

Colorado CTE Course – Scope and Sequence

Course Name	Fundamentals of Transportation	Course Details	.5 (middle school – level 2)		
		Course = 0.50 Carnegie Unit Credit			
Course Description	This course provides students with opportunities to become familiar with related careers and develop fundamental technological literacy as they learn about the history, systems, and processes of transportation. In addition, the course will provide an overview of the safe use of tools and equipment used in the industry. This course will assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the transportation, distribution, and logistics career cluster.				
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all essential knowledge and skills are covered.				
SCED Identification #		Schedule calculation based on 60 calendar days of a 90-day semester. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.			
All courses taught in an approved CTE program must include Essential Skills embedded into the course content. The Essential Skills Framework for this course can be found at https://www.cde.state.co.us/standardsandinstruction/essentialskills					
Instructional Unit Topic	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration	
Societal Impact of Transportation		Demonstrate an understanding of the societal impact of transportation		SkillsUSA integration throughout	
			Track the evolution of transportation and its impact on society.		
			Explain the educational requirements and professional expectations associated with a career in transportation.		
			Describe the impact of governmental and political systems on transportation.		
			Explain the interaction between transportation industries and social change.		
			Explain how transportation made the United States a world leader.		

				Describe the relationship between transportation and the environment.	
				Explain the importance of a technologically literate workforce to the transportation industry.	
History of Transportation Industry			Research the history of the transportation industry		
				Trace the development of transportation in the United States from a historical perspective.	
				Explain the economic impact of the transportation industry at the local and national levels.	
				Describe the impact of transportation on a global scale.	
				Describe the differences and similarities between ground, air, and maritime travels.	
Knowledge of Transportation Industry Service Publications			Demonstrate knowledge of service publications by selecting the correct source and locating information found in each		
				Identify different types of transportation service publications such as; owner's manuals, manufacturer's manuals and electronic service publications and Federal Aviation Regulations.	
				Read service publications to retrieve desired information.	
				Describe the basic types of troubleshooting charts found in service publications.	
Major components of Transportation Vehicles			Demonstrate an understanding of the major components of transportation vehicles		
				Identify and locate important parts of transportation vehicles.	

				Describe the purpose of the fundamental transportation systems.	
				Explain how each transportation system works dependent and independently of each other.	
Safety, OSHA, EPA issues and procedures			Demonstrate knowledge of safety, OSHA, EPA issues and procedures		
				Define OSHA and how it oversees and provides safety guidelines to the transportation industry.	
				Describe the typical layout and sections of different types of transportation.	
				List the types of accidents that can occur in all types of transportation.	
				Explain how to prevent different types of transportation accidents.	
				Describe the general rules for different types of transportation.	
				Explain federal, state, and local rules and regulations regarding environmental issues related to the work in the transportation industry.	
Basic tools and supplies used in the Transportation Industry			Identify and measure fasteners used in the transportation industry		
				Identify the different fasteners such as; screws, bolts, washers, nuts, rivets, etc. that are used in the transportation industry.	
				Explain the functions and applications of various fasteners.	
				Demonstrate how to measure fasteners.	
				Identify the proper hand tools and safe uses when working with fasteners used in the transportation industry.	

Identifying, selecting and using the proper tools for a give job in transportation.			Identify, select and use the proper tool for a given fastener or job		
				Identify common transportation hand and power tools and proper uses.	
				List safety rules for common transportation hand and power tools.	
				Explain how to maintain and store tools properly	
Engine components for the transportation industry			Identify and measure components of an engine used in the transportation industry		
				Introduce and explain the major components of an aerospace/transportation engine.	
				Demonstrate how to properly measure each component.	
				Explain the different instruments used for engine measurements.	
Safety inspection of vehicles for transportation			Inspect a transportation vehicle for maintenance needed for safe operation		
				Explain the importance of vehicle maintenance.	
				Demonstrate how to check fluid levels, belts, hoses, tires, etc.	
				Demonstrate safe practices while working with fluids.	
Basics of electricity and electronics			Demonstrate an understanding of basic electricity and electronics		
				Explain the principles of electricity.	
				Describe the basic electrical circuits.	
				Identify basic electrical and electronic terms and components.	

				Calculate and measure voltage, resistance, and amperage.	
				Explain different kinds of aerospace/transportation vehicle wiring.	
				Repair and build electrical circuits.	
				Demonstrate fundamental electrical testing.	
Current and Alternative Fuel Sources			Demonstrate knowledge of current and alternative fuel sources		
				Summarize how crude oil is converted to gasoline and diesel fuels.	
				Describe properties of gasoline and diesel fuels.	
				Summarize properties of alternative fuels.	
				Compare and contrast benefits of green fuels and energy production.	
Communication for Employment and Career Opportunities in Transportation			Use visual and verbal communication to present employment and career opportunities in transportation		
				Present a technical report to an audience regarding a researched transportation related career using multimedia.	
				Prepare and produce a portfolio representing experiences throughout the course of study.	
Leadership Development			Students will develop leadership and interpersonal problem-solving skills through participation in co-curricular activities		
				Demonstrate effective communication skills.	
				Participate in teamwork to accomplish specified organizational goals.	
				Demonstrate cooperation and understanding with persons who are ethnically and culturally diverse.	

Network Systems			Identify components of network systems		
				Identify structure to access internet, including hardware and software components.	
				Identify and configure user customization features in web browsers, including preferences, caching, and cookies	
				Recognize essential database concepts	
				Define and use additional networking and internet services.	
Information Technology			Describe and use communication features of information technology		
				Define important internet communications protocols and their roles in delivering basic Internet services	
				Identify basic principles of the Domain Name System (DNS)	
				Identify security issues related to Internet clients	
				Represent technical issues to a non-technical audience.	
				Identify and use principles of personal information management (PIM), including common applications	