

VISUAL SCANNING AND COLLISION AVOIDANCE

FULFILLS AI II.B

Objective	
The student shall understand the best methods for visual scanning. The student shall become familiar with right of way rules and the unique collision avoidance strategies at non-towered airports and at night.	
Instructor Actions	Student Actions
- Discuss the techniques to most effectively scan for traffic and nomenclature used (clock method) - Introduce the concept of relative motion with respect to aircraft position on the windows - Explain the right-of-way regulations - Draw examples of airplane lighting at night and quiz student on airplane orientation - Explain limitations of in-cockpit traffic displays - Assess technique on next lesson	- Take notes and participate in instructor's discussion - Consider right-of-way situations as presented by instructor - Practice identifying airplane orientation at night with instructor
Case Studies	Equipment
- VASAaviation – <u>Midair Collision</u>	- Computer - FAR/AIM - PHAK - White Board (red, green, and black markers)
Completion Standards	
The student shall display proficiency in identifying other aircraft and reacting appropriately.	

ELEMENTS

1. Technique	1
2. Relative Motion	1
3. Right of Way and Collision Avoidance	2
4. Night Ops.....	2
5. Employing a Safety Pilot.....	2
6. Use of Electronic Systems.....	2

RESOURCES

14 CFR 91.113 Right of Way

FAA-S-ACS-6C (Private Pilot ACS) - Appendix 6: Safety of Flight

FAA-S-ACS-7B (Commercial Pilot ACS) - Appendix 6: Safety of Flight

FAA-S-ACS-25 (CFI ACS) - Area II Task B

FAA-H-8083-25C PHAK Chapter 17: Aeromedical Factors

AIM 4-5 Surveillance Systems (ADS-B/FIS-B Limitations)

AIM 5-5-8 See and Avoid

AC 90-48E Pilot's Role in Collision Avoidance

AC 90-66C Non-Towered Airport Flight Operations

ERAU Video

1. TECHNIQUE

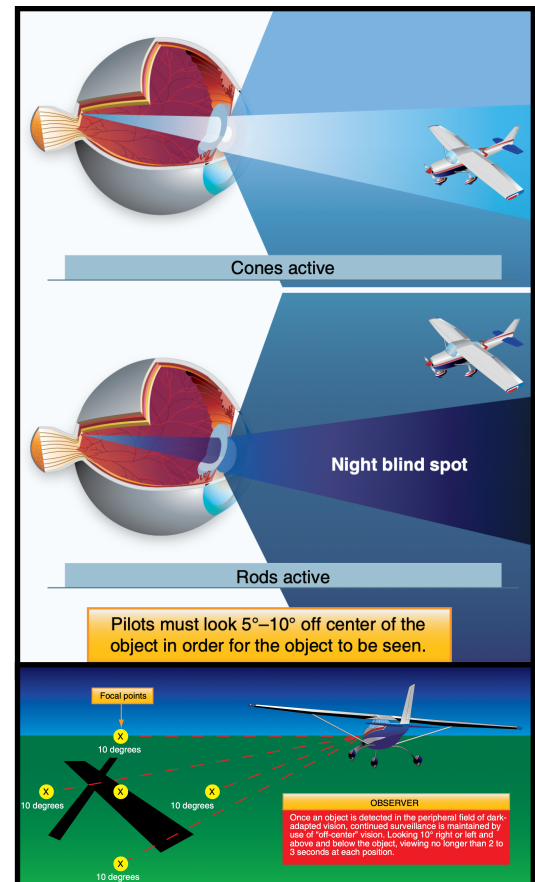
Draw FOV and spacing

Short, regularly spaced eye movements that bring successive areas of the sky into the central visual field. Each movement should not exceed 10° , and each area should be observed for no more than 2 seconds.

The blind spot during the day can be visualized with the image below.

At night, this blind spot is in the center of vision. It is best to scan $5\text{--}10^\circ$ off center to see objects clearer.

Recall that the rods require a significant amount of oxygen. As a result, altitudes as low as 4000 ft may cause degradation to night vision.



2. RELATIVE MOTION

Discuss possibilities

A potential collision course can be identified by determining how an airplane moves relative to our windshield or windows. If the airplane remains stationary, but growing in size, we are on a collision course.

3. RIGHT OF WAY AND COLLISION AVOIDANCE

Draw

Right of way regulations are specific in 91.113.

Emergency Aircraft	Have the right of way regardless of type
Approaching Head-On	Both aircraft should turn right, regardless of type. So pilots on left side can see each other.
Converging	Like at a stop sign, aircraft to the right have right-of-way 1. Balloon 2. Glider 3. Airship 4. Airplane 5. Helicopter
Passing	Aircraft should pass on the right . This allows the pilot of the faster aircraft to keep the slower aircraft in view.
Landing	Aircraft on final or aircraft at a lower altitude have right of way

4. NIGHT OPS

Aircraft light patterns – give examples

5. EMPLOYING A SAFETY PILOT

6. USE OF ELECTRONIC SYSTEMS