Regional Occupational Program

Fire Technology A-G 2025-2026

COURSE DESCRIPTION

As a student in our public service program, you will receive an overview of the eligibility and training standards required for careers in fire technology that may include firefighting, arson investigating, rescue, and providing emergency medical services. This course introduces you to all aspects of fire behavior and fire science, including combustion, hazardous materials, fuels, and extinguishing agents. You will gain practical hands-on experience with fire apparatus, tools, and equipment, e.g., hoses and nozzles, ladders, pumps, and personal protective equipment (PPEs). This course provides training in all aspects of fire behavior, including combustion, fuels, hazardous materials, and various extinguishing agents. Students learn about fire apparatus, tools and equipment, hoses and nozzles, ladders, pumps, and personal protective equipment. Students participate in training in first aid, CPR (Cardiopulmonary Resuscitation) and rescue practices. The curriculum for this course includes very important 21st century skills, such as effective communication, critical thinking, creativity, and collaboration that have been identified as foundational to success at school and at work.

Learn to earn an industry-recognized certification. The curriculum in this course provides you with the knowledge and skills you will need to be successful in future fire or public service courses or as a precursor to post-secondary opportunities that may include certifications such as those for an Emergency Medical Technician (EMT) or an Associate Degree in Fire Science or Fire Technology at a community college, acceptance in a fire academy, or a Bachelor of Science Degree in Fire Administration or Fire Science from a four-year college or university.

Course Information

Course Length:	1 Year
Prerequisite:	None
Course Level:	Capstone
UC:	Yes G - Elective
Articulated:	Yes
Industry Cert.:	No
Industry Sector:	Public Services
Pathway:	Emergency Response
CALPADS:	8422

O*Net SOC Codes

33-2011	Firefighters
33-2021	Fire Inspectors and Investigators
33-2022	Forest Fire Inspectors and Prevention Specialists

Legend

CTE - PS	CTE Pathway Standards
CRP	Career Ready Practices
CTE - AS	CTE Anchor Standards
CCSS	Common Core State Standards
ISTE	International Society for Technology in Education

Includes updates from 24/25 Public Services Advisory

Advisory Minutes

Fire Technology

Course Orientation

a. Discuss objectives for this course, including competencies, teacher expectations, classroom policies, and procedures.
b. Identify and discuss the acquisition of transferable skills (communication, collaboration, creativity, and critical thinking) and their importance to being college and career ready and for future personal and professional success.
c. Review objectives, competencies, and course syllabus.
d. Discuss student and teacher expectations, including behavior, class rules, appropriate dress, pre-course knowledge, and grading policies, including enrollment and attendance requirements and procedures, and classroom/school safety and disaster procedures.
e. Discuss next steps in course sequence related to the career pathway, the need for reinforcement of basic skills, transferrable skills, and postsecondary and career options.
f. Discuss the Big Six: Career Ready Essentials and the Standards for Career Ready Practice as they relate to this course, all aspects of the industry sector, and being college and career ready.

Big Six: Career Ready Essentials

1. Effective Communication	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate effective verbal communication and conflict resolution skills. **b. Use the writing process to develop written communication with the appropriate tone, organization, and format for the identified audience.** c. Explain the effect of interpersonal skills on one's ability to communicate effectively and develop relationships. d. Describe the impact of ineffective communication on business relationships. e. Analyze the impact of vocabulary, body language, and tone on verbal communication. f. Demonstrate active listening skills. g. Accurately interpret industry-specific written communication. h. Model responsible and effective use of various communication technologies. i. Identify valid and reliable digital reference and resource materials. j. Gather information from multiple digital sources to compare and contrast, synthesize, and summarize. k. Identify and use appropriate communication and collaboration technologies. l. Utilize technology to problem solve, accomplish tasks, and to produce or publish products.		1 2 11	2 3 4 5 7 8 9 10 11	**LS** 9-10 11-12.6 **SLS** 11-12.2 9-10 11-12.1 11-12.1d **WS** 11-12.7 11-12.6	1b,c 2c 3b,c 5c 6b,c,d

2. Collaboration, Creativity, and Critical Thinking	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate critical thinking skills for a variety of purposes and in different settings. b. **Collaborate to reach consensus on an identical objective through the sharing of knowledge, tasks, and learning.** c. Discuss the importance of the critical thinking process to real-world applications.		2 4 5 7	2 3 4 5	**LS** 9-10 11- 12.6	1c 3c,d 4a-d 5c,d

d. Evaluate the impact of creative thinking on problem solving and innovation in real-world applications. e. Compile work that demonstrates the process used to (elaborate, refine, analyze) evaluate original ideas and maximize creative efforts. f. Apply divergent and convergent thinking to the development of an original idea or solution. g. Examine real-world limits to adopting ideas. h. Demonstrate creative thinking (preparation, insight, evaluation, elaboration, and communication) to create a new idea or concept. i. Assume shared responsibility for collaborative work, and value the individual contributions made by each team member. j. Evaluate evidence, arguments, claims, and beliefs to identify connections. k. Identify bias, prejudice, propaganda, self-deception, distortion, and misinformation. l. Produce intellectual, informational, or material products that serve an authentic purpose. m. Work effectively and respectfully with those from diverse backgrounds or cultures. n. Demonstrate respect, trust, commitment, and the ability to compromise in collaborative projects.		9 10 11	7 8 9 11	**SLS** 9-10 11-12.1 11-12.1d 11-12.2 **WS** 11-12.7 11-12.6	6c 7b,c,d
3. Leaders and Teams: Roles and Responsibilities	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Determine the individual and team members' roles and responsibilities. **b. Demonstrate leadership skills and qualities (i.e., reliability, negotiation skills, initiative, positive reinforcement, recognition of others' efforts, problem-solving skills, conflict resolution, and delegation).** c. Explain the importance of technical, social, and communication skills to team success. d. Compare and contrast leadership styles and their effectiveness in various situations. e. Organize and delegate responsibilities in a team setting to encourage ideas, perspectives, and contributions from all team members. f. Develop a strong sense of team identity by brainstorming solutions, volunteering, assisting others, practicing respect and courtesy, and taking initiative. g. Examine situations in which a follower becomes the leader. h. Describe twenty-first-century skills required across all occupations. i. Identify and discuss the characteristics of a successful team (i.e., leadership, cooperation, and effective decision-making). j. Leverage social and cultural differences to increase innovation and quality of work.		7 8 9	3 7 8 9 11	**SLS** 11-12.2 9-10 11-12.1 11-12.1d **WS** 11-12.6	7a,c
4. Legal, Ethical, and Environmental Considerations	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate industry specific ethical and legal practices. **b. Identify eco-friendly industry specific practices and resources.** c. Identify local, state, and federal regulatory agencies, entities, laws, and regulations.		5 7 8	3 5 7	**WS** 11-12.6 11-12.7	2a,b 3a,b 5c

d. Identify discrimination based on race, nationality, religion, gender, age, disability, or sexual orientation. e. Summarize the ethical and legal implications of workplace discrimination and harassment. f. Explain the concept of corporate citizenship. g. Examine an employer's role in protecting the health and welfare of employees, the community, and the environment. h. Analyze current environmental laws and regulations and their impact on industry. i. Compare and contrast both society's and industry's impact on the environment.		12	8 9 11	**SLS** 9-10 11-12.1 11-12.1d 11-12.2	6c
5. Personal Growth and Career Planning	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate continued personal development and growth. **b. Develop and manage a personal growth and career plan.** c. Explain the relationship between sound financial habits and financial security. d. Create and manage a personal financial plan. e. Demonstrate initiative in achieving personal and professional goals. f. Apply time management strategies to meet deadlines. g. Demonstrate a growth mindset through flexibility and a positive attitude. h. Select and demonstrate appropriate job-search and retention techniques. i. Demonstrate strategies to prepare for employment. j. Demonstrate interpersonal skills appropriate for the workplace. k. Elaborate on the importance of perseverance to personal and professional success. l. Discover personal career interests, aptitudes, and skills.		1 2 3 4 6	2 3 4 7 8 11	**LS** 9-10 11-12.6 **SLS** 9-10 11-12.1 11-12.1d 11-12.2 **WS** 11-12.6	1a 3a,c 4d 6a,d 7b
6. Workplace Safety and Personal Wellness	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate proper industry specific safe work practices to prevent injury or illness. **b. Assess the potential impact of goal setting on personal and professional success.** c. Describe the role of security and emergency procedures in workplace safety. d. Describe the effect of preventative measures on emergencies in the workplace. e. Identify and describe the causes, prevention, and treatment of common accidents. f. Identify local, state, and federal agencies that regulate workplace safety. g. Explain the role of the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA). h. Discuss the basics of system operations. i. Demonstrate the proper use of personal protective equipment (PPE). j. Explain the purpose of and accurately interpret a Safety Data Sheet (SDS). k. Identify hazardous materials and chemicals. l. Demonstrate proper procedures to respond to work-related accidents and injuries. m. Describe how ergonomics, housekeeping, and maintenance are related to accidents and injuries.		2 5 6 8 12	2 5 6 7 8 10 11	**LS** 9-10 11-12.6 **WS** 11-12.7 11-12.6 **SLS** 9-10 11-12.1 11-12.1d	1a,d 2a,d 5b

n. Demonstrate cyber ethics, cyber safety, and cybersecurity. o. Assess the potential impact of preventative physical and mental health measures on workplace safety.					
Fire Technology Units of Instruction					
7. Physical Fitness and Agility	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the level of nutrition, fitness, strength, agility, and psychological health and well-being required for safely working in emergency response career fields. b. Describe the various physical strength and agility required for entrance into emergency response employment. c. Discuss the importance of proper nutrition and physical fitness in performing the duties of emergency response personnel.	B5.0 B5.1 B5.2	1 2 5 6	1 2 5 6 11	**LS** 9-10 11-12.6 **WS** 11-12.7 **RSTS** 9-10 11-12.7	
8. Fire Technology Terminology	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the basic concepts, principles, and terminology of fire technology. b. Compare and contrast a fire triangle and a fire tetrahedron. c. Describe the classification of fires, the fire triangle and fire tetrahedron, and fire behavior. d. Use appropriate terminology on clear, concise, and legible report entries when preparing and submitting required reports. e. Practice verbal and nonverbal emergency terminology and communication techniques to be used when interacting with emergency response personnel in a variety of emergency situations.	B2.3 B3.7 B3.9 B8.3	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
9. Demonstration and Tour	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of fire apparatus, tools, and equipment and their function. b. Describe the layout and design of a typical fire station. c. Identify and describe the types of tools and equipment housed in a fire station. Identify tools and equipment carried on fire apparatus. d. Identify and describe the function of personal protective equipment (PPEs) used by firefighters.	B4.2 B8.4 B9.11	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
10. Tools and Equipment	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate the proper use of common tools and equipment used in firefighting.	B3.8	1	1	**LS**	

b. Discuss the safe and proper use of hand tools, including scraping, cutting, striking, and forcible entry tools. c. Demonstrate the proper maintenance and care of the tools carried on a fire apparatus. d. Identify the purpose and function of all hose appliances. e. Identify the various tools and equipment carried on various fire apparatus. f. Identify some innovative emergency apparatus safety features that help improve scene safety and protect emergency responders.	B4.1 B4.3 B8.4 B9.6	2 5	2 5 11	9-10 11-12.6 **WS** 11-12.7	
11. Hoses: Uses and Care	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the use and proper care of fire hoses and nozzles. b. Identify various types and sizes of fire hose and its construction. Identify proper hose loads, uses, and advantages of each. c. Determine the proper size for an attack line and a backup line based on the size of the fire incident and method of suppression used. d. Demonstrate methods for coupling and uncoupling hoses and nozzles. Discuss the importance of the proper nozzle pattern for the right fire that may be encountered. e. Describe the method for calculating friction loss/gain for heights. Calculate the flow, friction, loss, and engine pressure for the solid bore tip monitor line when the first water is applied through a fog nozzle on a fixed deck gun. f. Describe and demonstrate the use of hose bridges and ramps. g. Demonstrate various fire hose rolls using one or two people. Explain the safety measures taken when rolling, carrying, or dragging fire hose. h. Discuss the causes and methods of preventing fire hose destruction. Describe the proper care and maintenance of fire hoses. i. Identify the purpose and function of master stream appliances and special purpose nozzles and clamps. Compare and contrast fog and straight stream nozzles.	B8.4	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
12. Self-Contained Breathing Apparatus (SCBA) and PPE	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the appropriate use of breathing apparatus and personal protective equipment (PPE), its care, and its limitations in firefighter safety. b. Describe the functions of the human respiratory and cardiovascular systems. Describe the effects of physical and mental stress and how the self-contained breathing apparatus (SCBA) helps alleviate that stress. c. Understand the four dangers to the respiratory system that may be encountered when conducting a search in a fire building. d. Compare and contrast the two types of SCBA systems. Describe the uses, functions, and limitations of the SCBA. Discuss the physical requirements for wearing a self-contained breathing apparatus. Describe the basic elements of effective air management.	B4.2 B8.4 B8.7	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	

e. Discuss the safety rules when wearing SCBA; demonstrate proper donning/removing of SCBA while wearing protective clothing. Describe the procedures and protocols for the inspection, repairing and reconditioning, cylinder charging, and cylinder testing maintenance. f. Describe SCBA usage, e.g., entanglement from the rear, maneuvering past an obstacle, and passing beneath low overhead clearance. g. Discuss emergency procedures to be used in the event of failure of a SCBA. h. Discuss the types of personal protective clothing; identify the different articles of structural firefighting protective equipment, their function, inspection, cleaning, and maintenance. i. Demonstrate the proper donning/doffing of personal protection equipment, e.g., helmet with eye shield, hood, boots, gloves, protective coat and trousers, SCBA, personal alarm device (PAD), and eye protection.					
13. Fire Service Ropes	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of common ropes used in fire service, their components, construction, characteristics, maintenance, and storage. b. Identify the purpose and function of fire service knots. Demonstrate proper fire service knot tying, e.g., knots to hoist equipment, to lower/raise a victim, to anchor safety ropes, and knots for joining rescue ropes. Demonstrate Family of Eight knots, Figure 9 knot, Overhand knot, Double Fisherman's knot, Long Tail Bowline, and the Bowline with Yosemite. c. Demonstrate hitches, e.g., Clove Hitch, Half Hitch, Girth Hitch, Munter Hitch, and Tensionless Hitch. d. Demonstrate the proper procedure for loading a drop bag. e. Demonstrate the proper way to safely raise or lower equipment. f. Describe the techniques for repelling.	B8.4	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
14. Fire Service Ladders	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the various fire services ladders, their construction, function, characteristics, and maintenance. b. Describe fire service ladder design, construction, function, testing, and maintenance. c. Describe the procedures to safely lift, position, and lower ladders. d. Describe the various methods for safely carrying a ladder. e. Discuss the proper climbing techniques in various fire service circumstances. f. Describe how to raise a roof ladder as a member of a team. g. Identify ladder tactics for multi dwelling (MD), commercial, and high-rise buildings.	B8.4	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
15. Building Construction and Forcible Entry	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of various types of building construction, construction concerns, and its effect on fire behavior. **b. Demonstrate knowledge in forcible entry techniques used by fire service personnel.**	B8.3 B8.4 B8.6	1 2 5	1 2 5	**LS** 9-10 11-12.6	

c. Discuss the five types of building construction that are used by the fire codes and the potential impact of firefighting personnel building, e.g., Fire Resistive, Noncombustible, Ordinary, Heavy Timber, and Wood Frame and the steps used in rapid-reads on buildings. d. Discuss the potential dangers presented by a particular type of construction and the effects a fire has on it. e. Discuss how rated building construction bears an important relationship to building size, exposure, and resistance to internal fire spread. f. Understand the behavior of a building under fire conditions. g. Describe the most common types of roofs supporting systems and discuss the materials and hazards associated with them. h. Describe building occupancy classifications to categorize building structures (Groups A, B, E, F, H, I, M, R, S, U) and their impact on fire code enforcement. i. Identify four classifications of forcible entry tools and describe the different methods of forcible entry using power tools. j. Identify tasks involved in through-the-lock entry. Describe methods and locations of forcible entry into various building types.		11	11	**WS** 11-12.7	
16. Combustion and Fire Technology	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the three methods of fire spread, how the methods can extend a fire horizontally and vertically and toxic combustion procedures. b. Define combustion and describe the four basic products of combustion: heat, flame, smoke, and fire gases. c. Provide a description of a 'fuel.' Describe the properties affecting solid fuels, liquid fuels, and gas fuels. d. Identify and describe the three most common fire gases found during combustion, e.g., carbon monoxide (CO), hydrogen cyanide (HCN) and carbon dioxide (CO_2) and its effect on humans. e. Discuss the five stages of fire development according to the International Fire Service Training Association (IFSTA). f. Describe the four sources of heat energy. Identify three methods of heat transfer according to IFSTA. g. Compare and contrast the characteristics of pyrolysis, flashover, and back draft. h. Describe various extinguishing agents and their capabilities.	B8.3	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
17. Ventilation	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate understanding of the basic principles of ventilation and the importance of as a strategic priority in firefighting. b. Describe how proper ventilation tactics can mitigate the hazards of a ventilation-controlled fire.		1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6	

c. Identify special ventilation challenges of various building structures, including high-rise buildings. d. Define forced ventilation. Describe the purpose and procedures involved for top or horizontal ventilation and cross or horizontal ventilation. e. Identify toxic hazards of smoke and its effect on the human body. f. Describe various smoke control/management systems that affect smoke reading. g. Define and describe positive pressure.				WS 11-12.7	
18. Fire Station Practices	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of fire stream patterns, pressure calculations, various types of hose loads, and lifesaving information on the conditions appropriate for each type of stream setting. b. Describe how to identify the proper nozzle pattern for different fire patterns, including Class A fires. c. Describe various foam agents and the application of commonly used on Class B fires. d. Discuss techniques for advancing fire streams. e. Identify and describe various types of pressure, e.g., atmospheric, negative, static, residual, and normal operating. f. Describe the process and correctly calculate friction loss/gain for height. g. Discuss the safety precautions when handling a charged line. Demonstrate how to operate and advance a charged line. h. Identify safety precautions involved with energized electrical equipment.		1 2 5 11	1 2 5 11	LS 9-10 11-12.6 WS 11-12.7	
19. Cardiopulmonary Resuscitation (CPR)	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of rescue breathing and CPR techniques for adults, children, and infants. b. Describe the anatomy and function of the circulatory system for adults, children, and infants. c. List reasons for heart failure and explain the links in the cardiac chain of survival. d. Describe the components of CPR, demonstrate CPR, and explain when to start and stop CPR. e. Demonstrate the steps of one-rescuer and two-rescuer adult CPR. Discuss the difference in performing CPR on infants and children. f. Explain possible complications and legal implications for performing CPR. g. Describe the process and discuss the benefit of using an Automated External Defibrillator (AED). h. Describe how to perform rescue breathing using mouth-to-mask, mouth-to barrier, and mouth-to-mouth techniques. Describe the equipment used for oxygen administration and discuss important safety considerations and hazards.	B4.6	1 2 5 6 11	1 2 5 6 11	LS 9-10 11-12.6 WS 11-12.7 RSTS 9-10 11-12.7	

20. First Aid	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate knowledge of assessment skills to recognize and care for patients suffering from shock, bleeding, and soft tissue injuries. b. Describe the function and relationship between the parts of the circulatory system, e.g., heart, blood vessels, and veins. Differentiate between arterial, venous, and capillary bleeding. Explain emergency care for external bleeding. c. Describe signs, symptoms, possible complications, and emergency medical treatment for patients with thermal, respiratory chemical, and electrical burns. d. Discuss emergency medical treatment for patients suffering from different types of wounds e.g., face and scalp, eye and nose injuries, head and neck wounds, chest and back injuries, impaled objects, closed abdominal wounds, fractured ribs, flailed chest, genital wounds, extremity wounds, gunshot wounds, and bites. e. Explain the signs, symptoms, and treatment for shock. f. Define fracture, sprain, and dislocation. Describe the general principles of splinting. Evaluate the circulation and sensation of a patient with an extremity injury. g. Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services. h. Explain the technical skills and equipment used in emergency response occupations, e. g., airway, oxygen, and ventilation procedures, suction, bleeding control, shock management, cardiac arrest, defibrillation, and wound management. i. Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures.	B4.6 B9.1 B9.2 B9.3 B9.11	1 2 5 6 11	1 2 5 6 11	**LS** 9-10 11-12.6 **WS** 11-12.7 **RSTS** 9-10 11-12.7	

21. Rescue Operations	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate knowledge of important search and rescue procedures and protocols as performed by firefighting personnel. b. Describe and discuss the 10 search and rescue safety considerations according to the International Fire Service Training Association (IFSTA). c. Describe building evacuation practices according to department policies and procedures. d. Describe issues involved with a rescue effort and discuss the importance of pre-planning a rescue effort. e. Identify the chief danger in moving a victim before treating injuries. f. Demonstrate the various methods and techniques for handling a victim during a rescue, e.g., drags, assists, and carries. g. Identify and discuss the use of various extraction tools in rescue operations. h. Discuss an incident scene as a first responder and identify the emergency response skills appropriate for handling the incident scene.	B8.5 B10.2	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	

i. Describe emergency protocols in emergency management responses when working with an on-scene incident accident.					
22. Fire Prevention	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of fire prevention practices, inspections, and procedures. b. Discuss the importance of regularly scheduled fire prevention inspections of a business or facility. c. Identify tools and discuss tools typically used during an inspection. d. Discuss methods of providing public education about the need for fire prevention inspections.	B8.8	1 2 5 11 12	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
23. Records and Reports	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the basic reports and records required by fire service personnel. b. Discuss the elements and procedures of written reports. c. Discuss the importance for maintaining department records and the record retention process.	B3.7	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
24. Communications	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the communications processes and procedures used to dispatch fire personnel to respond to fires or emergency situations. b. Describe various ways in which fire alarms are transmitted to the fire station, e.g., 911 calls, private alarm companies, and alarm boxes. c. Identify the process used to dispatch fire personnel and equipment. d. Compare and contrast the different ways in which the dispatch section is set up in a fire station, e.g., small, large, and volunteer departments. e. Describe the functions of 'expanded dispatch' in large incident situations. f. Use and maintain a variety of communication equipment, understanding the importance of using current and up-to-date technology and communication equipment.	B3.3 B3.8	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
25. Hazardous Materials	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of basic strategies to safeguard health and safety when there is potential exposure to hazardous materials. b. Identify basic components, potential risks, and outcomes of a hazardous materials event. c. Describe the need for a positive safety attitude. d. Describe the purpose and need to safely initiate command/scene management. e. Discuss the use of the North American Emergency Response Guidebook to initiate basic action planning.	B4.23 B4.3 B6.3 B7.0 B7.3	1 2 5 11 12	1 2 5 11		

f. Identify and discuss the function of protection gear necessary for various types of hazardous materials.					
26. Utility Hazards	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of potential utility hazards and the procedures to control these hazards. b. Describe safety issues and discuss the procedures to follow pertaining to electricity at the fire scene, including live electrical wires, and fire in electrical installations. c. Describe the standard procedures to follow pertaining to gas or oil fires.	B4.2 B4.3 B6.3 B7.0 B7.3	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
27. Portable Extinguishers	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the types, classifications, and effective use of portable fire extinguishers. b. Identify the different characteristics and operation of various classes of fire extinguishers, including backpack extinguishers. c. Identify and discuss the various types and uses of fire retardants. d. Discuss safety precautions when operating fire extinguishers.	B8.4	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
28. Fire Protection Systems and Devices	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the basic operating principles of various types of fire protection systems. b. Identify operating principles heat and smoke detectors, various sprinkler systems, and standpipe systems, and describe their function. c. Identify the fire service support activities and safety measures to be observed when working with different fire protection systems.	B8.4	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
29. Water Supplies	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of water supply supplies, e.g., water sources, methods of delivery, and how to improve access and use of those sources. b. Describe the components of a water supply system including water mains and hydrants. c. Describe auxiliary sources of water supply. Discuss ISO ratings and rural water supplies. d. Discuss the importance of a dependable water supply.	B8.4	1 2 5	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
30. Fire Pumps	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the role fire pumps play in effective firefighting, including fire pump fundamentals, requirements for fire pump acceptance, inspection, testing, and maintenance.	B8.4	1 2 5	1 2 5	**LS** 9-10 11-12.6	

b. Identify the different categories of fire pumps, e.g., centrifugal, positive displacement, in-line pump, vertical turbine and horizontal split case, and the difference in water supplies and pump capacities. c. Define the key components of and types of fire pumps and controllers, including engine driven and electric. d. List the periodic inspection, testing, and maintenance requirements as it relates to fire pump installation. e. Discuss how fire pumps are used to protect buildings, business continuance, and a company's good standing in society. f. Discuss the requirements found in NFPA 25 for record keeping and report generation for fire pump installation, inspection, and maintenance.		11	11	**WS** 11-12.7	
31. Wildland Fire Behavior	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of basic Wildland fire behavior and Wildland fire techniques. b. Identify the environmental factors of Wildland fire behavior that affect the start and spread of Wildland fire. c. Describe and analyze factors that affect Wildland fires. d. Identify and discuss hazardous situations pertaining to Wildland fires. e. Define and discuss the fuel and weather factors that affect Wildland fires. f. Identify the four topographic factors that affect Wildland fire behavior. g. Identify weather monitoring equipment and its use in relation to fire. h. Discuss the personal protective equipment (PPEs) used in fighting Wildland fires.	B4.2 B10.4 B10.7	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
32. Fire Investigations	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the purpose of fire origin and cause investigation, including investigation roles and responsibilities, and recognizing common fire behavior and clues left behind at every fire scene. b. Identify and discuss the fire investigation factors to observe en route and upon arrival at a fire. c. Identify the process of documenting and preserving fire scene investigative information through the use of basic sketching and photography. d. Identify unusual situations that help to indicate that an incendiary fire has occurred. e. Discuss the procedures and protocols of proper scene preservation. f. Define arson and discuss the direct and indirect costs of arson fires on the community.		1 2 5 11 12	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
33. Fire Department Administration	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the fire department organizational structure and chain of command.	B1.4 B2.1	1 2	1 2	**LS** 9-10	

b. Define and discuss the importance of the following concepts: customer service, one department concept, and incident effectiveness. c. Discuss components of modern philosophies of 'go and no go' situations. d. Identify new technologies and discuss how these technologies are impacting modern firefighting and response. e. Identify significant fire events and their resulting impact in public assembly/occupancy codes. f. Understand management skills required to lead in the contemporary fire service, whether that leadership is within a specific fire department or on a larger scale. g. Discuss the specific dimensions for dealing with the planning processes that are often inherent in the task of being a fire officer. h. Summarize laws, regulations, and organizational protocols that define the guidelines governing emergency agencies and services. i. Recognize multiagency coordination; unified command, training, identification, and management of resources; qualification and certification; and the collection, tracking, evaluation, and dissemination of information. j. Describe the principles and responsibilities of the Incident Command System (ICS) and the National Incident Management System (NIMS). k. Describe the mechanisms by which emergency management stakeholder agencies and resources are coordinated for mutual aid.	B2.4 B2.5 B3.1 B4.0 B8.1	4 5 8 11 12	4 8 11	11-12.6 **WS** 11-12.6 11-12.7 **SLS** 11-12.1d	
34. Property Conservation and Overhaul	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the important concepts of property conservation and overhaul as they relate to fire service. b. Discuss the overhaul process of a Wildland fire. c. Define and describe the conservation procedures as they relate to fire prevention. d. Understand how and where fires occur and what can be done to educate the public on fire prevention.	B8.8 B10.3 B10.4	1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	
35. Tactics and Strategies	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the strategic and tactical procedures and protocols used in firefighting. b. Compare and contrast strategies and tasks as they relate to contemporary fire service. c. Understand considerations when conducting a size-up according to department standards. d. Identify and discuss five resources for developing a pre-plan system according to department policy. e. Define and discuss the five-step development model needed to create a pre-plan process. f. Describe the strategic priorities at an incident.		1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	

36. On the Job Training	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Successfully perform firefighter duties at a fire station that may include maintenance of fire station grounds, tools, and equipment, ride-along response to fires, and other emergencies, and physical fitness and agility training. b. Perform maintenance of fire equipment, grounds, tools, and other duties as assigned. c. Participate in emergency response exercises, drills, and events.		1 2 5 11	1 2 5 11	**LS** 9-10 11-12.6 **WS** 11-12.7	

A-G Approved Key Assignments	
1.	Students will be put into groups and assigned the task to develop a training plan for the rest of the class. Examples could be good teamwork building activities, physical training exercises, and observe practice, and repeat drills. Each group will outline their training plan. Each group's training will be evaluated by the group's peers and instructor on effectiveness using performance standards. *Unit(s) 7*
2.	Students will learn and accurately use fire technology terminology throughout the entire course. *Unit(s) 8*
3.	Students will investigate the facilities in modern fire departments as well as common fire apparatus. Students will also practice using fire tools and appliances and be able to describe the heavy equipment and aircraft used in firefighting as well as what they are used for in the fire service. Students will be exposed to the types of personal protective equipment used in the fire service and practice wearing them. Students will be taught the six principles of command and the six components of the management cycle in the fire service. Students will also discuss the different fire department types and the methods of communication. *Unit(s) 9*
4.	Students will be shown a fire engine from the local fire department and take an inventory of the fire equipment and tools. Students will create a log, using visual and written descriptions, of all items of inventory. Students will turn in an inventory list/report, bound and formally presentable, as their final product. *Unit(s) 10*
5.	Students will hold and operate charged hose lines under high pressures and demonstrate control. Students will be responsible for using the nozzle to change fire stream volume and patterns. Students will demonstrate proper hose rolls individually and in pairs. *Unit(s) 11*
6.	Students will be given a self-contained breathing apparatus (SCBA). The different ways of donning the unit will be demonstrated to them. Students will practice with the SCBAs until the students can successfully don the SCBA in one minute or less as specified by the NFPA. *Unit(s) 12*
7.	Students will demonstrate competency in tying a variety of fire service knots within a specific amount time. *Unit(s) 13*
8.	As a team students will set all ladders to standards. Working collaboratively, they will explain and apply the safety standards in ladder applications. Using a mathematical calculation, students will determine the amount of force a ladder can take to keep to industry standards. *Unit(s) 14*
9.	After presented with the scenario, each member of the squad must determine the type of forcible entry tool to use. They will calculate the amount of force, where and when the tool should be applied. In addition, students will recognize and apply all safety measures to be taken in the application of forcible entry tools. *Unit(s) 15*
10.	Write a 2–3-page research paper one of the following topics *Unit(s) 16*: • Three methods of fire spread • Four basic products of combustion: heat, flame, smoke, and fire gases • The properties affecting solid fuels, liquid fuels, and gas fuels. • Three most common fire gasses found during combustion, e.g., carbon monoxide (CO), hydrogen cyanide (HCN) and carbon dioxide (CO2) and its effect on humans. • Five stages of fire development according to the International Fire Service Training Association (IFSTA). • Four sources of heat energy and three methods of heat transfer according to IFSTA. • Compare and contrast the characteristics of pyrolysis, flashover, and back draft. • Describe various extinguishing agents and their capabilities.
11.	Throughout the course, students will watch videos of various fires to practice identifying special ventilation challenges of various building structures and to select and describe proper ventilation tactics that can be used to mitigate the hazards of a ventilation-controlled fire. Students will explain why they selected the tactics. *Unit(s) 17*
12.	Demonstrate various fire stream hose patterns and create a chart to explain uses for each type of stream setting. U*nit(s) 18*
13.	Students will be tested on components and steps of CPR for adults, children, and infants. *Unit(s) 19*

14.	Students will be tested on taking vital signs and documenting the results. Students will demonstrate the effective control of bleeding using elevation of limbs, bandages, compression wraps, and tourniquets. Students will practice the effective splinting. *Unit(s) 20*
15.	In teams students will participate in a mock rescue operation to demonstrate rescue search and safety considerations, planning, evacuation practices, proper handling of a victim, and proper use of extraction tools. *Unit(s) 21*
16.	Students will be presented with a firefighting two case studies (scenarios), one in which a large fire broke out in a commercial structure that had a sprinkler system and one that did not have sprinkler system equipped in the building. Students will have to identify the results of each scenario as well as the effect the sprinkler system, or lack thereof, had on the salvage of each building. Students will write their findings in an informative incident report that would be submitted to the public as a notice of fire awareness and safety. *Unit(s) 22*
17.	Write mock-up reports and records based on assigned scenarios. *Unit(s) 23*
18.	Students will each be assigned a different role of an emergency response i.e., dispatch, reporting party, initial response, Incident commander, mutual aid, air attack, ambulance transport, receiving hospital, law enforcement, witness, victim, etc. Students will role play all responsibilities of their role including communications, leadership, and protocol implementation. *Unit(s) 24*
19.	As a squad, students will demonstrate a call on a hazardous material spill. Students develop a written plan to address identification of material, safety precautions and use mathematical computations to determine the amount of area to be cleared from the public. In addition, students will practice writing a report to document the cleanup procedure and suggest preventions. *Unit(s) 25*
20.	Students will be shown how to use the Emergency Response guide. Students will be assigned a specific hazardous material. Using the ERG, students will develop emergency plans for public safety on each of the hazardous materials. *Unit(s) 26*
21.	Students will be shown various types of fire extinguishers. Students will demonstrate by identifying the correct extinguisher for use on different classes of fire. Students will be given a live demonstration of flash point of flammable and combustible liquids. Students will then extinguish a flammable liquid fire using a CO2 extinguisher. *Unit(s) 27*
22.	Present short public service announcements on assigned fire protection systems. *Unit(s) 28*
23.	Write 1–2-page paper on water supplies and how to improve access and use for fire departments. *Unit(s) 29*
24.	Present to the group on different aspects of fire pumps including key components of each type and their uses. *Unit(s) 30*
25.	Students will be presented with a firefighting case study (a scenario) about a wildland fire that reaches conflagration proportions. Students will have to identify the key factors contributing to the conflicts of this scenario, which a firefighter would have to identify in the field. In an incident report format, students will demonstrate their firefighting knowledge to this point in the course, by explaining the problem-solving techniques the firefighter on scene would have to implement to do his/her job correctly. *Unit(s) 31*
26.	Students will be presented with a firefighting two case studies (scenarios), one in which a large fire broke out in a commercial structure that had a sprinkler system and one that did not have sprinkler system equipped in the building. Students will have to identify the results of each scenario as well as the effect the sprinkler system, or lack thereof, had on the salvage of each building. Students will write their findings in an informative incident report that would be submitted to the public as a notice of fire awareness and safety. *Unit(s) 32*
27.	Students will be presented with a firefighting case study (a scenario) about serving the public and the modern view of this as customer service. Students will have to identify the key factors contributing to the conflicts of this scenario, which a firefighter would have to identify in regard to customer service. In an incident report format, students will demonstrate their firefighting knowledge to this point in the course, by explaining the problem-solving techniques the firefighter on scene would have to implement to do his/her job correctly. *Unit(s) 33*
28.	Write 2–3-page paper about property conservation, wildland fires, and how to educate the public on preparedness. *Unit(s) 34*
29.	Demonstrate tactical procedures and protocols in teams based on assigned scenarios. *Unit(s) 35*
30.	As appropriate students will be placed within the community to gain hands on experience and exposure to the emergency response field. Students will be evaluated by their direct supervisors. *Unit(s) 36*

Standards Alignment

The curricula have been aligned with the CTE Model Curriculum Standards released in 2013. Each industry sector was updated to meet the increased rigor and relevancy requirements of the Common Core State Standards. The curriculum also includes the new Standards for Career Ready Practices.

Standards for Career Ready Practice

1. *Apply appropriate technical skills and academic knowledge.*
2. *Communicate clearly, effectively, and with reason.*
3. *Develop an education and career plan aligned with personal goals.*
4. *Apply technology to enhance productivity.*
5. *Utilize critical thinking to make sense of problems and persevere in solving them.*
6. *Practice personal health and understand financial literacy.*
7. *Act as a responsible citizen in the workplace and the community.*
8. *Model integrity, ethical leadership, and effective management.*
9. *Work productively in teams while integrating cultural and global competence.*
10. *Demonstrate creativity and innovation.*
11. *Employ valid and reliable research strategies.*
12. *Understand the environmental, social, and economic impacts of decisions.*

CTE Anchor Standards—Common Core English Language Arts Alignment

Anchor Standard 1: Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the industry sector alignment matrix for identification of standards. Note: alignment listed within each sector.

Anchor Standard 2: Communications

Language Standard: Acquire and accurately use general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the (career and college) readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. LS 9-10, 11-12.6

Anchor Standard 3: Career Planning and Management

Speaking and Listening Standard: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SLS 11-12.2

Anchor Standard 4: Technology

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.

Anchor Standard 5: Problem Solving and Critical Thinking

Writing Standard: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow, or broaden the inquiry when appropriate, and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. WS 11-12.7

Anchor Standard 6: Health and Safety

Reading Standards for Science and Technical Subjects: Determine the meaning of symbols, keywords, and other domain-specific words and phrases as they are used in a specific scientific or technical context. RSTS 9-10, 11-12.4

Anchor Standard 7: Responsibility and Flexibility

Speaking and Listening Standard: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. SLS 9-10, 11-12.1

Anchor Standard 8: Ethics and Legal Responsibilities

Speaking and Listening Standard: Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the work. SLS 11-2.1d

Anchor Standard 9: Leadership and Teamwork

Speaking and Listening Standard: Work with peers to promote civil, democratic discussions and decision making; set clear goals and deadlines; and establish individual roles as needed. SLS 11-12.1b

Anchor Standard 10: Technical Knowledge and Skills

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. WS 11-12.6

Anchor Standard 11: Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the industry-sector anchor standards, pathway standards, and performance indicators in the classroom, laboratory, and workplace settings, and the career technical student organization. Note: no alignment evident for this standard. WS 11-12.6

Public Services

B. Emergency Response Pathway

B1.4 Describe the roles and responsibilities of emergency response agencies.

B2.1 Describe the mechanisms by which emergency management stakeholder agencies and resources are coordinated for mutual aid.

B2.3 Understand the core set of basic concepts, principles, terminology, and technologies of emergency response management.

B2.4 Recognize multiagency coordination; unified command, training, identification, and management of resources; qualification and certification; and the collection, tracking, evaluation, and dissemination of information.

B2.5 Describe the principles and responsibilities of the Incident Command System (ICS) and the National Incident Management System (NIMS).

B3.1 Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in emergency services.

B3.3 Employ active listening, concise reporting, and familiarity with emergency response communication equipment to interact efficiently and effectively.

B3.7 Use appropriate terminology in clear, concise, and legible report entries when preparing and submitting required reports.

B3.8 Use and maintain a variety of communication equipment, understanding the importance of using current and up-to-date technology and communication equipment.

B3.9 Practice verbal and nonverbal emergency terminology and communication techniques to be used when interacting with emergency response personnel in a variety of emergency situations.

B4.0 Execute safety procedures and protocols associated with local, state, and federal regulations in order to effectively and safely conduct duties within fire and emergency services.

B4.1 Describe the basic elements of safety and survival for emergency response personnel.

B4.2 Know and use the appropriate personal protective equipment (PPE) required for emergency services duties.

B4.3 Know how to establish situational awareness, identify hazards, and assess personal, team, or environmental risks.

B4.6 Complete certification in emergency care as appropriate—for example, cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), and first aid.

B5.0 Develop the level of nutrition, fitness, strength, agility, and psychological health and wellbeing required for safely working in emergency response career fields.

B5.1 Understand that physical fitness and proper nutrition are needed to perform the duties of emergency response personnel.

B5.2 Recognize the different physical strength and agility assessments required for entrance into emergency response employment.

B5.3 Apply the skills and techniques necessary for success in strength and agility testing.

B6.3 Review a hazard mitigation plan to reduce death and injury for potential man-made and natural hazards.

B7.0 Research and define what is considered to be hazardous materials incidents and threats.

B7.3 Describe the type of damage and injury that can occur if hazardous materials are handled improperly.

B8.1 Understand the history, organization, and operation of fire services.

B8.3 Explain the fundamentals and scientific principles of fire behavior, combustible materials, extinguishing agents, hazardous and toxic materials, forms of energy, and fire prevention/suppression techniques for all types of fires and conditions.

B8.4 Demonstrate the operation of fire protection equipment and systems.

B8.5 Demonstrate the skills necessary to perform fire suppression and basic rescue operations using firefighting techniques and rescue equipment.

B8.6 Identify structural characteristics of building construction types as they relate to fire protection and suppression and recognize the signs and causes of potential building collapse and other hazards.

B8.7 Apply principles of proper body mechanics, including ergonomics, equipment uses, and techniques to prevent personal injury.

B8.8 Participate in public education aimed at reducing loss of life and property, through programs and activities on fire prevention and safety as well as other injury-prevention education.

B9.1 Understand and use medical terminology and related knowledge of anatomy, physiology, diseases, diagnoses, pharmacology, therapeutics, and common abbreviations necessary for emergency medical services.

B9.2 Know the common acronyms used in fire and emergency services.

B9.3 Perform technical skill and equipment use required for emergency response occupations—for example, airway, oxygen, and ventilation procedures; suction; bleeding control; shock management; cardiac arrest management; immobilization techniques; traction; splinting; transport; defibrillation; and wound management.

B9.6 Manage an incident scene as the first responder, using emergency response skills appropriate to training and certification.

B9.11 Describe the function of emergency vehicles, use of medical and communication equipment, and the necessity of maintaining inventory as required for emergency services practices and procedures.

B10.2 Explain the role of fire personnel in wildland fires, structure fires, auto accidents, medical aid, swift-water rescue, civil disturbances, search and rescue operations, hazardous material spills, train wrecks, floods, and earthquakes.

B10.3 Describe fire prevention and planning procedures to save wildland structures during a forest fire.

B10.4 Assess the value of the resource management program, including the impact on timber, watershed, wildlife, and recreation.

B10.7 Recognize factors that influence the start and spread of wildland fires.

ISTE Standards for Students

1. Empowered Learner- Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

a) Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.

b) Students build networks and customize their learning environments in ways that support the learning process.

c) Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways

d) Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen- Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

a) Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

b) Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

c) Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

d) Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3.Knowledge Constructor- Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others.

a) Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

b) Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.

c) Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

d Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

4. Innovative Designer- Students use a variety of technologies within a design process to identify and solve problems creating new, useful, or imaginative solutions.

a) Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.

b) Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

c) Students develop, test, and refine prototypes as part of a cyclical design process.

d) Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

5. Computational Thinker- Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

a) Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

b) Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

c) Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d) Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator- Students communicate clearly and express themselves creatively for a variety of purposes using platforms, tools, styles, formats, and digital media appropriate for their goals.

a) Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

b) Students create original works or responsibly repurpose or remix digital resources into new creations.

c) Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

d) Students publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator- Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

a) Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

b) Students use collaborative technologies to work with others, including peers, experts, or community members, to examine issues and problems from multiple viewpoints.

c) Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

d) Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.