

WEB DESIGN & MULTIMEDIA PRODUCTIONS

Curriculum Content Frameworks

Please note: All assessment questions will be taken from the knowledge portion of these frameworks.

Prepared by

Becky Kersey, Bentonville High School
Janice Hudson-Owers, Blytheville High School
Kathleen Johnson, Springdale High School

Facilitated by

Karen Chisolm, Program Manager
Office of Assessment and Curriculum
Arkansas Department of Workforce Education

Edited by

Sandra Porter, Program Manager
Jim Brock, Program Advisor
Ginger Fisher, Program Advisor
LaTrenda Jackson, Program Advisor
Tim Johnston, Program Advisor
Office of Business/Marketing Technology
Arkansas Department of Workforce Education

Disseminated by

Career and Technical Education
Office of Assessment and Curriculum
Arkansas Department of Workforce Education

Curriculum Content Frameworks

WEB DESIGN & MULTIMEDIA PRODUCTIONS

Grade Levels: 11, 12
Course Code: 492540

Prerequisite: CA I - CA III or CBA &
Multimedia I or Desktop Publishing I

Course Description: Students learn how to use all of the media equipment (digital camera, camcorder, video capture device, and scanner). Students create multimedia presentations, Web pages, and videos. Emphasis is on good design as well as technical skill as students incorporate the proper combination of text, graphics, video, and sound. Students also edit and produce sophisticated graphics and "animated gifs" for the Web. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.

Table of Contents

	Page
Unit 1: Introduction to Multimedia	1
Unit 2: Graphic Editing	2
Unit 3: Animation	4
Unit 4: Using Sound/Music	6
Unit 5: Video Editing	7
Unit 6: Introduction to HTML, JavaScript, and Creating a Multimedia Web Site	9
Glossary	11

Unit 1: Introduction to Multimedia

Hours: 4

Terminology: Authoring program, Camcorder, Censorship, CD-ROM, CD-writer, Copyright, Digital camera, Development system, DVD, DVD-writer, Fair use, File compression, Firewire, Freeware, Gigabyte, Hard drive, Laser printer, Lossless, Lossy, Megabyte, MHz, Monitor, Multimedia, Multimedia title, Processor, RAM, Royalty free, Scanner, Shareware, Sound card, Speakers, Universal Serial Bus (USB), Video Cassette Recorder (VCR), Video capture card

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
1.1 Define terminology	1.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to multimedia [1.3.6]
1.2 Explain various ways of accessing the Internet	1.2.1 Identify types of browsers 1.2.2 Identify search engines 1.2.3 Describe search techniques	Foundation	Listening Reading Writing	Comprehends concepts related to a database [1.2.1] Comprehends written information for main ideas [1.3.7] Organizes information into an appropriate format [1.6.10]
1.3 Describe the basic components of a development system used for multimedia	1.3.1 Identify some of the equipment used	Foundation	Listening Reading	Comprehends concepts related to development systems [1.2.1] Adjusts reading strategy to purpose and type of reading (skimming and scanning) [1.3.1]
1.4 Identify the laws and regulations affecting multimedia	1.4.1 Differentiate between freeware and shareware 1.4.2 Explain fair use laws that apply to education multimedia productions	Foundation	Listening Speaking	Comprehends concepts related to the laws and regulations affecting multimedia [1.2.1] Communicates a thought, idea, or fact in spoken form [1.5.5]
1.5 Discuss file compression	1.5.1 Recognize why file compression is necessary when dealing with multimedia applications	Foundation	Listening Reading Writing	Comprehends concepts related to file compression [1.2.1] Applies/Uses technical terms as appropriate to audience [1.5.2] Analyzes data, summarizes results, and makes conclusions [1.6.2] Applies/Uses technical words and concepts [1.6.4]

Unit 2: Graphic Editing

Hours: 8

Terminology: Bitmap (BMP), Crop, Font, Font size, Graphics Interchange Format (GIF), Graphic, Joint Photographics Experts Group (JPEG/JPG), Scale, Scan, Vector graphics

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS			
What the Student Should be Able to Do		What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
2.1 Define terminology	2.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to graphic editing [1.3.6]	
2.2 Identify different text formats	2.2.1 Discuss fonts and font characteristics	Thinking	Knowing How to Learn	Uses available resources to apply new skills [4.3.6]	
2.3 Identify various graphic formats	2.3.1 Explain graphic file formats: <ul style="list-style-type: none"> • bitmap • vector graphics • Gif • JPEG • others 	Foundation	Listening	Comprehends ideas and concepts related to graphic formats [1.2.1]	
	2.3.2 Locate and obtain graphics from the Internet		Reading	Applies/Uses technical terms as appropriate to audience [1.5.2]	
2.4 Demonstrate use of hardware used for graphics and text	2.4.1 Scan an image and/or text	Thinking	Speaking	Participates in conversation, discussion, and group presentations [1.5.8]	
	2.4.2 Take a picture using a digital camera and upload to your computer		Writing	Analyzes data, summarizes results, and makes conclusions [1.6.2] Applies/Uses technical words and concepts [1.6.4]	
2.5 List types of graphic software	2.5.1 Compare and contrast graphic software applications	Foundation	Creative Thinking	Develops visual aids to create audience interest [4.1.4]	
			Reasoning	Comprehends ideas and concepts related to graphics hardware [4.5.2]	
			Writing	Analyzes data, summarizes results, and makes conclusions [1.6.2] Applies/Uses technical words and concepts [1.6.4] Communicates thoughts, ideas, or facts in written form in a clear, concise manner [1.6.6] Presents own opinion in written form in a clear, concise manner [1.6.14]	

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do		What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
2.6 Edit images using a graphic software	2.6.1 Demonstrate how to transform images: <ul style="list-style-type: none"> • crop • scale • rotate • skew • distort 2.6.2 Apply color adjustments to a photo: <ul style="list-style-type: none"> • brightness • contrast • hue • saturation 2.6.3 Demonstrate photographic manipulation: <ul style="list-style-type: none"> • changing heads • changing backgrounds • liquefying • blurring • retouching • layering • opacity • others 	Thinking	Creative Thinking Seeing Things in the Mind's Eye	Uses imagination to create something new [4.1.1] Applies personal style to a drawing [4.1.11] Organizes and processes images - symbols, pictures, graphs, objects, etc. [4.6.2] Visualizes a finished product [4.6.4]

Unit 3: Animation

Hours: 9

Terminology: Animation, Animated gif, Cel animation, Frame, Frame rate, Looping, Morphing, Path animation, Tweening

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do		What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
3.1 Define terminology	3.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to animation [1.3.6]
3.2 List types of software used to create animations	3.2.1 Compare and contrast various animation software	Foundation	Listening	Comprehends ideas and concepts related to types of animation software [1.2.1]
		Thinking	Creative Thinking	Uses imagination to create something new [4.1.1] Combines ideas or information in a new way [4.1.2] Develops visual aids to create audience interest [4.1.4]
			Knowing How to Learn	Applies new knowledge and skills to animation software [4.3.1] Uses available resources to acquire new skills or improve skills [4.3.4]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
3.3 Demonstrate how to create an animation	3.3.1 Create an animation	Thinking	Creative Thinking	Uses imagination to create something new [4.1.1] Creates new design by applying specified criteria [4.1.3] Develops visual aids to create audience interest [4.1.4] Applies personal style to a drawing [4.1.11]
			Decision Making	Comprehends ideas and concepts related to creating animation [4.2.2] Evaluates information/data to make best decision [4.2.5]

Unit 4: Using Sound/Music

Hours: 5.5

Terminology: Analog, Digital, Media Player, Musical Instrument Digital Interface (MIDI), MP3 (MPEG), Ripper, Streaming Audio, Waveform Audio (WAV)

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS			
What the Student Should be Able to Do		What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
4.1 Define terminology	4.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to using sound/music [1.3.6]	
4.2 Describe different types of sound files	4.2.1 Locate and save a WAVE file from the Internet 4.2.2 Find and save a MIDI file from the Internet 4.2.3 Use a ripper to extract music from a CD	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Comprehends written information and applies it to a task [1.3.8] Follows written directions [1.3.13] Identifies relevant details, facts, and specifications [1.3.16]	
4.3 Demonstrate use of hardware for sound	4.3.1 Use a microphone and save your waveform 4.3.2 Use speakers	Thinking	Knowing How to Learn	Uses available resources to acquire new skills or improve skills [4.3.4] Uses available resources to apply new skills [4.3.6]	
4.4 Demonstrate how to manipulate a sound file	4.4.1 Edit a sound file	Thinking	Decision Making Problem Solving	Evaluates information/data to make best decision [4.2.5] Tracks and evaluates results [4.4.10]	

Unit 5: Video Editing

Hours: 12

Terminology: Audio Visual Interleave (AVI), Blue/Green screen, Blur, Chroma keying, Dissolve, Export, Fade in/out, Import, Linear, Moving Pictures Expert Group (MPEG), Non-linear, Render, Slow motion, Streaming media, Timeline, Transitions, Video cropping, Zoom

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS			
What the Student Should be Able to Do		What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
5.1 Define terminology	5.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to video editing [1.3.6]	
5.2 Describe the most commonly used file formats for video	5.2.1 Compare and contrast different video file formats	Foundation	Listening Reading Speaking	Comprehends ideas and concepts related to video files [1.2.1] Draws conclusions from what is read [1.3.12] Participates in conversation, discussion, and group presentations [1.5.8]	
5.3 Describe sources for obtaining digital video	5.3.1 Locate and save a digital video from the Internet 5.3.2 Use a digital camcorder to create a video and upload to your computer 5.3.3 Use a video capture device to extract video from a VCR/DVD	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Comprehends written information and applies it to a task [1.3.8] Follows written directions [1.3.13] Identifies relevant details, facts and specifications [1.3.16]	
5.4 List types of video editing software	5.4.1 Differentiate between types of video editing software	Foundation	Listening Speaking	Comprehends ideas and concepts related to video editing software [1.2.1] Communicates a thought, idea, or fact in spoken form [1.5.5]	

CAREER and TECHNICAL SKILLS			ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do			What the Instruction Should Reinforce		
Knowledge	Application		Skill Group	Skill	Description
5.5 Edit video and sound using a video editing software	5.5.1	Add several video clips to a timeline	Thinking	Creative Thinking	Uses imagination to create something new [4.1.1]
	5.5.2	Add several sound clips to a timeline with fade in and outs between clips			Creates new design by applying specified criteria [4.1.3]
	5.5.3	Add special video effects: <ul style="list-style-type: none"> • blur • crop • zoom • dissolve • slow motion • chroma keying • fade • others 			Develops visual aids to create audience interest [4.1.4]
	5.5.4	Add transitions between video clips		Decision Making	Demonstrates decision-making skills [4.2.4]
	5.5.5	Split video/sound clips using software tools		Knowing How to Learn	Applies new knowledge and skills to using video editing software [4.3.1]
	5.5.6	Render a completed video			Processes new information as related to workplace [4.3.4]
	5.5.7	Export the timeline as a video file			Uses available resources to apply new skills [4.3.6]

Unit 6: Introduction to HTML, JavaScript, and Creating a Multimedia Web Site

Hours: 10

Terminology: Background, Captions, Child page, Forms, Frames, Home page, Hotspot, Hover/Rollover buttons, Hyperlink, HyperText Markup Language (htm/html), Image maps, Index page, JavaScript, Navigation, Parent page, Publishing, Scrolling marquee, Storyboard, Tables, Tags, Target audience, Text editor, Themes, Thumbnails, Wickets

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
6.1 Define terminology	6.1.1 Prepare a list of terms with definitions	Foundation	Reading	Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to multimedia Web sites [1.3.6]	
6.2 Identify Web page design software	6.2.1 Explain features of various Web page design software	Foundation	Speaking Writing	Applies/uses Technical terms as appropriate to audience [1.5.2] Applies/Uses technical words and concepts [1.6.4]	
6.3 Discuss design considerations and planning steps in developing an effective Web site	6.3.1 Explain features considered when planning a Web site 6.3.2 Evaluate Web sites for effectiveness 6.3.3 Determine target audience 6.3.4 Develop storyboard 6.3.5 Edit storyboard 6.3.6 Finalize storyboard	Foundation Thinking	Reading Creative Thinking Seeing Things in the Mind's Eye	Applies information and concepts derived from printed materials [1.3.3] Comprehends written information and applies it to a task [1.3.8] Develops visual aids to create audience interest [4.1.4] Visualizes a finished product [4.6.4]	
6.4 Create a Web site using HTML	6.4.1 Create a Web site with components such as: <ul style="list-style-type: none"> • titles • background colors or images • background sound • scrolling marquee • horizontal ruled line • graphics and/or animated gifs • appropriate text (changing fonts, colors, and sizes) • hyperlink pages together with text and/or graphics • table with pertinent information and graphics 	Thinking	Creative Thinking Decision Making Knowing How to Learn	Uses imagination to create something new [4.1.1] Develops visual aids to create audience interest [4.1.4] Generates options/alternatives [4.2.6] Applies new knowledge and skills to using video editing software [4.3.1] Uses available resources to apply new skills [4.3.6]	

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
6.5 Add JavaScript special effects	6.5.1 Use a site with downloadable scripts to add to your Web site	Thinking	Decision Making	Evaluates information/data to make best decision [4.2.5]	
6.6 Identify components of a Web site	6.6.1 Create a multipage Web site using components such as: <ul style="list-style-type: none"> • themes/frames • scrolling marquees • page transitions • thumbnails • alternative text • page captions • tables • hover/rollover buttons • forms • image map/hot spot 	Thinking	Creative Thinking Decision Making	Prepares presentation based on subject research, interviews, surveys [4.1.10] Evaluates information/data to make best decision [4.2.5]	
6.7 Add multimedia to your Web site	6.7.1 Insert sounds, video, graphics, and text to enhance your Web site	Thinking	Decision Making	Demonstrates decision-making skills [4.2.4]	
6.8 Identify methods of publishing a Web site	6.8.1 Demonstrate how to publish a Web site	Foundation	Speaking	Applies/Uses technical terms as appropriate to audience [1.5.2]	

Glossary

Unit 1: Introduction to Multimedia

1. Authoring program – used to write a multimedia title and allows you to easily combine elements and create hyperlinks
2. Camcorder – electronic device that contains both a video camera and recording
3. Censorship – to examine in order to suppress or keep others from accessing or viewing
4. CD-ROM – Compact Disc Read-Only Memory
5. CD-writer – a device for writing materials such as graphics to a compact disc
6. Copyright – a protection that covers published and unpublished works, whatever the form of expression, provided such works are fixed in a tangible or material form
7. Digital camera – a camera which produces images directly into an electronic file format for transfer to a computer
8. Development system – a high-end computer system used to create multimedia titles
9. DVD – Digital Video Disc
10. DVD-writer – a device for writing video and audio material to a digital video disc
11. Fair use – a legal principle that defines the limitations on the exclusive rights of copyright holders; allows materials to be used without infringing on the copyright
12. File compression – a digital technique used to reduce the size of a file by analyzing occurrences of similar data
13. Firewire – a method of transferring information between digital devices, especially audio and video equipment, that can achieve speeds of up to 800 Mbps
14. Freeware – programming that is offered at no cost and is in a common class of small applications available for downloading
15. Gigabyte – one billion bytes
16. Hard drive – a fixed storage device that permanently stores program instructions that are needed each time the program is run
17. Laser printer – a peripheral device that uses toner to produce high quality images using the same technology as copier machines
18. Lossless – a type of compression that allows ability to recreate image with the loss of data (e.g., PCX, PNG)
19. Lossy – a type of compression that discards portions of data thus producing smaller file sizes (e.g., JPEG)

20. Megabyte – one million bytes
21. MHz – used in specifying computer CPU speed
22. Monitor – a television type display made up of a large number of dots, each of which can be set to display a certain color
23. Multimedia – the use of a computer to combine and present text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate
24. Multimedia title – a multimedia application such as reference, entertainment, or educational product (e.g., in-class presentations, sales presentations)
25. Processor – the brain of a computer system; the part of a computer that controls its operations and performs calculations
26. RAM – Random Access Memory
27. Royalty free – materials that can be used at will without prior permission
28. Scanner – a hardware device used to capture images from printed material
29. Shareware – software distributed free on a trial basis with the understanding that the user may need or want to pay for it later
30. Sound card – an expansion board that enables a computer to manipulate and output sounds
31. Speakers – an internal or external device linked to a computer's system for audio listening
32. Universal Serial Bus (USB) – a port used to transport data from a peripheral device into the computer
33. Video Cassette Recorder (VCR) – a storage device that records video on cassette tape in a format that can be presented via television
34. Video capture card – an expansion card that digitizes full-motion video from a VCR, camera or other video source

Unit 2: Graphic Editing

1. Bitmap (BMP) – an image that is displayed in an array of pixels; standard windows format
2. Crop – to trim a graphic removing unwanted parts
3. Font – the general shape and style of a set of characters
4. Font size – represents 1/72 of an inch for a set of characters
5. Graphics Interchange Format (GIF) – the dominant non-photographic quality image file format for the Internet
6. Graphic – an item other than text including photos, clip art, and drawing objects
7. Joint Photographics Experts Group (JPEG/JPG) – image that uses compression techniques specifically designed for photographic images
8. Scale – to change the size of an object while maintaining its shape
9. Scan – using a peripheral device to capture images from printed material
10. Vector graphics – graphics that are based on mathematical formulas

Unit 3: Animation

1. Animation – a simulation of movement or the perception of motion created by the rapid display of a series of images
2. Animated gif – a graphic format that simulates movement
3. Cel animation – based on the changes that occur from one frame to another to give the illusion of movement
4. Frame – single image in a video or animation
5. Frame rate – the speed at which frames appear on a display, measured by frames per second
6. Looping – the number of times an animation is repeated
7. Morphing – taking two images and making them one by plotting a series of points on the original image; the second image seems to grow out of the first image
8. Path animation – moves an object along a predetermined path on the screen such as a bouncing ball
9. Tweening – a type of path animation where the user sets the beginning and ending positions and the program automatically fills in the frames on a timeline

Unit 4: Using Sound/Music

1. Analog – a type of audio that can be easily distorted because every sound is measured in recurring patterns
2. Digital – the reproduction and transmission of sound stored in a format that can only be used on a computer
3. Media Player – a program that allows you to play and manage audio, video, and mixed media files
4. Musical Instrument Digital Interface (MIDI) – generates music and sounds through the computer sound board
5. MP3 (MPEG) – a compressed audio file format that is the current standard for exchanging music files over the Internet; MP3 gets its name from MPEG, audio layer 3
6. Ripper – a media player component that “grabs” audio from a compact disc and transfers it to the computer’s hard drive
7. Streaming Audio – a term used to describe the listening of audio via the Internet in real time
8. Waveform Audio (WAV) – captures sounds which are widely used on the Web

Unit 5: Video Editing

1. Audio Visual Interleave (AVI) – a form of compressed movie
2. Blue/Green screen – a colored backdrop used to create transparency using color key or chroma effects
3. Blur – the transition similar to a dissolve, except that one clip loses focus while the next clip sharpens
4. Chroma keying – special key effects that use color for the background
5. Dissolve – a gradual transition from shot to shot, where the two images overlap
6. Export – to save a file generated in one application into a format that is readable in another
7. Fade in/out – the gradual appearance or disappearance of a picture to or from black
8. Import – to bring a file generated in one application into another application
9. Linear – video editing which requires fast forwarding and rewinding to specific spots in the video; sequential editing
10. Moving Pictures Expert Group (MPEG) – a powerful lossy compression routine that records very little change from one frame to another; the new standard for digital video
11. Non-linear – a process that allows quick access to a specific point in a video file; random editing
12. Render – converting edited clips and effects into a movie format
13. Slow motion – a scene where the objects appear to be moving more slowly than normal
14. Streaming media – a term used to describe the viewing of video via the Internet in real time
15. Timeline – editing window where clips are arranged and sequenced
16. Transitions – the change from one video clip to another; includes cuts, dissolves, blurs, wipes, zoom, and more
17. Video cropping – trimming unwanted parts of video
18. Zoom – the process of enlarging or reducing parts of a video frame for clear viewing

Unit 6: Introduction to HTML, JavaScript, and Creating a Multimedia Web Site

1. Background – graphics, colors, gradients, and/or sound which are the canvas of a Web page
2. Captions – text that describes graphics on a Web page
3. Child page – all pages under the home page or another child page
4. Forms – an area of a Web page that allows the viewer to enter data and information to be sent back to the Web server
5. Frames – a special way to divide the Web page into sections
6. Home page – the top-level or entry page of a Web site
7. Hotspot – an invisible region on an image that contains a hyperlink
8. Hover/Rollover buttons – a navigation button that changes when the mouse is positioned over it
9. Hyperlink – connection from one page to another or from one site to another
10. HyperText Markup Language (htm/html) – extension used on Web pages which defines the page layout, fonts and graphic elements as well as the hypertext links to other documents on the Web
11. Image maps – a region on a Web page that contains one or more hotspots
12. Index page – the top-level or entry page of a Web site
13. JavaScript – language used to add special effects to a Web site
14. Navigation – the organizational structure of a Web site
15. Parent page – a page over a child page or pages
16. Publishing – sending or uploading Web pages to a server where they are made available on the World Wide Web
17. Scrolling marquee – moving text that scrolls across the screen to gain the reader's attention
18. Storyboard – the planning of a Web page using sketches of graphics, fonts, and/or page colors; may be hand-drawn or computer generated with no artistic ability needed
19. Tables – used to present text and graphics in rows or columns
20. Tags – an integral part of HTML enclosed in wickets that gives the Web browser specific directions on how to display elements
21. Target audience – the collective group of people expected to visit a Web site
22. Text editor – a program that enables you to create and edit an HTML document

23. Themes – a built-in design for a Web site for buttons navigation, banners, fonts, etc.
24. Thumbnails – miniature representations of a picture
25. Wickets – angle brackets (<>) placed around HTML tags