

	State Standard:	Aligns With:	
Federal Regulations	1. Identify FAA regulations (FAA Part 107) and indicate where to find regulations on drones and licensing requirements. a. Complete a FAA license application.	Module 10: Part 107 Regulation, Course Wrap Up	
	2. Investigate and report on liability and insurance requirements related to drone operation.	Module 17: Emergency Procedures, Maintenance, and Inspection	
	3. Explain the characteristics of drones according to FAA regulations and industry standards.	Module 1: Introduction to the Unmanned Aircraft Industry, Module 3: UAS Platforms Configurations & Components, Module 4: UAS Components (Continued)	
Drone Classification and Uses	4. Classify drones according to body type. Examples: UAV, tricopter, quadcopter	Module 3: UAS Platforms Configurations & Components	
	5. Identify the roles and missions that various types of drones perform in military and civilian settings.	Module 2: Current and Future Applications of Unmanned Aircraft	
	6. Describe industrial and commercial uses of various types of drones. Examples: agriculture, conservation, delivery fulfillment, disaster relief, energy exploration, tower inspections, filmmaking, law enforcement, geographic information systems, real estate, research, space exploration	Module 2: Current and Future Applications of Unmanned Aircraft, Module 5: Gimbals and Sensor Technology	

	<p>a. Describe instrument and data collection packages drones are able to take aloft. Examples: videography, photography, surveying, mapping, data collection, processing, remote sensing, infrared/thermal imaging, Normalized Difference Vegetation Index (NDVI), photogrammetry</p>		
Drone Hardware	<p>7. Identify materials used in the construction of drones.</p>	<p>Module 3: UAS Platform Configurations and Components</p>	
	<p>8. Identify drone components and parts of the craft. Examples: servos, gyros, radios, accelerometers, GPS modules, processors, cameras, batteries, rotors, motors, collision avoidance systems</p>	<p>Module 3: UAS Platforms Configurations & Components, Module 4: UAS Components (Continued), Module 5: Gimbals and Sensor Technology, Module 17: Emergency Procedures, Maintenance, and Inspection</p>	
	<p>9. Describe types of power systems for drones. Examples: engines, fuel, motors, electrical systems, lithium batteries</p>	<p>Module 3: UAS Platform Configurations and Components,</p>	
	<p>10. Demonstrate repair procedures on a drone. Examples: changing damaged blades, installing a new motor</p>	<p>Module 17: Emergency Procedures, Maintenance, and Inspection</p>	
	<p>11. Explain the aeronautical implications of air density and density altitude.</p>	<p>Module 13: Effects of Weather, Module 15: Loading and Performance</p>	

Forces of Flight and How Drones Fly	12. Explain the four forces of motion acting on a drone. a. Calculate vectors to determine resulting motion.	Module 15: Loading and Performance	
	13. Explain the theories of lift and drag as they apply to airfoils and lift production. a. Calculate lift for a given drone. b. Explain the factors that result in aerodynamic stalls during drone flights.	Module 15: Loading and Performance	
	14. Calculate aircraft weight capacities and center of gravity to balance a drone for stability and control.	Module 15: Loading and Performance	