

The Student Pilot’s Resource Guide

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Use this Guide to Reduce Training Costs

Aircraft rental for a trainer in Colorado runs between \$110 and \$170 an hour, and the hourly rate for the instructor adds another \$40 to \$60. Fortunately, there are ways to reduce the training time required, lessening the cost. Good study habits are key. Understanding the concepts allows more rental time to be spent practicing maneuvers, instead of having them explained. Additionally, demonstrating knowledge reduces the need for one-on-one ground instruction.

It is possible to pass the multiple-choice *FAA Aeronautical Knowledge Exam* without touching an airplane. Other exams will be needed later, but there are advantages to taking this one early. Walking into your flight school with these scores in hand makes a strong first impression, showing instructors you are prepared for accelerated training.

Cite Materials in this Guide on Practical Exams

The final step in getting a pilot certification is an oral / practical exam called a Checkride. The oral portion is an open book test. Examiners expect references to official resources. An applicant who only knows the answer, “Because my flight instructor told me so,” will fail. An applicant who knows the answer, “Because of the reasoning in this regulation,” will advance.

Despite the advantages of studying at home and the critical need to reference key resources, few student pilots know where to begin. This guide is here to help, letting you know what to study, where to find it, and just how much content is available for free.

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Part I – What to Study

Federal Aviation Administration Publications

As a pilot, you answer to rules set by the Federal Aviation Administration (FAA). As intimidating as an enormous federal organization may be, the FAA can also be quite helpful. Their numerous publications are brimming with regulatory information and best practices. Most everything a pilot needs to know can be found somewhere on www.faa.gov.

The [Pilot's Handbook of Aeronautical Knowledge](#) includes 90% of what a student pilot needs to know. For those studying at home, this is the best place to start.

- [Table of Contents](#)
- [Chapter 1: Introduction to Flying](#)
- [Chapter 2: Aeronautical Decision-Making](#)
- [Chapter 3: Aircraft Construction](#)
- [Chapter 4: Principles of Flight](#)
- [Chapter 5: Aerodynamics of Flight](#)
- [Chapter 6: Flight Controls](#)
- [Chapter 7: Aircraft Systems](#)
- [Chapter 8: Flight Instruments](#)
- [Chapter 9: Flight Manuals and Other Documents](#)
- [Chapter 10: Weight and Balance](#)
- [Chapter 11: Aircraft Performance](#)
- [Chapter 12: Weather Theory](#)
- [Chapter 13: Aviation Weather Services](#)
- [Chapter 14: Airport Operations](#)
- [Chapter 15: Airspace](#)
- [Chapter 16: Navigation](#)
- [Chapter 17: Aeromedical Factors](#)
- [Appendices](#)
- [Glossary](#)
- [Index](#)

The [Airplane Flying Handbook](#) provides information specific to the act of flying: maneuvers, landings, operating at night, etc. (Chapters 12 - 16 are not listed. They pertain to aircraft that are not generally applicable to initial training.) For those flying gliders, see the [Glider Handbook](#).

- [Front Matter & Table of Contents](#)
- [Chapter 1: Introduction to Flight Training](#)
- [Chapter 2: Ground Operations](#)
- [Chapter 3: Basic Flight Maneuvers](#)

- Chapter 4: Energy Management: Mastering Altitude and Airspeed Control
- Chapter 5: Maintaining Aircraft Control: Upset Prevention and Recovery Training
- Chapter 6: Takeoffs and Departure Climbs
- Chapter 7: Ground Reference Maneuvers
- Chapter 8: Airport Traffic Patterns
- Chapter 9: Approaches and Landings
- Chapter 10: Performance Maneuvers
- Chapter 11: Night Operations
- Chapter 17: Transition to Light Sport Airplanes (LSA)
- Chapter 18: Emergency Procedures
- Glossary
- Index

The [Aeronautical Information Manual](#) provides guidance on operations within the National Airspace System. Many of these topics are introduced in the *Pilot's Handbook of Aeronautical Knowledge*. Start there, and come to the AIM for further clarification. It is an enormous document; only key sections are included in this list. (The Appendices are particularly helpful, especially the list of acronyms.)

1. AIR NAVIGATION
2. AERONAUTICAL LIGHTING AND OTHER AIRPORT VISUAL AIDS
3. AIRSPACE
4. AIR TRAFFIC CONTROL
5. AIR TRAFFIC PROCEDURES
6. EMERGENCY PROCEDURES
7. SAFETY OF FLIGHT
8. MEDICAL FACTS FOR PILOTS
9. AERONAUTICAL CHARTS AND RELATED PUBLICATIONS
1. Appendix: ABBREVIATIONS/ACRONYMS
1. Appendix: PILOT/CONTROLLER GLOSSARY

[Advisory Circulars](#) describe specific subjects in detail. They provide best practices to maintain safe and legal operations. There are over 700 current ACs; do not read them all. Instead, if you are struggling with a certain topic, search to see if there is an AC which addresses it.

- [The Backseat Pilot](#) website has compiled a small list of helpful ACs for pilots preparing for Checkrides.
- [Aviation Weather \(AC 00-6B\)](#) describes weather theory in greater detail than the *Pilot's Handbook of Aeronautical Knowledge*.
- [Aviation Weather Services \(AC 00-45H\)](#): This document explains charts, forecasts, and other published weather information.

[Code of Federal Regulations Title 14 \(Air & Space\) Chapter I \(FAA\)](#) is colloquially known as the Federal Aviation Regulations, "FARs." Key sections for student pilots include:

- [Part 1](#) Definitions and Abbreviations (very helpful)
- [Part 61](#) Certification: Pilots, Flight Instructors, and Ground Instructors
- [Part 91](#) General Operating and Flight Rules

Flight Planning Resources

Charts:

[Aeronautical Charts](#) can be downloaded free of charge, but they're very large files. You can also purchase traditional, paper charts or use an Electronic Flight Bag (see below).

- 1) Sectional Charts are big-picture for visual navigation. The Denver area, unsurprisingly, is on the *Denver Sectional Chart*. However, it's at the top corner. For the northernmost and easternmost parts of Colorado, the Cheyenne and Wichita charts are needed.
- 2) Terminal Area Charts are more-detailed versions of their Sectional counterparts, focused on busy areas. (ie. The terminal area of Denver International Airport, which covers many local training airfields.)

The [Aeronautical Chart User's Guide](#) is the master document for the many symbols on aeronautical charts, including Sectional and TAC charts. There are more details than any pilot could ever hope to remember, so this book is a tremendous help.

[Chart Supplements](#) are issued regionally. Among other things, they contain Airport / Facility Directories, providing information on every U.S. public airport. Colorado airports are included in the *Southwest (SW)* book.

To plot a course on a paper chart, a plotter tool is needed. Here are instructions on how to use one, [Gleim Navigational Plotter Instructions](#).

Flight Computers:

This online [E6-B Flight Computer](#) is a digital recreation of the handheld device, good for practice when the real thing is not readily available. The E6-B is a computer in a very traditional sense, a circular slide rule. By spinning its disks, it can be used to solve navigation problems and unit conversions. Few pilots still use this instrument, opting for modern technology. There's an [E6-B app](#) that does all the same functions and more.

The FAA, unfortunately, does not permit the use of smartphone apps on the Aeronautical Knowledge Exam. Only basic calculators with erasable memories are allowed. A specially designed electronic flight computer like the [CX-3](#) is permitted, but these are much more expensive than an E6-B.

[Gleim E6-B Instructions](#): You will find all kinds of online guides for E6-B usage, usually in PDF format. This version has helpful links at the top to allow for fast navigation.

Check Before you Fly:

[Aviation Weather.gov](#) is the National Oceanographic and Atmospheric Administration's aviation weather dissemination website. Forecasts and observations (both textual and charts) are here.

[Notices to Airmen](#) alert pilots to potential hazards along a route of flight.

[1800wxbrief](#): The Leidos corporation has a contract with the FAA to provide flight services to aviators, including the aviation weather briefing required to file a cross-country flight plan. Creating an account is free. (Additionally, 1-800-WXB-RIEF provides the same services over-the-phone.)

Electronic Flight Planning Resources:

We live in the age of the Electronic Flight Bag "EFB." These are applications available through companies like [Foreflight](#) and [Garmin](#) for annual subscriptions. These powerful tools include pilot logbooks, charts, supplements, aircraft checklists, Notices to Airmen, Temporary Flight Restrictions, pre-flight planning, filing, weather briefing, course tracking, and more.

[SkyVector](#): SkyVector is a free online resource which provides some of the capabilities of an EFB. It includes a map of the united states, composed of individual Sectional and TAC charts. Current weather overlays, Notifications to Airmen, and other helpful information can be added to this map. It provides easy flight planning resources, and the "Airports" page is overflowing with information, including all the content from the Airport Facility Directory.

Reputable Online Content

[Boldmethod](#) provides videos, articles, and quizzes covering focused topics. When hunting for a quick resource to make sense of a fuzzy subject, this is a great place to start.

[University of North Dakota](#) and [Embry Riddle Aeronautical University](#) both produce top tier content for YouTube.

[AOPA](#): The Aircraft Owners and Pilots Association's primary mission is to protect general aviation in the U.S.. Their [Air Safety Institute](#) is a vast source of information.

[EAA](#): The Experimental Aircraft Association offers a variety of resources. This link directs to those for student pilots.

Helpful Apps

LiveATC allows you to listen to Air Traffic Control. For students struggling with radio calls, tune in to the local airport and listen like an audiobook. [Apple](#) & [Google](#)

FlightRadar24 shows where aircraft are. (Not accurate enough for use during flight.) But it will enable you to see which practice area is the least crowded before takeoff. [Apple](#) & [Google](#)



Part 2 – Flight Training

What to Expect

[Ultimate Guide to Becoming a Pilot: Free Online Course - Pilot Institute](#): Broken down into short videos, this free two-hour course is an excellent description of the flight training process. It answers many of the questions people have before they begin flying, (as well as questions nervous parents of student pilots often have).

Shorter articles which address these topics include:

[Five Ways to Save Money During Training - Student Pilot News](#)

[Flight Training Best Practices \(eaa.org\)](#)

[How Not to Learn to Fly - FLYING Magazine](#)

[Learn to Fly: Finding the Right Flight School - FLYING Magazine](#)

[Learn to Fly: Finding the Right Instructor - FLYING Magazine](#)

The Medical Exam

These exams are not a requirement for all aircraft types. However, for the common goal of a Private Pilot Airplane Certification, this is critical. Do your research before taking the exam. If you identify a potential issue, consult an expert. **Pilots have more options if they never take a medical exam than if they take one and fail.** Gliders and Light Sport Airplanes are both great options until obtaining a Medical Certificate becomes a feasible goal.

Common failures for younger pilots involve neurological medications, such as treatments for ADHD, Anxiety, and Depression. Unfortunately, federal regulations lag behind the modern understanding of these conditions. Depending on the medication and how long ago it was prescribed, options vary.

The exam includes a drug test. Pilots must abide by what the federal government says is legal. There are no exemptions for state laws, thus Marijuana remains prohibited.

Additionally, there is a background check for criminal records, especially for DUI charges. Consult an expert if needed. **Under no circumstances should you lie about a criminal record.** You are better off being denied a medical certificate until you are eligible to reapply. Falsifying records will prohibit an applicant from ever getting a Medical Certificate.

The article [What to Expect From An FAA Medical Exam | FAA Safety Briefing](#) offers a brief description. It's a short read which does not cover every topic, but it's a good place to start.

For more information, the medical exams [Questions and Answers](#) page on the FAA's website is exceptional. A few to highlight include:

- [What is a medical certificate?](#)
- [How do I obtain a medical certificate?](#)
- [Who must hold a medical certificate?](#)
- [What class of medical certificate must I hold and how long is it valid?](#)
- [What medical standards must I meet in order to qualify for a medical certificate?](#)
- [What medical conditions does the FAA consider disqualifying?](#)
- [I have some medical problems and would like to learn whether I can be issued airman medical certification. Where can I get further information?](#)

When you are ready, here are instructions to [Get a Medical Certificate.](#)

Aeronautical Knowledge Exam

Test Prep Software:

This guide provides you with the resources to learn the content. However, the FAA exam includes some tricky questions and confusing verbiage. To get a high score, most pilots get test-prep software to familiarize themselves with these questions. These are available through multiple companies. One of the best priced options is [Gleim Aviation](#)'s course for \$110.

For the aspiring pilot under the age of 18, there is a way to get the exceptional [Sporty's Pilot Shop Course & Private Pilot Test Prep](#) for free. The Experimental Aircraft Association has a [Young Eagle](#) program with volunteer pilots who take students on introductory flights without charge. After the flight, they will provide a logbook. The back cover includes a code for the Sporty's course, normally a \$250 value.

To take the exam, a student will need an endorsement from either a flight instructor or an approved test prep software. If the student wishes to take the written exam prior to flight training for the potential cost savings, the test prep software's endorsement is key.

In addition to Gleim and Sporty's, other reputable options for those wanting to shop and compare include: [King Schools](#), [Pilot Institute](#), & [ASA](#)

Exam Sign Up:

Step One: To take a written exam, a student must have an FAA Tracking Number (FTN). To get an FTN, a student must register through the [Integrated Airman Certification & Rating Application \(IACRA\)](#). If they already have an IACRA account from another certificate or rating, they do not need to register again - Just login and find the FTN on the top left.

Step Two: Once the student has an FTN, they can schedule their exam. (The exam fee will be paid at this step.) This is done through the [PSI Exams](#) website.

Step Three: The student will need to arrive at the testing center with the appropriate documentation. The [FAA Airman Knowledge Testing Matrix](#) describes these requirements. It also lists the three letter exam codes you will need to sign-up.

Good local testing centers are [McAir Aviation](#) in Broomfield and [Testpro](#) in Centennial.

Private Pilot Checkride Exam

The final step to obtaining one's Private Pilot Certification is to complete the Checkride Exam. This includes a scenario-based oral exam and practical demonstration of flying skills. This will evaluate knowledge, decision making skills, and ability to manage appropriate resources.

For a guide of what the examiner may ask and what flight maneuvers must be demonstrated, reference the appropriate [Airman Certification Standards \(ACS\)](#) document or [Practical Test Standards \(PTS\)](#) document. (The FAA is transitioning from the PTS system to the new ACS system. Each certification will have one or the other, never both simultaneously.)

For those flying airplanes: [Private Pilot - Airplane Airman Certification Standards](#)

For those flying gliders: [Private Pilot - Glider Practical Test Standards](#)

This guide is focused on fixed-wing training. For helicopters and other aircraft, there will be unique PTSs and ACSs for each.

Where to Buy Training Materials

To begin studying, a student needs a sectional chart plotter and an E6-B flight computer. Optionally, paper versions of all the FAA books are available. Once a student starts flying, they may purchase headsets, kneeboards, paper charts, and other tools.

[Sporty's Pilot Shop Home Page \(sportys.com\)](#) is a major online retailer.

If looking for a local option, visit The Pilot Shop at Centennial Airport for training materials, pilot supplies, and all manner of fun aviation merchandise. [7601 S Peoria St, Englewood, CO 80112](#)

Wings Over the Rockies Exploration of Flight also carries plotters, E6-Bs, and some books. Stock up when visiting a showcase or other event. [13005 Wings Way, Englewood, CO 80112](#)

Fight Training Scholarship Providers

National Programs:

[Aircraft Owners and Pilots Association](#)

[Experimental Aircraft Association](#)

[99s](#)

[Women in Aviation](#)

[Federal Aviation Administration](#)

State Programs:

[Wings Over the Rockies](#)

[Colorado Pilots Association](#)

[Colorado 99s](#)

[Colorado Aviation Business Association](#)