

NFPA2400

Unit Plan:

High School Programs



Introduction

The following is a 15-day lesson plan for teaching NFPA 2400 in high school programs as part of the Advanced Drone Piloting Curriculum. Included are daily essential questions, expected time durations for lectures, lessons addressing the specified standards (303.01 and 303.02), and clear learning goals.

Day 1: Introduction to UAS Operations
Essential Question:
What are the key roles and applications of UAS in emergency services?
Lecture Duration: 30 minutes
Learning Goals:
- Understand the significance of NFPA 2400. - Identify various UAS applications in emergency management.
Standards Addressed: Advanced Drone Piloting 303.01
Activities:
- Class discussion and introduction to flight vocabulary. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 2: Understanding Flight Dynamics
Essential Question:
How do the principles of flight dynamics affect UAS operation?
Lecture Duration: 30 minutes
Learning Goals:
Explain the concepts of Lift, Drag, Throttle, Pitch, Yaw, and Roll.
Standards Addressed: Advanced Drone Piloting 303.01
Activities:
- Simulation and group diagram creation. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 3: Safety Protocols and Regulations
Essential Question: What safety protocols must UAS operators follow to ensure safe operations?
Lecture Duration: 30 minutes
Learning Goals: - Understand FAA regulations and NFPA 2400 guidelines. - Identify risk management strategies.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Guest speaker and emergency scenario roleplay. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 4: PreFlight Preparedness
Essential Question: What steps are necessary for thorough preflight preparation?
Lecture Duration: 30 minutes
Learning Goals: - Perform a complete preflight checklist. - Apply the IMSAFE method.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Mock preflight checklist and IMSAFE discussion. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 5: Introduction to ALOFT
Essential Question: How does ALOFT facilitate efficient flight logging and maintenance tracking?
Lecture Duration: 30 minutes
Learning Goals: Set up and navigate ALOFT for flight logging.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Handson session to log a practice flight. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 6: Flight Planning and Execution
Essential Question: How do effective flight plans enhance operational safety and efficiency?
Lecture Duration: 30 minutes
Learning Goals: - Create a comprehensive flight plan. - Recognize the importance of situational awareness.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Group flight planning for simulated emergencies. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 7: Flight Operations and Techniques
Essential Question: What operational techniques are essential for safe UAS maneuvers?
Lecture Duration: 30 minutes
Learning Goals: Demonstrate basic maneuvers (e.g., Orbit, Throttle control).
Standards Addressed: Advanced Drone Piloting 303.02
Activities: Flight simulator practice.

Day 8: Weather Considerations
Essential Question: How does weather impact UAS operations and flight safety?
Lecture Duration: 30 minutes
Learning Goals: Analyze weather conditions to inform flight decisions.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Weather analysis for flight scenarios. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 9: Emergency Procedures and Protocols
Essential Question: What are the best practices for handling inflight emergencies?
Lecture Duration: 30 minutes
Learning Goals: - Implement emergency landing techniques. - Communicate effectively with local authorities.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Simulated emergency response training. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 10: PostFlight Assessment and Maintenance
Essential Question: What steps should be taken during postflight assessments to ensure safety and maintenance?
Lecture Duration: 30 minutes
Learning Goals: Conduct postflight inspections and log maintenance.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Postflight inspection and ALOFT logging. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 11: Flight Simulations and Practical Application
Essential Question: How can simulations enhance a pilot's understanding of UAS maneuvers?
Lecture Duration: 30 minutes
Learning Goals: Apply learned maneuvers in simulated flights.
Standards Addressed: Advanced Drone Piloting 303.02
Activities: - Simulated flight sessions. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 12: Advanced Flight Techniques
Essential Question: What advanced maneuvers should pilots master for complex flight scenarios?
Lecture Duration: 30 minutes
Learning Goals: Execute advanced maneuvers effectively.
Standards Addressed: Advanced Drone Piloting 303.02
Activities: - Handson practice with advanced maneuvers. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 13: Review and Reflection
Essential Question: What are the key takeaways from our UAS training thus far?
Lecture Duration: 30 minutes
Learning Goals: Reflect on learning experiences and address challenges.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Group discussion and practice test review. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 14: Final Preparations for Certification
Essential Question: How can I effectively prepare for the NFPA 2400 certification exam?
Lecture Duration: 30 minutes
Learning Goals: Review key concepts and exam strategies.
Standards Addressed: Advanced Drone Piloting 303.01
Activities: - Mock certification exam and Q&A. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>

Day 15: Certification Day and Practical Flight Test
Essential Question: How can I demonstrate my proficiency in UAS operations to obtain certification?
Lecture Duration: 30 minutes
Learning Goals: Successfully complete the NFPA 2400 certification exam and practical flight test.
Standards Addressed: Advanced Drone Piloting 303.02
Activities: - Administering the certification exam and practical assessments. <i>Daily Flight Logs in ALOFT or Manual entry: Pilots will log their flight hours and maintenance performed daily, emphasizing the importance of recordkeeping and compliance.</i> <i>Safety Emphasis: Safety, situational awareness, and proper communication are reinforced throughout the unit.</i>