

Weekly Academic Review

Nature's Own Aircraft

Week 15

Directions: Read to find out how a bird is designed for flight. Mark the location of the answers on any question that labels which paragraph the answer can be found.

1 Recently Pat's parents cleaned out their basement. They found a box of Pat's old school papers and sent them to her. Pat laughed when she saw a paper she had written after studying birds and reptiles when she was in the sixth grade. It was about how birds fly. The paper seemed especially interesting since she and Charlie had just seen a model of a pterodactyl. Here's what she had written.

How Birds Fly

2 The prehistoric pterodactyl was a reptile that flew. Birds were most likely an early branch of the reptile group. Although birds and reptiles have many things in common, most birds, unlike most reptiles, have mastered the skill of flying. In fact, a bird's frame is designed for flight.

3 A bird's skeleton is light, yet remarkably strong. The bones are hollow and are braced by smaller bones. Other animals' bones are filled with tissue and usually are not braced.

4 The backbone of a bird, though short, is stronger and has fewer joints than that of most other animals. The skull is almost as thin as paper, which keeps the front part of the bird's body light for flying.

5 The bird's wings serve the same purpose as the engine and the wings of an airplane. The wings keep the bird in the air and move it through the air at the same time. Like other parts of a bird, the wings are strong and light. They are operated by sturdy muscles attached to the breastbone.

6 Not only are a bird's skeletal and muscular systems adapted for flight, but the feathers are also well constructed. They vary in size and weight according to their purpose. The biggest, stiffest feathers cover the wings.

7 Smaller feathers above and below the large leathers keep the air from passing



through. Because of this, a bird's wing can push against the air and get the most power out of each wing thrust.

8 In fact, the wing feathers overlap like shingles on a roof. The bird is able to move its feathers without loosening them, and therefore can control its flight. When a bird wants to slow down or land, it spreads the feathers at the tip of the wing farther apart. This creates a wider surface against which the air can push.

9 Tail feathers are also very important for a bird. A bird can spread its tail feathers and move them up and down to help in steering and stopping.

10 When a bird takes off, its wings move forward and backward, as well as up and down. To create this combined movement, a bird twists each wing as a unit. When a bird slows down to land, it spreads its wings and tail feathers and pushes them against the wind.

11 People have tried unsuccessfully to imitate a bird's capacity to fly. We have always dreamed about flying, but it is only in our dreams that our bodies are able to take off and fly like birds. The best we have been able to do is to build machines that are able to fly for us.

Knowing the Words

Write the words from the story that have the meanings below.

- dealing with muscles _____
(Par. 6)
- differ from _____
(Par. 6)
- cover over _____
(Par. 8)
- group acting as one _____
(Par. 10)
- ability _____
(Par. 11)

In each row below, circle the two words that are related to the word in dark print.

- bird** pterodactyl condor eagle
- airplane** fuselage throttle fossil
- people** dispatcher terminal parent
- skeleton** backbone muscles skull
- feathers** skull wing tail

Working with Words

Possessives are words that show ownership. The singular possessive is usually formed by adding 's to a word. Rewrite each phrase below. Use possessive forms.

- the wings of a bird

- the body of an animal

- the hat that belongs to Charlie

- the message of the dispatcher

Write the compound words from the story that are formed by adding to these words.

- back _____
(Par. 4)
- lap _____
(Par 5)

Reading and Thinking

- Check the features that are common to birds as opposed to other animals.
 - _____ They have paper-thin skulls.
 - _____ Their bones are filled with tissue.
 - _____ They have strong, short backbones.
 - _____ They have wing and tail feathers.
- Check the sentence that best expresses the main idea of this story.
 - _____ Feathers help birds fly.
 - _____ A bird is designed for flying.
 - _____ Birds are different from reptiles.
- Check the most likely conclusion you can make about Pat.
 - _____ She was interested in flight in the sixth grade.
 - _____ She knew a lot about reptiles.
 - _____ She likes to save school papers.

Learning to Study

This graph shows the lengths of some birds. Under each bar on the graph, write the letter of the bird whose size is represented.

Bird Length

- | | |
|----------------|----------------|
| a. swan | -(1.5 meters) |
| b. hummingbird | -(.15 meters) |
| c. ostrich | -(2.43 meters) |
| d. eagle | -(.76 meters) |
| e. hawk | -(.46 meters) |



