

The evolution of flight in Birds

Section #5 Special Assignment

The Goal: To develop a logical, well-supported hypothesis about how and when flight evolved in the dinosaur lineage.

Materials:

Features Cladograms

Features Table

Your notes from the Review Activities at the end of each section

Procedures:

1) Brainstorm with your teammates about what the data in each of the cladograms and the Feature Table suggest about how and when flight evolved in the dinosaur lineage. Make sure that you consider the following:

- Which features are associated with flight? Which are absolutely essential for flight?
- When did each of these features first appear in the fossil record?
- Did these features evolve for flight or did they originally serve other functions?
- What was “necessary” for flight to evolve?

2) Based on this evidence at hand, develop a hypothesis about the evolution of flight. If possible, this hypothesis should describe both the “how” and the “when.”

3) Your hypothesis must be well supported.

- a. Consider the information in all of the cladograms.
- b. Use direct evidence to support inferences.
- c. Suggest other evidence you could look for to support your hypothesis.
- d. Suggest other evidence you could look for to disprove your hypothesis.

4) Present your hypothesis to your colleagues for review.

When you finish, you may want to explore the hypothesis proposed by Dr. Kevin Padian, a paleontologist who specializes in the evolution of flight in dinosaurs (Section #6).