

## DINOSAURS OF A FEATHER

Adapted by Duc Tran, Environmental Science Institute, March 2011  
Source: “Dinosaur Train: Dinosaurs of a Feather” from PBS Teachers  
<http://www.pbs.org/teachers/dinosaurtrain/lessonplans/dinosaursofafeather/>

**GRADE LEVEL:** 6 - 8; may be adjusted for lower grades

**LENGTH:** 1 – 2 class periods

**SAMPLE TEKS**

§112.18. Science, Grade 6: 1A, 2A, 2C, 2D, 2E, 3A, 3D, 4A

§112.19. Science, Grade 7: 1A, 2A, 2C, 2C, 2E, 3A, 4A

§112.20. Science, Grade 8: 1A, 2A, 2B, 2C, 2E, 3D, 4A

**OVERVIEW**

Students will be working in groups of 2 or 3 to explore the structure and functions of feathers and examine the relationships between modern birds and dinosaurs.

**OBJECTIVES**

Students will be able to:

- Construct a Venn diagram to compare and contrast different bird feathers.
- Discuss different ways that feathers help birds and dinosaurs survive.
- Collect quantitative & qualitative data.

Qualitative Data	Quantitative Data
<ul style="list-style-type: none"> <li>• Deals with descriptions</li> <li>• Can be observed but not measured (i.e. colors, textures, smells, tastes, appearance, beauty, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Deals with numbers</li> <li>• Can be measured (i.e. length, height, area, volume, weight, speed, time, temperature, humidity, members, ages, etc.)</li> </ul>

(Source: <http://www.regentsprep.org/Regents/math/ALGEBRA/AD1/qualquant.htm>)

**MATERIALS (per group)**

- Bird feathers (available from pet shop or bird owner)
  - NOTE: Find feathers from different birds and different parts of the bird, such as tail feathers, wing feathers and so on.
  - IMPORTANT: Make sure feathers are clean.
- Magnifying glass
- Colored feathers from craft store
- Glue
- Ruler
- Analytical balance

**ACTIVITY**

Students will be observing different types of feathers from different species. They are required to record their observations such as color, texture, size and function, along with quantitative data such as

length and weight of the feathers. Teacher should provide students a worksheet with a table for them to record their data.

The whole activity is divided into 3 different stations:

### **Station 1**

Have students look at a variety of cleaned bird feathers. Encourage them to discuss the differences in color, texture and size. Have students talk about which feathers might be used for warmth, for flight, for decoration and so on. Ask students to drop the feathers and watch them fall and describe their observations.

### **Station 2**

Have students examine the feathers under a magnifying glass. Ask students to discuss what feathers look like close-up. Any surprises? Ask students to measure the length and weight of the feathers. Ask: “What is one reason that feathers weigh so little?”

### **Station 3**

Give students two pictures of the same species. One picture should show the dinosaur with no feathers and the other should show the dinosaur with feathers. Explain to them that scientists once thought dinosaurs did not have feathers, but based on fossils evidence and research we now know that some species did indeed have feathers. No actual feathers have survived from millions of year ago; we know where the feathers used to be because the fossilized bones have “nubs” similar to those on the bones of modern birds where their feathers are attached.

**NOTE:** Teachers should provide a list of characteristics about the dinosaur of interest. Examples of dinosaurs teachers can use for this station include: Velociraptor and Tyrannosaurus.

### **POST-ACTIVITY**

After completing the 3 stations, the teacher should provide each group with a poster board. On the poster board, students are required to construct a Venn diagram to compare and contrast the similarities and differences of modern birds and extinct dinosaurs. Students are encouraged to use their data and the data given about the dinosaurs to construct the Venn diagram.

After everyone has finish, allow each group to give a short 3 – 5 minutes presentation of their Venn diagram.

For homework, ask the students to answer the following question: Do you think modern birds and dinosaurs are related? Explain your answer in at least 1 paragraph. Students may use their data and other resources to support their decision.

### **ADDITIONAL RESOURCES**

National Geographic – Dinomorphosis

- URL: <http://channel.nationalgeographic.com/series/naked-science/4926/Overview>