Vocational Technical Education Framework

&

Education Occupational Cluster

Early Education and Care (VEEC)

CIP Code 131210

June 2014

This document was prepared by the
Massachusetts Department of Elementary and Secondary Education
Mitchell D. Chester, Ed.D.
Commissioner

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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; Stand Two and Strand Six, revised with current, rigorous, relevant standards. Strand Three has been redesigned into a crosswalk which directly correlates academic and technical standards. An appendix of useful material for technical teachers recommended by their peers was added to each framework.

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

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

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

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

The Strand Four Team revised the Employability Knowledge and Skills that <u>all</u> 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 <u>all</u> 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.

<u>Organization and Key Changes</u>

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.

<u>Highlights of Changes to the Vocational Technical Education Frameworks:</u>

<u>Strand One</u>:

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

<u>Strand Two</u>:

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.

<u>Appendix</u>[1]

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

The Appendix[2] contains:

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

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

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

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

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 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.

Education Occupational Cluster

Early Education and Care Framework (VEEC)

Strand 1: Safety and Health Knowledge and Skills

1.A**Fundamentals of Health and Safety**

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

1.A.01.01Identify, 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.01.02Identify, 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.01.03Identify, 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.01.04Explain procedures for documenting and reporting hazards to appropriate authorities.

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

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

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1. A.01Performance 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.02Demonstrate appropriate health and safety practices based on the specific occupational area.

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

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

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

1.A.02.04Demonstrate safe dress and use of relevant safety gear, personal protective equipment (PPE) and ergonomics, e.g., wrist rests, adjustable workspaces,

equipment, gloves, proper footwear, earplugs, eye protection and breathing apparatus.

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

1.A.02.06 Locate emergency equipment, first aid kit, SDS information directories and emergency action/response plan/escape routes in your lab, shop and classroom, including labels and signage that follow OSHA Hazard Communication Program (HAZCOM), eyewash stations, shower facilities, sinks, fire extinguishers, fire blankets, telephone, master power switches and emergency exits.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Selected Websites

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

Strand 2: Technical Knowledge and Skills

2.A   Safety Practices and the Learning Environment

2.A.01   Establish and maintain a safe learning environment.

    2.A.01.01   Explain appropriate safety practices to prevent injury to children.

    2.A.01.02   Ensure that the indoor and outdoor play areas and equipment are safe and in good repair.

    2.A.01.03   Explain safety precautions in a manner that reassures children.

    2.A.01.04   Maintain a current list of phone numbers for contacting parents/guardians.

    2.A.01.05   Communicate emergency information and procedures using age-appropriate language and tools.

    2.A.01.06   Maintain the contents of mandated first aid kit.

    2.A.01.07   Apply developmentally appropriate supervision.

    2.A.01.08   Maintain industry required safety certifications such as First Aid and CPR/AED.

> **2.A.01   Performance example**
> - Write a letter to parents/guardians explaining the pick-up policy of the center. Create the form that documents parental authorization for pick-up.

2.A.02   Establish and maintain a healthy learning environment.

    2.A.02.01   Assist children in developing and maintaining physical and mental health.

    2.A.02.02   Inspect environment for adequate ventilation and lighting, comfortable room temperatures, and appropriate sanitation.

    2.A.02.03   Identify procedures for maintaining health records and administering medications and first aid.

    2.A.02.04   Identify symptoms of abuse and neglect.

    2.A.02.05   Communicate children's unusual or atypical behaviors and physical symptoms to staff.

> **2.A.02   Performance Example:**
> - Deliver an oral presentation to families regarding a health and safety topic such as healthy eating habits, developmentally appropriate physical activities, or communicable diseases.

2.A.03   Establish and maintain a high quality learning environment.

    2.A.03.01   Design space into identifiable learning or activity areas that encourage appropriate and independent use of materials.

    2.A.03.02   Plan a balance of active and quiet, free and unstructured, individual and group, and indoor and outdoor activities.

    2.A.03.03   Facilitate spontaneous, child initiated activities in order to support emergent curriculum.

    2.A.03.04   Analyze individual, small and large group activities to implement modifications as appropriate.

    2.A.03.05   Facilitate routines (mealtimes, toileting, naps, transitions, and clean-up) that support children's individual needs.

    2.A.03.06   Take advantage of teachable moments.

    2.A.03.07   Facilitate responsive relationships between adults and children and among children.

> 2.A.03   Performance Example:
> - Work as a member of a team to design an early childhood classroom, including appropriate square footage. Include an office, bathroom, appropriate flooring, and developmentally appropriate learning centers.

2.A.04*   Research and develop a health care policy for a learning center.

2.B   Growth/Development and Curriculum
2.B.01   Identify the theories of human growth and development.
    2.B.01.01   Compare and contrast the principles of the major child development theorists, including but not limited to Erikson, Gardner, Maslow, Piaget, Vygotsky.
    2.B.01.02   Apply appropriate theories to activities for and interactions with young children.

> 2.B.01   Performance Example:
> - Research the principles of a child development theorist. Develop an oral presentation of the research.

2.B.02   Facilitate the advancement of physical competencies.
    2.B.02.01   Identify the stages of prenatal development.
    2.B.02.02   Identify fine motor developmental milestones.
    2.B.02.03   Identify gross motor developmental milestones.
    2.B.02.04   Document children's physical development.
    2.B.02.05   Develop appropriate fine motor activities.
    2.B.02.06   Develop appropriate gross motor activities.
    2.B.02.07   Implement appropriate fine motor activities.
    2.B.02.08   Implement appropriate gross motor activities.
    2.B.02.09   Describe how physical development influences self-concept and social development.

> 2.B.02.   Performance Example:
> - Create a "baby book" documenting the first year of life and the developmental milestones.

2.B.03   Facilitate the advancement of cognitive competencies.
    2.B.03.01   Explain the fundamentals of brain development.
    2.B.03.02   Identify cognitive developmental milestones.
    2.B.03.03   Identify the stages of handwriting.
    2.B.03.04   Document children's cognitive development and readiness for new learning opportunities.
    2.B.03.05   Develop activities that strengthen curiosity, inventiveness and problem-solving abilities.
    2.B.03.06   Develop activities that introduce/reinforce math concepts.
    2.B.03.07   Develop activities that develop pre-literacy and literacy.
    2.B.03.08   Develop activities that introduce/reinforce science concepts.
    2.B.03.09   Implement activities that strengthen curiosity, inventiveness and problem-solving abilities.
    2.B.03.10   Implement activities that introduce/reinforce math concepts.
    2.B.03.11   Implement activities that develop pre-literacy and literacy.
    2.B.03.12   Implement activities that   introduce/reinforce science concepts.

2.B.03.13	Choose appropriate children's literature.
2.B.03.14	Implement repetition of familiar experiences to promote mastery of skill.
2.B.03.15	Explain how cognitive development influences self-concept and other domains within the whole child.

2.B.03 Performance Example:
- Write a lesson plan that introduces/reinforces science concepts, including appropriate scientific vocabulary.

2.B.04 Facilitate the advancement of communication and language competencies.

2.B.04.01	Identify receptive and expressive language milestones and factors affecting mastery.
2.B.04.02	Describe the educator's role as a language model for children.
2.B.04.03	Demonstrate respectful tone, clear speech and responsive conversation.
2.B.04.04	Demonstrate active listening to facilitate children's self-expression.
2.B.04.05	Identify types of non-verbal communication.
2.B.04.06	Demonstrate awareness of local speech patterns, idioms and cultural differences.
2.B.04.07	Describe possible signs of hearing and speech delays or challenges.
2.B.04.08	Identify the needs of English language learners.
2.B.04.09	Develop learning materials and activities that advance communication and language skills.
2.B.04.10	Implement learning materials and activities that advance communication and language skills.

2.B.04 Performance Example:
- Role play active listening with a peer. Provide feedback regarding appropriate tone, speech and responsiveness.

2.B.05 Facilitate growth and development through creative expression.

2.B.05.01	Explain the importance of creative expression.
2.B.05.02	Identify the developmental stages of drawing.
2.B.05.03	Explain the importance of process versus product in creative expression.
2.B.05.04	Identify materials that support creative exploration of the arts.
2.B.05.05	Develop activities for open-ended visual art.
2.B.05.06	Develop activities for open-ended creative movement.
2.B.05.07	Develop activities for open-ended music.
2.B.05.08	Develop activities for open-ended dramatic play.
2.B.05.09	Implement activities for open-ended visual art.
2.B.05.10	Implement activities for open-ended creative movement.
2.B.05.11	Implement activities for open-ended music.
2.B.05.12	Implement activities for open-ended dramatic play.
2.B.05.13	Develop a variety of materials to enhance dramatic play in various learning centers.

2.B.05 Performance Example:
- Develop a resource showing various tools and materials to enhance open-ended art experiences in the classroom.

2.B.06   Facilitate the advancement of social and emotional development.
    2.B.06.01   Define the stages of social and emotional development.
    2.B.06.02   Identify basic emotions as expressed by children at different stages of development.
    2.B.06.03   Explain how social and emotional development impacts the other domains of the whole child.
    2.B.06.04   Explain the importance of love, affection, identity and acceptance in the development of self-worth.
    2.B.06.05   Identify realistic expectations for children's developmentally appropriate behavior.
    2.B.06.06   Explain appropriate responses to various stressors in children's lives (transition and family crises).
    2.B.06.07   Explain the role of the educator in identifying and responding appropriately to children's emotions.
    2.B.06.08   Assist children in identifying and expressing their feelings and asserting their rights in socially acceptable ways.
    2.B.06.09   Accommodate differences in the expression of feelings and independence in various cultural settings.
    2.B.06.10   Assist children in respecting the rights and possessions of others.
    2.B.06.11   Provide appropriate verbal and non-verbal responses to children's behavior and emotions.
    2.B.06.12   Explain the stages of social play.
    2.B.06.13   Develop activities that facilitate play, develop relationships among children and develop a child's sense of self and independence.
    2.B.06.14   Implement activities that facilitate play, develop relationships among children, and develop a child's sense of self and independence.

2.B.06   Performance Example:
- Compile a bibliography of children's books to help children cope with various situations.

2.B.07*   Research a topic and present a professional development workshop to peers.

2.C   Behavior Management

2.C.01   Establish positive guidance techniques.
    2.C.01.01   Explain positive guidance methods and techniques.
    2.C.01.02   Describe the role of the educator in helping parents/guardians develop appropriate expectations for children's behavior.
    2.C.01.03   Compile a variety of resources about child-rearing techniques, guidance and self-discipline for various audiences.
    2.C.01.04   Document clear, reasonable, and consistent guidelines for children's behavior.

2.C.02   Apply positive guidance techniques.
    2.C.02.01   Apply positive guidance methods and techniques appropriate to the situation.
    2.C.02.02   Implement consistent, reliable, yet flexible, routines and transitions to meet children's needs.
    2.C.02.03   Implement positive strategies to address challenging behaviors.

2.C.03*   Write a research paper on a challenging behavior citing best practices from informational text.

2.D   Relationships with Families

2.D.01   Identify the characteristics of families.
     2.D.01.01   Describe the various compositions of families.
     2.D.01.02   Describe the various cultures of families.

2.D.02   Build relationships with families.
     2.D.02.01   Explain strategies that build relationships with children and their families.
     2.D.02.02   Describe various means to support families.
     2.D.02.03   Explain the importance of communicating classroom policies to families.
     2.D.02.04   Explain the importance of encouraging families to visit the center and participate in activities.
     2.D.02.05   Identify ways to help family members separate from their children.

2.D.03*   Gather information about a specific culture through research and interviews. Use data collected to write a children's book.

2.E   Assessment Techniques

2.E.01   Demonstrate knowledge of various assessment techniques.
     2.E.01.01   Describe various assessments.
     2.E.01.02   Evaluate methods used to assess learner progress.
     2.E.01.03   Determine appropriate assessments.

2.E.02   Implement various assessment techniques.
     2.E.02.01   Observe children objectively to identify their strengths and needs.
     2.E.02.02   Evaluate assessment data for progress and/or mastery.
     2.E.02.03   Utilize assessment data to adapt activities.
     2.E.02.04   Describe appropriate methods of communicating assessment and observation results.

2.E.03*   Analyze data attained from multiple assessment methods that identify a child's strengths and needs. Create a unit to support learning.

2.F   Professional Knowledge

2.F.01   Develop effective management practices.
     2.F.01.01   Summarize rules/guidelines of relevant regulatory, licensing and professional agencies.

2.F.01.02	Explain the importance of psychological health of staff in the learning setting.
2.F.01.03	Describe the current laws and policies concerning the reporting of suspected child abuse.
2.F.01.04	Prepare an individual portfolio including a personalized professional development plan, including Community Service activities.

2.F.02   Demonstrate a commitment to professional standards.

2.F.02.01	Explain characteristics of an effective educator including consistent use of professional language and demeanor.
2.F.02.02	Explain the philosophy of developmentally appropriate practice.
2.F.02.03	Implement the NAEYC Code of Ethics, especially confidentiality regarding children, families and staff.
2.F.02.04	Prepare a lesson plan that meets industry standards.
2.F.02.05	Participate as a team member within the classroom.
2.F.02.06	Demonstrate sensitivity to the values and customs of various cultures.
2.F.02.07	Reflect on practice to promote positive outcomes for each child.
2.F.02.08	Engage in continuous, collaborative learning to inform practice.

2.F.01/2.F.02 Performance Example:
- Document work samples following the CDA Portfolio requirements. Update the portfolio as needed, and present the portfolio for review.

2.F.03   Apply knowledge of special education laws and regulations.

2.F.03.01	List the components of EI, IFSP, IEP, Section 504 and ADA.
2.F.03.02	Identify community and professional resources for learners with a variety of needs and abilities.
2.F.03.03	Identify learning challenges and the appropriate referral process.
2.F.03.04	Compare various positive communication strategies to use with children with developmental delays or impairments.
2.F.03.05	Identify adaptive learning materials and equipment for children with disabilities.

2.F.03 Performance Example:
- Write a research paper on a specific special need, including: the definition of the need; problems faced by the child and family; how the center can aid the child and family; and support resources and agencies for the family and teacher.

2.F.04*   Create a presentation that teaches professionalism in the Early Education field.

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

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.C   Work Ethic and Professionalism

4.C.01   Demonstrate attendance and punctuality.

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

4.C.02   Demonstrate proper workplace appearance.

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

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

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

4.C.03   Accepts direction and constructive criticism.

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

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

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

4.C.04   Demonstrate motivation and initiative.

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

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

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

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

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

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

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

4.C.05   Demonstrate awareness of workplace culture and policy.

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

4.C.06   Interact appropriately with coworkers.

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

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

Student Organizations

Business Professionals of America   www.bpa.org

Selected Websites

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

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

Strand 5: Management and Entrepreneurship Knowledge and Skills

5.A   **Starting a Business**

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

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

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

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

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

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

5.B   **Managing a Business**

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

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

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

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

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

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

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

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

    5.B.01.08   Demonstrate business meeting skills.

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

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

5.C   **Marketing a Business**

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

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

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

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

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

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

5.D Financial Concepts and Applications in Business

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

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

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

5.E Legal/Ethical/Social Responsibilities

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

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

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

Strand 6: Technology Literacy Knowledge and Skills

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.A.03.03	Describe devices, applications, and operating system features that offer accessibility for people with disabilities.
6.A.03.04	Evaluate school and work environments in terms of ergonomic practices.
6.A.03.05	Describe and use safe and appropriate practices when participating in online communities (e.g., discussion groups, blogs, social networking sites).
6.A.03.06	Explain and use practices to protect one's personal safety online (e.g., not sharing personal information with strangers, being alert for online predators, reporting suspicious activities).
6.A.03.07	Explain ways individuals can protect their technology systems and information from unethical users.

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

6.A.04.01	Devise and demonstrate strategies for efficiently collecting and organizing information from electronic sources.
6.A.04.02	Compare, evaluate, and select appropriate electronic resources to locate specific information.
6.A.04.03	Select the most appropriate search engines and directories for specific research tasks.
6.A.04.04	Use a variety of media to present information for specific purposes (e.g., reports, research papers, presentations, newsletters, Web sites, podcasts, blogs), citing sources.
6.A.04.05	Demonstrate how the use of various techniques and effects (e.g., editing, music, color, rhetorical devices) can be used to convey meaning in media.
6.A.04.06	Use online communication tools to collaborate with peers, community members, and field experts as appropriate (e.g., bulletin boards, discussion forums, listservs, Web conferencing).
6.A.04.07	Plan and implement a collaborative project with students in other classrooms and schools using telecommunications tools (e.g., e-mail, discussion forums, groupware, interactive Web sites, video conferencing).

Appendices

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

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

Embedded 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.A.01	L.1. a.b; L.2.a.b.c; L.4.c; W.2.a.b.c.d.e.f.; R.I.1.2.3	Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. Determine or clarify the meaning of known and multiple-meaning words and phrases based on grades 11-12 reading and contents, choosing flexibility from a range of strategies. Write informative/explanatory texts to examine and convey complex ideas, concepts and information clearly and accurately through the effective selection, organization and analysis of content.
Performance Example: ▪ Write a letter to parents/guardians explaining the pick-up policy of the center. Create the form that documents parental authorization for pick-up.		
2.A.02	W.1.a.b.c.d.e; W.4.5.6.7.8.9.a.b; R.I.1.2.3; L.3.a	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: Deliver an oral presentation to families regarding a health and safety topic such as healthy eating habits, developmentally appropriate physical activities or communicable diseases.		
2.B.01	W.1.a.b.c.d.e; W.4.5.6.7.8.9.a.b; R>I.1.2.3; L.3.a	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: ▪ Research the principles of a child development theorist. Develop an oral presentation of the research.		
2.B.02	R.L.1.2.3; W.9.a.b	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
Performance Example: ▪ Create a "baby book" documenting the first year of life and the developmental milestones.		
2.B.04	S.L.1.a.b.c.d.; S.L.2.3	Initiate and participate effectively in a range of collaborative

		discussions (one-on-one, in groups, teacher-led) with diverse partners on grade 9-12 topics, texts and issues, building on others' ideas and expressing their own clearly and persuasively.

Performance Example:

- Role play active listening with a peer. Provide feedback regarding appropriate tone, speech and responsiveness.

2.C.01/2.C.02	S.L.4.5.6	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 for formal and informal tasks.

Performance Example:

- Research an article on behavior management. Write a review and provide a copy of the review and article to families. Have a debate with peers on the specific technique described in the article.

Embedded Mathematics

CVTE Learning Standard Number	Math Content Conceptual Category and Domain Code Learning Standard Number	Text of Mathematics Learning Standard
2.A.03	6.G.1; MA.1.a; MA1.b	Find the area of right triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shape; apply these techniques in the context of solving real-world and mathematical problems. Use the relationships among radius, diameter and center of a circle to find its circumferences and area. Solve real-world and mathematical problems involving the measurement of circles

Performance Example:

- Work as a member of a team to design an early childhood classroom, including appropriate square footage. Include an office, bathroom, appropriate flooring and developmentally appropriate learning centers.

2.B.05	7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of fractions, including ratios of lengths, areas, and other quantities measure in like or different units.

Performance Example:

- Calculate the amount of ingredients needed when tripling a play dough recipe.

| 2.B.05 | 7.EE.1, 2, 3 | Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
Understand that rewriting an expression in different forms in a problem context can shed light on the problem context can shed light on the problem and how the quantities in it are related.
Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fraction and decimals), using tools strategically. Apply properties of |

		operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
Performance Example: ▪ Complete a purchase order for materials needed to replenish the art area.		
2.A.02	A.N-Q2, 3	Define appropriate quantities for the purpose of descriptive modeling. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Performance Example: Estimate the number of servings in a carton to identify total number of cartons needed for a specific snack.		
2.B.03	5.G.3	Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category.
Performance Example: Create labels and identify shapes of each block figure for the purpose of labeling shelves in the block area.		
2.B.03	7.G.2	Draw (freehand, with a ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides notching when the conditions determine a unique triangle, more than one triangle, or no triangle.
Performance Example: Using a ruler, draw 1 inch lines across the width of a 9x12 piece of construction paper for children to practice scissor skills on a straight line.		
2.B.03	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
Performance Example: Plan an activity for children to gain an understanding of what an apple will look like if cut vertically or horizontally.		
2.B.02	5.MD.1, 3, 4, 5a.b.c.; 8.SP.1	Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems.
Performance Example: Measure children's heights and weights at the beginning and end of the year. Record the heights in feet and inches, and then only feet (ex. 2.75 feet). Create a graph to document the changes.		
2.B.03	A.CED.1; A.REI.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
Performance Example:		

Determine the costs of transportation for a field trip. Compare costs of two bus companies one that charges a flat fee, one that charges per child. How many children do you need to have the flat fee company be more affordable?

Embedded Science and Technology/Engineering

Earth and Space Science

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Earth and Space Science Learning Standard Text of Science, Engineering & Technology Learning Standard
2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Differentiate between weight and mass, recognizing that weight is the amount of gravitational pull on an object.
Performance Example: **Mass vs Weight** Mass children on scale and observe increases in mass throughout the year. Each time, a different planet will be noted at the scale. Students will convert child's mass to weight on that particular planet.		
Replace above with High School Chemistry 1.3		Describe the three normal states of matter (solid, liquid, gas) in terms of energy, particle motion, and phase transitions.

Performance Example:
Phase Change
Students create and implement a lesson plan for preschool children to demonstrate a phase change. Activities such as making ice cream; clouds-in-a-bottle; melting ice, are all suited to such a lesson.
 	
You are the Business Manager of an online portal that hosts e-lesson packages for preschools so that they can be accessed from anywhere around the world. You are tasked to develop an e-learning package on the topic of normal states of matter for preschool students of different abilities. The school will evaluate the package created by your company before deciding to hire you.
 	
Standards and Criteria for Success
♦ Your e-lesson package should have:
  o a storyline where the students will be a character and they learn about the lessons as the story develops.
  o power point slides
  o worksheets
  o self-evaluation
  o video clips or animations
  o higher-order thinking problems
♦ The lessons should meet the objectives required for the topic.		

2.B.02 2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Explain and give examples of how the motion of an object can be described by its position, direction of motion, and speed.
Performance Example: **Motion of an Object**		

Plan and implement a *ramps & balls* activity for preschool children.		
Replace above with High School Physics 1.6		Distinguish qualitatively between static and kinetic friction, and describe their effects on the motion of objects.

Performance Example:

Effects of Friction on Motion
Students work with preschoolers to make inclined planes and provide different materials to cover the ramps (e.g., foil, sandpaper). Students then ask preschoolers to predict how toy cars, balls, or marbles will move differently on different surfaces (varying degrees of friction). Students work with preschoolers to observe and measure (e.g., time, distance traveled) how objects move down the ramps. Students then help preschoolers work through the steps of a scientific investigation, including which variables are constant, manipulated, and responding to change.

2.B.02 2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Describe the function of individual body systems within humans and how these functions are integrated to maintain a homeostatic balance in the body.

Performance Example:
Cardiovascular Homeostasis
Students choose an activity and compare how *two forms* of this activity affect the pulse rate of preschoolers. Design an investigation that <u>compares normal pulse rate to each of these activities</u>.

Example:
Students may choose an activity which uses upper body movements. Two forms of this activity would be *air punches* and *pull-ups.* To investigate this activity, you would gather data on normal pulse rate and compare it to pulse rate after your subject has done punches for one minute. After an appropriate rest period, you would gather additional data for your subject after doing pull-ups for one minute.

Prepare an Inquiry Report including:
- Introduction - Explain homeostasis, oxygen/carbon dioxide feedback loop, effect of pulse rate. What is a stressor?
- Question - How does upper body exercise affect the pulse rate?
- Hypothesis - Explain how the heart might be affected.
- Design - Do several trials.
- Data - Chart and graph data (graph averages).
- Analysis - Explain each graph citing average data. How was pulse rate affected?
- Interpretation -
  - Why did the feedback loop change with each form of exercise?
  - How did the exercise feedback compare to the normal feedback?
  - How do CO_2 and O_2 levels affect the heart rate?
  - How does the heart rate affect pulse rate?
  - How does this affect homeostasis?
  - Is the respiratory rate also affected?
  - How can the design be improved?

2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Distinguish between chemical and physical changes.

Performance Example:
Chemical Change
Facilitate the baking soda and vinegar experiment for young children.

2.B.03.05 2.B.03.09 2.B.03.08		Use knowledge of the human cell and its functions to make decisions about personal health and safety in an educational/instructional model.

2.B.03.12 2.B.04		

Performance Example:
GRASPS: You Are What You Eat!
Students create an illustrated brochure to teach younger children about the importance of good nutrition for healthful living.

G: Goal:
Your goal is to create an illustrated brochure to teach Preschoolers about the importance of good nutrition for healthful living.

R: Role:
You are a teacher of nutrition.

A: Audience:
The target audience is a preschool class.

S: Situation:
You need to show the difference between a balanced diet and an unhealthy diet.

P: Product:
You need to create a brochure that describes healthy vs. unhealthy eating and shows at least 2 health problems that can occur as a result of poor eating.

S: Standards for Success:
Your brochure should...
- contain accurate information
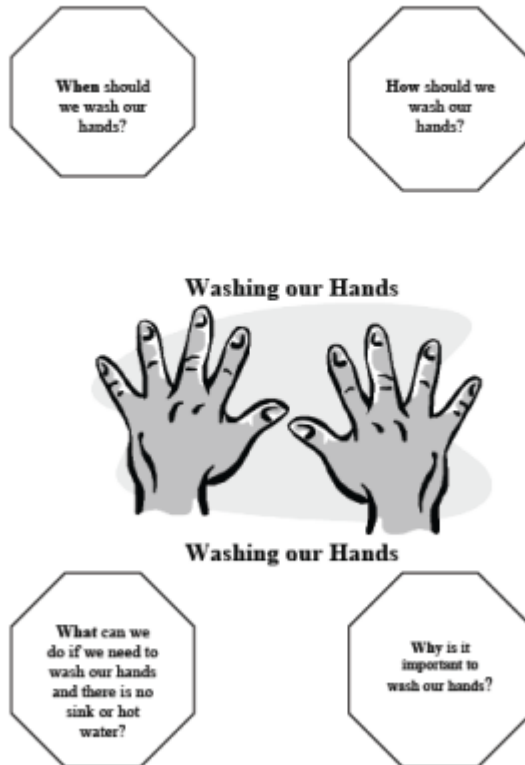- easy for preschoolers to understand

Another Performance Example:
Hand Washing Concept Map
Students create and implement a lesson plan to teach preschoolers how to wash their hands and the importance of washing hands properly. Upon completion of lesson, preschoolers should be able to demonstrate their understanding hand washing by completing a hand washing concept map (below).

After learning all about washing our hands, let's fill in this concept map!

When should we wash our hands?

How should we wash our hands?

Washing our Hands

Washing our Hands

What can we do if we need to wash our hands and there is no sink or hot water?

Why is it important to wash our hands?

2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Identify energy conservation issues and strategies for the classroom/work environment.

Performance Example:
Students create a lesson plan to teach preschoolers about conservation of some resource (water, food, paper, etc).

	Beginning 1	**Developing 2**	**Accomplished 3**	**Exemplary 4**	**Score**
Instruction Goals and Objectives	Instructional goals and objectives are not stated. Learners can not tell what is expected of them. Learners can not determine what they should know and be able to do as a result of learning and instruction.	Instructional goals and objectives are stated but are not easy to understand. Learners are given some information regarding what is expected of them. Learners are not given enough information to determine what they should know and be able to do as a result of learning and instruction.	Instructional goals and objectives are stated. Learners have an understanding of what is expected of them. Learners can determine what they should know and be able to do as a result of learning and instruction.	Instructional goals and objectives clearly stated. Learners have a clear understanding of what is expected of them. Learners can determine what they should know and be able to do as a result of learning and instruction.	
Instructional Strategies	Instructional strategies are missing or strategies used are inappropriate.	Some instructional strategies are appropriate for learning outcome(s). Some strategies are based on a combination of practical experience, theory, research and documented best practice.	Most instructional strategies are appropriate for learning outcome(s). Most strategies are based on a combination of practical experience, theory, research and documented best practice.	Instructional strategies appropriate for learning outcome(s). Strategy based on a combination of practical experience, theory, research and documented best practice.	
	Method for assessing student learning and	Method for assessing student learning and	Method for assessing student learning and	Method for assessing student learning and	

Assessment	evaluating instruction is missing.	evaluating instruction is vaguely stated. Assessment is teacher dependent.	evaluating instruction is present. Can be readily used for expert, peer, and/or self-evaluation.	evaluating instruction is clearly delineated and authentic. Can be readily used for expert, peer, and/or self-evaluation.	
Technology Used	Selection and application of technologies is inappropriate (or nonexistent) for learning environment and outcomes.	Selection and application of technologies is beginning to be appropriate for learning environment and outcomes. Technologies applied do not affect learning.	Selection and application of technologies is basically appropriate for learning environment and outcomes. Some technologies applied enhance learning.	Selection and application of technologies is appropriate for learning environment and outcomes. Technologies applied to enhance learning.	
Materials Needed	Material list is missing.	Some materials necessary for student and teacher to complete lesson are listed, but list is incomplete.	Most materials necessary for student and teacher to complete lesson are listed.	All materials necessary for student and teacher to complete lesson clearly listed.	
Organization and Presentation	Lesson plan is unorganized and not presented in a neat manner.	Lesson plan is organized, but not professionally presented.	Lesson plan is organized and neatly presented.	Complete package presented in well organized and professional fashion.	
				Total Points	

2.B.03.05 2.B.03.09 2.B.03.08 2.B.03.12		Demonstrate the ability to instruct others in the scientific inquiry process for an early education classroom setting.

Performance Example:
Plan and implement "what and why" experiments with children.

2.B.03.08 2.B.03.12		Demonstrate the ability to instruct others in the engineering design process for an early education classroom setting.

Performance Example:
Plan and implement block activities for children.

Another Performance Example:
Apply the engineering design process to construct a prototype of a new toy for a preschooler that meets developmentally appropriate specifications.

2.B.03.08 2.B.03.12		Discuss the value of biodiversity as the sum total of different kinds of organisms and relate how it is affected by alterations of habitats.

Performance Example:
GRASPS: Create a Model
G: Goal:
Your goal is to create a larger than life model of a butterfly and write/illustrate a book with a fiction and nonfiction section about your butterfly.

R: Role:
You are a preschool teacher. Your job is to teach preschoolers about butterflies.

A: Audience:
A preschool class who will be ready to learn about butterflies.

S: Situation:
Your challenge is to teach preschoolers about butterflies by performing with your model and using your book.

P: Product:
You will present your book with your butterfly model.

S: Standards for Success:
Your book and performance will be judged by you, your teacher, and two of your peers using a student-created

		rubric you design and your teacher approves prior to starting this assessment.
2.B.03.08 2.B.03.12		Describe the differing greenhouse conditions on Earth, Mars, and Venus; the origins of those conditions; and the climatic consequences of each.

Performance Example:
Design an experiment to demonstrate the greenhouse effect to preschool children. Provide written directions and a graphic display to guide an absent classmate through your procedure. Your experimental procedure should meet the following criteria:

Your experimental procedure should be convincing; correct; polished; and thorough so that another experimenter can follow your procedure and determine how to demonstrate the greenhouse effect to preschoolers.

Another Performance Example:
Take the temperature of soil in an uncovered container, and the temperature of soil in a covered container to observe differences in the temperatures.

Life Science (Biology)

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Biology Learning Standard

Physical Science (Chemistry)

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Chemistry Learning Standard

Physical Science (Physics)

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Physics Learning Standard

Technology/Engineering

CVTE Learning Standard Number	Subject Area, Topic Heading and Learning Standard Number	Text of Technology/Engineering Learning Standard

ARTICULATION AGREEMENT

Between

Massachusetts Community Colleges

And

Massachusetts Chapter 74-Approved Secondary
Career/Vocational Technical Early Childhood Education Programs

Effective Date: December 5, 2012

for more information, click

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

Industry Recognized Credentials (Licenses and Certifications/Specialty Programs)

Department of Early Education & Care Teacher License (DEEC)
Occupational Safety & Health Administration (OSHA)
First Aid/CPR Certification

Reference Materials

- ***Books***
  The Developing Child
  Working with Young Children
  The Child Care Professional

- ***Journals***
  Young Children
  Teaching Young Children
  Child Care Information Exchange (The Exchange)

- **Videos**
  Unconditional Parenting/Alfie Kohn
  Learning with Nature/Arbor Day Foundation
  Where Do The Children Play?/michigantelevision.org
  Starting at Square One/Bev Bos
  Come On & Sing/Bev Bos
  Room Arrangement as a Teaching Strategy
  By: Diane Trister Dodge and Bonnie Kittridge
  Published by: Teaching Strategies Inc., Washington, D.C.

  Come on and Sing
  By: Bev Boss, Michael Leeman and Tom Hunter
  Published by: Turn-the-Page Press, Roseville, CA

  Birth: 8 Women's Stories
  Published by: Films For the Humanities and Sciences

  How Can This Be Difficult: The Fat City Workshop
  By: Richard D. Lavoie

  I Am Your Child (Series)
       "A Child with Special Needs"
       "Safe From The Start"
       "The 1st Years Last Forever"
       "Why Early Childhood Matters"
       "Ready To Learn"
       "Quality Child Care: Making the Right Choice for you & your Child"

  Texts:
  Working With Young Children

By: Judy Herr
Published by: Goodheart-Wilcox Co. Inc., Tinley Park, IL

Child Development: Early Stages Through Age 12
By: Celina Anita Decker
Published by: Goodheart-Wilcox Co. Inc., Tinley Park, IL

Additional Resources:
Basics of Developmentally Appropriate Practices: An Introduction for Teachers of Children 3 - 6
By: Carol Copple & Sue Bredekemp
Published By: NAEYC, Washington D.C.

Developmentally Appropriate Practices in Early Childhood Programs: Serving Children from Birth – Age 8
By: Carol Copple & Sue Bredekemp
Published By: NAEYC, Washington D.C.

Kids With Special Needs: Information and Activities to Promote Awareness and Understanding
By: Veronica Geskow & Dee Kunczal
Published by: Learning Works Inc.

Periodicals:
Young Children
Published by: NAEYC

Beatty, J. (2008). *Skills for Preschool Teachers.* Upper Saddle River, New Jersey: Pearson Education, Inc.

Brunson-Day, C. (2004). *Essentials for Child Development Associates – Working with Young Children.* Washington, D.C.: Council for Professional Recognition.

Brunson-Day, C. (2006). *Field Advisor's Guide – Guide for the CDA Preparation Program.* Washington, D.C.: Council for Professional Recognition.

Brunson-Day, C. (2006). *Seminar Instructor's - Guide for the CDA Professional Preparation Program.* Washington, D.C.: Council for Professional Recognition.

Child Development Associate. (2011). *Preschool Caregivers in Center-Based Programs.* Washington, D.C.: The Council for Professional Recognition.

Decker, C. (2011). *Child Development – Student Workbook.* Tinley Park, Illinois: Goodheart - Wilcox Company, Inc.

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Herr, J. (2012). *Mastering CDA Competencies – Using Working with Young Children.* Tinley Park, Illinois: Goodheart – Wilcox Company, Inc.

Herr. J. (2012). ***Working With Young Children – Student Workbook.*** Tinley Park, Illinois: Goodheart – Wilcox Company, Inc.

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Jablon J. and Stetson, C. (2007). ***The Creative Curriculum for Preschool in Action***.Washington, D.C.: Teaching Strategies, Inc.

Martoz L., Cross M., and Rush, J. (2005). ***Health, Safety, and Nutrition for the Young Child.***Clifton Park, New Jersey: Thomas Delmar Learning.

Pierce, D. (2011). The CDA Prep Guide – The Complete Review Manual for Child Development Associate Credential. St.Paul, Minnesota; Redleaf Press.

Related National, Regional, and State Professional Organizations

- National Association for the Education of Young Children (NAEYC)
- Child Development Associate (CDA)
- Association for Supervision and Curriculum Development (ASCD)
- National Education Association (NEA)
- Alliance for Children
- National Association for the Education of Young Children (NAEYC)
- Child Development Associate (CDA)
- Association for Supervision and Curriculum Development (ASCD)
- National Education Association (NEA)
- Alliance for Children

Student Organizations

- Skills USA www.maskillsusa.org
- Future Teachers of America

Selected Websites

- www.naeyc.org
- www.drrobertbrooks.com
- www.communityplaythings.com
- www.cdacouncil.org
- www.turnthepage.com
- www.pbs.org
- www.allianceforchildren.org
- www.marshallmemo.com