An instructional framework provides educators with a list of benchmark statements aligned to Common Core and national content area standards for a given course or program. The Missouri Multimedia Instructional Framework lists a sequence of content for multimedia, organized into distinct units of instruction with component evidence of mastery statements.

Codes for the National Standards for Business Education are:

- CD = Career Development
- COMM = Communication
- IT = Information Technology
- M = Management

Codes for Common Core English Language Arts and Literacy are:

- RI = Reading for Informational Text
- SL = Speaking and Listening
- W = Writing
- WHST = Writing for Literacy in History/Social Studies, Science, and Technical Subjects

Codes for Common Core Mathematics are:

- G-CO = Geometry: Congruence

### Multimedia Instructional Framework

<table>
<thead>
<tr>
<th><strong>A. Apply Foundational Concepts</strong></th>
<th><strong>Common Core</strong></th>
<th><strong>NBEA Standards</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop vocabulary related to multimedia.</td>
<td>RI 11-12.4</td>
<td>IT.V.2.2, M.I.A.2.1, COMM.I.C.3.6</td>
</tr>
<tr>
<td>2. Investigate the key principles in internet safety, security, and privacy.</td>
<td>RI 11-12.1</td>
<td>IT.XVI.1-2.4, IT.XVI.1-2.2</td>
</tr>
<tr>
<td>3. Utilize hardware to manipulate various types of media (e.g., cameras, microphones, graphic tablets).</td>
<td></td>
<td>IT.II.1.1</td>
</tr>
<tr>
<td>4. Determine appropriate software application for task.</td>
<td></td>
<td>IT.V.1.1, IT.V.4.4, IT.VI.1-2.1</td>
</tr>
<tr>
<td>5. Use organizational skills to plan multimedia products (e.g., storyboarding, outlining, scripting, task delegation).</td>
<td>WHST 11-12.2a</td>
<td>COMM.I.B.2.8, COMM.I.B.4.5</td>
</tr>
<tr>
<td>6. Apply design principles used in multimedia productions.</td>
<td></td>
<td>COMM.IV.3.8</td>
</tr>
<tr>
<td>7. Create text using typography principles.</td>
<td></td>
<td>IT.V.3.5</td>
</tr>
<tr>
<td>8. Evaluate and determine hardware and software required for multimedia use.</td>
<td></td>
<td>IT.II.1.1, IT.II.1.4, IT.II.1.6, IT.V.3.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B. Manage Media Files</strong></th>
<th><strong>Common Core</strong></th>
<th><strong>NBEA Standards</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify types of files used in multimedia applications (e.g., .gif, .jpg, .ai, .psd, .png, .avi, .wmv).</td>
<td></td>
<td>IT.VI.3.1</td>
</tr>
<tr>
<td>2. Develop electronic file management systems (project folders, file naming, etc.).</td>
<td></td>
<td>IT.III.1.1, IT.III.1.2</td>
</tr>
<tr>
<td>3. Download files from various sources (e.g., audio, images, video, animation).</td>
<td></td>
<td>IT.VIII.1.1, IT.VIII.1.2</td>
</tr>
<tr>
<td>4. Convert files to various formats (e.g., .flv to .avi, .mov to .wmv, .psd to .jpg).</td>
<td></td>
<td>IT.V.3.5</td>
</tr>
<tr>
<td>5. Utilize storage devices (e.g., CD/DVD, portable storage devices).</td>
<td></td>
<td>IT.II.2.5</td>
</tr>
<tr>
<td>6. Manage electronic file storage/transfer (online, Bluetooth, etc.).</td>
<td></td>
<td>IT.III.1.2</td>
</tr>
</tbody>
</table>
### C. Manage Images

1. Acquire and import images from a variety of sources (e.g., scanners, cameras, phones).  
   - IT.VIII.1.1, IT.IV.1.1
2. Apply appropriate resolution settings for intended use of image.  
   - IT.V.3.5
3. Apply appropriate image mode for intended application (e.g., convert RGB, CMYK, grayscale).  
   - IT.V.3.5
   - IT.V.3.5
5. Edit images (e.g., color, filter, tint, contrast, brightness).  
   - IT.V.3.5
6. Manipulate images (e.g., mask, resize, crop, scale, group/ungroup, zoom, pan).  
   - G-CO.4
7. Create original artwork using illustrative software.  
   - IT.VI.1-2.2

### D. Create Audio Files

1. Compare and contrast audio formats common size and quality (e.g., .mp3, .wav, .midi).  
   - IT.VI.1-2.1
2. Rip and import audio from a variety of sources (e.g., CD/DVD, video, Internet).  
   - IT.V.3.5
3. Create original audio (e.g., voice, instrument).  
   - IT.VI.3.2, CO.IV.3.6
4. Mix audio (e.g., layering, trimming, level adjustments).  
   - IT.V.3.5
5. Apply effects to audio (e.g., noise reduction, amplify, echo).  
   - IT.V.3.5
   - IT.V.3.5
7. Apply editing techniques.  
   - IT.V.3.5, IT VI.3.2

### E. Create Animations

1. Create frame-by-frame animations.  
   - IT.V.3.5
2. Create reusable symbols (e.g., button, movie, graphic).  
   - IT.V.3.5
3. Apply motion and shape tweens.  
   - IT.V.3.5
4. Modify bitmaps (trace bitmap, convert to symbol).  
   - IT.V.3.5
5. Use layers and object modification techniques (e.g., transform, alpha transparency, filters).  
   - IT.V.3.5
6. Add interactivity to animations with buttons, menus, and scripting.  
   - IT.V.3.5
7. Explore advanced animation techniques (e.g., 3D).  
   - IT.V.3.5

### F. Create Video Files

1. Develop pre-production documents (e.g., storyboard, shot list).  
   - WHST 11-12.2a
   - IT.IV.2-4.4, IT.IV.2-4.2, M.IA.2.1
2. Apply basic filming techniques (e.g., camera angles, camera movement, lighting, sound).  
   - IT.IV.2-4.2
3. Access, capture, and import a variety of file sources converting file types, if necessary (e.g., audio, video, graphics).  
   - IT.V.3.5, IT.VI.3.2
4. Arrange video clips, audio clips, titles and still images on timeline.  
   - IT.V.3.5
5. Manipulate clips (e.g., link/unlink, adjust transparency, set properties, trim, adjust speed/duration).  
   - IT.V.3.5
6. Apply special effects, transitions, key frame/motion settings, animations, filters, and text.  
   - IT.V.3.5
7. Synchronize audio with video. | IT.V.3.5
8. Apply advanced editing techniques (e.g., split screen format, chromakey, audiopan). | IT.V.3.5
9. Evaluate sources for playing completed video (e.g., hardware, software, web applications). | IT.V.3.6
10. Apply codec (compression) appropriate for the media delivery. | IT.VI.3.2
11. Export video for a variety of media outlets (e.g., broadcast, web). | IT.VI.3.3
12. Author DVD. | IT.VI.4.2

**G. Create and Deliver Electronic Presentations**

<table>
<thead>
<tr>
<th>Task</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify a variety of presentation software (e.g., Prezi, Empresar, PowerPoint, Open Office Impress, Apple Keynote, NXPowerlite).</td>
<td>IT.VI.1-2.1, IT.VI.4.5, IT.VI.3.6</td>
</tr>
<tr>
<td>2. Identify components of effective electronic presentations.</td>
<td>SL 11-12.5</td>
</tr>
<tr>
<td>3. Design linear and non-linear presentations (e.g., interactive game).</td>
<td>IT.V.3.5</td>
</tr>
<tr>
<td>4. Import files into a presentation (e.g., text, images, audio, video).</td>
<td>IT.V.3.5, IT.VI.1.3, IT.IV.2-4.4</td>
</tr>
<tr>
<td>5. Apply advanced editing techniques (e.g., build, effects, timing, animation, transitions).</td>
<td>IT.V.3.5</td>
</tr>
<tr>
<td>6. Export presentation to various formats (e.g., .ppt, .jpg, .html).</td>
<td>IT.V.3.5, IT.VI.3.1, IT.VI.3.2, COMM.IV.2.12</td>
</tr>
<tr>
<td>7. Deliver a presentation using professional standards and techniques.</td>
<td>SL 11-12.4</td>
</tr>
</tbody>
</table>

**H. Create and Utilize Emerging Technologies**

<table>
<thead>
<tr>
<th>Task</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Utilize and create collaborative electronic tools (e.g., wikis, blogs, forums).</td>
<td>WHST 11-12.6</td>
</tr>
<tr>
<td>2. Utilize web-based technologies to publish media (e.g., screencasts, podcasts, vodcasts, iTunes).</td>
<td>IT.VI.A.3.3, IT.VI.A.4.2</td>
</tr>
</tbody>
</table>

**I. Develop Workplace Readiness Skills**

<table>
<thead>
<tr>
<th>Task</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Compare copyright and patent laws for multiple media between educational and workplace settings (e.g., video, text, sound, pictures).</td>
<td>W 11-12.8</td>
</tr>
<tr>
<td>2. Demonstrate ethical behavior when designing multimedia applications.</td>
<td>IT.XV.2.1, IT.XV.2.2, M.VA.3.5, M.VA.4.4</td>
</tr>
<tr>
<td>3. Identify career/self-employment opportunities in multimedia production.</td>
<td>IT.XVIII.1-2.3, CD.I.A.3.6</td>
</tr>
<tr>
<td>4. Exhibit leadership skills through a student organization (e.g., FBLA, PBL).</td>
<td>COMM.IB.3.2, COMM.IB.3.3, COMM.IIA.3.13, COMM.III.C.2.2, COMM.III.C.3.3, COMM.III.C.3.7</td>
</tr>
<tr>
<td>5. Interact with industry professionals (e.g., guest speakers, field trips, job shadowing).</td>
<td>SL 11-12.1</td>
</tr>
<tr>
<td>6. Use help tools (e.g., technical manual, on-line help, technical support).</td>
<td>SL 11-12.2</td>
</tr>
<tr>
<td>7. Demonstrate mastery through work samples.</td>
<td>CD.V.B.3.3</td>
</tr>
</tbody>
</table>
### J. Develop Basic Foundations of Communication

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<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Demonstrate ability to listen/read and follow directions.</td>
<td>RST 11-12.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMM.I.A.1.1, COMM.I.A.2.3, COMM.I.A.2.5, COMM.I.C.1.8</td>
</tr>
<tr>
<td>2.</td>
<td>Demonstrate proofreading and spell check of written media.</td>
<td>W 11-12.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMM.IV.2.6</td>
</tr>
<tr>
<td>3.</td>
<td>Demonstrate appropriate use of grammar while delivering presentations.</td>
<td>SL 11-12.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMM.I.A.3.7, COMM.I.B.3.5</td>
</tr>
<tr>
<td>4.</td>
<td>Demonstrate ability to format written communications to include numbers, and punctuation.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Demonstrate ability to function as a team member.</td>
<td>SL 11-12.1b</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMM.I.A.4.2, COMM.I.D.3.2, COMM.I.C.4.5, COMM.III.C.4.10</td>
</tr>
<tr>
<td>6.</td>
<td>Demonstrate ability to research and analyze information from various sources (i.e. written, digital) for use in written or oral presentation.</td>
<td>WHST 11-12.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMM.I.C.2.1, COMM.I.C.1.7, COMM.I.C.2.6</td>
</tr>
</tbody>
</table>

**Note:** For additional information related to Multimedia, see Desktop Publishing and Web Design Instructional Framework.

### Examples Aligned to Common Core Standards

The following instructional examples follow the expectations of the Desktop Publishing Instructional Framework and align to the Common Core standards.

#### Common Core English Language Arts and Literacy

**RI 11-12.1**
Research Internet security protocol and prepare a public service announcement utilizing the research.

**RI 11-12.4**
Keep a journal of terms.
Prepare video tutorials depicting terms and their meanings.
Prepare interactive power-point presentations to quiz on vocabulary.

**WHST 11-12.2a**
Write a script for a video production.
Prepare a storyboard for electronic presentation.
Develop a task chart for a group project.

**WHST 11-12.6**
Journal on an assigned topic.
Discover solution to problem utilizing a forum.

**WHST 11-12.8**
Develop myth buster style video using various pieces of conflicting electronic research.

**W 11-12.5**
Prepare electronic presentations that are free from error.

**W 11-12.8**
Cite data used in electronic presentations.
Investigate authenticity of data.
RST 11-12.3
Utilize tutorials independently to learn skills not presented by the instructor.

SL 11-12.1
Attend field trips, invite in guest speakers, and allow students to job shadow; have students share their learning with others.

SL 11-12.1b
Assign collaborative assignment allowing students to set their parameters to accomplish the stated objectives of the project.

SL 11-12.2
Present a problem that needs solving. Require students to research in various ways and then present their solution.

SL 11-12.4
Analyze audience and present topic in a manner that will be understood and appealing to that audience.

SL 11-12.5
Prepare electronic presentation utilizing guidelines set forth for effective communication.

SL 11-12.6
Develop an electronic presentation presenting proper grammar rules.

Common Core Mathematics

G-CO.4
Maintain proportion of digital images when preparing electronic presentations.