

Language Arts:

Birds as Bioindicators

Birds have adapted and diversified throughout time allowing them to count nearly every corner of the world as possible habitat. Because birds have a faster metabolism than mammals, they react more quickly to changes in the surrounding environment. Living side by side with humans, we have learned to observe their behavior and use it to our advantage. For example, miners would carry canaries down into the coal mines with them. If the birds began acting sick or fluttering near the bottom of the cage, the miners knew they needed to get to the surface because the birds were reacting to poisonous gases within the mines.

Another example of birds as bioindicators can be seen with the use and subsequent banning of the pesticide DDT. Aquatic run-off containing DDT wound up in streams and eventually made its way up through the food chain. The chemical showed up in birds like the Bald Eagle and the Peregrine Falcon, causing them to produce eggs with thin shells which in turn would break when incubated. Populations of these birds declined and became threatened with extinction. DDT was finally banned in the early 1970s, not because of the decline in bird populations, but because the pesticide began showing up in human breast milk. Birds predicted the potential harm to humans from DDT decades before it was detected by researchers.

Grade 6:

Standard 1.1b: Use prior experience and context to analyze and explain the figurative use of words, similes (comparisons that use *like* or *as*: *The Snowplow Reared Up Like a Stallion*), metaphors (implied comparisons: *Peace is a Sunrise*), and multiple meaning words.

Standard 2: Fluency- The student will identify words rapidly so that attention is directed at the meaning of the text.

Standard 3: Comprehension/Critical Literacy- The student will interact with the words and concepts in the text to construct an appropriate meaning.

- 3.1) Literal Understanding
- 3.3) Summary and Generalization
- 3.4) Analysis and Evaluation

Standard 4: Literature- The student will read, construct meaning, and respond to a wide variety of literary forms

- 4.2) Literary Elements- The student will demonstrate knowledge of literary elements and techniques and how they affect the development of literary work.
- 4.3) Figurative Language and Sound Devices- The student will identify figurative language and sound devices and will analyze how they affect the development of a literary work.

Activity: Read a Book!

Objective: Students improve their comprehension skills through independent reading. While reading, students will note new vocabulary words associated with the storyline, learn how to recognize figurative language such as imagery, metaphors and similes, and personification.

Materials: The book *Who Really Killed Cock Robin?* by Jean Craighead George. HarperCollins Publishers 1992.
Pens/Pencils
Paper
Definitions of common figurative language/literary terms

Procedure: -[There are several different assignments within this procedure. They may be cut or added depending on time allowances.]

- 1) *Obtain copies of *Who Really Killed Cock Robin?* by Jean Craighead George for each student.
- 2) During one class period, allow students to begin reading silently to themselves.
- 3) Each student should read 1-2 chapters per night.
- 4) While reading, students should write a brief summary of each chapter (1/2 – 1 sheet of notebook paper) to help them remember the key events in each chapter for use later.
- 5) Students should identify and explain any figurative language they may encounter in each chapter. They should identify at least 5 examples from each chapter.
Example: In the first paragraph of the book: “A red breast feather twisted in the wind, his clove-brown wings folded like a dancer’s fan.” –This is an example of both imagery and a simile. The simile compares the wings to a dancer’s fan while the use of “twisted” depicts the same movement that “moved” or “blew” would, but is more powerful. This sentence draws the reader in immediately and helps them to get a better picture of the scene.
- 6) After completing the book, students should determine the author’s purpose for writing this story (persuade, inform, entertain), and be able to defend their decision in a short essay.
- 7) Within this essay, have students use facts about the natural history of birds and ecology that they have learned from reading *Who Really Killed Cock*

Robin? as well as the opinions of the characters in the book. Students should determine which character Ms. George is conveying her own opinion and feelings through the most.

Grade 6

Standard 1:1a – Words in Context – Use knowledge of word parts and word relationships, as well as context clues (the meaning of the text around a word), to determine the meaning of technical and specialized vocabulary and to understand the precise meaning of grade-level-appropriate words in fiction and nonfiction texts.

Standard 1.3: Using Resource Materials and Aids

- a) Determine the meanings, pronunciation, and derivations of unknown words by using a glossary, dictionary, and/or thesaurus.
- b) Relate dictionary definitions to context of the reading in order to aid understanding.

Activity: Identify Unknown Words

Objective: Students improve their vocabulary and their comprehension of reading material by identifying new words, and defining them by context and with help from a dictionary.

Materials: ***Who Really Killed Cock Robin?*** By Jean Craighead George
Dictionaries
Pencils
Paper

Procedure:

- 1) As students read ***Who Really Killed Cock Robin?***, have them identify a minimum of five words per chapter that are new to them or that are in a different context than what they may normally come across.
- 2) Have students write down the new vocabulary word and the sentence within which it is contained. They should also note the chapter and page on which it is found.
- 3) Using a dictionary, students will look up and record the definition underneath the sentence.
- 4) Lastly, using the dictionary definition in combination with the sentence from the book, students will use their own words to define the term.

Example: *-Terrarium:* Reaching behind the *terrarium* of plants and caterpillars, he picked up a small pocket notebook and opened it. (Chapter 1, p. 3).

- Terrarium (n): a vivarium for land animals; a glass container, chiefly or wholly enclosed, for growing and displaying plants.
- Tony's terrarium was a container that he used to house the plants and insects that he found.

Introduction to Birds

Birds are warm-blooded, have distinctive beaks, and their young hatch from hard-shelled eggs. A characteristic unique to birds is the presence of feathers. They provide insulation, enable flight, and are used in visual communication. Adaptations that enable flight include fused and lightweight bones, and a keeled sternum (for the support of flight muscles). Variations in birds (e.g., coloration, wing shape, beak type, foot type) give clues to their habitat, feeding tendencies, and behavior.

There are many distinct words associated only with birds or their study.

Grade 6

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Standard 1.3: Using Resource Materials and Aids

- Determine the meanings, pronunciation, and derivations of unknown words by using a glossary, dictionary, and/or thesaurus.
- Relate dictionary definitions to context of the reading in order to aid understanding.

Activity: Which Word Is It?

Objective: Students determine which word fits best into a sentence by looking up definitions in a dictionary, and analyzing sentence context.

Materials: [Which Word Is It?](#) Handout and [Answer Key](#)

Dictionaries
Pencils

Procedure:

- Assemble students in small groups.
- Distribute handouts and dictionaries.

- 3) Have students look up the words in the sentences and correctly identify which word fits best depending on the context of the sentence.

Grade 6.

Standard 2.7: Write for different purposes and to a specific audience or person, adjusting tone and style as necessary to make writing interesting.

Standard 2.8: Write friendly letters and business letters, and continue to produce other writing forms introduced in earlier grades.

The staff of the Sutton Center love to hear what you think of **It's All About Birds!** Your feedback helps us to continuously improve and add to the presentation.

Activity: Letter

Objective: Students write a letter to a business thanking them for a presentation and stating what they liked or didn't like about the presentation.

Materials: Paper
Pen/Pencil

Procedure:

- 1) Ask students to recall what they experienced during the **It's All About Birds!** presentation.
- 2) Have students compose a professional business letter to the Sutton Center or the presenters stating what they experienced and liked or didn't like regarding **It's All About Birds!**
- 3) Mail letters to:
George M. Sutton Avian Research Center
P.O. Box 2007
Bartlesville, OK
74005
Attn: Education