

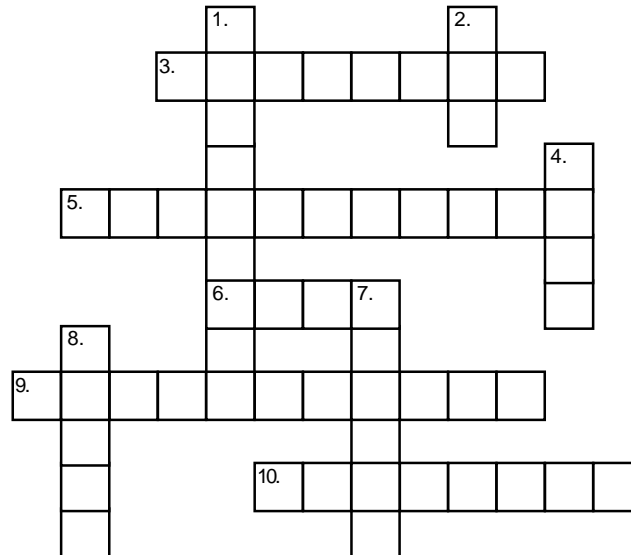
CHAPTER REVIEW

Chapter **24**

Structures of Flight

I. Vocabulary Review

Solve the following crossword puzzle by using the clues provided.



Across

- 3. the distance between both wing tips
- 5. the wing length divided by the wing width (two words)
- 6. fly with motionless wings
- 9. weight divided by wing area (two words)
- 10. movable flap on horizontal tail surface

Down

- 1. spreading of seeds over a wide area
- 2. motion made as a plane's nose turns right or left
- 4. tilting motion made as one wing dips lower than the other.
- 7. movable flap on the vertical tail fin of a plane
- 8. motion of a plane as its nose points up or down

II. Concept Review

If the underscored word makes the sentence true, write "TRUE" in the space provided. If the underscored word makes the sentence false, write the correct term in the space provided.

- _____ 11. A bulky shape allows air to flow around an object with less drag than other shapes.
- _____ 12. Birds that fly long distances use carbohydrates as their main fuel.
- _____ 13. Birds use their wings for both lift and thrust.

Chapter Review 24 (continued)

_____ 14. The ratio of wingspan to wing area is used to compare birds of different sizes.

_____ 15. Bird wings, like aircraft wings, are shaped like airfoils.

III. Skills/Process Review

In the blank at the left, write the letter of the choice that best completes the statement.

_____ 16. Rigid skeletons help birds to fly by _____.

- a. streamlining the bird's structure
- b. holding the legs in one position
- c. providing firm surfaces for the attachment of muscles
- d. changing into feathers

_____ 17. How effectively a wing lifts a bird's body is indicated by _____.

- a. wing loading
- b. aspect ratio
- c. wingspan
- d. pitch

_____ 18. Birds change their pitch by _____.

- a. flexing their primary wing feathers
- b. moving their wings forward and back or flexing their tail
- c. flexing their secondary wing feathers
- d. raising their wings higher above their bodies

_____ 19. The distance that a maple seed falls from a tree is calculated by _____.

- a. multiplying wind velocity by time in the air
- b. dividing horizontal speed by time in the air
- c. dividing time in the air by horizontal speed
- d. dividing terminal speed by wing area

_____ 20. The combination of lungs and air sacs enables a bird to _____.

- a. become lighter than air
- b. fly without breathing
- c. inhale oxygen without exhaling carbon dioxide
- d. obtain oxygen on inhaling and exhaling

IV. Feature Review

21. In-Depth Look: Hovering Flight How does a helicopter resemble a hummingbird?
