of Artificial Nail Techniques)	50
Hair Straightening and Permanent Waving	250
Shampooing	25
Finger Waving	50
Marcelling and All Iron Curls	45
Skin Care/Facial Grooming	80
Wig Instruction and Scalp Treatments	50
Dyes and Bleaching (packs, tints, rinses, reconditioning)	150
Hair Cutting	125
Oral, Written and Practical Tests, Sterilization, Hygiene and Anatomy	125
Instruction and Lecture on Sanitation	25
Ethics, Salesmanship, Courtesy and Conduct	25
Unassigned Hours	None
Total:	1,000

Students enrolled in a Chapter-74 Cosmetology program are eligible to complete the required 1000 hours necessary to sit for the state exam and, upon successful completion, will be able to obtain a Registered Operators license (basic hairdressing license) in the State of Massachusetts. Additional licenses may be obtained within the Cosmetology field with further education including:

Board Code	Type Class	License Type	Renewal Fee	Educational Requirements	Renewal Frequency
HD	1	Registered Cosmetologist	\$68.00	2 years experience as Registered operator	Biennial (2 years)
HD	2	Registered Operator	\$68.00	1000 hours at a Cosmetology school	Biennial (2 years)
HD	3	Registered Manicurist	\$68.00	100 hours	Biennial (2 years)
HD	4	Registered Instructor	\$68.00	2 years experience and Registered cosmetologist	Biennial (2 years)
HD	5	Registered Demonstrator	\$68.00	Birthday	Biennial (2 years)
HD	6	Registered Aesthetician I	\$68.00	300 hours	Biennial (2 years)
HD	7	Registered Aesthetician II	\$68.00	2 years experience as Registered Aesthetician I	Biennial (2 years)
HD	8	Aesthetician Instructor	\$68.00	Aesthetician II	Biennial (2 years)
HS	1	Cosmetology Salon	\$82.00	Registered Cosmetologist License	Biennial (2 years)
HS	2	Booth Shop	\$82.00	Registered Cosmetologist License	Biennial (2 years)
HS	3	Manicuring Shop	\$82.00	Registered manicurist	Biennial (2 years)
HS	4	Booth Renter	\$82.00	Registered Cosmetologist License	Biennial (2 years)

Other industry recognized credentials include:

- Occupational Safety and Health Administration (OSHA) and Careersafe certification
- Industry specific certification programs including but not limited to:
 - OPI, Creative Nail Design
 - Advanced hair coloring and cutting techniques offered through professional distributors.
 - Cinderella Extension certification program

Other

Reference Materials

- 2012 Milady Standard Cosmetology, 1st edition
Milady ISBN: 10-1439059306
ISBN: 13-978143905 9302
1040 pages, 2012- Published
- 2008 Milady Standard Cosmetology, 1st edition
Milady ISBN-13 9781418049355
960 pages, 2008- Published
- Trade specific technique videos from various distributors.
- Career Safe and OSHA training
- Massachusetts State Board of Cosmetology
- 2012 Milady Standard Cosmetology, 1st edition
Milady ISBN: 10-1439059306
ISBN: 13-978143905 9302
1040 pages, 2012- Published
- 2008 Milady Standard Cosmetology, 1st edition
Milady ISBN-13 9781418049355
960 pages, 2008- Published

Related National, Regional, and State Professional Organizations

- NCA- National Cosmetology Association
- MVA- Massachusetts Vocational Association
- MAVA- Massachusetts Association of Vocational Administrators
- SkillsUSA

Student Organizations

- Skills USA www.maskillsusa.org –Massachusetts SkillsUSA- www.maskillsusa.org

Selected Websites

- Massachusetts State Board of Cosmetology- www.mass.gov
- American Association of Cosmetology Schools- www.beautyschools.org
- National Accrediting Commission of Career Arts & Sciences- www.NACCAS.org
- Beauty Job- www.beautyjobs.com
- Professional Beauty Association- www.probeauty.com
- Pearson VUE- www.pearsonvue.com
- Milady Online Licensing Preparation Program- www.miladyonline.cengage.com
- OSHA/CareerSafe- www.careersafeonline.com www.ehso.com
- Behind the Chair- www.behindthechair.com
- Scissor Boy- www.scissorboy.com
- Matrix Professional- www.matrix.com
- Creative Nail Design- www.cnd.com
- Modern Salon: www.modernsalon.com