

CORE SUBJECTS: COMPUTER SCIENCE, GEOGRAPHY**HOW MANY HOURS OF FLYING TIME**

How many hours of flying time have your students “logged” so far? The answer may surprise you. One of the first popular games designed for personal computers was the flight simulator program developed in the early 1980s and made famous by Microsoft’s® Flight Simulator. You may even have a similar program on your computer at home. Heck, maybe your ace flying is what prompted you to pick up this handbook.

Have you ever wondered how much flying on the small screen relates to real flying? Quite a bit, in fact. The U.S. Navy, in a famous study in the late 1990s, determined that it saved its new pilots several hours of training time in expensive aircraft by giving them copies of Microsoft Flight Simulator for prac-

ticing maneuvers and scanning instruments. You and your students can do the same thing. It helps to have a plan though. You can’t just barrel around, hoping to gain some piloting prowess out of the virtual blue sky.





This life-like cockpit photo
actually is from a computer
flight simulator.

ACTIVITY: Flight sim jockey

**Photocopy this activity for classroom use.
Go to www.aopa.org/path for student worksheets.**

TEACHERS:

From this activity, students will learn how computer flight simulator programs relate to real-world flying. Students will learn how to scan instruments for information while simultaneously controlling the flight of the airplane with their hands. They will get an appreciation for the challenges and the excitement of flying and improve their hand-eye coordination in the process.

If you do not have access to Microsoft Flight Simulator or a similar program, ask a local pilot if he or she would be willing to make a donation to your school computer lab. Pair this activity with the module on runways and traffic patterns. It helps for students to have learned the basics of traffic patterns before attempting to fly the simulator airplane.

MATERIALS:

Flight simulator program for PC or Mac
Joystick (flight yoke not required)
Aeronautical chart of your local area, including nearest airport, if available

TO DO IT:

- ▶ Load your favorite airplane—or a trainer aircraft like a Cessna 172 or Piper Warrior—and search for your local airport in the database. Set that airport as your launch point.
- ▶ Access the checklists within the program to start the engine and taxi out to the runway. (What does the local weather tell you about the winds? Can you figure out which runway would be preferred?)
- ▶ As you accelerate down the runway, look at the airspeed indicator and note the speed at which you lift off into the sky.
- ▶ Climb straight ahead to 500 feet above the ground—check your altimeter to see when you've reached that altitude—and push the

nose over a little to level-off so you can check for traffic in front of you.

- ▶ Continue your climb and begin a left turn, in a bank of about 30 degrees (using the attitude indicator), to a heading 90 degrees less than the runway heading. You'll need the heading indicator to know for sure when you get there (e.g. from Runway 27 turn "left to 180 degrees").
- ▶ Depending on the graphics, you should be able to look at your map and pick out features on the ground like bodies of water. Most pilots fly using these ground references rather than fixating on the heading indicator. Keeping your eyes focused outside the cockpit helps you see other traffic (airplanes) before they come too close.
- ▶ Once you reach 1,000 feet above the ground, level off your altitude. You should be ready to turn 90 degrees to the left again, for your downwind leg of the traffic pattern. Again, depending on the program, you may be able

ACTIVITY: Flight sim jockey

to switch views to see out your left window—the runway will be passing off your left wing in a couple of moments.

- ▶ Fly down the runway on the downwind leg, until the runway is about a mile and a half behind you, over your left shoulder. Lower your flaps 10 degrees.
- ▶ Using the tachometer, pull the power back to about 1,800 rpm and hold the nose level. Let the airspeed come down to about 85 knots, and lower your flaps another 10 degrees.
- ▶ Turn 90 degrees left again for the base leg, and continue your descent at 500 fpm (feet per minute) using the vertical speed indicator.

▶ When you are almost perpendicular to the runway, after a few seconds, turn a last 90 degrees to the final leg of the approach, keeping about 85 knots on the airspeed indicator.

▶ Lower your flaps another 10 degrees so now you have flaps extended a full 30 degrees. Let the airplane slow down to 70 knots.

When you touch down, you've successfully completed your first virtual traffic pattern—one of the most challenging parts of learning to fly. If you want more, check out the training modules within your favorite flight sim game, or check out sim sites on the web for add-on aircraft, scenery, and scenarios.



Runway 23—Your
aircraft is heading
approximately 230
degrees.