

## Statewide Framework Document for: 100304

### **Animation, Technology/Video Graphics & Special Effects**

Standards may be added to this document prior to submission but may not be removed from the framework to meet state credit equivalency requirements. Performance assessments and leadership alignment may be developed at the local level. In order to earn state approval, performance assessments must be submitted within this framework. **This course is eligible for one credit of Geometry.** Washington Mathematics Standards (Common Core State Standards) support foundational mathematical knowledge and reasoning. While it is important to develop a conceptual understanding of mathematical topics and fluency in numeracy and procedural skills, teachers should also focus on the application of mathematics to career fields to support the three (3) key shifts of CCSS. The Standards for Mathematical Practice develop mathematical habits of mind and are to be modeled and integrated throughout the course. The details about each mathematical standard can be found at [Common Core Mathematics Standards](#).

School District Name		
<b>Course Title:</b> Animation, Technology/Video Graphics & Special Effects		<b>Total Framework Hours:</b> 540
<b>CIP Code:</b> 100304	<input type="checkbox"/> Exploratory <input checked="" type="checkbox"/> Preparatory	<b>Date Last Modified:</b> December 31, 2020
<b>Career Cluster:</b> Arts, A/V Technology and Communications		<b>Cluster Pathway:</b> Visual Arts
<b>Course Summary:</b> This course prepares individuals to use computer applications and related visual imaging and sound software. Students will employ techniques to manipulate images originating as film, video, still photographs, and digital copy. By integrating soundtracks and other physical objects, students will be able to communicate messages simulating real-world content. The course includes instruction in specialized camerawork and equipment operation and maintenance, image capture, dubbing, software applications, and applications to specific commercial, industrial, and entertainment needs.  Resources used in framework development: DigiPen Institute of Technology, Academy of Interactive Entertainment, and Washington State animation instructors.		
<b>Eligible for Equivalent Credit in:</b> Math		<b>Total Number of Units:</b> 23

**Unit 1: Career Planning****Total Learning Hours for Unit: 9****Unit Summary:**

In this unit, students:

- Complete, discuss, and analyze the results of personality, career interest, and aptitude surveys.
- Explore the career clusters as defined by the U.S. Department of Education and summarize the career opportunities in a cluster of personal interest.
- Create a personal career portfolio including academic, certification, and technical skill requirements; career opportunities; expected wages; necessary skills and aptitudes; and the impact of technology on careers of personal interest.
- Determine academic/training or certification requirements for transition from one learning level to the next and explore opportunities for earning credit or certifications in high school such as Advanced Placement®, tech prep, International Baccalaureate®, college in high school, military, and apprenticeship opportunities.
- Develop and analyze tables, charts, and graphs related to career interests and give an oral presentation regarding the career pathway of their choice.
- Develop an awareness of financial aid, scholarships, and other sources of income to support postsecondary education/training and discuss the impact of effective college and career planning.
- Identify how performance on assessments such as the SAT®, ACT®, ASVAB®, COMPASS®, and ACCUPLACER® affect personal academic and career goals.
- Prepare a personal budget reflecting their desired lifestyle, and compare and contrast at least three careers of interest in regard to salary expectations and education/training costs.
- Prepare a program of study for at least one career of interest.
- Apply knowledge gained from individual assessment to a set of goals and a career plan.
- Develop strategies to make an effective transition from school to career.
- Identify industry certification opportunities.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Create a "High School and Beyond" plan and a portfolio for a career in the area of their choice. Using career research tools (such as Career Cruising, ASVAB, WOIS), students will prepare a report covering their personal interests, aptitudes, and abilities.
- Cross-reference potential career pathways that appeal to them. The report should include an assessment of students' personal strengths for success in that particular field.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible activity is from the SkillsUSA PDP Level 1.1: Complete a self-assessment and identify individual learning styles. For this activity, students use systems thinking, access and evaluate information, and manage goals and time.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

- ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.
- ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.
- ARC05.03 Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.
- ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.
- ARC05.05 Analyze and summarize the formal and informal influences in the abstract and formal structures of business organizations within this cluster to demonstrate an understanding of the influences on holding careers in this field.
- ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.
- ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.
- ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.
- ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.
- ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.
- ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.
- ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.
- ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.
- ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.
- ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.
- ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.
- ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.
- ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.

**Aligned Washington State Academic Standards**

Washington state standards were not identified for this unit but may be added at the local level.

**Unit 2: Personal Success**

**Total Learning Hours for Unit: 9**

**Unit Summary:**

In this unit, students will:

- Implement effective study skills for academic success.
- Develop personal goals using SMART (Specific Measurable Attainable Realistic Timely) objectives and strategies.
- Use interpersonal skills to facilitate effective teamwork.
- Use a problem-solving model and critical thinking skills to make informed decisions.
- Use effective time management and goal-setting strategies.
- Effectively use information and communication technology tools.
- Identify skills that can be transferable among a variety of careers.
- Create and complete appropriate documents such as an electronic portfolio, personal résumé, employment application, letter of intent, letter of recommendation, and thank-you letter.
- Complete job search documents, including job applications and W-4 forms.
- Demonstrate proper interview techniques in various situations.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Generate a résumé and keep a portfolio of their quality work. While researching job openings within a variety of companies, students compare and contrast the job descriptions, duties, and expectations.
- Prepare responses to standard interview questions.
- Participate in a WOIS assessment or other career research assignment.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to

understand the diversity and variety of functions within the industry.

ARC05.03 Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC05.05 Analyze and summarize the formal and informal influences in the abstract and formal structures of business organizations within this cluster to demonstrate an understanding of the influences on holding careers in this field.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.

ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.

#### **Aligned Washington State Academic Standards**

Washington state standards were not identified for this unit but may be added at the local level.

**Unit 3: Employability and Entrepreneurship Skills for Professional Success****Total Learning Hours for Unit: 9****Unit Summary:**

In this unit, students will:

- Demonstrate effective verbal, nonverbal, written, and electronic communication skills.
- Evaluate the impact of positive and negative personal choices, including use of electronic communications such as social networking sites.
- Model characteristics of effective leadership, teamwork, and conflict management.
- Recognize the importance of a healthy lifestyle, including the ability to manage stress.
- Explore and model characteristics necessary for professional success (such as work ethics, integrity, dedication, perseverance, and the ability to interact with a diverse population).
- Complete activities using techniques to manage their projects and time.
- Identify and model appropriate grooming and appearance for the workplace.
- Demonstrate dependability, punctuality, and initiative.
- Research positive interpersonal skills, including respect for diversity.
- Model appropriate business and personal etiquette in the workplace.
- Exhibit productive work habits, ethical practices, and a positive attitude.
- Demonstrate the ability to work with other employees to support the organization and complete assigned tasks.
- Demonstrate willingness to learn and further develop skills.
- Describe the importance of having a positive attitude and techniques that boost morale.
- Show initiative by coming up with unique solutions and taking on extra responsibilities.
- Explain the importance of setting goals and demonstrate the ability to set, reach, and evaluate goals.
- Explain the importance of taking pride in work accomplished and extrinsic and intrinsic motivators that can be used to increase pride.
- Identify how to prioritize work to fulfill responsibilities and meet deadlines.
- Research and compare published workplace policies and procedures.
- Summarize provisions of the Fair Labor Standards Act.
- Describe the consequences of breach of confidentiality.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Write short essays on the following topics:
  - Work ethic: List the characteristics of a good work ethic, providing examples of what a good work ethic looks like in the workplace, and evaluate your own work ethic in the classroom and/or laboratory.
  - Work communications: Describe the proper use and content of communications in the workplace. Address each of the following: emails, phone calls, face-to-face conversations, text messages, and personal social networking posts.
  - Workplace initiative and responsibility: Explain how an employee can develop the ability to work with limited or no supervision.

Give examples of how you might plan to take on more responsibility in your future workplace.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

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ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

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ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.

ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.

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ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.

#### Aligned Washington State Academic Standards

Washington state standards were not identified for this unit but may be added at the local level.

#### Unit 4: Problem Solving Using Critical Thinking, Creativity and Innovation

**Total Learning Hours for Unit:** 15

##### Unit Summary:

In this unit, students will:

- Employ critical thinking skills independently and in teams to solve problems and make decisions.
- Employ critical thinking and interpersonal skills to resolve conflicts.
- Identify and document workplace performance goals and monitor progress toward those goals.
- Conduct technical research to gather information necessary for decision making.
- Explain the importance and dynamics of individual and teamwork approaches to problem solving.
- Describe methods of researching and validating reliable information relevant to the problem.
- Explain strategies used to formulate ideas, proposals, and solutions to problems.
- Select potential solutions based on reasoned criteria.
- Implement and evaluate solutions.

##### Performance Assessments: (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Choose a topic and write a tutorial. Students draw an assembly sequence diagram for a product (e.g., IKEA product assembly directions in pictures without text). A structured peer review process will provide feedback. The instructor will score students' work based on his or her observation of the work process and the final product.

##### Leadership Alignment: (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

##### Industry Standards and/or Competencies:

Industry standards were not identified for this unit but may be added at the local level.



**Aligned Washington State Academic Standards****Mathematical Practices**

MP3 Construct viable arguments and critique the reasoning of others.  
MP4 Model with mathematics.  
MP5 Use appropriate tools strategically.  
MP7 Look for and make use of structure.  
MP8 Look for and express regularity in repeated reasoning.

**Unit 5: Health and Safety****Total Learning Hours for Unit: 15****Unit Summary:**

In this unit, students will:

- Describe personal and jobsite safety rules and regulations that maintain safe and healthy work environments.
- Explain emergency procedures to follow in response to workplace accidents.
- Create a disaster and/or emergency response plan.
- Identify and apply OSHA and other health and safety regulations that apply to specific tasks and jobs in the occupational area.
- Identify and apply EPA and other environmental protection regulations that apply to specific tasks and jobs in the occupational area.
- Identify and apply Right-To-Know (Hazard Communication Policy) and other communicative regulations that apply to specific tasks and jobs in the occupational area.
- Explain procedures for documenting and reporting hazards to appropriate authorities.
- List penalties for noncompliance with appropriate health and safety regulations.
- Identify contact information for appropriate health and safety agencies and resources.
- Create a systematic safety program that would achieve OSHA compliance and promote a safe working environment.
- Illustrate a safe environment for students in printing.
- Identify, describe, and demonstrate the effective use of Material Safety Data Sheets (MSDS).
- Read chemical, product, and equipment labels to determine appropriate health and safety considerations.
- Identify, describe, and demonstrate personal, shop, and job site safety practices and procedures.
- Demonstrate safe dress and use of relevant safety gear and personal protective equipment (PPE), including wrist rests, adjustable workspaces and equipment, gloves, boots, earplugs, eye protection, and breathing apparatus.
- Illustrate appropriate safe body mechanics, including proper lifting techniques and ergonomics.
- Locate emergency equipment in the lab, shop, and/or classroom, including (where appropriate) eyewash stations, shower facilities, sinks, fire extinguishers, fire blankets, telephone, master power switches, and emergency exits.
- Demonstrate the safe use, storage, and maintenance of every piece of equipment in the lab, shop, and classroom.
- Describe safety practices and procedures to be followed when working with and around electricity.
- Illustrate proper handling and storage practices, including working with hazardous materials, disposal, and recycling.
- Demonstrate proper workspace cleaning procedures.
- Illustrate first aid procedures for potential injuries and other health concerns in the occupational area.
- Describe the importance of emergency preparedness and an emergency action plan.

- Illustrate procedures used to handle emergency situations and accidents, including identification, reporting, response, evacuation plans, and follow-up procedures.
- Identify practices used to avoid accidents.
- Identify and describe fire protection, precautions, and response procedures.
- Discuss the role of the individual and the company/organization in ensuring workplace safety.
- Discuss ways to identify and prevent workplace/school violence.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Develop and conduct a comprehensive work environment assessment of the classroom. Working in small groups, students will use WISHA/OSHA standards and other available environmental guidelines (lighting, noise, keyboards, etc.) to develop the assessment instrument. The assessment will include a written report that outlines the standards that were satisfied as well as suggestions for improvement.
- Create design projects according to set criteria, including environmental, safety, health, and other requirements/restrictions. They will do requisite research and mathematical computations in designing their projects. Students will submit written and/or oral presentations of their final design projects. Projects will be assessed in terms of environmental, physical, and other needs and restrictions. The instructor will conduct day-to-day observations of students using proper ergonomic considerations at their workstations. Modeling a site evaluation that occurs in industry, students will locate, interpret, and apply MSDS information when the instructor requests it.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

- ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.
- ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.
- ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.
- ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.
- ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.
- ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

### Aligned Washington State Academic Standards

Washington state standards were not identified for this unit but may be added at the local level.

#### Unit 6: Teamwork and Cooperation

Total Learning Hours for Unit: 9

##### Unit Summary:

In this unit, students will:

- Employ leadership skills to accomplish organizational goals and objectives.
- Establish and maintain effective working relationships with others in order to accomplish objectives and tasks.
- Conduct and participate in meetings to accomplish work tasks.
- Employ mentoring skills to inspire and teach others.
- Cooperate rather than compete with team members.
- Seek suggestions, opinions, and information from team members.
- Listen to and consider the ideas of team members.
- Support group decisions even if not in total agreement.
- Communicate changes or problems to team members.
- Treat everybody with respect and understanding.
- Employ mentoring skills to inspire and teach others.

##### Performance Assessments: (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Select and complete a comprehensive group design project. To fulfill the requirements of this task, the project should require group members to use such leadership skills as goal setting, advocacy, communication, and parliamentary procedure to ensure project success. Peer assessment shall be an integral component of the project.

##### Leadership Alignment: (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

##### Industry Standards and/or Competencies:

###### The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:

- ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.
- ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.
- ARC05.05 Analyze and summarize the formal and informal influences in the abstract and formal structures of business organizations within this cluster to demonstrate an understanding of the influences on holding careers in this field.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

### **Aligned Washington State Academic Standards**

#### **Mathematical Practices**

MP3 Construct viable arguments and critique the reasoning of others.

### **Unit 7: Ethics and Legal Responsibilities**

**Total Learning Hours for Unit: 15**

#### **Unit Summary:**

In this unit, students will:

- Evaluate and justify decisions based on ethical reasoning.
- Evaluate alternative responses to workplace situations based on employer policies and personal, professional, ethical, and legal responsibilities.
- Identify and explain personal and long-term consequences of unethical or illegal behaviors in the workplace.
- Interpret and explain written organizational policies and procedures.
- Collaborate with classmates in researching or reviewing an Acceptable Use Policy.
- Internet search (optional).
- Responsibilities of Internet use (using the Internet efficiently and ethically for work, identifying the risks of posting personal and work information on the Internet, social networking sites, job search sites, taking measures to avoid Internet security risks such as viruses and malware).
- Discuss legal issues associated with locating and retrieving information from the Internet.
- Understand Acceptable Use Policy, Copyright, and Fair Use Laws.
- Conduct research on the Internet and correctly identify and cite sources in a bibliography.
- Use information from electronic communication sources.
- Understand End User License Agreements (EULA).
- Understand intellectual property rights.

#### **Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Develop a problem concerning ethical and legal standards in a field related to design and drafting. Groups will select a problem with the instructor's approval. Once the problem has been identified, the teams will conduct research, and then develop a group report. The report, which will be presented to the class, will include a description of the problem, legal findings, and solutions.
- Possible problem areas include: handicapped access, safety standards, design failure, ecology concerns, workers' rights and responsibilities, employers' rights and responsibilities, ergonomics, etc.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

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ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

**Aligned Washington State Academic Standards**

Washington state standards were not identified for this unit but may be added at the local level.

**Unit 8: Computer Concepts**

**Total Learning Hours for Unit: 9**

**Unit Summary:**

In this unit, students will:

- Identify internal computer parts, peripherals, and mobile technology.
- Contrast and compare different models of a PC (low-, medium-, and high-priced).
- Research the “short cuts” or “hot keys” in software applications.
- Understand the basics of different operating systems.
- Review Internet search basics.
- Identify sources of help with computer hardware or software issues that arise from time to time.
- Understand social media and email etiquette.
- Understand file maintenance: backup and security.
- Understand computer user agreements: comprehension and legal implications.
- Understand copyright and intellectual property protection.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Write a research paper with a partner about the history of computers or another related topic.
- Prepare a poster board for presentation to the class.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC06.04 Examine and summarize safety-related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

**Aligned Washington State Academic Standards**

<b>Mathematical Practices</b>	MP2 Reason abstractly and quantitatively. MP5 Use appropriate tools strategically. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.
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**Unit 9: C-2 Art and Animation Theory**

**Total Learning Hours for Unit: 108**

**Unit Summary:**

In this unit, students will:

- Become familiar with the following art elements and principles:
  - Form versus content
  - Inserting shots and cutaways
  - Defining composition
  - Static composition
  - Dynamic composition
  - Clearly establishing objectives
  - Single center of interest

- Shifting the center of interest
- Leading the subject
- Rule of thirds
- S-curve
- Maintaining tonal balance
- Balance mass
- Concrete and abstract art
- Framing the central subject matter
- Conveying meaning through colors and tones
- Controlling the number of prime objects
- Balancing complexity and order
- Movement and meaning
- Learn about the following key concepts:
  - Color and value theory
  - Design principles and visual storytelling
  - Basic art history
  - Art appreciation
  - Using source references
  - Timing, spacing, and placement
  - Observational drawing (drawing from life, rather than from pictures or screen-based imagery)
- Gain experience with the following animation principles:
  - Differences between 2D, 3D, and other forms of animation
  - Key frames, breakdown positions, and in-betweens
- Learn the fundamentals of gesture drawing:
  - Fast and slow poses of sequential action via live model
  - Keeping an animator's sketchbook and observing life outside the classroom

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Complete a series of worksheets on the competencies listed above.
- Produce an animation incorporating art elements and principles, color and value, and design principles in 2D and 3D.
- Present their animation for peer evaluation and feedback. Students will present their project to the instructor for final scoring based on industry standards.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

Example:

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

**Aligned Washington State Academic Standards**

**Mathematics: Common Core**

HS.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.

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

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

HS.G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

HS.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

HS.G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

HS.G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

HS.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

HS.G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

HS.G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

HS.G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a



	<p>segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</p> <p>HS.G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</p> <p>HS.G.SRT.1 Verify experimentally the properties of dilations given by a center and a scale factor:</p> <p>HS.G.SRT.1a A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.</p> <p>HS.G.SRT.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor.</p> <p>HS.G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.</p> <p>HS.G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.</p> <p>HS.G.C.1 Prove that all circles are similar.</p> <p>HS.G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</p> <p>HS.G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.</p> <p>HS.G.C.4 (+) Construct a tangent line from a point outside a given circle to the circle.</p> <p>HS.G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.</p> <p>HS.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*</p> <p>HS.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*</p> <p>HS.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>

Unit 10: Storyboarding and Pre-Production		Total Learning Hours for Unit: 51
<p><b>Unit Summary:</b> In this unit, students will:</p> <ul style="list-style-type: none"> <li>• Learn to set milestones, establish a budget, and schedule deadlines.</li> <li>• Research and design a character.</li> <li>• Design concept art for a storyboard.</li> <li>• Create a storyboard and develop a simple animatic that gives a sense of the story timeline.</li> <li>• Develop a shot list, including such elements as staging, layout, reading, and a rehearsal schedule.</li> <li>• Learn how to deal with location logistics and clearances, including release forms.</li> <li>• Learn about cutaway shots and jump cuts.</li> <li>• Consider different aspects of camera shots: fields, frames, and camera angles.</li> <li>• Apply art elements and principles.</li> <li>• Learn how to color scripts (for film productions with multiple scenes).</li> <li>• Learn about the production pipeline, with a required 30% of production time spent in preproduction.</li> <li>• Gain exposure to audio tracks and timing.</li> <li>• Record a scratch (guide) track on which to base animatic timings.</li> </ul>		
<p><b>Performance Assessments:</b> (Districts to complete for each unit)  <i>Example assessments for this unit include:</i>  <i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>• Create a preproduction mockup for a TV news show in which they plan the video introduction/trailer.</li> <li>• Present their preproduction project featuring competencies from the unit's topic list to a group of peers for evaluation and feedback.</li> </ul> <p>Students will present their project to the instructor for final scoring based on industry standards.</p>		
<p><b>Leadership Alignment:</b> (Districts to complete for each unit)  <i>Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.</i>  <i>Example:</i></p> <ul style="list-style-type: none"> <li>• One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.</li> </ul>		
<p><b>Industry Standards and/or Competencies:</b>          ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.          ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.</p>		
<b>Aligned Washington State Academic Standards</b>		
<b>Mathematics: Common Core</b>	HS.G.C.1 Prove that all circles are similar. HS.G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	

	<p>HS.G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.</p> <p>HS.G.C.4 (+) Construct a tangent line from a point outside a given circle to the circle.</p> <p>Find arc lengthHS. and areas of sectors of circles</p> <p>HS.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*</p> <p>HS.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*</p> <p>HS.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*</p>
<b>Mathematical Practices</b>	<p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p>

<b>Unit 11: Lighting and Meters</b>	<b>Total Learning Hours for Unit: 15</b>
<p><b>Unit Summary:</b> In this unit, students will:</p> <ul style="list-style-type: none"> <li>• Study three-point lighting (key, fill, and back/rim/kicker).</li> <li>• Become familiar with different types of lighting instruments.</li> <li>• Learn about the uses of different types of lamps (hard, soft, and natural).</li> <li>• Understand how to adjust for lighting intensity and color.</li> <li>• Understand the concept of contrast ratio.</li> <li>• Learn how to use light meters.</li> </ul>	
<p><b>Performance Assessments:</b> (Districts to complete for each unit) <i>Example assessments for this unit include:</i> <i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>• Work in pairs to produce three different shots that include different combinations of the unit competencies.</li> <li>• Present their projects to the class and defend their process and product.</li> </ul>	
<p><b>Leadership Alignment:</b> (Districts to complete for each unit) <i>Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.</i> <i>Example:</i></p> <ul style="list-style-type: none"> <li>• One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.</li> </ul>	
<p><b>Industry Standards and/or Competencies:</b> ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications</p>	

field to understand the diversity and variety of functions within the industry.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

#### **Aligned Washington State Academic Standards**

##### **Mathematics: Common Core**

HS.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.

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

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

HS.G.CO.9 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.

HS.G.CO.10 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to  $180^\circ$ ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

	<p>HS.G.CO.11 Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.</p> <p>HS.G.SRT.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.</p> <p>HS.G.SRT.7 Explain and use the relationship between the sine and cosine of complementary angles.</p> <p>HS.G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*</p> <p>HS.S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p>HS.S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p> <p>HS.S.ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p> <p>HS.S.ID.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>

## Unit 12: Cameras: Still, Video, and Virtual

**Total Learning Hours for Unit: 9**

### Unit Summary:

In this unit, students will:

- Learn about the make and format of still and video cameras.
- Identify various parts and controls of a camera.
- Learn about different types of lenses, including their properties.
- Learn how to zoom, pan, and operate a dolly.
- Learn about multiple camera production and how to set up multiple cameras for capturing shots.
- Learn how to handle a camera (focusing, following, hand-held shooting, tripod shooting, using a rack focus, and boom and jib shooting).
- Learn camera care and maintenance.
- Learn about compression/codecs.
- Get experience shooting against a green screen.

- Get an introduction to computer-generated effects.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Use the context of a school TV news show to improve the soft skills that are required to work in the job of TV broadcasting.
- Demonstrate camera competence through the production of 3D animations.
- Work in groups to develop and present an informational project that addresses at least five of the unit's competencies.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

## Aligned Washington State Academic Standards

### Mathematics: Common Core

HS.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.

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

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

HS.G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

HS.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

HS.G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

HS.G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

HS.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

HS.G.CO.9 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.

HS.G.CO.10 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to  $180^\circ$ ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

HS.G.CO.11 Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

HS.G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

HS.G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

HS.G.SRT.1 Verify experimentally the properties of dilations given by a center and a scale factor:

	<p>HS.G.SRT.1a A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.</p> <p>HS.G.SRT.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor.</p> <p>HS.G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.</p> <p>HS.G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.</p> <p>HS.S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p>HS.S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p> <p>HS.S.ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p> <p>HS.S.ID.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>

### Unit 13: Digital Camera and Photography

**Total Learning Hours for Unit: 21**

#### Unit Summary:

In this unit, students will:

- Identify the basic features of digital cameras and know how to use them.
- Understand the composition of a digital image and the factors that affect its quality and file size.
- Understand how digital images are transferred to a computer for storage and manipulation.
- Understand the differences between normal-focal length for digital camera lenses and traditional camera lenses.
- Understand how to make adjustments for contrast, color balance, and exposure using a digital camera.
- Understand the basic differences between various digital cameras on the market and weigh the relative advantages and disadvantages, conveniences, and costs associated with their use.
- Understand how to use scanners.



- Work with histograms to create better images.
- Understand color management.
- Understand how to store digital images.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Take original photographs with one or more digital cameras.
- Incorporate elements from the unit competencies as they edit, manipulate, transfer, and store digital photographs.
- Organize their photos in a digital presentation for the class and instructor.
- Demonstrate understanding of photo composition and be able to explain their editing choices to the class or a small group.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

**Aligned Washington State Academic Standards**

**Mathematics: Common Core**

HS.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.

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

	<p>HS.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>HS.S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p>HS.S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p> <p>HS.S.ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p> <p>HS.S.ID.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p>

<b>Unit 14:</b> Digital Editing and Printing	<b>Total Learning Hours for Unit:</b> 15
<p><b>Unit Summary:</b> In this unit, students will:</p> <ul style="list-style-type: none"> <li>• Review image editing tools and applications.</li> <li>• Apply art elements and principles in digital editing.</li> <li>• Learn how to apply color/palette alterations.</li> <li>• Work with transformation tools.</li> <li>• Work in appropriate layers, channels, and masks.</li> <li>• Prepare materials for print media.</li> <li>• Prepare materials for digital distribution.</li> <li>• Understand the ethics of altering images.</li> </ul>	
<p><b>Performance Assessments:</b> (Districts to complete for each unit) <i>Example assessments for this unit include:</i> <i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>• Demonstrate their knowledge of the unit competencies by using various software applications to digitally edit photographs and videos.</li> <li>• Create an organized portfolio of digital photographs and/or video clips that reveal an overall, cohesive theme.</li> <li>• Present their work to peers for initial feedback and then print their final project for instructor scoring. The instructor will evaluate the process that each student follows as well as the finished product, according to industry standards.</li> </ul>	
<b>Leadership Alignment:</b> (Districts to complete for each unit)	

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.01 Employ processes required for the production of various printed products to build a working understanding of print technologies.

ARPD01.02 Manage the printing process including customer service and sales, scheduling, and quality control to deliver products that meet customer needs and expectations.

ARPD01.03 Demonstrate preparation of customer materials for imaging to deliver products that meet customer needs and expectations.

**Aligned Washington State Academic Standards**

**Mathematics: Common Core**

HS.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.

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

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

HS.G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

HS.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as

	<p>outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).</p> <p>HS.G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.</p> <p>HS.G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</p> <p>HS.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.</p> <p>HS.G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.</p> <p>HS.G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.</p> <p>HS.G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p>

<b>Unit 15:</b> Productive Environment	<b>Total Learning Hours for Unit:</b> 15
<p><b>Unit Summary:</b></p> <p>In this unit, students will:</p> <ul style="list-style-type: none"> <li>• Learn about the equipment and facilities that are necessary for different types of jobs.</li> <li>• Learn the roles and responsibilities of the production staff.</li> <li>• Discuss the hierarchy and protocols involved in working as part of a production team.</li> <li>• Learn about production techniques, best practices, and safety procedures (OSHA).</li> <li>• Learn what is involved in multiple-camera shooting.</li> </ul>	
<p><b>Performance Assessments:</b> (Districts to complete for each unit)</p> <p><i>Example assessments for this unit include:</i></p> <p><i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>• Develop a working knowledge of unit competencies and how each one plays a role in producing any audio, video or combined product.</li> </ul>	

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.

ARC05.03 Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.

ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

Aligned Washington State Academic Standards	
Mathematical Practices	MP2 Reason abstractly and quantitatively. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure.
Unit 16: News Production	Total Learning Hours for Unit: 9
<b>Unit Summary:</b> In this unit, students will learn about: <ul style="list-style-type: none"> <li>Electronic news gathering and electronic field production.</li> <li>Different roles in news production (video journalist, news producer, news studio crew, and news sources).</li> <li>Different aspects of news gathering and production (on-location news interviews, news editing, and the news rundown).</li> <li>Areas of special concern in news production, such as news bias, newsworthiness, and news writing guidelines.</li> </ul>	
<b>Performance Assessments:</b> (Districts to complete for each unit) <i>Example assessments for this unit include:</i> <i>It is expected that students:</i> <ul style="list-style-type: none"> <li>Construct all facets of a news production, keeping track of visual, audio, and combined outputs using the above competencies. Peer review will provide initial feedback and the instructor will score the project according to industry standards.</li> </ul>	
<b>Leadership Alignment:</b> (Districts to complete for each unit) <i>Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.</i> <i>Example:</i> <ul style="list-style-type: none"> <li>One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.</li> </ul>	
<b>Industry Standards and/or Competencies:</b> <b>The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:</b> ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy. ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry. ARC05.03 Analyze the arts, audio-visual technology and communication industry's economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole. ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster. ARC05.05 Analyze and summarize the formal and informal influences in the abstract and formal structures of business organizations within this cluster to demonstrate an understanding of the influences on holding careers in this field. ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business	

site to ensure personal safety and well-being.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC09.01 Explain written organizational policies, rules and procedures common to careers in arts, AV, technology and communication fields to help employees perform their jobs.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

### Aligned Washington State Academic Standards

#### Mathematical Practices

MP2 Reason abstractly and quantitatively.  
MP5 Use appropriate tools strategically.  
MP6 Attend to precision.  
MP7 Look for and make use of structure.

### Unit 17: Audio Basics & Sound Effects

**Total Learning Hours for Unit: 9**

#### Unit Summary:

In this unit, students will learn about:

- Audio frequency
- Types of microphones
- Microphone patterns
- Wireless microphones
- Microphone care
- Impedance
- Levels
- Audio connectors and adapters
- Sound breakdown for animations
- Background music
- Sound effects
- Self-made sound
- Sound editing
- Synchronizing sound to animation

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Students use above competencies to correctly construct audio basics and sound effects for their video or graphic. Students may work with the NewTek TriCaster (TV Studio in a Box) and with Canon GL2 video cameras while shooting various videos, or they may work with similar materials in their studio. Peer review will provide feedback and the instructor will evaluate the project based on industry standards.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC06.01 Maintain safe and healthful working conditions by completing work tasks in accordance with rights and applicable responsibilities in an arts, audio-visual technology and communications work environment to protect employees' well being.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC06.03 Examine and summarize the responsibilities various entities have for promoting a safe and healthy work environment in order to understand the roles involved in maintaining acceptable conditions in the arts, technology and communications field.

ARC06.04 Examine and summarize safety related problems that may result from working with electrical circuits used in this cluster to demonstrate a broad understanding of health and safety concerns.

ARC06.05 Apply safety procedures in operating equipment commonly used within the career pathways involved in this cluster to demonstrate a broad understanding of important safety practices.

ARC06.06 Examine and summarize the lifestyle implications and physical demands required by work activities common in the arts, audio/visual, technology and communications cluster to demonstrate a broad perspective regarding the nature of work in the industry.

ARC06.07 Demonstrate personal safety habits and procedures while on work-related assignments in various locations beyond the business site to ensure personal safety and well-being.

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

**Aligned Washington State Academic Standards**

**Mathematical Practices**

MP2 Reason abstractly and quantitatively.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.



	MP6 Attend to precision. MP7 Look for and make use of structure.
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**Unit 18: Animation Introduction****Total Learning Hours for Unit: 105****Unit Summary:**

In this unit, students will:

- Get an introduction to animation tools and applications, including bitmap, vector, and CG animation.
- Practice animation techniques (stop-frame, clay, and cut-out animation).
- Learn the twelve principles of animation.
- Understand animation history from a U.S. and world perspective.
- Learn about keys, breakdowns, and tweens (superimposition for 2D animation, blocking, and polish for 3D animation).
- Apply the generic walk cycle to 2D and then 3D animation.
- Learn about motion paths and arcs.
- Get practice with inking, scanning, and doing cleanups using the following techniques:
  - 2D traditional animation.
  - Drawing directly into the computer with a Wacom tablet and pen.
- Use digital color and rendering.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Use the competencies for this unit to correctly construct projects that display animation in different types of software.
- Research and write a short report on the history of animation

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.

ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.

ARC06.02 Assess and control methods to reduce sources of office and worksite accident hazards common in the arts, audio-visual technology and communications industry in order to promote a safe and accident free working environment.

ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.

ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

### **Aligned Washington State Academic Standards**

#### **Mathematics: Common Core**

HS.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.

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

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

HS.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.\*

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

HS.A.SSE.1b Interpret complicated expressions by viewing one or more of their parts as a single entity.

HS.A.SSE.2 Use the structure of an expression to identify ways to rewrite it.

HS.G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

HS.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

HS.G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

HS.G.CO.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

HS.G.CO.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

HS.G.CO.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

HS.G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

HS.G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

HS.G.CO.9 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.

HS.G.CO.10 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to  $180^\circ$ ; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

HS.G.CO.11 Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

HS.G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

HS.G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

HS.G.SRT.1 Verify experimentally the properties of dilations given by a center and a scale factor:

HS.G.SRT.1a A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.

HS.G.SRT.1b The dilation of a line segment is longer or shorter in the ratio given by the scale factor.

HS.G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

HS.G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

HS.G.C.1 Prove that all circles are similar.

HS.G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.

HS.G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

HS.G.C.4 (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc length and areas of sectors of circles

HS.G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

	<p>HS.G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</p> <p>HS.G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*</p> <p>HS.G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.</p> <p>HS.G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.</p> <p>HS.G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*</p> <p>HS.G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*</p> <p>HS.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>

<b>Unit 19:</b> Rendering	<b>Total Learning Hours for Unit:</b> 21
<p><b>Unit Summary:</b></p> <p>In this unit, students will learn about:</p> <ul style="list-style-type: none"> <li>• Codecs</li> <li>• Safe frame</li> <li>• Hardware versus software</li> <li>• Still Images</li> <li>• Rendering attributes</li> <li>• Atmospherics and special effects</li> <li>• Use of key</li> <li>• Colors and alpha</li> <li>• Channels and masking</li> </ul>	

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Continue to work on their project and correctly render their project.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products

**Aligned Washington State Academic Standards**

**Mathematics: Common Core**

HS.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.

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

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

**Mathematical Practices**

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

**Unit 20:** Video Output Formats

**Total Learning Hours for Unit:** 9

**Unit Summary:**

In this unit, students will learn about:

- Consumer video formats
- Digital compression
- Types of formats and compression
- Exporting video

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Take various output formats and apply correct compression techniques prior to exporting their finished product.
- Students demonstrate a practical application of postproduction skill sets.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.

ARPD01.03 Demonstrate preparation of customer materials for imaging to deliver products that meet customer needs and expectations.

ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.

### Aligned Washington State Academic Standards

<b>Mathematics: Common Core</b>	HS.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. HS.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. HS.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
<b>Mathematical Practices</b>	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure.

Unit 21: Video Editing	Total Learning Hours for Unit: 15
<p><b>Unit Summary:</b>            In this unit, students will learn about:</p> <ul style="list-style-type: none"> <li>• Dedicated and software-based editors</li> <li>• Nonlinear editing systems (and why they'll never use linear)</li> <li>• Time codes</li> <li>• On-line and off-line editing</li> </ul>	
<p><b>Performance Assessments:</b> (Districts to complete for each unit)  <i>Example assessments for this unit include:</i>  <i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>• Use various software elements and photographs or video segments to edit their project to industry standards.</li> </ul>	
<p><b>Leadership Alignment:</b> (Districts to complete for each unit)  <i>Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.</i>  <i>Example:</i></p> <ul style="list-style-type: none"> <li>• One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.</li> </ul>	
<p><b>Industry Standards and/or Competencies:</b>  <b>The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:</b>            ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.            ARC05.02 Examine the various organizational structures adopted by groups within the arts, audio-video, technology, and communications field to understand the diversity and variety of functions within the industry.            ARC05.04 Analyze and summarize evidence of interdependence between the technical and the artistic sides of this career cluster in order to demonstrate an understanding of the systems involved in the cluster.            ARC08.01 Exhibit ethical conduct in writing, creating, printing, broadcasting, and performing to uphold high standards for behavior in the industry.            ARC08.02 Analyze and apply laws affecting arts, technology and communication enterprises to maintain up-to-date compliance with key regulations influencing the industry.            ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.            ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.            ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological advancements and tools important to work in this industry.            ARPD01.03 Demonstrate preparation of customer materials for imaging to deliver products that meet customer needs and expectations.            ARPD01.05 Analyze and summarize output processes, including digital, film, directive platemaking, and cylinders to build an understanding regarding delivery of printed products.</p>	

Aligned Washington State Academic Standards	
<b>Mathematics: Common Core</b>	<p>HS.G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).</p> <p>HS.G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</p> <p>HS.G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.</p> <p>HS.G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*</p>
<b>Mathematical Practices</b>	<p>MP1 Make sense of problems and persevere in solving them.</p> <p>MP2 Reason abstractly and quantitatively.</p> <p>MP3 Construct viable arguments and critique the reasoning of others.</p> <p>MP4 Model with mathematics.</p> <p>MP5 Use appropriate tools strategically.</p> <p>MP6 Attend to precision.</p> <p>MP7 Look for and make use of structure.</p> <p>MP8 Look for and express regularity in repeated reasoning.</p>

Unit 22: History of Photography	Total Learning Hours for Unit: 6
<p><b>Unit Summary:</b>  In this unit, students will:</p> <ul style="list-style-type: none"> <li>Identify significant discoveries, developments, and inventions in the history of photography.</li> <li>Understand the chronology of the development and popularization of photography.</li> <li>Understand the significance of early documentary photography and its social, political, and scientific impact.</li> <li>Identify the historically important individuals and agencies who initially sponsored the development of photography.</li> <li>Distinguish between various movements, styles, and trends in the history of photography.</li> <li>Identify the work of major photographers of the 19th and 20th centuries.</li> </ul>	
<p><b>Performance Assessments:</b> (Districts to complete for each unit)  <i>Example assessments for this unit include:</i>  <i>It is expected that students:</i></p> <ul style="list-style-type: none"> <li>Research the history of photography and write a paper explaining one or more specific improvements in photography since its invention.</li> </ul>	
<b>Leadership Alignment:</b> (Districts to complete for each unit)	



*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC05.01 Analyze and summarize the history and evolution of the arts, audio-video technology, and communications field to understand the current place the field holds within society and the economy.

**Aligned Washington State Academic Standards**

Washington state standards were not identified for this unit but may be added at the local level.

**Unit 23: Portfolio Presentations**

**Total Learning Hours for Unit: 36**

**Unit Summary:**

In this unit, students will:

- Prepare a portfolio to meet local school requirements.
- Review their own works that they want to include in the portfolio.
- Conduct a peer review of portfolio work.
- Include a commentary on their portfolio materials.
- Present their portfolio to a school-approved panel.
- Post their presentation or portfolio in various media outlets.
- Create a reflection (postmortem) of their presentation.

**Performance Assessments:** (Districts to complete for each unit)

*Example assessments for this unit include:*

*It is expected that students:*

- Present their portfolio for scoring by at least two individuals who come from outside corporations or other community organizations.

**Leadership Alignment:** (Districts to complete for each unit)

*Leadership alignment must include a unit specific project/activity that aligns with the 21<sup>st</sup> Century Leadership Skills.*

*Example:*

- One possible source of activities is the SkillsUSA Professional Development Program Levels 1–5: 21st Century Skill Development Lessons.

**Industry Standards and/or Competencies:**

**The Common Career Technical Core Standards - Arts, A/V Technology and Communications Career Cluster: Printing Technology Pathway:**

ARC09.03 Identify, examine and select career opportunities in one or more arts, AV, technology and communication-related career pathways in order to explore career options.

ARC10.01 Demonstrate the use of technical knowledge and skills that relate to pathways in this cluster to allow for mobility among numerous career options within the family of related occupations.

ARC10.02 Summarize knowledge of the systems within various pathways contained in the cluster to keep abreast of new technological

advancements and tools important to work in this industry.

ARPD01.01 Employ processes required for the production of various printed products to build a working understanding of print technologies.

**Aligned Washington State Academic Standards**

**Mathematical Practices**

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.