

**Grades: 6-8****Nova, "Inside Animal Minds: Bird Genius"**

What would it be like to go inside the mind of an animal? We have all gazed into a creature's eyes and wondered: what is it thinking about? What does it really know? Now, the revolutionary science of animal cognition is revealing hard evidence about how animals understand the world around them, uncovering their remarkable problem-solving abilities and exploring the complexity of their powers of communication and even their emotions. In this mini-series, NOVA explores these breakthroughs through three iconic creatures: dogs, birds and dolphins. We'll travel into the spectacularly nuanced noses of dogs and wolves, and ask whether their reliance on different senses has shaped their evolution. We'll see through the eyes of a starling in flight and test the tool-using skills of the smartest of birds, the crow. We'll listen in as scientists track dolphins in the Caribbean and elephants on the African savannah, trying to unlock the secrets of animal communication. As we discover how researchers are pushing the animal mind to its limits, we'll uncover surprising similarities to -- and differences from -- the human mind.

Today, researchers are discovering that some creatures have mastered skills purportedly restricted to humans. Many are bird brains. Meet a cockatoo with a talent for picking locks; a wild crow on a mission to solve an eight-step puzzle; and a tame raven who can solve a puzzle box so quickly that his performance has to be captured with high-speed photography. Are these skills really evidence of high intelligence or just parlor tricks, the result of training and instinct? To find out, NOVA tests the limits of some of the planet's brainiest animals, searching for the secrets of a problem-solving mind.

**After watching this episode, choose from the following questions and/or tasks to extend your learning**

**Question Box 1**

- What is the intent or purpose of the writer? What is the central idea? How is the central idea developed?
- Give examples of how birds might understand more than we realize.
- What is your analysis of the program? What evidence did you identify to support your analysis of the TV show?
- Cite evidence from the TV Show to support your determination of the central idea.

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- Which of the birds featured in this episode showed the most complexity? Cite evidence to support your answer.

### **Question Box 2**

- Now that it's over, what are my first thoughts about this overall episode? Are they mostly positive or negative?
- If positive, what comes to mind specifically? Negative?
- What were some of the most interesting parts to this program? Explain.
- What were some of my most powerful learning moments and what made them so?
- Which bird featured in this program would you identify as your favorite or most intriguing and why?
- What signifies intelligence to you? How can you identify intelligence in animals?

### **Box 3 (Tasks)**

- The ratio of brain size to body mass varies by species. A small bird is 1:12. A dog is 1:125. A human is 1:40. An elephant is 1:560. If a dog was bested by a bird, how could you use these numbers mathematically to justify what happened? Justify your answer using math and complete sentences.
- How did the researchers define intelligence?
- Discuss the evolutionary significance of intelligence.
- Watch this 2 minute video about testing the intelligence of a Kea bird: <https://www.youtube.com/watch?v=7W7hEUGtv4U> . Discover other videos of birds and demonstrate how they displayed their intelligence with a presentation/product of your choosing.

### **Box 4 (Enrichment)**

- Research a similar animal as presented. Compare and contrast the two animals with regards to their habitat...the place where they live and reproduce.
- Design an infographic that gives information and fun facts about an "intelligent" animal of your choice.
- Make a claim about whether human intelligence can/cannot be accurately measured. Support your claim with evidence.

### **Box 5 (Extend/Real-Life)**

- There are different types of intelligence however there is one in particular that has received a lot of attention in the workplace. Watch this short video to learn more about emotional intelligence. <https://www.youtube.com/watch?v=-I2dEuvT8sM>
- Do you have strong emotional intelligence? Why or why not? There is always room for improvement. What types of activities could you do or habits could you practice

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that would increase your emotional intelligence?

- You are a hiring manager and conduct interviews. The first interviewee is very friendly, outgoing, inquisitive, and talkative. They admit they do not have some of the skills but explain that they are willing and ready to learn. The second interviewee answers only the questions asked and focuses on their training and their capability in the skills needed for the job. They seem overly confident that they have all the knowledge needed and do not ask any questions. Which interviewee do you hire and why? Share your decision and rationale with a family member and ask them whom they would have selected.