How SMART are animals?

Who doesn't love watching animals? Whether they are performing tricks on command or displaying their behavior in the wild, animals continually demonstrate their unique intelligence. In the article you are about to read, you'll learn about birds who do surprisingly clever things, including playing tricks on humans.

QUICKWRITE Write an anecdote, or brief story, about a time you saw—or heard about—an animal doing something that showed its cleverness. Share the story with your classmates.
**Meet the Author**

**Gareth Huw Davies**

*born 1948*

**Nature Writer**

Gareth Huw Davies has been a journalist since his first article was published in London’s *Sunday Times* newspaper in 1976. Though his writing specialties include wildlife and the environment, he has also written articles about technology, music, medicine, and travel. He is the author of two books and has been nominated for a number of awards for his work.

**British Bird Journalist**

Born in Swansea, Wales, Davies typically writes for various British newspapers and magazines. However, “Bird Brains” is one of a number of articles he wrote for *The Life of Birds*, a series that appeared on the PBS (Public Broadcasting Service) Web site.

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**ELEMENTS OF NONFICTION: MAIN IDEAS**

In a work of nonfiction, **main ideas** are the most important ideas that a writer communicates about a topic. Authors use specific methods to organize their ideas. In the article that follows, the author uses a proposition-and-support organizational pattern. The author presents a **proposition**, an important idea, opinion, or viewpoint and **supports** the proposition with reasons.

As you read “Bird Brains,” look for the author’s proposition.

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**READING SKILL: RECOGNIZE SUPPORT**

A proposition can be supported by

- facts, including the results of scientific research and surveys
- statistics, facts in number form
- examples, specific instances that illustrate reasons or facts
- expert opinions from people who know the subject.

As you read “Bird Brains,” collect support in a chart like the one below.

<table>
<thead>
<tr>
<th>Types of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts:</td>
</tr>
<tr>
<td>Statistics:</td>
</tr>
<tr>
<td>Examples:</td>
</tr>
<tr>
<td>Expert Opinions:</td>
</tr>
</tbody>
</table>

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**VOCABULARY IN CONTEXT**

The listed words help explain birds’ intelligence. Choose the word that best completes each sentence.

<table>
<thead>
<tr>
<th>WORD LIST</th>
<th>complexity</th>
<th>mimic</th>
<th>variation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>engage</td>
<td>perception</td>
<td></td>
</tr>
</tbody>
</table>

1. She found a way to ____ the bird in conversation.
2. Our ____ of birds is often not accurate.
3. A parrot isn’t a ____ that only repeats what it hears.
4. The ____ of their behavior shows their intelligence.
5. Some birds play a ____ of a trick known to humans.

Complete the activities in your Reader/Writer Notebook.

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Go to thinkcentral.com. KEYWORD: HML6-909

909
At a traffic light crossing on a university campus in Japan, carrion crows and humans line up patiently, waiting for the traffic to halt. When the lights change, the birds hop in front of the cars and place walnuts, which they picked from the adjoining trees, on the road. After the lights turn green again, the birds fly away and vehicles drive over the nuts, cracking them open. Finally, when it’s time to cross again, the crows join the pedestrians and pick up their meal.

If the cars miss the nuts, the birds sometimes hop back and put them somewhere else on the road. Or they sit on electricity wires and drop them in front of vehicles.

The crows in Japan have only been cracking nuts this way since about 1990. They have since been seen doing it in California. Researchers believe they probably noticed cars driving over nuts fallen from a walnut tree overhanging a road. The crows already knew about dropping clams from a height on the seashore to break them open. The birds found this did not work for walnuts because of their soft green outer shell.
**TALK TO ME**

Another sign of intelligence, thought to be absent in most non-human animals, is the ability to **engage** in complex, meaningful communication. The work of Professor Irene Pepperberg of the University of Arizona, Tucson, has now shown the general **perception** of parrots as mindless **mimics** to be incorrect.

The captive African grey parrot Alex is one of a number of parrots and macaws now believed to have the intelligence and emotional make-up of a 3- to 4-year-old child. Under the tutelage\(^1\) of Professor Pepperberg, he acquired a vocabulary of over 100 words. He could say the words for colors and shapes and, apparently, use them meaningfully. He has learned the labels for more than 35 different objects. He also knows when to use “no,” and phrases such as “Come here,” “I want X,” and “Wanna go Y.” . . .

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1. **tutelage** (tʊˈleɪdʒ) n.: instruction; teaching.

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**engage** (ɪnˈgædʒ) v. to involve; participate

**perception** (pərˈsiːpʃən) n. an impression or feeling

**mimic** (ˈmɪmɪk) n. one who imitates the speech and gestures of others

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**MAIN IDEAS**

What is the main idea of the paragraph?

What **proposition**, or argument, does the author seem to be developing in this article so far?
PLAYING GAMES WITH HUMANS

Some birds seem to indulge in “intelligent” play. The kea, a New Zealand parrot, has been filmed ripping (inedible) windshield wipers off cars. Young keas, in a neat variation of ringing the doorbell and running away, are known to drop rocks on roofs to make people run outside.

Jack the jackdaw was raised by wildlife film producer John Downer. As soon as Jack was mature, he was released into the wild. However, he couldn’t stay away. “One thing he is totally fascinated by is telephones,” said Downer. “He knows how to hit the loudspeaker button and preset dial button. Once we came into the office to find him squawking into the telephone to the local travel agent.”

Jack also likes to fly down onto the mirror of the production car when he sees somebody going out. “He turns into the wind, gets his head down and surfs on the air current until we reach about 30 mph when he gives up. . . .

ADJUSTING TO OTHERS

Scientists believe it is not physical need that drives creatures to become smarter, but social necessity. The complexities of living together require a higher level of intelligence. . . .

The African honeyguide, for example, lures badgers to bees’ nests, and feeds on the leftovers. To humans they offer their services as paid employees. They call and fly backward and forward to draw local tribespeople’s attention to the location of honeycombs. They are then rewarded with a share of the takings for their trouble.

Of course, the bird world has its share of “bird brains.” There are the birds that build three nests behind three holes under a flower pot because they can’t remember which is which. There are also birds that attack their own reflections. . . .

The level of intelligence among birds may vary. But no living bird is truly stupid. Each generation of birds that leaves the protection of its parents to become independent has the inborn genetic information that will help it to survive in the outside world and the skills that it has learned from its parents. It’s just that some have more than others. . . .
Comprehension

1. Recall Why do the crows drop walnuts in front of cars?

2. Recall How do African honeyguides help humans?

3. Clarify What behaviors do scientists interpret as being signs of intelligence in birds?

Critical Analysis

4. Identify Main Idea Reread lines 58-62 of the article and state the main idea. Explain how the main idea presented here serves as the proposition, or argument, for the entire article.

5. Evaluate Support Review the support chart you completed. Does the support in this text effectively develop the writer’s proposition? Back up your response with examples from the text.

6. Evaluate Organizational Patterns How effective is an organizational pattern in which all the support is presented before the proposition is directly stated? Do you think the writer should have reversed his approach, starting with the proposition and then presenting all the article’s supporting details? Explain.

7. Make Judgments Which of the birds in the article seems to be the most intelligent? Make a chart like the one shown and note the activities or abilities of the various birds in the article. Then, using the information in your chart, explain which bird or type of bird you think is the most intelligent, and why.

<table>
<thead>
<tr>
<th>Bird</th>
<th>Activity or Ability</th>
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</thead>
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<td></td>
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</table>

Extension and Challenge

8. SCIENCE CONNECTION Crows are known for being clever. Search the Internet for information about crow habits, behaviors, and intelligence. Note any evidence that supports the conclusion that crows are especially intelligent. Present your findings in an oral report.

How SMART are animals?

Look back at the story you wrote about an animal doing something clever. How intelligent were the birds in this article compared to the animal you wrote about?
Vocabulary in Context

**VOCABULARY PRACTICE**
Show that you understand the vocabulary words by deciding if each statement is true or false.

1. The game of softball is a *variation* of baseball.
2. If you *engage* in conversation, you do not speak.
3. A *complexity* makes something more complicated or difficult.
4. A *mimic* imitates how someone moves and speaks.
5. A *perception* is based only on facts, never on feelings.

**ACADEMIC VOCABULARY IN SPEAKING**

With a partner, discuss the *adequacy* of the supporting details in this article.
Did the supporting details convey the *concept* of bird intelligence, or are you unconvinced? Use at least two Academic Vocabulary words in your discussion.

**VOCABULARY STRATEGY: ANALOGIES**

An *analogy* describes a relationship, or comparison, between two different things that are alike in some way—a way that is not always obvious. There are over a dozen possible word relationships in analogies, but one of the most common is the part-to-whole relationship.

stage : theater :: field : stadium

(Read this as: *Stage is to theater as field is to stadium.*)

A stage is the part of a theater where actors perform for an audience; a field is the part of a stadium where football players or other athletes perform for an audience. Thus, a stage and a field share an analogous, or similar, relationship.

**PRACTICE** Complete the following analogies.

1. dog : doghouse :: fish : _____
   a. ocean b. market c. lake d. aquarium
2. trumpet player : band :: soldier : _____
   a. country b. platoon c. war d. gun
3. dock : boat :: _____ : car
   a. highway b. road c. tires d. garage
4. governor : state :: _____ : country
   a. president b. mayor c. senator d. politician
5. paper : book :: _____ : movie
   a. theater b. film c. camera d. actors
Conventions in Writing

◆ GRAMMAR IN CONTEXT: Punctuate Titles Correctly

Be sure to punctuate titles correctly when you write. Use quotation marks for the titles of shorter works, such as short stories, essays, articles, songs, and poems. Use italics (or underlining) to set off titles of longer works, including books, plays, magazines, newspapers, movies, and TV series.

Examples: The book Are You My Mother? is about a confused baby bird. “Kookaburra” is one of many songs about birds.

PRACTICE Rewrite each sentence, correctly punctuating the titles.

1. The TV series The Life of Birds was carefully researched.
2. This month’s issue of Nature focuses entirely on birds.
3. I learned a lot from Joan Anderson’s essay Cardinal Companion.
4. Robert Frost’s poem A Dust of Snow mentions a crow.

For more help with punctuating titles, see page R50 in the Grammar Handbook.

READING-WRITING CONNECTION

Increase your understanding of “Bird Brains” by responding to the following prompt. Then use the revising tip to improve your writing.

WRITING PROMPT

Extended Response: Write a Letter
Pretend that you are trying to persuade a publisher that its new book on animal intelligence should include a chapter about bird intelligence. Write a two-paragraph letter stating your case. Use a proposition-and-support organizational pattern, in which your main idea is your proposition. Your supporting details, or evidence, should be drawn from the article you have just read.

REVISING TIP

Review your letter. Have you stated your proposition as the main idea of your letter? Are your supporting details drawn from the article you have just read? Have you made a strong case for your position, or do you need to go back and add more supporting details?