Massachusetts Career Technical Education

Design and Visual Communications Framework

2014

DESE is in the process of updating all CTE Frameworks. This framework was adopted in 2014. More information about the process to update frameworks will be provided in DESE’s CCTE Newsletter.

# [Strand 2: Technical Knowledge and Skills](#_bookmark0)

#### Fundamentals of Design and Visual Communications Health and Safety

* + 1. Define health and safety concerns specific to Design and Visual Communications.
       1. Identify the location of safety equipment within the DVC shop area, such as: first aid kit, fire escape routes, fires alarms, eye wash station, fire extinguishers, SDS sheets, specialized shop equipment, and hazardous materials.
       2. Identify safety and emergency procedures for the shop, and emergency phone numbers.
       3. Identify copyright infringement laws.
       4. Identify internet safety procedures.
       5. Identify principles of ergonomics.
       6. Identify OSHA recommendations specific to the Design and Visual Communications field.
    2. Performance Examples:
       - On a shop map, indicate the location of all relevant safety items and equipment.
       - Be able to role play the correct procedure for different emergency scenarios.
       - Research and present OSHA recommendations relevant to the Design and Visual Communications field.
    3. Demonstrate health and safety practices specific to Design and Visual Communications.
       1. Demonstrate proper handling of utility knives, safe storage of blades, and safe disposal of used blades.
       2. Demonstrate the proper use of paper cutters.
       3. Demonstrate safe handling of aerosol adhesives by wearing a mask/ventilator or spraying in well ventilated areas only, and the use of a spray booth.
       4. Demonstrate safety habits to protect vision, such as wearing safety glasses when photographing areas that require safety glasses and by limiting the amount of time spent focusing on computer screens.
       5. Demonstrate safety awareness, while photographing subjects from ladders, step stools, stairs or staging by applying OSHA standards for ladder safety.
       6. Demonstrate safety awareness when using cords or studio lighting by applying OSHA standards for those items.
       7. Demonstrate safety awareness in protecting equipment from damage, such as preventing photography or video cameras from falls, bumps, water or extreme temperatures.
       8. Demonstrate safe internet practices (e.g., protecting ones online image).
       9. Demonstrate safe network practices, such as following school protocol.
       10. Follow copyright infringement laws.
       11. Explain bullying, harassment, and discrimination laws, and school policies.

2.A.02 Performance Examples:

* Complete a written and performance safety test for each safety category.
* Identify hazards and incorrect procedures in “task completion role playing”.
* Demonstrate the correct posture and procedure for working at a computer station.
* Research then present strategies to prevent bullying, harassment or discrimination, which also foster acceptance, teamwork and reduced stress.
* Research, and then create a shop safety poster.

#### Fundamentals of Design

* + 1. Describe and apply Elements of Design.
       1. Describe and apply Elements of Design to design work, including line, shape, form, color, value, texture, space, and size.
    2. Performance Examples:
       - Create a digital presentation defining a design element with visual examples. Create artwork demonstrating a strong use of one or two of the design elements such as positive and negative space rendered in black and white.
       - Give a critique of art/design work based on the use of design elements.
       - Create a graphic work, which focuses on strong use of one design element such as color, line, or texture.
    3. Describe and apply Principles of Design.
       1. Describe and apply Principles of Design to design work, including contrast, repetition, alignment, proximity, balance, movement, rhythm, emphasis, pattern, and unity.
       2. Describe and apply principles of visual hierarchy in regards to composition.

2.B.02 Performance Examples:

* Research and then present an artist, whose work demonstrates a clear use of a design principle, then create a unique piece utilizing the artist’s application method.
* Create a poster where the use of design principles and visual hierarchy is clearly identifiable.
* Identify the use of design principles within a work and its level of success as a whole.
  + 1. Demonstrate an understanding of typography.
       1. Describe the basic anatomy and history of typography.
       2. Define and demonstrate the manipulation of type (i.e. Kerning, tracking, and leading).
       3. Describe and apply typography measurements and tools (points, picas, etc).
       4. List typographic styles and explain their relationship to a design project.
       5. Demonstrate and apply techniques of font management for outsourcing to various media.

2.B.03 Performance Examples:

* Design a poster that identifies and labels the fundamental structures of type, using the standard terms (ascender, descender, mean-line, base-line, font size, etc.) and also demonstrates the differences between a serif and sans serif font.
* Design a business card, showing three different typeface options.
* Design a logo using letterforms only.
* Create a self-portrait, using one typeface and meaningful words in various point sizes and styles (bold, italic, regular, etc.)
* Find three existing logos, which are typographic and explain how they relate to the company they represent.
  + 1. Demonstrate and apply an understanding of color theory.
       1. Demonstrate and apply an understanding of color theory as it applies to fine art, design, and digital media.
       2. Demonstrate and apply an understanding of the color wheel and its component parts, including primaries, secondaries, tertiaries, compliments, color schemes, etc.
       3. Introduce the seven designations of color contrast by Johannes Itten.
       4. Explain the difference between additive and subtractive color principles.
       5. Define and demonstrate the differences between various color modes, such as CMYK, RGB, grayscale, and spot colors.

2.B.04 Performance Examples:

* Define color theory as the theoretical practice of color mixing.
* Explain the psychological effects of color.
* Determine color choices based on customer input, branding requirements and target audience demographics.
* Identify strategies for successful color implementation using applicable traditional or digital methods.
* Mix secondary and tertiary colors using traditional and/or digital methods comparing and contrasting the results.
* Create a project in a monochromatic color scheme, utilizing tints, tones and shades.
* Create a color wheel and review color schemes.
* Mix, additive or subtractive colors using traditional and digital methods comparing and contrasting the results.
* Create a basic image using traditional and/or digital methods to visually communicate the seven designations of color contrast; contrast of hue, light-dark contrast, cold-warm contrast, complementary contrast, simultaneous contrast, contrast of saturation, and contrast of extension.
* Prepare an image saved in various color modes. Compare and contrast the results determining its appropriate use in print and media.

#### The Creative Process

* + 1. Employ design strategies.
       1. Identify and utilize steps in the design process: - 1) Understand the Goal; 2) Research; 3) Brainstorm/Thumbnail Development; 4) Roughs;

5) Final Comp.

* + - 1. Describe and demonstrate roles and responsibilities of a creative team in dealing with client needs, including a timeline and budget.
      2. Describe considerations for print, web and video audiences.
    1. Performance Examples:
       - Assess a client’s visual design problems, needs and marketing objectives; create a proposal including a timeline and budget.
    2. Apply concept development.
       1. Maintain a sketchbook.
       2. Demonstrate basic understanding and application of marketing and advertising principles, such as target audience, demographics, psychographics, branding and advertising campaigns.
       3. Describe and demonstrate different types of brainstorming activities.
       4. Write original copy.
       5. Produce draft quality drawings, including thumbnails, roughs, comps, storyboards and site maps.
       6. Analyze designs throughout the creative process.

2.C.02 Performance Examples:

* Develop a corporate/branding package, including logos, letterheads, business cards, and promotional and marketing materials.
* Develop an advertising campaign.
  + 1. Employ design execution/production practices.
       1. Produce final design solutions.
       2. Participate in critique process from both the client’s and designer’s perspective.
       3. Demonstrate copy editing skills by proofreading for grammar and spelling.
       4. Save and export digital files in a variety of appropriate formats.

2.C.03 Performance Examples:

* Produce a corporate identity package (logo, letterhead, business card) incorporating client feedback.
* Create a document integrating all elements, including images and text for various applications; taking into account resolution, image size and various file formats.
* Design and create a project, such as a concert ticket, magazine advertisement and/or promotional poster.
  + 1. Demonstrate presentation skills.
       1. Demonstrate industry standards of professionalism, including appropriate attire, speech, attitude, and body language, such as maintaining eye contact and good posture.
       2. Present original design pieces meeting client objectives and timeline.
       3. Communicate with a variety of audiences using visual aids, written and verbal communication.
  1. Participate in a question and answer session upon the conclusion of the presentation.Content Creation Skills

2.C.04 Performance Examples:

* Develop and present a creative proposal, production schedule and budget for a client.
* Develop a presentation using presentation software.
* Present design concepts to the client from concept through development of the final piece; place thumbnails, sketches and concepts into portfolio in both electronic and hard copy form.
  + 1. Demonstrate illustration skills.
       1. Examine the history of illustration, graphic design and art.
       2. Demonstrate various illustration styles.
       3. Maintain a sketchbook.
       4. Create a self-portrait.
       5. Render an illustration using perspective.
       6. Render an illustration using the human figure.
       7. Render an illustration from direct observation.
       8. Render an illustration demonstrating interpretation and conceptualization.
    2. Performance Examples:
       - Research and present a report on a topic pertaining to the history of illustration, graphic design and art, such as hieroglyphics, famous artists and/or genres.
       - Create a self-portrait using a mirror or photographic reference.
       - Create still life illustration of a found object from direct observation.
       - Create an illustration based on a literary or musical reference.
       - Using a grid format, enlarge or reduce a drawing by a set percentage of the original.
       - Create a poster, which demonstrates the principles of the golden mean/golden ratio.
    3. Demonstrate vector based skills.
       1. Define purpose and use of vector based graphics.
       2. Demonstrate the use of tools, palettes, options, clipping masks and compound paths.
       3. Demonstrate techniques for converting raster images to vector art.
       4. Create a vector illustration, eligible for portfolio inclusion.

2.D.02 Performance Examples:

* Import a raster image, create a template layer and utilize the necessary tools and palettes to reproduce it as a vector image.
* Create an original character and/or scene using the necessary tools and palettes.
* Apply text to a vector based composition as a design element.
* Distort (or manipulate) text by either converting to outlines, warping, duplicating, aligning to a path, placing within a shape, etc… using the necessary tools and functions.
* Design and print out a color logo for client review with design principles in mind, assign Pantone colors, gradients, and effects to create a unified vector image.
  + 1. Demonstrate raster based skills.
       1. Define raster images and their qualities.
       2. Retouch, modify and correct images.
       3. Improve color and tonal balance of an image.
       4. Demonstrate use of masks, channels and a clipping path.

2.D.03 Performance Examples:

* Retouch or edit a digital image or photograph to correct or repair deficiencies or defects in the image, composition, color, tone and/or exposure.
* Create a photo mosaic comprised of digital images about a period or event in history that uses color or tone to represent the mood and message of the period.
* Create a digital image composition portraying a surrealistic scene comprised of multiple images and layers to evoke a sense of space through the use of scale, lighting and shadows.
  + 1. Demonstrate photography skills.
       1. Explain the characteristics of commercial, journalistic, portrait, and fine art photography.
       2. Identify and demonstrate the use of manual settings that control lighting (aperture, shutter speed, etc.) versus automatic settings.
       3. Explain lighting techniques (natural, supplemental, and flash).
       4. Photograph a variety of subjects using appropriate photographic principles, styles and techniques.
       5. Prepare a contact sheet for client review.

2.D.04 Performance Examples:

* Photograph several compositions using one subject in a variety of lighting conditions and compare the images, i.e. portrait and product photography.
* Photograph a specific event or activity for the school’s various communications, including print and electronic media.
* Create a photograph which emphasizes the elements of design (line, shape, color, and texture).
* Compose and capture a photograph that demonstrates an understanding of photography principles, such as the rule of thirds and the rule of odds.
* Create a series of photographs that represent a theme.
  + 1. Demonstrate page layout skills.
       1. Import copy and design elements into a page layout document.
       2. Create a multipage document using master pages and style sheets.
       3. Define and demonstrate standard industry imposition techniques.
       4. Perform preflight/package operations.

2.D.05 Performance Examples:

* Create a poster, flyer and/or magazine advertisement for a school product, service or event.
* Create a four page newsletter incorporating columns, gutters, bleeds, text, graphics and photographs.
* Create a package design to customer specifications, utilizing bleeds, die cuts, and crop marks.
  + 1. Demonstrate website design skills.
       1. Define the history and role of the web in current market trends and various technologies.
       2. Analyze websites for style, content and usability.
       3. Design websites consistent with other marketing materials.
       4. Create a sitemap, prototype, and final website.

2.D.06 Performance Examples:

* Research, review, and report websites from the inception of the world wide web through the present day to identify the evolution of the web and its use in past and current marketing and communication trends.
* Review and critique an existing website identifying the topic, target audience, design elements and the site’s purpose.
* Plan and create a new design for an existing website that repurposes the site for a different target audience or specific purpose and prepare that design for presentation and review.
* Plan and design a new website consistent with the customer’s marketing materials and branding parameters.
  + 1. Demonstrate animation skills.
       1. Create a storyboard then execute an animation based on that storyboard.
       2. Create graphics suitable for animation, such as characters, objects and backgrounds.
       3. escribe and demonstrate the use of animation shapes and symbols (create, key frame, edit, nest) and animation techniques including frame by frame or key frame animation, and tweening.
       4. Incorporate audio into an animation.

2.D.07 Performance Examples:

* Create a multi-layer animation with characters and scenery.
* Create a banner advertisement suitable for web applications and/or portable devices.
* Create a small animation, applying text for titles and credits, multiple scenes, and a minor action script to stop your movie when completed.
  + 1. Demonstrate video production skills.
       1. Explain and demonstrate camera and lighting techniques.
       2. Develop a script and storyboard for a video project.
       3. Shoot and edit footage for a video project with an audio component.
       4. Optimize and save final edited footage in appropriate formats.

2.D.08 Performance Examples:

* Storyboard a 15 to 30 second commercial for a product, service or event.
* Shoot and edit a 15 to 30 second public service message.
  + 1. Demonstrate fundamental technical skills according to current industry standards.
       1. Demonstrate and apply file management practices, utilizing industry naming conventions.
       2. Export, save and archive assets and files for future use and editing.
       3. Demonstrate appropriate use of tools, options and pallets specific to different design software programs.
       4. Define and demonstrate measurement skills.
       5. Define the difference between placing and embedding elements into a document.
       6. Demonstrate the ability to integrate type.
       7. Define and demonstrate the use of peripheral devices, such as scanners, external hard drives, printers, tablets and cameras.
       8. Prepare visual content for printing or digital media.

2.D.09 Performance Examples:

* Create a folder for archiving work and assets.
* Save original files in their native format(s) (example: do not flatten your layered work) and create secondary files for client review, allowing for the designer’s ability to make changes.
* Create a document with embedded and placed graphic elements and review the differences.
* Compare the difference in document sizes and the consequences of moving elements from their root folder.
* Compare the differences and similarities between the various methods of layer management, palettes, and tools throughout the different software programs.
* Scan an item several ways showcasing the various scanning modes (bitmap, grayscale, and color) and different resolutions, comparing the outcomes.
* Assign projects that are based on specific measurements and may require the use of rulers, guides and/ or margins, and utilize the student’s knowledge in the areas of math (i.e. addition, subtraction, division, multiplication, etc.), some of which can be accomplished by using the various shapes and tools provided in the software.
* Have students create a chart indicating the peripheral devices connected to their workstation, how they are connected, and what sort of software is required to run the peripheral.
* Compare the difference in document sizes and the consequences of moving elements from their root folder.
* Students should research and create a chart listing the pros and cons of all current computer platforms.

#### Career and Portfolio Development

* + 1. Develop and prepare a body of work.
       1. Include a minimum of 10 drawings direct from observation, including but not limited to a still life, a self-portrait, an illustration using perspective, and an illustration using the human figure.
       2. Include a minimum of five drawings with creative concepts that reflect personal style and strengths, including but not limited to fine art, abstract or surrealism, which reflect a higher level of critical thinking.
       3. Include a minimum of 10 pieces of work from the student’s area of focus, which may include photographs, live work and/or a variety of media utilized.
       4. Create a graphic work, which focuses on strong use of one design element such as color, line, or texture.
    2. Performance Examples:
       - Set up a still life display with focus on composition, lighting, color and texture, then draw what you observe.
       - Research an artist and create your own work utilizing the same techniques, medium, and similar subject matter.
       - Create an original work based on an abstract idea, such as fear or happiness and then be able to explain its relevance and defend your design choices.
       - Complete a portfolio piece consistent with a specific college requirement.
       - Create one assignment in four different methods, such as a self-portrait in pencil, photography, vector illustration and/or typography.
       - Create a business identity system for yourself, showing consistency from one element to another such as print and interactive materials.
       - Display work in a polished and professional manner in a number of formats, matted for exhibition, printed within a portfolio binder, digitally and online.
    3. Present portfolio.
       1. Review and explain the opportunities for employment in the Design and Visual Communications Field, such as in Publishing, Entertainment, Education, Fine Art, Advertising, Interactive Media and Graphic Design.
       2. Review and critique the body of work created.
       3. Develop a resume, artist statement or statement of purpose, college essay or cover letter, business card and other self-promotional materials.
       4. Develop a final portfolio from the student’s body of work for educational and/or career purposes in both a traditional and digital format.

2.E.02 Performance Examples: Student will:

* Research, summarize and present employment and post-secondary requirements.
* Participate in a critical self examination of the complete body of work.
* Inspect and examine work to meet industry and post-secondary standards and make any necessary changes to increase the visual quality of the work.
* Organize the work with a visual flow to clearly reflect the ideas, interests, and area of self- directed exploration.
* Formulate the statement of purpose clearly showing their passion, creative influences, goals, and any other personal information that would have relevance in supporting the statement of purpose utilizing concise and articulate language.

# [Embedded Academic Crosswalks](#_bookmark0)

## [Embedded English Language Arts and Literacy](#_bookmark0)

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| CVTE  Learning Standard Number | Strand Coding Designation Grades ELAs  Learning Standard Number | Text of English Language Arts Learning Standard |
| 2.A.02 | RST 1 | Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.  Performance Example:  Research and then present an artist whose work demonstrates a clear use of a design principle and create a unique piece utilizing their application method. |
| 2.A.03 | RST 5 | Analyze how the text structures information or ideas into categories, demonstrating understanding of ideas.  Performance Example:  Find three existing logos, which are typographic, and explain how they relate to the company they represent. |
| 2.A.04 | RST 3 | Follow precisely a complex multistep procedure when carrying out  experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text).  Performance Example:  Develop a script and storyboard for a video project. |
| 2.C.01 | WHST 2 | Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical  processes.  Performance Example:  Research and present a report on a topic pertaining to the history of illustration, graphic design and art, such as hieroglyphics, famous artists or genres. |
| 2.C.05 | WHST 4 | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.  Performance Example:  Create a four page newsletter incorporating columns, gutters, bleeds, text, graphics and photographs. |
| 2.C.06,  2.D.01 | WHST 6 | Use technology, including the Internet, to produce, publish, and  update individual or shared writing products in response to ongoing feedback, including new arguments or information.  Performance Examples:   * Research, review, and report websites from the inception of the world wide web through the present day to   identify the evolution of the web and its use in past and current marketing and communication trends.   * Review and critique an existing website identifying it’s or the site’s topic, target audience, design elements and   purpose.   * Research an artist and create your own work utilizing the same techniques, medium, and similar subject matter.   Create an original work based on an abstract idea, and then explain its relevance and defend your design choices. |

## [Embedded Mathematics](#_bookmark0)

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| CVTE  Learning Standard Number | Math Content Conceptual Category and Domain Code Learning Standard Number | Text of Mathematics Learning Standard |
| 2.A.01 | 8.G.4 | Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-  dimensional figures, describe a sequence that exhibits the similarity between them.  Performance Example:  Create an illustration using a vector based program. |
| 2.B.04 | 8.EE.4 | Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g.,, use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.  Performance Example:  Assign projects that are based on specific measurements and may require the use of rulers, guides, margins, and utilize the student’s knowledge in the areas of math (i.e. addition, subtraction, division, multiplication, etc.); some of which can be accomplished by using the various shapes and tools provided in the software. |
| 2.C.02 | 8.EE.5 | Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships  represented in different ways.  Performance Example:  Develop and present a creative proposal, production schedule, and budget for a client with graphic visuals, such as bar graphs and pie charts. |
| 2.C.09 | 8.SP.3 | Recognize that a measure of center for a numerical data set  summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.  Performance Example:  Develop and present a creative proposal, production schedule, and budget for a client. |
| 2.C.04 | 8.G. | Understand congruence and similarity using physical models, transparencies, or geometry software  Performance Example:  Create a package design to customer’s specifications, utilizing bleeds, die cuts, and crop marks. |
| 2.C.05 | 8.EE.2 | Understand the connections between proportional relationships, lines, and linear equations.  Performance Example:  Create a poster which demonstrates the principles of the golden mean/golden ratio. |
| 2.C.09 | 7.G1 | Draw, construct, and describe geometrical figures and describe the relationships between them.   1. Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.   Performance Example: Assign projects that are based on specific measurements and may require the use of rulers, guides, margins, and utilizes the student’s knowledge in the areas of math measurement. |

[Industry Recognized Credentials](#_bookmark0) (Licenses and Certifications/Specialty Programs)

**Optional Certifications**

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| **License/Certification** | **Hours Needed** | **Website** |
| ACA Visual Communication with Adobe Photoshop |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| ACA Rich Media Communication with Adobe Flash Professional |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| ACA Web Communication with Adobe Dreamweaver |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| ACA Video Communication with Adobe Premiere Pro |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| ACA Adobe Illustrator |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| ACA Adobe InDesign |  | <http://www.adobe.com/education/resources/certificate-> programs.html |
| OSHA 10 | 10 | <http://www.osha.gov/dte/outreach/index.html> |

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