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Part 51: Arts Audio Video Technology and Communications, Career Pathway

2014 Digital Media Technology

Mississippi Department of Education

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The Research and Curriculum Unit (RCU), located in Starkville, MS, as part of Mississippi State University, was established to foster educational enhancements and innovations. In keeping with the land grant mission of Mississippi State University, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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Standards

Standards are superscripted in each unit and are referenced in the appendices. Standards in the *Digital Media Technology Curriculum Framework and Supporting Materials* are based on the following:

Information Technology Cluster
- Web & Digital Communications Career Pathway (IT-WD)

Arts, A/V Technology & Communications Cluster
- Printing Technology Career Pathway (AR-PRT)
- A/V Technology & Film Career Pathway (AR-AV)
- Visual Arts Career Pathway (AR-VIS)

The standards were extensively researched and reviewed by leaders in the industry, secondary and postsecondary instructors, and university specialists. For each content standard, performance elements representing major topic areas with accompanying performance indicators were developed. Measurements of assessment of the performance elements and performance indicators were developed at the basic, intermediate, and advanced levels. A complete copy of the standards can be accessed http://www.careertech.org/career-technical-education/cctc/ .

Common Core State Standards Initiative

The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved. States and territories of the United States as well as the District of Columbia that have adopted the Common Core State Standards in whole are exempt from this provision, and no attribution to the National Governors Association Center for Best Practices and Council of Chief State School Officers is required. Reprinted from http://www.corestandards.org/.

National Educational Technology Standards for Students

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21st Century Skills and Information and Communication Technologies Literacy Standards

In defining 21st-century learning, the Partnership for 21st Century Skills has embraced five content and skill areas that represent the essential knowledge for the 21st century: global awareness; civic engagement; financial, economic, and business literacy; learning skills that encompass problem-solving, critical-thinking, and self-directional skills; and information and communication technology (ICT) literacy.

Preface

Secondary career and technical education programs in Mississippi face many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing true learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, *Mississippi Code of 1972*, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, Ch. 487, §14; Laws, 1991, Ch. 423, §1; Laws, 1992, Ch. 519, §4 eff. from and after July 1, 1992; Carl D. Perkins Vocational Education Act IV, 2007; and No Child Left Behind Act of 2001).

Mississippi Teacher Professional Resources

The following are resources for Mississippi teachers.

Curriculum, Assessment, Professional Learning, and other program resources can be found at The Research and Curriculum Unit's website: http://www.rcu.msstate.edu

Learning Management System: An online resource

Learning Management System information can be found at the RCU's website under Professional Learning.

Should you need additional instructions, please call 662.325.2510.

My PLC: An online registration for all professional-development sessions

To register for any session, teachers will need an account in the registration system, MyPLC, https://myplc.rcu.msstate.edu. To create an account, click on the link and navigate to the "Request a Guest ID" link. The ID should be the teacher's first initial and last name and the last four (4) digits of the social security number. Teachers should complete the entire form, which will then be sent to a secure server. Upon activation of the teacher's account, he or she will receive an e-mail with login instructions. The teacher may then browse for the available sessions and register for the desired courses.

Should you need additional instructions, please call 662.325.2510.

Executive Summary

Pathway Description

This program is designed for students who wish to develop, design, and implement projects in the fast growing field of digital media. The program emphasizes the techniques and tools used in digital media and the creative design or content of such media. Both theoretical learning and activity-based learning are provided for students who wish to develop and enhance their competencies and skills. The course focuses on the basic areas of computer graphics, audio production multimedia, and animation. Exposure to state-of-the-art equipment is given through advice by experts from industry.

Industry Certification

Research with Mississippi industry suggests that this curriculum should be aligned to the Adobe Certified Associate Certification or equivalent. This exam assesses the foundation of digital communication skills students need to create effective communication using digital media tools. This certification was developed after a group of industries met with educators to design the entry-level skill industry standards for Web communication, rich media communication, and visual communication. Additionally, the Final Cut Pro (latest ed.) is recognized as the standard industry software for video production. It is recommended that this curriculum be aligned the Final Cut Pro Level 1 Certification or equivalent.

Assessment

The latest assessment blueprint for the curriculum can be found at http://www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx

Student Prerequisites

In order for students to be able to experience success in the program, the following student prerequisites are suggested:

1. C or higher in English (the previous year)
2. C or higher in Math (last course taken or the instructor can specify the math)
3. Instructor Approval and TABE Reading Score (eighth grade or higher)

or

1. TABE Reading Score (eighth grade or higher)
2. Instructor Approval

or

1. Instructor Approval

Academic Credit

The latest academic credit information can be found at https://www.rcu.msstate.edu/MDE/PathwaystoSuccess.aspx. Once there, click the "*Counselor Resources*" Tab, then click "*Curriculum Enhancement List.*" Check this site often as it is updated frequently.

Teacher Licensure

The latest teacher licensure information can be found at http://www.mde.k12.ms.us/educator-licensure

Professional Learning

If you have specific questions about the content of any of training sessions provided, please contact the Research and Curriculum Unit at 662.325.2510.

Course Outlines

Option 1—Four One-Carnegie-Unit Courses

This curriculum consists of four one-credit courses, which should be completed in the following sequence:

1. **Orientation to Digital Media – Course Code: 994108**
2. **Fundamentals of Digital Media – Course Code: 994109**
3. **Theory and Applications of Digital Media I – Course Code: 994110**
4. **Theory and Applications of Digital Media II – Course Code: 994111**

Course Description: Orientation to Digital Media
Orientation to Digital Media includes the foundation skills necessary in the digital media industry. Content such as safety, ethical issues and production, photography, graphic design, and print production will be offered to students. This is a one-Carnegie-unit course.

Course Description: Fundamentals of Digital Media
Fundamentals of Digital Media emphasizes real-world, hands-on practice. Content related to audio production and media-rich content for Web design will be offered to students. This one-Carnegie-unit course should only be taken after students successfully pass Orientation to Digital Media.

Course Description: Theory and Applications of Digital Media I
Theory and Applications of Digital Media I focuses on career opportunities in video technology, production systems, production process, and video production. This one-Carnegie-unit course should only be taken after students successfully pass Fundamentals of Digital Media.

Course Description: Theory and Applications of Digital Media II
Theory and Applications of Digital Media II emphasizes real-world, hands-on practice. Content related to motion graphics will be offered to students. This one-Carnegie-unit course should only be taken after students successfully pass Theory and Applications of Digital Media I.

Orientation to Digital Media —Course Code: 994108

Unit	Unit Name	Hours
1	Introduction, Safety, and Orientation	20
2	Photography and Photo Editing	60
3	Print Production and Design	60
Total		140

Fundamentals of Digital Media —Course Code: 994109

Unit	Unit Name	Hours
4	Introduction and Editing for Audio Production	60
5	Finalizing Audio Production	60

6	Media-Rich Content Design	20
Total		140

Theory and Applications of Digital Media I —Course Code: 994110

Unit	Unit Name	Hours
7	Introduction, Safety, and Orientation	20
8	Preparing to Edit	22.5
9	Telling the Story	32.5
10	Editing Basics	32.5
11	Finishing the Project	32.5
Total		140

Theory and Applications of Digital Media II —Course Code: 994111

Unit	Unit Name	Hours
12	Discovering Motion Graphics	35
13	Basic Animation	35
14	Designing Effects and Graphics	35
15	Fundamentals of 3D to Motion Graphics	35
Total		140

Option 2—Two Two-Carnegie-Unit Courses
This curriculum consists of two two-credit courses, which should be completed in the following sequence:

1. **Digital Media Technology I —Course Code: 994100**

2. **Digital Media Technology II —Course Code: 994101**

Course Description: Digital Media Technology I
Digital Media Technology I encompasses the foundation skills necessary in the digital media industry. Content such as safety, ethical issues and production, photography, graphic design, and print production will be offered to students. The Audio Production and Media Rich Content portion of the course emphasizes real-world, hands-on practice. Students will receive two Carnegie units upon completion of the course.

Course Description: Digital Media Technology II
Digital Media Technology II focuses on the process of video production and editing as well as career opportunities in audio and video technology. Another component of the course is motion graphics. This two-Carnegie-unit course should only be taken after students successfully pass Digital Media Technology I

Digital Media Technology I —Course Code 994100

Unit	Unit Name	Hours
1	Introduction, Safety, and Orientation	20
2	Photography and Photo Editing	60
3	Print Production and Design	60
4	Introduction and Editing for Audio Production	60
5	Finalizing Audio Production	60
6	Media-Rich Content Design	20
Total		280

Digital Media Technology II —Course Code: 994101

Unit	Unit Name	Hours
7	Introduction, Safety, and Orientation	20
8	Preparing to Edit	22.5
9	Telling the Story	32.5
10	Editing Basics	32.5
11	Finishing the Project	32.5
12	Discovering Motion Graphics	35
13	Basic Animation	35
14	Designing Effects and Graphics	35
15	Fundamentals of 3D to Motion Graphics	35
Total		280

Research Synopsis

Introduction

The Arts Audio-Video Technology and Communications Career Pathway will target careers at the professional and technical levels in Arts Audio-Video Technology and Communications. Students enrolled in these courses should be better prepared to pursue degrees at the community college and 4-year-college level.

Needs of the Future Workforce

Due to a an increase in the demand for production and editing of photo, audio, video, and motion graphics, these occupations are expected to grow at an average to above-average rate with the Mississippi Department of Employment Security (2013) projecting a growth rate ranging from 4% to 25% within the state by 2020.

Data for this synopsis were compiled from the Mississippi Department of Employment Security (2013). Employment opportunities for each of the occupations listed below are

Table 1.1: Current and Projected Occupation Report

Description	Jobs, 2010	Projected Jobs, 2020	Change (Number)	Change (Percent)	Average Hourly Earning
Graphic Designers	730	790	60	8.2	$17.52
Multi-Media Artists and Animators	40	40	0	0	$20.52
Film and Video Editors	40	50	10	25.0	$17.43
Sound Engineering Technicians	20	20	0	0	$18.95
Producers and Directors	250	260	10	4.0	$19.46

Source: Mississippi Department of Employment Security; www.mdes.ms.gov (accessed September 12, 2013).

Perkins IV Requirements

The Digital Media Technology curriculum meets Perkins IV requirements of high-skill, high-wage, and/or high-demand occupations by introducing students to and preparing students for occupations. It also offers students a program of study including secondary, postsecondary, and IHL courses that will prepare them for occupations in these fields. Additionally, the Digital Media Technology curriculum is integrated with academic common core standards. Lastly, the

Digital Media Technology curriculum focuses on ongoing and meaningful professional development for teachers as well as relationships with industry.

Curriculum Content

Summary of Standards

The standards to be included in the Digital Media Technology curriculum are the Common Career Technical Core, Common Core Standards for Mathematics and Language Arts, 21st Century Skills, and the National Educational Technology Standards (NETS) for Students. Combining these standards to create this document will result in highly skilled, well-rounded students who are prepared to enter a secondary academic or career and technical program of study. They will also be prepared to academically compete nationally as the Common Core Standards are designed to prep students for success in community colleges, Institutions of Higher Learning and careers.

Transition to Postsecondary Education

The latest articulation information for Secondary to Postsecondary can be found at the Mississippi Community College Board (MCCB) website http://www.mccb.edu/

Best Practices

Innovative Instructional Technologies

Recognizing that today's students are digital learners, the classroom should be equipped with tools that will teach students in the way they need to learn. The Digital Media Technology teacher's goal should be to include teaching strategies that incorporate current technology. To make use of the latest online communication tools such as wikis, blogs, and podcasts, the classroom teacher is encouraged to use a learning management system, for example, the Information Technology Teacher Learning Management System, that introduces students to education in an online environment and places the responsibility of learning on the student.

Differentiated Instruction

Students learn in a variety of ways. Some are visual learners, needing only to read information and study it to succeed. Others are auditory learners, thriving best when information is read aloud to them. Still others are tactile learners, needing to participate actively in their learning experiences. Add the student's background, emotional health, and circumstances, and a very unique learner emerges. By providing various teaching and assessment strategies, students with various learning styles can succeed.

Career and Technical Education Student Organizations

Teachers should investigate opportunities to sponsor a student organization. There are several here in Mississippi that will foster the types of learning expected from the Digital Media Technology curriculum. SkillsUSA, TSA, MECA and FBLA are some of the student organizations for Digital Media Technology. These organizations provide students with growth opportunities and competitive events. They also open the doors to the world of Digital Media Technology and scholarships opportunities.

Cooperative Learning

Cooperative learning can help students understand topics when independent learning cannot. Therefore, you will see several opportunities in the Digital Media Technology curriculum for group work. To function in today's workforce, students need to be able to work collaboratively with others and solve problems without excessive conflict.

Conclusions

The Digital Media Technology curriculum is one of Mississippi's most comprehensive technology curriculums. Students that complete these programs are well equipped for a variety of endeavors. Instructors are urged to encourage Digital Media Technology students to pursue educational opportunities at community colleges and universities in Mississippi.

Professional Organizations

Association for Career and Technical Education - ACTE
1410 King Street
Alexandria, VA 22314
800-826-9972
http://www.acteonline.org

Mississippi Association for Career and Technical Education – MSACTE
http://www.mississippiacte.com/

Technology Student Association – TSA http://www.tsaweb.org/

SkillsUSA - http://www.skillsusa.org/

Future Business Leaders of America – FBLA http://fbla-pbl.org/

Mississippi Educational Computing Association – MECA http://www.ms-meca.org/

Using This Document

Suggested Time on Task
This section indicates an estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75–80% of the time in the course.

Competencies and Suggested Objectives
A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies. The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.

Integrated Academic Topics, 21st Century Skills and Information and Communication Technology Literacy Standards, ACT College Readiness Standards, and Technology Standards for Students
This section identifies related academic topics as required in the Subject Area Testing Program (SATP) in Algebra I, Biology I, English II, and U.S. History from 1877, which are integrated into the content of the unit. Research-based teaching strategies also incorporate ACT College Readiness standards. This section also identifies the 21st Century Skills and Information and Communication Technology Literacy skills. In addition, national technology standards for students associated with the competencies and suggested objectives for the unit are also identified.

References
A list of suggested references is provided for each unit. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested, and the list may be modified or enhanced based on needs and abilities of students and on available resources.

Digital Media Technology I
Unit 1: Introduction, Safety, and Orientation

Competencies and Suggested Objectives
1. Identify course expectations, school policies, program policies, and safety procedures related to Digital Media Technology (DMT). a. Identify course expectations, school policies, and program policies related to Digital Media Technology (DMT). b. Apply safety procedures in the computer classroom and lab.
2. Explore personality development, leadership, and teamwork in relation to the classroom environment, interpersonal skills, and others. DOK1 a. Identify potential influences that shape the personality development including personality traits, heredity, and environment. b. Develop a report on how personality traits affect teamwork and leadership skills. c. Identify forces that shape personality development, including personality traits, heredity, and environment. d. Develop effective leadership, decision-making, and communication skills.
3. Research copyright rules, regulations, and issues related to graphics and images produced by others, and original work, and adhere to those rules and regulations when developing work. DOK 2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10, AVT1 a. Define terms related to copyright rules, regulations, and issues related to graphics and images produced by others, and original work. b. Research copyright laws related to graphics, images, and other original work. c. Give examples of copyright violations related to trademark, symbols, length of time, and public domain. d. Prepare images and video for Web and print that meet copyright guidelines.

Scenario

Unit 1

No scenario is needed for this Unit.

Attachments for Scenario

None

Unit 2: Photography and Photo Editing

Competencies and Suggested Objectives

1. Explain photography and graphic design elements. DOK1, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
   a. Identify safety and proper use of equipment related to photography.
   b. Identify the basic components of a digital camera and photography-related terms.
2. Use photo editing software to create and edit a product. DOK3, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
   a. Identify terminology related to the photo editing software.
   b. Demonstrate how to open and save an image from a digital camera and an image from a scanner in photo editing software.
   c. Apply the following tools of photo editing software
      - Levels
      - Curves
      - Brightness
      - Auto color correction
      - Clone stamp
      - Lasso
      - Magic wand
      - Crop
      - Image
      - Canvas size
      - Transform
   d. Determine proper resolution for printing a photograph on a designated size of paper using photo editing software.
   e. Use Photomerge to create panoramic images.

Scenario

Unit 2

The Animal Hybrid project

The students will create a new animal from large pictures of different animals. They will use masking, cropping, selecting, and clone/stamp tools. Pictures chosen need to be high resolution and need to be facing the same direction. Research the animals they used to create them, and combine behaviors, scientific names, etc., and write a paper on how the animal was discovered, who discovered it, and all the cool things about the new animal.

Attachments for Scenario

None

See the fact sheet and other resources in the teacher resources document found on the RCU Curriculum Download page: www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx

Unit 3: Print Production and Design

Competencies and Suggested Objectives
1. Apply color theory and design principles. DOK 2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10, PRT1, PRT2, PRT3 a. Discuss the types of design principles and define design principle terms. b. Demonstrate the importance of color management, and explain why color variations occur between devices. c. Demonstrate use of selection, drawing, and painting tools in appropriate graphic design software. d. Discuss possible canvas sizes for logos, and demonstrate the options that can be altered. e. Incorporate image-optimization (vector and bitmap) strategies and file formats. f. Identify aspects of redesign and its importance in the design process.
2. Examine typography and layout design. DOK 1, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10, PRT1, PRT2, PRT3 a. Discuss typography concepts for use in planning and designing in graphic design. b. Discuss how tone, audience, and purpose impact design and readability. c. Explore resizing and cropping images. d. Demonstrate layout in graphic software. e. Demonstrate importing files into graphic software.
3. Apply design principles and techniques in the creation of a print project. DOK 3, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10, PRT1, PRT2, PRT3 a. Utilize design principles and techniques for use in planning, designing, and producing a print project. b. Introduce aspects of project management and how to work with clients. c. Explore the process of reviewing and redesigning a print project.

Scenario

Unit 1

The students will produce a calendar using pictures taken during the photography unit or personal photos brought from home (personal photos must be scanned). The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 4: Introduction and Editing for Audio Production

Competencies and Suggested Objectives
1. Explore the audio production software. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
2. Create loops using audio production software. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
3. Demonstrate basic editing skills in audio production software. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
4. Demonstrate the techniques involved in refining the editing process. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
5. Produce an audio track by mixing in audio production software. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10

Scenario

Unit 4

The students will produce and edit a short audio broadcast which could include interviews, documentaries, advertisements, etc. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 5: Finalizing Audio Production

Competencies and Suggested Objectives
1. Explore the process of composing audio using internal and/or external instruments. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
2. Record an audio track. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
3. Share and export audio for various platforms. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10

Scenario

Unit 5

The student will produce an audio track from various recorded and/or preset tracks. Export and share the track. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 6: Media-Rich Content Design

Competencies and Suggested Objectives
1. Explore media-rich software interface. DOK 2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10
2. Examine the properties and benefits of animation software. DOK 1, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10 a. Identify the use of technical elements such as tweens, images, text animations, actions, and sound in animation software.
3. Utilize motion tweens to enhance the user experience. DOK 2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10 a. Examine Web sites that use masking and path animation techniques. b. Build mask effects and path animations involving advanced motion tweens. c. Identify how masking and path animations can be used to enhance user experience.
4. Create interactive animated content that incorporates motion and shape tweens, sound, and buttons. DOK2, WDC1, WDC2, WDC3, WDC4, WDC6, WDC7, WDC8, WDC9, WDC10

Scenario

Unit 6

The students will draw and animate their face. They animate the mouth to create the different sounds as they recite a short poem, riddle, etc. The students must have eyes blinking and mouth moving the entire recitation time. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

See the instructions and other resources in the teacher resources document found on the RCU Curriculum Download page: www.rcu.msstate.edu/Curriculum/CurriculumDownload.aspx

Digital Media II
Unit 7: Introduction, Safety, and Orientation

Competencies and Suggested Objectives
1. Identify course expectations, school policies, program policies, and safety procedures related to Digital Media Technology (DMT). DOK 1, AVT1, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3 a. Identify course expectations, school policies, and program policies related to Digital Media Technology (DMT). b. Apply safety procedures in the computer classroom and lab.
2. Describe employment opportunities and responsibilities. DOK 1, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3 a. Analyze potential earnings, employee benefits, job availability, working conditions, educational requirements, required technology skills, and continuing education/training. b. Discuss resumè development. c. Demonstrate interview skills. (dress, professionalism, punctuality) d. Describe how proper etiquette and social skills improve employability. e. Specify basic employee responsibilities and appropriate work ethics.

Scenario

There is no scenario needed for this unit.

Attachments for Scenario

None

Unit 8: Preparing to Edit

Competencies and Suggested Objectives
1. Explore the video production software. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Demonstrate the importing and organizing of media. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 8

The students will produce a short video broadcast which could include interviews, documentaries, advertisements, etc. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 9: Telling the Story

Competencies and Suggested Objectives
1. Assemble the rough cut. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Completing the rough cut. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
3. Polishing the rough cut. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 9

The students will video a demonstration. The video will include multiple shots to be assembled, edited, and polished. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 10: Editing Basics

Competencies and Suggested Objectives
1. Add transitions to a project. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Explore audio and add effects. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
3. Implement titles, generators, and themes. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 10

Using the demonstration project from unit 9, add transitions, audio, generators and title effects, etc. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 11: Finishing the Project

Competencies and Suggested Objectives
1. Adjust the timing. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Employ effects and color grading techniques. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
3. Output to media. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 11

Assign the students to groups. Using an assigned topic, the group will create a project such as a music video, documentary, PSA, etc. to complete the project. The project will encompass all audio and video skills. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 12: Discovering Motion Graphics

Competencies and Suggested Objectives
1. Explore the motion graphics interface. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Set up the workflow. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 12

The students will be creating an intro animation for the local news station. This project will begin with creating the background for the animation. This portion of the project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 13: Basic Animation

Competencies and Suggested Objectives
1. Utilize keyframes and behaviors. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Incorporate audio to basic animations. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 13

The students will use the animation background created in Unit 12, and add moving graphics and audio to the intro for the local news station. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 14: Designing Effects and Graphics

Competencies and Suggested Objectives
1. Utilize layers for animation. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Apply effects to text in a motion graphics environment. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
3. Apply paths in a motion graphics environment. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
4. Explore tools in a motion graphics environment. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
5. Manipulate speed in a visual graphic effect. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
6. Apply keying and compositing to a clip/movie. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
7. Design templates for use in video editing software. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 14

The students can watch the short video “The Art of Film and TV Title Design” from PBS.org or other resource. Create a video sequence for credits or a trailer for a movie. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Unit 15: Fundamentals of 3D to Motion Graphics

Competencies and Suggested Objectives
1. Demonstrate proper use of camera perspectives. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
2. Utilize proper lighting techniques. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3
3. Animate a basic 3D scene. DOK2, AVT2, AVT3, AVT4, VIS1, VIS2, VIS3

Scenario

Unit 15

Using the video from Unit 14, add advanced effects to the project. The project will be evaluated by the instructor using a rubric, checklist, or instructor observation.

Attachments for Scenario

None

Student Competency Profile

Student's Name: _____

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student, and it can serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

Digital Media I **Unit 1: Introduction, Safety, and Orientation**		
	1.	Identify course expectations, school policies, program policies, and safety procedures related to Digital Media Technology (DMT).
	2.	Explore personality development, leadership, and teamwork in relation to the classroom environment, interpersonal skills, and others.
	3.	Research copyright rules, regulations, and issues related to graphics and images produced by others, and original work, and adhere to those rules and regulations when developing work.
Unit 2: Photography and Photo Editing		
	1.	Explain photography and graphic design elements.
	2.	Use photo editing software to create and edit a product.
Unit 3: Print Production and Design		
	1.	Apply color theory and design principles.
	2.	Examine typography and layout design.
	3.	Apply design principles and techniques in the creation of a print project.
Unit 4: Introduction and Editing for Audio Production		
	1.	Explore the audio production software.
	2.	Create loops using audio production software.
	3.	Demonstrate basic editing skills in audio production software.
	4.	Demonstrate the techniques involved in refining the editing process.
	5.	Produce an audio track by mixing in audio production software.
Unit 5: Finalizing Audio Production		
	1.	Explore the process of composing audio using internal and/or external instruments.
	2.	Record an audio track.
	3.	Share and export audio for various platforms.
Unit 6: Media-Rich Content Design		
	1.	Explore media-rich software interface.

	2.	Examine the properties and benefits of animation software.
	3.	Utilize motion tweens to enhance the user experience.
	4.	Create interactive animated content that incorporates motion and shape tweens, sound, and buttons.
Digital Media II **Unit 7: Introduction, Safety, and Orientation**		
	1.	Identify course expectations, school policies, program policies, and safety procedures related to Digital Media Technology (DMT).
	2.	Describe employment opportunities and responsibilities.
Unit 8: Preparing to Edit		
	1.	Explore the video production software.
	2.	Demonstrate the importing and organizing of media.
Unit 9: Telling the Story		
	1.	Assemble the rough cut.
	2.	Completing the rough cut.
	3.	Polishing the rough cut.
Unit 10: Editing Basics		
	1.	Add transitions to a project.
	2.	Explore audio and add effects.
	3.	Implement titles, generators, and themes.
Unit 11: Finishing the Project		
	1.	Adjust the timing.
	2.	Employ effects and color grading techniques.
	3.	Output to media.
Unit 12: Discovering Motion Graphics		
	1.	Explore the motion graphics interface.
	2.	Set up the workflow.
Unit 13: Basic Animation		
	1.	Utilize keyframes and behaviors.
	2.	Incorporate audio to basic animations.
Unit 14: Designing Effects and Graphics		
	1.	Utilize layers for animation.
	2.	Apply effects to text in a motion graphics environment.
	3.	Apply paths in a motion graphics environment.
	4.	Explore tools in a motion graphics environment.
	5.	Manipulate speed in a visual graphic effect.

	6.	Apply keying and compositing to a clip/movie.
	7.	Design templates for use in video editing software.
Unit 15: Fundamentals of 3D to Motion Graphics		
	1.	Demonstrate proper use of camera perspectives.
	2.	Utilize proper lighting techniques.
	3.	Animate a basic 3D scene.

Appendix A: Unit References

Unit 1

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Unit 6

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Unit 7

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Units 8-11

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Appendix B: Industry Standards

Common Career Technical Core
http://www.careertech.org/career-technical-education/cctc/

Crosswalk for Digital Media Technology

	Units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
WDC1		X	X	X	X	X	X				
WDC2		X	X	X	X	X	X				
WDC3		X	X	X	X	X	X				
WDC4		X	X	X	X	X	X				
WDC5											
WDC6		X	X	X	X	X	X				
WDC7		X	X	X	X	X	X				
WDC8		X	X	X	X	X	X				
WDC9		X	X	X	X	X	X				
WDC10		X	X	X	X	X	X				
PRT1				X							
PRT2				X							
PRT3				X							
AVT1		X						X			
AVT2								X	X	X	X
AVT3								X	X	X	X
AVT4								X	X	X	X
VIS1								X	X	X	X
VIS2								X	X	X	X
VIS3											
		Unit 11	Unit 12	Unit 13	Unit 14	Unit 15					
WDC1											
WDC2											
WDC3											
WDC4											
WDC5											
WDC6											
WDC7											
WDC8											
WDC9											
WDC10											
PRT1											
PRT2											
PRT3											
AVT1		X	X	X	X	X					
AVT2		X	X	X	X	X					
AVT3		X	X	X	X	X					
AVT4		X	X	X	X	X					
VIS1		X	X	X	X	X					
VIS2		X	X	X	X	X					
VIS3			X	X	X	X					

Information Technology Career Cluster™ (IT)

Web & Digital Communications Career Pathway (IT-WD)

WDC1 Analyze customer requirements to design and develop a Web or digital communication product.

WDC2 Apply the design and development process to produce user-focused Web and digital communications solutions.

WDC3 Write product specifications that define the scope of work aligned to customer requirements.

WDC4 Demonstrate the effective use of tools for digital communication production, development and project management.

WDC5 Develop, administer and maintain Web applications.

WDC6 Design, create and publish a digital communication product based on customer needs.

WDC7 Evaluate the functionality of a digital communication product using industry accepted techniques and metrics.

WDC8 Implement quality assurance processes to deliver quality digital communication products and services.

WDC9 Perform maintenance and customer support functions for digital communication products.

WDC10 Comply with intellectual property laws, copyright laws and ethical practices when creating Web/digital communications.

Arts, A/V Technology & Communications Career Cluster™ (AR)

Printing Technology Career Pathway (AR-PRT)

PRT1 Manage the printing process, including customer service and sales, scheduling, production and quality control.

PRT2 Demonstrate the production of various print, multimedia or digital media products.

PRT3 Perform finishing and distribution operations related to the printing process.

A/V Technology & Film Career Pathway (AR-AV)

AVT1 Describe the history, terminology, occupations and value of audio, video and film technology.

AVT2 Demonstrate the use of basic tools and equipment used in audio, video and film production.

AVT3 Demonstrate technical support skills for audio, video and/or film productions.

AVT4 Design an audio, video and/or film production.

Visual Arts Career Pathway (AR-VIS)

VIS1 Describe the history and evolution of the visual arts and its role in and impact on society.

VIS2 Analyze how the application of visual arts elements and principles of design communicate and express ideas.

VIS3 Analyze and create two and three-dimensional visual art forms using various media.

Appendix C: 21st Century Skills[1]

21st Century Crosswalk for Digital Media Technology											
	Units	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**
21st Century Standards											
CS1		X	X	X	X	X	X	X	X	X	X
CS2		X	X	X	X	X	X	X	X	X	X
CS3		X	X	X	X	X	X	X	X	X	X
CS4											
CS5		X	X	X	X	X	X	X	X	X	X
CS6		X	X	X	X	X	X	X	X	X	X
CS7		X	X	X	X	X	X	X	X	X	X
CS8		X	X	X	X	X	X	X	X	X	X
CS9		X	X	X	X	X	X	X	X	X	X
CS10		X	X	X	X	X	X	X	X	X	X
CS11		X	X	X	X	X	X	X	X	X	X
CS12		X	X	X	X	X	X	X	X	X	X
CS13		X	X	X	X	X	X	X	X	X	X
CS14		X	X	X	X	X	X	X	X	X	X
CS15		X	X	X	X	X	X	X	X	X	X
CS16		V									
		Unit 11	**Unit 12**	**Unit 13**	**Unit 14**	**Unit 15**					
CS1		**X**	X	X	X	X					
CS2		**X**	X	X	X	X					
CS3		**X**	X	X	X	X					
CS4											
CS5		**X**	X	X	X	X					
CS6		**X**	X	X	X	X					
CS7		**X**	X	X	X	X					
CS8		**X**	X	X	X	X					
CS9		**X**	X	X	X	X					
CS10		**X**	X	X	X	X					
CS11		**X**	X	X	X	X					
CS12		**X**	X	X	X	X					
CS13		**X**	X	X	X	X					
CS14		**X**	X	X	X	X					
CS15		**X**	X	X	X	X					
CS16		**X**	X	X	X	X					

CSS1-21st Century Themes

CS1 Global Awareness

1. Using 21st century skills to understand and address global issues
2. Learning from and working collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
3. Understanding other nations and cultures, including the use of non-English languages

CS2 Financial, Economic, Business, and Entrepreneurial Literacy

1. Knowing how to make appropriate personal economic choices
2. Understanding the role of the economy in society
3. Using entrepreneurial skills to enhance workplace productivity and career options

[1] *21st century skills.* (n.d.). Washington, DC: Partnership for 21st Century Skills.

CS3 Civic Literacy

1. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
2. Exercising the rights and obligations of citizenship at local, state, national, and global levels
3. Understanding the local and global implications of civic decisions

CS4 Health Literacy

1. Obtaining, interpreting, and understanding basic health information and services and using such information and services in ways that enhance health
2. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
3. Using available information to make appropriate health-related decisions
4. Establishing and monitoring personal and family health goals
5. Understanding national and international public health and safety issues

CS5 Environmental Literacy

1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems.
2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take individual and collective action toward addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

CSS2-Learning and Innovation Skills

CS6 Creativity and Innovation

1. Think Creatively
2. Work Creatively with Others
3. Implement Innovations

CS7 Critical Thinking and Problem Solving

1. Reason Effectively
2. Use Systems Thinking
3. Make Judgments and Decisions
4. Solve Problems

CS8 Communication and Collaboration

1. Communicate Clearly
2. Collaborate with Others

CSS3-Information, Media and Technology Skills

CS9 Information Literacy

1. Access and Evaluate Information
2. Use and Manage Information

CS10 Media Literacy

1. Analyze Media
2. Create Media Products

CS11 ICT Literacy

1. Apply Technology Effectively

CSS4-Life and Career Skills

CS12 Flexibility and Adaptability

1. Adapt to change
2. Be Flexible

CS13 Initiative and Self-Direction

1. Manage Goals and Time
2. Work Independently
3. Be Self-directed Learners

CS14 Social and Cross-Cultural Skills

1. Interact Effectively with others
2. Work Effectively in Diverse Teams

CS15 Productivity and Accountability

1. Manage Projects
2. Produce Results

CS16 Leadership and Responsibility

1. Guide and Lead Others
2. Be Responsible to Others

Appendix D: Common Core Standards

Common Core Crosswalk for English/Language Arts (11-12)											
	Units	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**
Common Core Standards											
RI.11.1.		X	X	X	X	X	X	X	X	X	X
RI.11.2.		X	X	X	X	X	X	X	X	X	X
RI.11.3.		X	X	X	X	X	X	X	X	X	X
RI.11.4.		X	X	X	X	X	X	X	X	X	X
RI.11.5.		X	X	X	X	X	X	X	X	X	X
RI.11.6.		X	X	X	X	X	X	X	X	X	X
RI.11.7.		X	X	X	X	X	X	X	X	X	X
RI.11.8.		X	X	X	X	X	X	X	X	X	X
RI.11.9.											
RI.11.10.		X	X	X	X	X	X	X	X	X	X
W.11.1.		X	X	X	X	X	X	X	X	X	X
W.11.2.		X	X	X	X	X	X	X	X	X	X
W.11.3.		X	X	X	X	X	X	X	X	X	X
W.11.4.		X	X	X	X	X	X	X	X	X	X
W.11.5.		X	X	X	X	X	X	X	X	X	X
W.11.6.		X	X	X	X	X	X	X	X	X	X
W.11.7.		X	X	X	X	X	X	X	X	X	X
W.11.8.		X	X	X	X	X	X	X	X	X	X
W.11.9.		X	X	X	X	X	X	X	X	X	X
W.11.10.		X	X	X	X	X	X	X	X	X	X
SL.11.1.		X	X	X	X	X	X	X	X	X	X
SL.11.2.		X	X	X	X	X	X	X	X	X	X
SL.11.3.		X	X	X	X	X	X	X	X	X	X
SL.11.4.		X	X	X	X	X	X	X	X	X	X
SL.11.5.		X	X	X	X	X	X	X	X	X	X
SL.11.6.											
L.11.1.		X	X	X	X	X	X	X	X	X	X
L.11.2.		X	X	X	X	X	X	X	X	X	X
L.11.3.											
L.11.4.		X	X	X	X	X	X	X	X	X	X
L.11.5.		X	X	X	X	X	X	X	X	X	X
L.11.6.		X	X	X	X	X	X	X	X	X	X
RST.11.1.		X	X	X	X	X	X	X	X	X	X
RST.11.2.		X	X	X	X	X	X	X	X	X	X
RST.11.3.		X	X	X	X	X	X	X	X	X	X
RST.11.4.		X	X	X	X	X	X	X	X	X	X
RST.11.5.		X	X	X	X	X	X	X	X	X	X
RST.11.6.		X	X	X	X	X	X	X	X	X	X
RST.11.7.		X	X	X	X	X	X	X	X	X	X
RST.11.8.											
RST.11.9.		X	X	X	X	X	X	X	X	X	X
RST.11.10.											
WHST.11.1.											
WHST.11.2.		X	X	X	X	X	X	X	X	X	X
WHST.11.3.											
WHST.11.4.		X	X	X	X	X	X	X	X	X	X
WHST.11.5.		X	X	X	X	X	X	X	X	X	X
WHST.11.6.		X	X	X	X	X	X	X	X	X	X
WHST.11.7.		X	X	X	X	X	X	X	X	X	X
WHST.11.8.		X	X	X	X	X	X	X	X	X	X
WHST.11.9.											
WHST.11.10.											
	Units	**Unit 11**	**Unit 12**	**Unit 13**	**Unit 14**	**Unit 15**					
Common Core Standards											

RI.11.1.		X	X	X	X	X					
RI.11.2.		X	X	X	X	X					
RI.11.3.		X	X	X	X	X					
RI.11.4.		X	X	X	X	X					
RI.11.5.		X	X	X	X	X					
RI.11.6.		X	X	X	X	X					
RI.11.7.		X	X	X	X	X					
RI.11.8.		X	X	X	X	X					
RI.11.9.											
RI.11.10.		X	X	X	X	X					
W.11.1.		X	X	X	X	X					
W.11.2.		X	X	X	X	X					
W.11.3.		X	X	X	X	X					
W.11.4.		X	X	X	X	X					
W.11.5.		X	X	X	X	X					
W.11.6.		X	X	X	X	X					
W.11.7.		X	X	X	X	X					
W.11.8.		X	X	X	X	X					
W.11.9.		X	X	X	X	X					
W.11.10.		X	X	X	X	X					
SL.11.1.		X	X	X	X	X					
SL.11.2.		X	X	X	X	X					
SL.11.3.		X	X	X	X	X					
SL.11.4.		X	X	X	X	X					
SL.11.5.		X	X	X	X	X					
SL.11.6.											
L.11.1.		X	X	X	X	X					
L.11.2.		X	X	X	X	X					
L.11.3.											
L.11.4.		X	X	X	X	X					
L.11.5.		X	X	X	X	X					
L.11.6.		X	X	X	X	X					
RST.11.1.		X	X	X	X	X					
RST.11.2.		X	X	X	X	X					
RST.11.3.		X	X	X	X	X					
RST.11.4.		X	X	X	X	X					
RST.11.5.		X	X	X	X	X					
RST.11.6.		X	X	X	X	X					
RST.11.7.		X	X	X	X	X					
RST.11.8.											
RST.11.9.		X	X	X	X	X					
RST.11.10.											
WHST.11.1.											
WHST.11.2.		X	X	X	X	X					
WHST.11.3.											
WHST.11.4.		X	X	X	X	X					
WHST.11.5.		X	X	X	X	X					
WHST.11.6.		X	X	X	X	X					
WHST.11.7.		X	X	X	X	X					
WHST.11.8.		X	X	X	X	X					
WHST.11.9.											
WHST.11.10.											

Reading Standards for Informational Text (11-12)

College and Career Readiness Anchor Standards for *Informational Text*

Key Ideas and Details

RI.11.1. 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.

RI.11.2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

RI.11.3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

Craft and Structure

RI.11.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RI.11.5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

RI.11.6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.

Integration of Knowledge and Ideas

RI.11.7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

RI.11.8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).

RI.11.9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of

Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.

Range of Reading and Level of Text Complexity

RI.11.10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.
By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11–CCR text complexity band independently and proficiently.

College and Career Readiness Anchor Standards for *Writing*

Text Types and Purposes

W.11.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.

b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.

c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

e. Provide a concluding statement or section that follows from and supports the argument presented.

W.11.2. 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.

a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole;

include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.

e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.11.3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.

b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters

c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).

d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

<u>Production and Distribution of Writing</u>

W.11.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

W.11.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12 on page 54.)

W.11.6. 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.

Research to Build and Present Knowledge

W.11.7. 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.

W.11.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

a. Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).

b. Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).

Range of Writing

W.11.10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Anchor Standards for *Speaking and Listening*

Comprehension and Collaboration

SL.11.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.

c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

SL.11.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

SL.11.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

Presentation of Knowledge and Ideas

SL.11.4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.11.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

SL.11.6. Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.)

College and Career Readiness Anchor Standards for *Language*

Conventions of Standard English

L.11.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.

b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.

L.11.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

a. Observe hyphenation conventions.

b. Spell correctly.

Knowledge of Language

L.11.3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

a. Vary syntax for effect, consulting references (e.g., Tufte's Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

Vocabulary Acquisition and Use

L.11.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.

a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.

d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
b. Analyze nuances in the meaning of words with similar denotations.

L.11.6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Reading Standards for Literacy in Science and Technical Subjects (11-12)

Key Ideas and Details

RST.11.1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

RST.11.2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

RST.11.3. 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.

Craft and Structure

RST.11.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

RST.11.5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

RST.11.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

Integration of Knowledge and Ideas

RST.11.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11.8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.11.9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Range of Reading and Level of Text Complexity

RST.11.10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

WHST.11.1. Write arguments focused on discipline-specific content.

a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.

c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s)

and reasons, between reasons and evidence, and between claim(s) and counterclaims.

d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

e. Provide a concluding statement or section that follows from or supports the argument presented.

WHST.11.2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.

e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).

WHST.11.3. (Not applicable as a separate requirement)

<u>Production and Distribution of Writing</u>

WHST.11.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.11.5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

WHST.11.6. 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.

Research to Build and Present Knowledge

WHST.11.7. 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.

WHST.11.8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

WHST.11.9. Draw evidence from informational texts to support analysis, reflection, and research.

Range of Writing

WHST.11.10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Common Core Crosswalk for Mathematics (11-12)											
	Units	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**
Common Core Standards											
N-RN.1.			X	X			X				
N-RN.2.			X	X			X				
N-RN.3.			X	X			X				
N-Q.1.			X	X	X	X	X	X	X	X	X
N-Q.2.			X	X	X	X	X	X	X	X	X
N-Q.3.			X	X	X	X	X	X	X	X	X
A-SSE.1.			X	X	X	X	X	X	X	X	X
A-SSE.2.			X	X	X	X	X	X	X	X	X
A-SSE.3.			X	X	X	X	X	X	X	X	X
A-SSE.4.			X	X	X	X	X	X	X	X	X
	Units	**Unit 11**	**Unit 12**	**Unit 13**	**Unit 14**	**Unit 15**					
Common Core Standards											
N-RN.1.		X	X	X							
N-RN.2.		X	X	X							
N-RN.3.		X	X	X							
N-Q.1.		X	X	X							
N-Q.2.		X	X	X							
N-Q.3.		X	X	X							
A-SSE.1.		X	X	X							
A-SSE.2.		X	X	X							
A-SSE.3.		X	X	X							
A-SSE.4.		X	X	X							

Mathematics (High School)

Number and Quantity

The Real Number System

N-RN.1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.

N-RN.2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.

N-RN.3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

Quantities

N-Q.1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N-Q.2. Define appropriate quantities for the purpose of descriptive modeling.

N-Q.3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Algebra

Seeing Structure in Expressions

A-SSE.1. Interpret expressions that represent a quantity in terms of its context.

A-SSE.1.a. Interpret parts of an expression, such as terms, factors, and coefficients.

A-SSE.1.b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P.

A-SSE.2. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

A-SSE.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

A-SSE.3.a. Factor a quadratic expression to reveal the zeros of the function it defines.

A-SSE.3.b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

A-SSE.3.c. Use the properties of exponents to transform expressions for exponential functions.

A-SSE.4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.

Appendix E: National Educational Technology Standards for Students (NETS-S)

NETS Crosswalk for Digital Media Technology											
	Course	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7**	**Unit 8**	**Unit 9**	**Unit 10**
NETS Standards											
T1		X	X	X	X	X	X	X	X	X	X
T2		X	X	X	X	X	X	X	X	X	X
T3		X	X	X	X	X	X	X	X	X	X
T4		X	X	X	X	X	X	X	X	X	X
T5		X	X	X	X	X	X	X	X	X	X
T6		X	X	X	X	X	X	X	X	X	X
		Unit 11	**Unit 12**	**Unit 13**	**Unit 14**	**Unit 15**					
T1		X	X	X	X	X					
T2		X	X	X	X	X					
T3		X	X	X	X	X					
T4		X	X	X	X	X					
T5		X	X	X	X	X					
T6		X	X	X	X	X					

T1 Creativity and Innovation
T2 Communication and Collaboration
T3 Research and Information Fluency
T4 Critical Thinking, Problem Solving, and Decision Making
T5 Digital Citizenship
T6 Technology Operations and Concepts

T1 Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students do the following:

a. Apply existing knowledge to generate new ideas, products, or processes.
b. Create original works as a means of personal or group expression.
c. Use models and simulations to explore complex systems and issues.
d. Identify trends and forecast possibilities.

T2 Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students do the following:

a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

c. Develop cultural understanding and global awareness by engaging with learners of other cultures.
d. Contribute to project teams to produce original works or solve problems.

T3 Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students do the following:

a. Plan strategies to guide inquiry.
b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
d. Process data and report results.

T4 Critical Thinking, Problem Solving, and Decision Making

Students use critical-thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students do the following:

a. Identify and define authentic problems and significant questions for investigation.
b. Plan and manage activities to develop a solution or complete a project.
c. Collect and analyze data to identify solutions and/or make informed decisions.
d. Use multiple processes and diverse perspectives to explore alternative solutions.

T5 Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students do the following:

a. Advocate and practice safe, legal, and responsible use of information and technology.
b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
c. Demonstrate personal responsibility for lifelong learning.
d. Exhibit leadership for digital citizenship.

T6 Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students do the following:

a. Understand and use technology systems.
b. Select and use applications effectively and productively.
c. Troubleshoot systems and applications.
d. Transfer current knowledge to learning of new technologies.