UAS AERODYNAMICS AND PERFORMANCE

AOPA | YOU CAN FLY
HIGH SCHOOLS

AERODYNAMICS AND PERFORMANCE QUIZ

OBJECTIVE

Students will answer the following questions to demonstrate their understanding of the aerodynamics and performance topics covered in the lesson.

QUESTIONS

1. What is VRS?
   a. Vertical Ring State
   b. Vortex Ring State
   c. Vortex Recurve State

2. How can an operator recover from VRS? **Select all that apply.**
   a. Forward movement
   b. Decrease vertical thrust
   c. Increase vertical thrust
   d. Side-to-side movements

3. What affects endurance?
   a. Battery charge
   b. Payload
   c. Density altitude
   d. All of the above

4. What is the biggest factor affecting performance?
   a. Propeller pitch
   b. Wi-fi connection speed
   c. Density Altitude

5. Which would likely cause VRS?
   a. Fast, lateral movements
   b. Slow, lateral movements
   c. Slow, vertical descent
   d. Rapid, vertical descent

6. What is ground effect?
   a. Increase in temperature due to close proximity to the ground
   b. Reduction in temperature and performance when close to the ground
   c. Reduction in drag due to close proximity to the ground
   d. Reduction in lift due to close proximity to the ground

7. Wintry conditions have the potential to cause which of these? **Select all that apply.**
   a. Lower density altitude
   b. Higher density altitude
   c. Propeller icing
   d. Carburetor icing
   e. Trailing edge wing icing

8. What is density altitude?
    a. Pressure altitude in standard day conditions
    b. ***Pressure altitude corrected for nonstandard temperature***
    c. The density of air at the planned flight altitude above ground

9. What is a Koch Chart?
    a. ***Tool for estimating the effect of temperature and pressure on takeoff distance and climb performance***
    b. Density to pressure altitude conversion chart with integrated temperature conversion scale
    c. Chart for estimating pressure altitude using a straight line and sea level conditions

10. What is the thermal lapse rate?
    a. 15°C per 1000 ft
    b. 2°F per 100 ft
    c. 2°F per 1000 ft
    d. ***2°C per 1000 ft***