Introduction to Airports and Airport Data

Session Time: Two, 50-minute sessions

DESIRED RESULTS

ESSENTIAL UNDERSTANDINGS

For ease and safety of operations at unfamiliar airports, signage, markings, and lighting are standardized.

An airport's rules and procedures are published and readily available to pilots.

ESSENTIAL QUESTIONS

1. What defines an airport, and what are the different types of airports?
2. How can pilots learn about airports before flying there?

LEARNING GOALS

Students Will Know

- The basic categories and types of airports, and some of the primary differences between towered and nontowered airports.
- The importance of researching new airports prior to arrival or departure.
- Key sources for finding airport data, including aeronautical charts, Chart Supplement U.S., Notices to Airmen (NOTAMs), Airport Diagrams, and Automated Terminal Information Service (ATIS).

Students Will Be Able To

- *Identify* different categories and types of airports. (DOK- L1)
- *Compare* various sources of airport data, and *explain* the types of information that each source contains. (DOK-L3)
- *Apply* understanding of airport information to prepare for a flight scenario. (DOK-L4)

ASSESSMENT EVIDENCE

Warm-up
Conduct a discussion with the students regarding things they believe would be important to know prior to landing at an airport. Guide them to discuss things that may change even at familiar airports, and what specific concerns they would have with an unfamiliar airport.

Formative Assessment
Students will research airports to collect airport data and determine their category or type.

Summative Assessment
Students will plan a flight to a specific destination airport. The students should use what they've learned to research any and all data they need to safely execute their flight. Students should ensure they obtain runway data, airspace information, weather, NOTAMs, etc. Students should be graded based on their demonstration of data mastery. Students

may use checklists or notes as memory aids, as they would be able to use these documents if they were planning an actual flight.

LESSON PREPARATION

MATERIALS/RESOURCES

- Introduction to Airports and Airport Data Presentation
- Introduction to Airports and Airport Data Student Activity 1
- Introduction to Airports and Airport Data Student Activity 2
- Introduction to Airports and Airport Data Student Activity 3
- Introduction to Airports and Airport Data Teacher Notes 1
- Introduction to Airports and Airport Data Teacher Notes 2
- Introduction to Airports and Airport Data Teacher Notes 3
- **Either a paper copy of any Chart Supplement or the online version**
  - The website for the online portion is
  www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/.

LESSON SUMMARY

Lesson 1: Introduction to Airports and Airport Data
Lesson 2: Airport Markings and Signs
Lesson 3: Airport Lighting

The lesson will begin with a warm-up to get the students thinking about the different pieces of information they would need when landing at an airport (whether familiar or unfamiliar). The lesson will then introduce some of the most common ways that pilots obtain the data the students discussed during the warm-up. These methods are not always limited to aviation-specific resources. The students will see the value of using non-aviation products, such as Google Maps and Google Earth, to increase situational awareness with their flight planning.

During the next part of the lesson, students will learn about the FAA's definition of *airport* and explore the specific types and categories of airports and the criteria behind each classification.

Next, the lesson will introduce specific airport details that pilots should research during flight planning. This will lead to a discussion about the types of aviation-specific products used by pilots to find airport data. Students will then take a formative assessment on what they have learned to this point in the lesson.

The lesson will then look at each specific data source used by pilots, starting with the information available on aeronautical charts.

During the next part of the lesson the students will learn about the Chart Supplement U.S. The Chart Supplement U.S. provides pilots with a wealth of information, which students will explore as they use it to research airports. Notices to Airmen (NOTAMs) will then be discussed and students will look at examples from both the FAA and a third-party, commercial app. Students will then review information contained on Airport Diagrams. Following this section of the lesson, the instructor may elect to revisit the student activity's "Going Further" section and attempt to answer the same questions using only the information contained on an Airport Diagram.

Finally, the lesson will provide an overview of Automated Terminal Information Service (ATIS). The lesson will conclude with a review of Private Pilot Knowledge Test questions and a Summative Assessment where students will need to apply their knowledge to a scenario.

BACKGROUND

Nearly all flights begin and end at an airport. Each airport has its own unique characteristics, and it's important that pilots research an airport—particularly an unfamiliar one—prior to a flight. To do this, pilots must not only know what data they need prior to their trip, but also where to find this information. The first part of this lesson will introduce the types and categories of airports. The second part of the lesson will teach students where and how to find the data pilots need to safely research their destinations.

MISCONCEPTIONS

In aviation, airports without control towers are sometimes called "uncontrolled airports," but this is misleading; nontowered airports are anything but out of control. The more accurate term, which is used within this lesson, is "nontowered airport." "Uncontrolled" may unintentionally imply that—at airports without a tower—procedures are a free-for-all. This is not the case. Even at airports without a control tower, pilots follow standard procedures laid out in FAA publications, and announce their intentions to other traffic in the area on the designated common traffic advisory (CTAF) frequency.

DIFFERENTIATION

To promote comprehension in the EXPLAIN section, either provide students with a worksheet to document differences among the types and categories of airports or encourage them to make a chart in their notebooks.

To promote motivation during the ENGAGE section, allow the students to select airports that they are interested in. Suggest they select an airport near their school, a favorite vacation destination, or a part of the country they would like to visit.

To assist students with generating a method for recalling methods to obtain airport data, have the students create a mnemonic or checklist they can use and personalize based on their preferred data sources.

LEARNING PLAN

ENGAGE

Teacher Material: Introduction to Airports and Airport Data Presentation

SESSION 1

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

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

Warm-Up

In the last unit, students learned about weather in relation to preflight planning; they also learned about the importance of consulting different sources of data, before and during flight, in order to get an accurate, current weather picture. Similarly, when a pilot flies to another airport, it is important to get an accurate picture of the destination: not just the weather in the vicinity of the airport but the characteristics of the airport.

Conduct a discussion with the students regarding things they believe would be important to know prior to landing at an airport. Guide them to discuss things that may change even when using a familiar airport, and what specific concerns they would have with an unfamiliar airport. Some questions to guide the discussion could include:

What information would you like to know about the airport's runways?

Answers may include the runway direction/heading, length of the runway, type of surface (asphalt, concrete, grass), whether there are obstacles nearby, airport elevation, etc.

Does the airport have a control tower? If so, what frequency(ies) should be used to contact ATC?

Airports with control towers should be contacted through air traffic control (ATC). ATC frequencies, which may include approach, tower, or departure depending upon the airspace and phase of flight, can be found using various sources, including sectional charts and airport diagrams.

What is the weather at the airport?

Current weather information can be obtained through an automatic terminal information service (ATIS). This will be discussed later in the lesson.

After the discussion, students should watch the following video. Then, they should make a list of any other information they would like to have known prior to landing at the airport in the video.

- "Landing at Mountain Air" (Length 1:06)
  http://video.link/w/lgQq

  For teachers who are unable to access Safe YouTube links, the video can also be found here:
  https://www.youtube.com/watch?v=rTAUWxzhbcg

[DOK-L1; *identify*]

EXPLORE

Teacher Material: Introduction to Airports and Airport Data Presentation

Slide 5: As an introduction to the topic of this lesson, this slide lists several basic sources from which pilots can obtain information about an airport. These sources will be discussed in detail in later slides. The picture shows the rather intimidating runway at Telluride Regional Airport, in Colorado. Emphasize that while a thorough briefing may seem especially crucial to land at such an airport, pilots should make a habit of researching all airports they intend to use.

Slides 6-7: Pilots depend on a variety of sources to research airports before flying to them—particularly if an airport is unfamiliar. Some of these sources are published by the FAA, but other tools are more commonplace, such as Google Maps and Google Earth. While neither of these resources is aviation-specific, each provides a substantial amount of visual data, including airport layout and visual references, to enhance a pilot's situational awareness.

Questions

What information can a pilot discern from Google Maps and Google Earth? Why might a pilot use each of these tools?

Answers will vary. Based on their prior knowledge of each tool, students may note that pilots can view the surroundings of each airport (e.g., geologic features, as well as buildings and infrastructure) to get a better sense of where they will be flying. Additionally pilots can get an idea of what the airport looks like during normal operations (e.g., planes/vehicles parked on ramps), including views of airport signage and markings. Viewing terrain and obstacles surrounding an airport can also help pilots identify potential off-airport landing areas they could use in the event of an emergency during landing or takeoff.

Slide 8: Guide students through the following activity using Google Earth. (Note that Google Earth is intended to be used in Google's Chrome browser.)

1. Search for "Airports Near Me" and point out the number of airports in the vicinity of your school.
2. Zoom in on particular airports and discuss what type of airports they seem to be (e.g., public vs private) and what services they may provide to pilots and travelers. Discuss the number and arrangement of the runways (using cardinal directions), as well as the locations of hangars, terminals, and (if applicable) control towers.
3. Next, perform a search for a seaplane base and zoom into a detailed image of the base. Ask students whether a seaplane base is still considered an airport, despite the lack of a runway. (The answer is yes, as students will learn once they review the FAA's definition of an airport in Slide 10.)
4. Next, perform the same search for nearby airports in Google Maps, and contrast the information available through this tool with the information available through Google Earth. Explain that Google Maps can help pilots make a plan in their mind about what they would do in the case of an emergency, such as an engine failure. (For example, if a pilot knows prior to takeoff that a large field lies off to one side of a runway, then he or she could automatically turn in this direction in the case of an engine out.)

Slide 9: This slide provides a link to SkyVector. Search the "Airports" tab and type in a familiar airport identifier. Scroll through the information listed on the page and point out the various kinds of data: e.g., fuel prices, GPS coordinates, location from navigational aids, and other airports.

EXPLAIN

Teacher Materials: Introduction to Airports and Airport Data Presentation, Introduction to Airports and Airport Data Teacher Notes 1
Student Material: Introduction to Airports and Airport Data Student Activity 1

Slide 10: Per the Federal Aviation Recommendations an airport is defined as "an area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any." See if this definition aligns with the responses the students gave regarding the question from the previous slide exploring Google Earth: *Is a seaplane base an airport?* Emphasize that in addition to the traditional airports we tend to think of—with long, paved runways intended for airplanes—the FAA also considers seaplane bases, heliports, and special facilities to accommodate tilt rotor aircraft to be airports.

Slide 11: In the National Plan of Integrated Airport Systems (NPIAS), the FAA defines four categories of airports: commercial-service, cargo-service, reliever, and general aviation. Each type will be discussed in detail in the following slides. It is important to note that these categories are not mutually exclusive; for example, an airport can meet the definition of both a commercial-service airport and a cargo-service airport.

Slide 12: Commercial-service airports are publicly-owned airports that have at least 2,500 passenger boardings each calendar year and receive scheduled passenger service. Examples of these include major air carrier destinations in the United States, such as John F. Kennedy International Airport (in New York City), Hartsfield-Jackson Atlanta International Airport, Denver International Airport, and Los Angeles International Airport.

Slide 13: Cargo-service airports are publicly-owned airports that serve aircraft providing the transportation of cargo with an annual landed weight totaling more than 100 million pounds. "Landed weight" refers to the weight of aircraft transporting only cargo; the weight of aircraft carrying cargo that also carry passengers is not counted as landed weight. As previously noted, a cargo-service airport may also provide passenger service in addition to cargo operations.

Slide 14: Reliever airports are designated by the FAA to relieve congestion at commercial-service airports. They may be publicly or privately owned. Examples of reliever airports are Fort Worth Alliance Airport (in Texas) and Sacramento Mather Airport (in California).

Slide 15: General aviation airports do not fit into any of the other three categories. This category emcompasses the largest group of airports in the United States. General aviation airports include privately-owned airports that otherwise meet the commercial-service airport definition; commercial-service airports are required to be publicly-owned.

Slide 16: In addition to category, the FAA defines two main types of airport: towered and nontowered. These types can be subdivided into civil airports, military/federal government airports, and private airports. Each of these will be discussed in upcoming slides.

Slide 17: Towered airports are simple to identify; they feature an operating control tower. At towered airports, air traffic control (ATC) is responsible for providing the safe, orderly, and expeditious flow of air traffic—including ground operations. Towers are established where either the type of operations or the volume of traffic around an airport requires ATC service. When operating in a towered airport environment, pilots must maintain two-way radio communication with ATC and both acknowledge and comply with their instructions. If pilots are unable to comply, they must inform ATC and request new instructions. While pilots have the authority to deviate from ATC instructions in the event of an emergency, they must advise ATC of any deviation as soon as possible. (Students will learn more about communicating with ATC in future lessons.)

Slide 18: Nontowered airports do not have an operating control tower. (Note that an airport with a control tower reverts to nontowered status when the tower is closed.) In a nontowered airport environment, two-way radio communication is not required, though it is always a good practice for pilots to state their intentions on a common traffic advisory frequency, or CTAF. A CTAF is a specified frequency that is designated for the purpose of communicating intentions to other air traffic while operating at an airport without an operating control tower.

Slide 19: At nontowered airports, a CTAF might be a Universal Integrated Community (UNICOM), or a MULTICOM frequency; whichever is used, the CTAF frequency will be identified in appropriate aeronautical publications.

- A UNICOM frequency is a nongovernmental air/ground radio communication station that might provide airport information—such as weather information, wind direction, recommended runways, or traffic advisories—at airports without a tower or FSS. PIlots should remember that airport employees they communicate with on UNICOMs are not air traffic controllers, and therefore any information offered is only advisory in nature.
- MULTICOMs, by contrast, typically do not have ground stations associated with them. They are frequencies that exist strictly for pilots to communicate with one another.

While CTAFs are often associated with nontowered airports, they typically exist at towered airports as well, and are used whenever a tower is not in operation. At towered airports, the CTAF frequency is commonly the same as the tower frequency.

Slide 20: Civil airports are airports open for use by the general public. This includes everything from small county or regional airports to large international airports. Military/federal airports are normally seen at military installations. They are used by the U.S. military or various federal agencies and require special authorization to utilize; they normally aren't available for general aviation aircraft. Private or restricted airports are designated for personal or private use and are not open to the public. These are often seen at personal residences or fly-in communities.

Slide 21: This slide begins the transition into the lesson's discussion of airport data. It is imperative that pilots familiarize themselves with all the details of an airport prior to navigating through its airspace or landing at the airfield, including the kinds of information listed on this slide. (Students will study this information in further detail in later lessons.)

Generally speaking, many airport operations are similar; however, each airport has its own unique procedures, and failure to comply could create an unsafe or potentially illegal situation. For example, the process that a pilot will use to fly into a towered airport will differ from the process for flying into a nontowered field. Also, details such as traffic pattern altitudes and locations, communications procedures, lighting systems, and more can vary from airport to airport.

Slides 22: Complete the **Formative Assessment**.

Formative Assessment

Distribute Introduction to **Airports and Airport Data Student Activity 1**. The Formative Assessment will be conducted using questions to assess the information from the lesson. Additionally, students will need to research several airports to determine their category, type or sub-division to further apply the information that has been presented. Sample answers are provided in **Introduction to Airports and Airport Data Teacher Notes 1**.

[DOK-L2; *identify, categorize*]

EXTEND

Teacher Materials: Introduction to Airports and Airport Data Presentation, Introduction to Airports and Airport Data Teacher Notes 2
Student Material: Introduction to Airports and Airport Data Student Activity 2

SESSION 2

Slide 23: Today's technology offers pilots numerous ways of obtaining data associated with airports. The most common include aeronautical charts (e.g., VFR sectional charts, en route maps, terminal area charts), chart supplements (one for each region of the United States), airport diagrams, Notices to Airmen (NOTAMs), and Automatic Terminal Information Service (ATIS). ATIS is normally received via radio frequency; often, however, the service can be called via telephone.

Teaching Tips

Research the phone number for your airport's local ATIS, then call the number and play the recording for your students.

Slide 24: This slide depicts the "airport" portion of the legend on a VFR sectional chart. Briefly point out the information in the legend, which will be discussed in greater detail on the following slide. Aeronautical charts provide information such as airport name, airport identifier, runway length, communication and weather frequencies, and airspace classification, all of which can be seen at a glance. A legend is printed on every chart to aid pilots with interpretation. (Students will learn more about reading and using charts during future lessons on flight planning.)

Slide 25: This slide depicts the information for Frederick Municipal Airport (KFDK) on the Washington Terminal Area Chart (TAC). Note that this slide has animation. As the slide is clicked through, the slide will highlight the information on the chart.

- Airport Name: In this example, it's important to note that the airport name is the same as the city.
- Airport Identifier: The FAA or ICAO (International Civil Aviation Organization) assigns each airport a unique three-letter/number code. Note that the commonly used "K" that precedes identifiers in the conterminous United States is not depicted here.
- Tower Frequency: This is the VHF radio frequency for the airport's control tower.

- The symbol “” indicates the tower frequency reverts to the Common Traffic Advisory Frequency (CTAF) when the control tower is closed.

- ATIS Frequency: This is the VHF radio frequency for the airport’s Automatic Terminal Information Service; it may also be an ASOS or AWOS frequency, depending on the airport’s weather reporting system.
- UNICOM Frequency: The Universal Communication (UNICOM) frequency is defined by the FAA as “a non-government communication facility which may provide airport information at certain airports.” This is normally seen when a fixed-base operator, or FBO (normally a place to park, get fuel, flight plan, etc.), provides information to inbound aircraft. This information could be traffic advisories, weather information, parking instructions, and more.
- Elevation: The airport’s elevation is calculated in feet above mean sea level (MSL) .
- Lighting Information: This symbol refers to the type of airfield lighting at the airport.
  - In this example, *“*L”* means “Lighting limitations exist, refer to supplement.”
- Pattern Information: This is depicted when the airport has a right-hand traffic pattern. (Unless otherwise noted, all traffic patterns are left-hand for airplanes.) Non-standard patterns often occur for noise abatement reasons or to prevent air traffic from overflying a restricted or prohibited area. Pilots should refer to the Chart Supplement for further information.
- Runway Length: This refers to the length of the airport’s longest runway, in hundreds of feet. (Add two zeros to the end of the number to determine the number.)
  - In this example 52 = 5,200 feet.

Teaching Tips

Provide students with a printout of Slide 25 to make it easier for them to see the details of the chart and labels. After reviewing the slide, if possible, provide each student or small group of students with an aeronautical chart and have them look at and interpret the information provided for a different airport.

Slide 26: U.S. Chart Supplements exist for specific regions of the United States. Formerly known as the Airport/Facility Directory (AFD), these supplements represent the most comprehensive information available for a given facility, including public-use airports, heliports, and seaplane bases. They contain numerous details that, because of space reasons, cannot be fit onto VFR or IFR charts. The supplements are published in nine books (including Alaska, Hawaii and the U.S. Pacific territories), which are organized by region and revised every 56 days. They are also available digitally at www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/.

Like aeronautical charts, U.S.Chart Supplements give pilots guidance on decoding the information they contain via a “Legend Sample,” which is located in the front of each book.

Slide 27: In addition to information about each public-use airport, each supplement also contains the following information:

- Federal Aviation Administration (FAA) and National Weather Service (NWS) telephone numbers *(located in Section 4: Associated Data)*
- Preferred instrument flight rules (IFR) routing *(located in Section 4: Associated Data)*
- Visual flight rules (VFR) waypoints

- Very high frequency omnidirectional range (VOR) receiver checkpoints. The Chart Supplement U.S. specifically permits areas and altitudes for these tests to be conducted. *(located in Section 4: Associated Data)*
- Aeronautical chart bulletins *(located in Section 3: Notices)*
- Land and hold short operations (LAHSO) for selected airports. LAHSO operations include landing and holding short of an intersecting runway, an intersecting taxiway, or some other designated area *(located in Section 3: Notices)*
- Airport diagrams for selected towered airports *(located in Section 5: Airport Diagrams)*
- En route flight advisory service (EFAS) outlets (normally VHF frequency 122.2). Used to obtain weather, NOTAM, and Temporary Flight Restriction (TFR) information, as well as to open or close flight plans. *(located in Section 4: Associated Data)*
- Parachute jumping areas *(located in Section 4: Associated Data)*
- Facility telephone numbers *(located in Section 4: Associated Data)*

Any time that a pilot is flying to an unfamiliar airport, it is helpful to review the relevant chart supplement prior to the flight.

Slide 28: This slide depicts the airport information at First Flight Airport, in Kill Devil Hills, NC. (Students may find it interesting that this is the airport where the Wright Brothers completed their maiden flight.) Simply highlight some of the generic information on the slide, such as airport name, time zone, remarks, and communication information. Students will complete an exercise using a chart supplement later in the class.

Slide 29: Distribute **Introduction to Airports and Airport Data Student Activity 2**. Following the procedure in the worksheet, students will use a chart supplement to research information about one or more airports. Sample responses are provided in **Introduction to Airports and Airport Data Teacher Notes 2**.

Slide 30: Sometimes time-critical information is temporary, and sometimes it changes so quickly that it is not known in time to be included in publications such as aeronautical charts or the Chart Supplement U.S. This information is instead disseminated through the NOTAM system. NOTAM information, which is published immediately as it becomes available, can affect a pilot's decision to make a flight. It might include taxiway or runway closures, construction, communications issues, changes in the status of navigational aids, or other information essential to planned en route, terminal, or landing operations.

Slides 31-32: NOTAMs are resources that pilots should check prior to any intended flight, whether to another airport or not. Remind students that NOTAMs are part of the weather briefings that pilots receive when they call 1-800-WX-BRIEF. They can also be accessed on the FAA's web site (https://pilotweb.nas.faa.gov/PilotWeb/) or on commercial aviation products such as Foreflight or SkyVector.

- **Slide 31** contains a screenshot that shows how NOTAMs are organized and depicted on the FAA's website. As we see, they can be difficult for the unfamiliar user to interpret.
- **Slide 32** depicts how a NOTAM may be simplified on a third-party product, such as the flight planning application ForeFlight.

Slide 33: Airport diagrams can be found in FAA U.S. Terminal Procedures Publications, which are published in 24 volumes covering the conterminous United States, Puerto Rico, and the Virgin Islands, and are also available online at https://www.faa.gov/airports/runway_safety/diagrams/. While much of the information included in Terminal Procedures Publications—such as instrument approach procedures (IAP) and departure procedures (DP) —is intended for pilots operating under instrument flight rules (IFR), airport diagrams are beneficial for all pilots.

Airport diagrams show the layouts of airports, with different runways and taxiways labeled to make it easy for pilots to navigate airports while on the ground. They also identify "hot spots," areas circled in red where, based on past

observations, confusion or mistakes are most likely to occur. Airport diagrams are beneficial to pilots both during flight planning and also while taxiing. In addition to being available in print or online from the FAA, they are also available within a variety of commercial products such as ForeFlight.

The following is a brief video explaining airport diagrams:

- "Airport Diagrams" (Length 6:35)
  https://video.link/w/O7us

  For teachers who are unable to access Safe YouTube links, the video can also be found here: https://www.youtube.com/embed/XE8nzKGsIaU?start=0&end=395

Slide 34: The Automatic Terminal Information Service (ATIS) differs from the other sources we've identified, as it is used primarily during flight and not during preflight planning. ATIS is a recording of the local weather conditions and other non-control information that is broadcast on a local frequency in a looped format. By including this information on a separate frequency, Air Traffic Controller is able to free up time on the tower frequency. Typically, ATIS information is updated once per hour, though these updates can occur more often if necessary (such as in the event of changing weather conditions). Information typically broadcast on ATIS includes:

- Weather
- Runways in use
- Specific ATC procedures
- Airport construction activity

Pilots should note that sky conditions and visibility will not be included in an ATIS broadcast if the ceiling is over 5,000 feet AGL and the visibility is greater than 5 statute miles; if conditions fall below these limits, however, this information will be included.

A final piece of information contained in every ATIS is a code. This code, which changes with each new ATIS recording, will be a progression through the phonetic alphabet. For example, ATIS Alpha will be replaced by ATIS Bravo, which will in turn be replaced by ATIS Charlie the next hour. After ATIS Zulu, the cycle will begin again.

When an ATIS is available at departure and/or arrival airports, it should always be used. To use an ATIS, pilots should tune to the ATIS frequency and listen to the recorded broadcast; this should be done prior to making contact with ATC. Pilots should make note of the ATIS code, as this will be referenced when calling ATC. When making initial contact with a controller, the pilot should inform the tower that he or she has received the ATIS and state its code (e.g. Alpha). Doing so allows ATC to verify that the pilot has the latest local weather and airport information.

The following video provides a brief overview of how an ATIS works and how a pilot can obtain one:

- "ATIS" (Length 3:45)
  https://video.link/w/SBus

  For teachers who are unable to access Safe YouTube links, the video can also be found here: https://www.youtube.com/embed/CexNHe9cFw8?start=30&end=255

EVALUATE

Teacher Materials: Introduction to Airports and Airport Data Presentation, Introduction to Airports and Airport Data Teacher Notes 3
Student Material: Introduction to Airports and Airport Data Student Activity 3

Slide 35-40: These slides provide the Private Pilot Knowledge Test Questions applicable to this lesson.

Slide 41: Conduct the **Summative Assessment**.

Summative Assessment

Distribute **Introduction to Airports and Airport Data Student Activity 3**. The summative assessment is a scenario-based situation where the students plan a trip to Charleston, WV (or any airport of the teacher's preference). The students will use what they've learned to research any and all data they need to safely execute their flight. Students should ensure they obtain runway data, airspace information, weather, NOTAMs, etc. Students will be graded based on the instructor's impression of the student's research. Allow the students to use any checklists or notes that serve as a memory aid, as they would be able to utilize these documents if they were planning an actual flight. Sample answers are provided in **Introduction to Airports and Airport Data Teacher Notes 3**.

[DOK-L2; *interpret, explain*, DOK L-3; *formulate*]

Summative Assessment Scoring Rubric

- Follows assignment instructions
- Presentation/briefing demonstrates evidence of the following:
    - Knowledge of airports and airport data.
    - Detailed knowledge about the factors that affect landing at their intended destination.
    - Explanation of actions required to be taken during preflight planning.
    - Understanding of the regulatory requirements for preflight planning.
- Presentation shows understanding of course of the concepts covered in the lesson.
- Presentation shows in-depth thinking including analysis or synthesis of lesson objectives.

Points	Performance Levels
9-10	Correctly answers 7-8 of the questions with full understanding of the lesson objectives demonstrated.
7-8	Correctly answers 5-6 of the questions with sufficient understanding of the lesson objectives demonstrated.
5-6	Correctly answers 4 of the questions with partial understanding of the lesson objectives demonstrated.
0-4	Correctly answers 0-3 of the questions with little or no understanding of the lesson objectives demonstrated.

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

PRIVATE PILOT

- **PA.II.E.K1** Airport information resources including Chart Supplements, airport diagram, and appropriate references.
- **PA.III.A.K1** How to obtain proper radio frequencies.
- **PA.III.B.K4** Use of automated weather and airport information.

REMOTE PILOT

- **UA.II.B.K5** The NOTAM system including how to obtain an established NOTAM through Flight Service.
- **UA.V.A.K2** The description and use of a Common Traffic Advisory Frequency (CTAF) to monitor manned aircraft communications.
- **UA.V.A.K4** Aeronautical advisory communications station (UNICOM) and associated communication procedures used by manned aircraft pilots.
- **UA.V.A.K5** Automatic Terminal Information Service (ATIS).
- **UA.V.B.K6** Sources for airport data:
    - **UA.V.B.K6a** Aeronautical charts
    - **UA.V.B.K6b** Chart Supplements

REFERENCES

FAA Aeronautical Information Manual PIlot Controller Glossary: https://www.faa.gov/air_traffic/publications/media/pcg_basic_chgs%201_2_3_2-28-19.pdf
FAA Chart Supplement U.S.: https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/
Google Maps: https://www.google.com/maps/
Google Earth: https://www.google.com/earth/
SkyVector: www.skyvector.com
Warm Up Video - Landing at Mountain Air: http://video.link/w/lgQq
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