Part 107: An Introduction

Session Time: Two, 50-minute sessions

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

Unmanned aircraft systems (UAS) are regulated by the FAA to ensure safe operations within the National Airspace System (NAS), and remote pilots must be familiar with these regulations.

ESSENTIAL QUESTIONS

1. What is 14 Code of Federal Regulations (CFR) Part 107, and how do these rules apply to small unmanned aircraft systems (sUAS) remote pilots?

LEARNING GOALS

Students Will Know

- The topics covered by the FAA in 14 CFR Part 107, and who these rules apply to.
- The remote pilot certification process, including information about the unmanned aircraft general (UAG) exam.
- Privileges, limitations, and responsibilities of Part 107 remote pilots.

Students Will Be Able To

- *Identify* the major topics covered by 14 CFR Part 107. [DOK-L1]
- *Distinguish* between operations included within Part 107 and those that are excluded from the rule. [DOK-L2]
- *Summarize* the process by which a remote pilot can become certificated under Part 107. [DOK-L2]

ASSESSMENT EVIDENCE

Warm-up
Students will watch a video showing a day in the life of a drone pilot. After the video, students will be asked a series of questions designed to engage them in a classroom discussion about how to become a drone pilot, what certifications are needed, what the limitations of drone operations are, and other topics as they arise.

Formative Assessment
Students will be provided with the **Part 107: An Introduction Student Activity 1** worksheet and instructed to answer the questions in writing. The teacher will then lead a class discussion about the answers.

Summative Assessment
Students will answer questions in writing from **Part 107: An Introduction Student Activity 3**, based on four scenarios in which they will apply their knowledge and understanding of FAA regulations pertaining to sUAS and Part 107. Additionally, one question will ask students to explain the paths to remote pilot certification. Each student will be provided with a copy of Part 107, which they will be allowed to use during the test.

LESSON PREPARATION

MATERIALS/RESOURCES

- Part 107: An Introduction Presentation
- Part 107: An Introduction Student Activity 1
- Part 107: An Introduction Student Activity 2
- Part 107: An Introduction Student Activity 3
- Part 107: An Introduction Teacher Notes 1
- Part 107: An Introduction Teacher Notes 2
- Part 107: An Introduction Teacher Notes 3

LESSON SUMMARY

Lesson 1: Part 107: An Introduction
Lesson 2: Part 107: Operating Rules and Waivers
Lesson 3: Beyond 107: Best Practices and Being a Good Neighbor

Session 1 will begin with a short video showing a near collision between a drone and a helicopter. Students will participate in a classroom discussion of this near-accident and will talk about who was responsible for the incident. The importance of exercising close control over drones, especially when operating in the vicinity of manned aircraft, will the emphasized.

Next, a series of instructional slides will be presented that define the relevant Federal Aviation Regulations (FARs) that apply to drone pilot certification and the operating rules that drone pilots must follow. The differences between commercial and non-commercial operations will be discussed, and a series of scenarios will be presented to provide students with the opportunity to demonstrate their understanding of those differences.

During the next part of the lesson, the three broad areas covered by Part 107 will be discussed: personnel requirements, operating limitations, and airspace requirements. Details will be provided as to when drone pilots must be certificated and when they may operate drones without certification. The privileges and limitations of drone pilots will be presented, and the requirements for becoming a drone pilot will be provided in detail.

Finally, Session 1 will end with a **Formative Assessment** to determine student understanding and retention of the material presented to date.

Session 2 will prepare students to take the UAG exam, which will allow them to become certificated remote pilots with sUAS ratings. This session will outline the subject areas covered on the exam, point students to the relevant FAA documentation useful in preparing for the test, and encourage students to begin studying early in order to gain the depth of knowledge required to pass the UAG exam. Students will then complete an activity to help them become more familiar with Part 107 as presented on the FAA website.

Next, students will be given seven sample UAG exam questions to answer and discuss in class. The session will conclude with a **Summative Assessment** that will enable students to demonstrate their understanding of the material presented in both Sessions 1 and 2.

BACKGROUND

Unmanned aircraft first became common in the public sphere in the 1960s, when transistor technology enabled remotely piloted aircraft to be built with miniaturized radio control technology. Remote-controlled (RC) airplanes became popular. Up to this time, there was very little regulation over unmanned aircraft other than the FAA prohibition against flying them for commercial purposes. Flight training was community-based, backed largely by the efforts of a

newly formed trade group, the Academy of Model Aeronautics, a non-governmental organization of model aircraft enthusiasts who saw a need for a common set of standards regarding flight safety and training among hobbyists. In 1981, the FAA published Advisory Circular 91-57, Model Aircraft Operating Standards. That publication promoted voluntary safety standards, but did not stipulate consequences for noncompliance.

By the mid-2000s, the FAA had dramatically increased its involvement in drone operations. Some commercial uses of drones were allowed, but only after obtaining permission from the FAA on a case-by-case basis. The FAA Modernization and Reform Act of 2012 enabled the Secretary of Transportation (not the FAA) to promulgate rules regarding drone operations. A few years later, the FAA published Part 107 of the FARs (14 CFR 107), the definitive guide to the commercial operation of small unmanned aircraft systems (sUAS). Part 107 contains regulations and requirements for certification of commercial drone pilots as well as the operating rules that pilots must follow when flying drones for commercial purposes.

MISCONCEPTIONS

Because many consumer drones are so small, a common misconception is that they are not regulated by the Federal Aviation Administration (FAA). Early on, this was the case. In 2016, however, rules were released by the FAA that covered non-hobbyist small unmanned aircraft (sUAS) operations. These rules—part 107 of the Federal Aviation Regulations—pertain to a broad spectrum of commercial uses for drones weighing less than 55 pounds.

Students might not realize that remote pilots who fly for compensation, like pilots who fly manned aircraft, must earn a pilot certificate. Details about applicability and the remote pilot certification process will be covered in this lesson.

Another potential misconception involves students confusing the remote pilot-in-command (PIC)—a role that is discussed in the lesson—with the manipulator of a drone's controls. Often times, these roles are the same, and a remote PIC will be the person directly controlling the sUAS. This is not always the case, however. While the PIC (a position that requires a Part 107 Remote Pilot Certificate) is the person with final authority and responsibility for the operation and safety of the drone, an additional person could manipulate the drone's controls under the supervision of the PIC without being a certificated remote pilot.

DIFFERENTIATION

To promote student motivation and engagement, have students complete a think-pair-share following the **Formative Assessment** at the end of the **EXPLAIN** section of the lesson plan. This sort of activity will allow students to share their ideas with each other and check their understanding before opening up the discussion to the entire class.

LEARNING PLAN

ENGAGE

Teacher Material: Part 107: An Introduction Presentation

Session 1

Slides 1-3: Introduce the topic and learning objectives of the lesson.

Slide 4: Conduct the **Warm-Up**.

Warm-Up

As students have learned, there are many careers available to drone pilots. The following is a brief video depicting a day in the life of Trent Palmer, who works in the film industry:

- "Professional Drone Pilot – What I Do For Work VLOG" (Length 4:22)
  https://video.link/w/Muny

For teachers unable to access Safe YouTube links, the video is also available here: https://youtu.be/VkIL5I3IpyE

Following the video, ask these questions:

How would someone get a job like the one shown in the video (or any other remote pilot career that would allow someone to get paid for flying)? What do you think the qualifications would be? Are any special certifications required?

Students' answers will vary, but students will likely recognize that to prepare for a career in UAS one would need to gain experience flying drones. They might also bring up the need for certification, which is what this lesson will focus on.

Why do you think this photographer used a drone rather than a manned airplane or helicopter?

Drones are often used instead of manned airplanes or helicopters because they are more economical, can fit into tighter spaces where larger aircraft can't fly, and can hover and maintain position while making less noise.

These questions don't need to be answered in detail at this point, as they will be covered during the lesson. Let students know, however, that only a written test is required to become a certificated commercial drone pilot; during this course, students will reach a point where they will be prepared to take this test if they so choose.

EXPLORE

Teacher Material: Part 107: An Introduction Presentation

Slide 5: Show students the following video, which shows a near collision between a drone and helicopter.

- "Helicopter Nearly Collides with Drone off Hollywood" (Length 1:10)
  https://video.link/w/rnmx

For teachers unable to access Safe YouTube links, the video is also available here: https://youtu.be/NBRI0Q1fq7s

Students should watch the video. Then, have the class discuss the questions in the box below.

Questions

Which aircraft had the right-of-way?

According to the FARs, the helicopter had the right-of-way, since manned aircraft always have the right-of-way over drones.

Which person (or people) is responsible for the incident? Assume that the people involved included the helicopter pilot, a certificated drone pilot designated as pilot in command (PIC) of the UAS flight, a non-certificated person manipulating the drone's controls under the supervision of the PIC, and a visual observer, acting as a crew member, charged with maintaining constant contact with the drone to help see and avoid air traffic.

The PIC of any flight, manned or unmanned, is the final authority for that flight and takes responsibility for everything that occurs. While other crew members (the non-certificated manipulator of the controls and the visual observer) could have played a role in the near collision, the certificated drone pilot acting as PIC has the final responsibility.

How could the near collision have been avoided?

The near collision could have been avoided by the visual observer keeping better track of the other air traffic in the area and warning the PIC and manipulator of the controls of the presence of the helicopter. The PIC, probably being more skilled as a drone pilot, could have taken the controls away from the non-certificated manipulator of the controls sooner and maneuvered the drone away from the helicopter.

Slide 6: Pilots all over the world are reporting near-collisions with drones, usually during takeoffs and landings when the aircraft are low to the ground. The damage that could result from a drone striking a wing or fuselage could be sufficient to bring an airplane down, potentially killing hundreds of people.

- "When a Drone Strikes and Airplane" (Length 1:34)
  https://video.link/w/25mx

For teachers unable to access Safe YouTube links, the video is also available here: https://www.youtube.com/watch?v=hA_BbujPfM8

As the number of drones increased, and the reports from pilots of near-collisions multiplied, airlines and other commercial operators began demanding more regulation of drone operations. In response, the FAA created an entirely new section of the Federal Aviation Regulations: Part 107. Part 107 deals strictly with drone operations; it details how commercial drone pilots are to be certified, what the operating rules for drones are, and what airspaces drones may and may not operate within. These regulations provide the framework for manned and unmanned aircraft to operate within a system that maximizes safety while allowing drone operators to work productively and efficiently.

Questions

What kinds of regulation do you think would enhance safety and minimize the risk of collision between drones andother aircraft?

Answers may vary and may include: Don't allow drones to operate near airports. Restrict drones from flying above certain altitudes. Require drone pilots to remain in visual contact with their drones at all times.

EXPLAIN

Teacher Materials: Part 107: An Introduction Presentation, Part 107: An Introduction Teacher Notes 1
Student Material: Part 107: An Introduction Student Activity 1

Slide 7: Part 107 of the Federal Aviation Regulations, also known as 14 CFR 107, sets out the regulations for small unmanned aircraft systems (sUAS) used in commercial operations. (Remind students that sUAS are drones that weigh no more than 55 pounds.) Just like manned aircraft pilots, pilots of drones flown in commercial operations must be

certificated by the FAA. To be certificated, drone pilots must pass a written examination covering a wide range of topics related to UAS operations.

Part 107 also sets out the rules for flying drones, covering issues such as maximum altitudes, flights in proximity to people, weight restrictions, operations near other aircraft, piloting by non-certificated crew members, and much more. To qualify as a drone, an aircraft must only be capable of being controlled remotely; there must be no possibility of direct human intervention from within or on the aircraft.

Part 107 specifies airspaces in which drones are prohibited from flying. Flight in the vicinity of an airport, for example, is highly regulated and requires prior notification. Similarly, flights into controlled airspace or above 400 feet might require special authorization from the FAA.

It is important to keep in mind that Part 107 only applies to commercial drone operations, and not to private drones flown purely for recreation. Drones flown for recreation only are covered under an exception for recreational flyers.

Slide 8: Part 107 regulations, however, do not apply to all sUAS operations; exclusions include air carrier operations, operations conducted outside the United States, public aircraft operations (e.g. operations conducted by the Department of Defense, NASA, NOAA, etc.), and certain model aircraft. Also excluded are moored balloons, kites, amateur rockets, and unmanned free balloons.

To be excluded from Part 107, model aircraft must meet the following criteria:

- Flown strictly for hobby or recreational use
- Operated in accordance with community-based safety guidelines and within the programming of a nationwide community-based organization
- Weigh no more than 55 pounds
- Be operated in a manner that doesn't interfere with manned aircraft

Also, when flown within 5 miles of an airport, the operator of the model aircraft must provide the airport operator and control tower (if there is one) with prior notice of operation.

Slide 9: If drone use is commercial, then it is subject to Part 107 regulations and must conform to its requirements. Commercial drone use occurs when the remote pilot receives any type of compensation (not just monetary) for an activity. In some cases, the idea of compensation is clear cut. If a customer pays a remote pilot for a service, a commercial operation has occurred. However, if somebody trades services with a drone pilot, that also is compensation, and that flight would be considered a commercial operation as well. For example, if a plumber installs a water heater, and a drone pilot photographs their daughter's wedding in exchange for this service, then this constitutes a commercial operation.

In addition to wedding photography, examples of other commercial uses might include photography for advertising, land surveying, utilities and pipeline inspection, and agricultural crop analysis. Drone operators are finding new uses for their technology every day, and the field is growing rapidly.

Another important point applies even if the pilot is not being directly compensated. Even if drone operators wish to create marketing videos for themselves, this is considered a commercial operation since it is in furtherance of a business.

Slide 10-12: These slides will each present a scenario. Ask the students whether the flight in each scenario constitutes a commercial or non-commercial use of drones. Students should explain their answers.

- *Slide 10: Non-commercial: Drone flights for personal use (like vacation photos) are not considered commercial operations.*
- *Slide 11: Commercial: The photos are being used in furtherance of a business (real estate sales).*
- *Slide 12: Commercial: Although no one is being paid, the surfer is using the photo to promote his business.*

Slide 13: One of the most important aspects of Part 107 is that it introduced certification for remote pilots. Since Part 107 became effective, remote pilots must be certificated by the FAA, just like private pilots or flight instructors. With Part 107, sUAS became another aircraft category, similar to the previous categories students have learned about, like airplanes, rotorcraft, gliders, and lighter-than-air aircraft. Drone pilots who pass the required testing earn a remote pilot certificate with an sUAS rating.

Today, anyone acting as a remote pilot in command (PIC) of an sUAS under Part 107 must have a remote pilot certificate with an sUAS rating. This rating is issued by the FAA, and it must be obtained prior to sUAS operation. A remote PIC is similar to the PIC of a manned aircraft: it is someone who has the final authority and responsibility for the operation and safety of an sUAS.

Slide 14: A remote PIC is not necessarily the person manipulating the controls of a drone. It is possible for a non-certificated person to manipulate the controls provided that these conditions are met:

- The non-certificated person is under the supervision of a Part 107-certificated PIC.
- The remote PIC has the ability to immediately take direct control of the sUAS. This can be done in different ways.
    - The remote PIC might be physically close enough to take over the control station from the person manipulating the controls.
    - The drone might have an additional control station, termed a “buddy box,” that can override the one being used by the control manipulator.
    - The drone might have an automation system that can be engaged to override the non-certificated person’s controls.

Another member of a team in a drone operation might be a visual observer (VO). The visual observer acts as a crewmember, scanning for traffic or other objects in the sky or on the ground. Remember, when flying a drone, at least one crew member must be in constant visual contact with the aircraft at all times.

Of the three team members (remote PIC, control manipulator, and VO), only the PIC must be certificated to fly a drone under Part 107. The other crew members may perform their duties without the need for pilot certification.

Slide 15: The remote PIC for any flight must be designated prior to the flight. The roles for each crew member must be clearly stated before each operation so there is no confusion as to who is acting as PIC, who is the manipulator of the controls, and who is VO. During a flight, it is the PIC’s responsibility to ensure that the operation poses no undue hazard to people, aircraft, or property. This includes hazards that could occur during an emergency, meaning that the PIC should always be thinking about what would happen in a loss of control event.

The PIC should also ensure that an sUAS is operated in compliance with all applicable provisions and regulations, whether federal or local. Violating any regulation can result in legal action against the PIC, so care must be exercised to ensure that all regulations are closely followed.

Importantly, no person may act as PIC or VO of more than one UAV at the same time. It is crucial that crew members direct their attention at only one aircraft at a time; it is too risky to try to keep track of multiple drones. However, roles can be changed during the course of a flight. For example, crew members may switch over during the course of the flight from PIC to control manipulator, or from control manipulator to VO. Each role change needs to be clearly articulated; good communication is vital during all drone operations. It is important to remember that the PIC role can never be transferred to someone without a remote pilot certificate with sUAS rating.

Slide 16: The requirements for becoming a remote pilot with an sUAS rating are spelled out in Part 107. They include:

- Be at least 16 years of age
- Be able to read, speak, write, and understand the English language
- Be in a physical and mental condition that would not interfere with safe sUAS operation

- Fulfill training and testing requirements defined in 14 CFR Part 107

Questions

How do you think the FAA determines if someone knows the English language sufficiently well to qualify for a remote pilot certificate?

The FAA has a standardized system for determining adequate proficiency in English. This system is detailed in FAA publication AC 60-28B, which introduces the Aviation English Language Standard. For more information, this advisory circular can be accessed using the following link: https://www.faa.gov/documentlibrary/media/advisory_circular/ac_60-28b.pdf

What physical or mental conditions do you think would disqualify an applicant from becoming a drone pilot under Part 107?

Any condition that would prevent a remote pilot from being able to carry out their required responsibilities would be disqualifying. Examples might include poor uncorrected eyesight, medications or medical conditions that could impair one's ability to use a drone, or substance dependence.

Slide 17: There are two pathways to Part 107 certification, which depend upon whether or not an applicant is already certificated to fly manned aircraft. If one already has a pilot certificate, such as a private pilot or commercial pilot certificate, then an online course at www.faasafety.gov is all that is required to earn a remote pilot rating. There is no testing or further procedures to follow.

If one is not already a manned aircraft pilot, then it is necessary to take the FAA Unmanned Aircraft General (UAG) exam to become a remote pilot. Applicants may study for this exam on their own, or take an online commercially available course; either method can prepare a prospective remote pilot for the required test.

Once the exam has been successfully taken, an application can be prepared either online using the Integrated Airman Certificate and/or Rating Application (IACRA) or through a paper process (FAA Form 8710-13). This is the same process than any other applicant for a pilot certificate must follow. This application is then submitted to a Flight Standards Office (FSDO), a designated pilot examiner (DPE), airman certification representative, certified flight instructor (CFI), or any other person authorized by the FAA to process the application.

The final step toward an applicant becoming a Part 107 remote pilot is a background check, which is conducted by the Transportation Security Administration (TSA). Provided the screening is successful, a permanent remote pilot certificate will be issued. It is important to note that just because the certificate is permanent does not mean that there aren't requirements remote pilots must meet to keep it current. Every 24 months, remote pilots must take a recurrent FAA UAG Knowledge Exam, which is shorter than the initial test.

Slide 18: Show students the following video for an interesting recap of the procedure for obtaining a Part 107 Remote Pilot certificate.

- "Part 107 Simply Explained and How To" (Length 7:30)
  https://video.link/w/SHox

For teachers who cannot access Safe YouTube, the video can also be found at:
YouTube: https://youtu.be/o7s_YNdGMIU

Finally, remind students: Just like any other pilot certificate, if the pilot changes their permanent address, the FAA must be notified within 30 days. Failure to do so will render the pilot certificate invalid, and the pilot will not be permitted to operate a drone commercially under Part 107.

Slide 19: Have students complete the **Formative Assessment**.

> **Formative Assessment**
>
> Provide students with the **Part 107: An Introduction Student Activity 1** worksheet, and ask them to answer the questions in writing. Then discuss the answers as a class. Sample answers are provided in **Part 107: An Introduction Teacher Notes 1**.

EXTEND

Teacher Materials: Part 107: An Introduction Presentation, Part 107: An Introduction Teacher Notes 2
Student Material: Part 107: An Introduction Student Activity 2

Session 2

Slide 20: To earn a remote pilot certificate with an sUAS rating, all applicants who are not already pilots must pass a written examination on topics pertinent to drone operations. This Unmanned Aerial General (UAG) exam consists of 60 multiple-choice questions. All of the questions have a single best answer, and all of them are independent of each other. Applicants must score at least a 70% on the exam to pass, and are given two hours to complete the test.

Pilots already certificated in another aircraft category are not required to take the UAG exam. For these pilots, all that is needed to earn the remote pilot certificate is to take an online course on www.FAASafety.gov.

Slide 21: The UAG exam covers a wide range of topics and knowledge areas. The objective of the test is to confirm that drone pilots flying in commercial operations thoroughly understand the rules and restrictions that pertain to their flights, know where they may and may not fly, and are equipped to make good decisions about their operations based on weather and other safety-related factors. The topics covered and their respective weighting on the exam are as follows:

- Regulations (15–25%)
- Airspace and Requirements (8–15%)
- Weather (11–16%)
- Loading and Performance (7–11%)
- Operations (13–18%)

Slide 22: The FAA requires pilots to demonstrate expertise in the following knowledge areas:

  - Applicable regulations relating to sUAS rating privileges, limitations, and flight operation
  - Airspace classification, operating requirements, and flight restrictions affecting sUAS operation
  - Aviation weather sources and effects of weather on sUAS performance
  - sUAS loading
  - Emergency procedures
  - Crew resource management

- Radio communications procedures
- Determining the performance of sUAS
- Physiological effects of drugs and alcohol
- Aeronautical decision-making and judgement
- Airport operations
- Maintenance and preflight inspection procedures

Slide 23: Taking the UAG exam is optional; students are not required to take the certifying test. If students decide to earn this valuable certification, they must be willing to prepare for it. While AOPA's High School Aviation STEM Curriculum provides foundational knowledge for the exam, it is imperative that students also study outside of class. It is never too early to start preparing for the test; consistent study is recommended.

Resources provided by the FAA that students should study include the following:

- Aeronautical Information Manual (AIM)
- Airplane Flying Handbook
- Pilot's Handbook of Aeronautical Knowledge
- Advisory Circulars (ACs)
- Airman Certification Standards
- 14 CFR Part 107 (FARs)

All of the necessary resources for study can be found at the FAA website: https://www.faa.gov/uas/resources/policy_library/#107.

The pages on this site spell out in detail all the information needed to pass the test. Like studying for any worthwhile goal, preparing for the UAG exam will take both time and effort. Students should be reminded, however, that passing this test will make them certificated pilots of small unmanned aircraft systems.

Slide 24: Students will now complete a digital "scavenger hunt" in which they locate specific information on the FAA drone website: https://www.faa.gov/uas/commercial_operators/. This exercise will challenge students to navigate a new website, find the information being sought, and report its location.

Provide students with the **Part 107: An Introduction Student Activity 2**; students should follow the instructions in the document to complete the activity. Sample responses can be found in **Part 107: An Introduction Teacher Notes 2**.

EVALUATE

Teacher Materials: Part 107: An Introduction Presentation, Part 107: An Introduction Teacher Notes 3
Student Material: Part 107: An Introduction Student Activity 3

Slides 25-38: Remote Pilot FAA Knowledge Exam Question samples. One question is presented on each slide, with the answer to that question presented on the following slide. These questions provide an excellent way for students to study for the test.

Slide 39: Conduct the **Summative Assessment**.

Summative Assessment

Provide students with **Part 107: An Introduction Student Activity 3** worksheet.

Students will answer questions in writing based on four scenarios in which they will apply their knowledge and understanding of FAA regulations pertaining to small Unmanned Aerial Systems and Part 107. One question will ask them to explain the paths to Remote Pilot certification. Each student will be provided with a copy of Part 107, which they will be allowed to use during the test.

Sample answers to the questions found in the Activity are in **Part 107: An Introduction Teacher Notes 3**.

[DOK-L3; *apply, evaluate*]

Summative Assessment Scoring Rubric

- Follows assignment instructions
- Responses show evidence of one or more of the following:
    - Knowledge of the structure and organization of Part 107
    - Understanding of the conditions under which Part 107 regulations apply
    - Ability to discriminate between Part 107 and non-Part 107 operations
- Contributions show in-depth thinking including ability to apply Part 107 regulations to presented scenarios

Points	Performance Levels
9-10	The student shows a thorough understanding of 14 CFR Part 107; Responds to each scenario correctly.
7-8	The student shows a sufficient understanding of 14 CFR Part 107; Responds to 3 scenarios correctly.
5-6	The student shows an insufficient understanding of 14 CFR Part 107; Responds to 2 scenarios correctly.
0-4	The student shows a lack of understanding of the lesson objectives; Responds to 1 or no scenarios correctly.

GOING FURTHER

Slide 40: Students may volunteer to attend a meeting of a local drone club or observe drones flying at a local group event. Students may query drone pilots about their knowledge of Part 107 and its applicability to the type of flying they do, then give a 5-minute oral presentation to the class about their observations and findings.

STANDARDS ALIGNMENT

COMMON CORE STATE STANDARDS

- **RST.11-12.2** - Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
- **RST.11-12.4** - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.

- **WHST.11-12.6** - 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.
- **WHST.11-12.8** - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
- **WHST.11-12.9** - Draw evidence from informational texts to support analysis, reflection, and research

FAA AIRMAN CERTIFICATION STANDARDS

REMOTE PILOT

I. Regulations, Task A. General

- Knowledge The applicant demonstrates understanding of:
    - **UA.I.A.K1** Applicability of 14 CFR part 107 to small unmanned aircraft operations.
    - **UA.I.A.K2** Definitions used in 14 CFR part 107.
    - **UA.I.A.K3** The ramifications of falsification, reproduction, or alteration of a certificate, rating, authorization, record, or report.
    - **UA.I.A.K5** Inspection, testing, and demonstration of compliance.

I. Regulations, Task B. Operating Rules

- Knowledge The applicant demonstrates understanding of
    - **UA.I.B.K2** Requirement for the sUAS to be in a condition for safe operation.
    - **UA.I.B.K3** Medical condition(s) that would interfere with safe operation of an sUAS.
    - **UA.I.B.K4** Responsibility and authority of the remote PIC.
        - **UA.I.B.K4a** Allowing a person other than the remote PIC to manipulate the flight controls.
    - **UA.I.B.K5** Regulatory deviation and reporting requirements for in-flight emergencies.
    - **UA.I.B.K6** Hazardous operations.
        - **UA.I.B.K6a** Careless or reckless
    - **UA.I.B.K8** Alcohol or drugs and the provisions on prohibition of use.
    - **UA.I.B.K9** Daylight operation.
    - **UA.I.B.K10** Visual line of sight (VLOS) aircraft operations.
    - **UA.I.B.K11** Requirements when a visual observer is used.
    - **UA.I.B.K12** Prohibition of operating multiple sUAS.
    - **UA.I.B.K14** Staying safely away from other aircraft and right-of-way rules.
        - **UA.I.B.K14a** See and avoid other aircraft and other potential hazard considerations of the remote PIC
    - **UA.I.B.K15** Operations over human beings.

- **UA.I.B.K16** Prior authorization required for operation in certain airspace.
- **UA.I.B.K17** Operating in the vicinity of airports.
- **UA.I.B.K18** Operating in prohibited or restricted areas.
- **UA.I.B.K19** Flight restrictions in the proximity of certain areas designated by notice to airmen (NOTAM).
- **UA.I.B.K20** Preflight familiarization, inspection, and actions for aircraft operations.
- **UA.I.B.K22** Requirements for a Remote Pilot Certificate with an sUAS rating.

I. Regulations, Task C. Remote Pilot Certification with an sUAS rating

- Knowledge The applicant demonstrates understanding of
  - **UA.I.C.K3** The eligibility requirements for a Remote Pilot Certificate with an sUAS rating.
  - **UA.I.C.K4** Aeronautical knowledge recency.

REFERENCES

14 CFR 107

https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=22615

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https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afx/afs/afs800/afs820/part107_oper/

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