

# Context Clues

Bird Brains:

## Do Birds Have Brain Power?

In some folktales and fables, birds are clever and wise. Are real birds able to think? How can we tell? For a long time scientists have wondered about those questions. Read this article about birds' ability to think.



Scientists who study birds' thinking face a problem. Thinking can't be seen. Trying to **infer** a bird's thoughts is like doing detective work. The clues are in the bird's behaviors. Scientists use the basic **principle**, or idea, that complicated actions take more brainwork than simple ones.

One bird with complicated behaviors is the male bowerbird of Australia. This bird builds a large structure, called a bower, to attract a female. The males decorate the bowers with twigs, leaves, grass, feathers, berries, flowers, and other colorful items. If a female shows up, the male sings and dances to invite her into his showy bower.

But is the male bowerbird really "thinking" as he **methodically** puts together his bower? Is he **conscious** of what he is doing? Or is he unaware of his actions? Bower

building might be an **instinct**, like the inborn ability to fly.

One scientist **investigated** ravens, birds famous for their cleverness. He tied one end of a long string to the birds' perch. He hung a piece of meat from the other end of the string. The ravens could not get a grip on the meat. After several tries, they gave up.

However, one raven acted like an **ingenious** inventor. On the perch, the raven pulled up some of the string in its bill and tucked it under one foot. The raven did this until it had pulled up the meat. What does the **outcome** of this test show? The raven seemed to be using **insight**, a thinking skill, to solve a problem.

Some scientists **propose** that birds are indeed thinkers because they show creativity and problem-solving skills.


## Context Clues Strategy

### Look for What the Word Is Like


**EXAMPLE:** Like a picture formed in the mind, an *intention* is a kind of mental activity.

**CLUE:** The phrase *Like a picture formed in the mind* compares the word *intention* to something familiar.


Here are the steps for using this context clues strategy to figure out the meaning of the word *infer*.

 **Read** the sentence with the unknown word and some of the sentences around it.


*Trying to infer a bird's thoughts is like doing detective work. The clues are in the bird's behaviors.*

 **Look** for context clues. Do any words describe What the Word Is Like?

The words *like doing detective work* tell what *inferring* is like.

 **Think** about the context clues and other information you may already know.

Detectives use clues to figure out things they can't see.

 **Predict** a meaning for the word.

*Infer* must mean "to decide from clues."


 **Check** your Word Wisdom Dictionary to be sure of the meaning.


The word *infer* means "to conclude from thinking carefully about the evidence."

# Unlock the Meanings

**Practice the Strategy** Let's look at another boldfaced word from the article on page 50. Use the context clues strategy on page 51 and follow these steps to figure out the meaning of this word.

**instinct**


 **Read** the sentence that includes the word *instinct* and some of the sentences around it.

 **Look** for context clues to the word's meaning. Do any words describe What the Word Is Like?

---

---

---

 **Think** about the context clues. What other helpful information do you know?

---

---


---

 **Predict** a meaning for the word *instinct*.

---

---

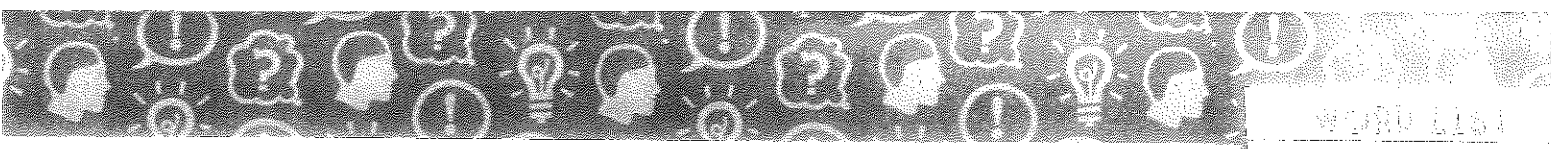
---

 **Check** the Word Wisdom Dictionary to be sure of the meaning of *instinct*. Which of the meanings for the word *instinct* fits the context?

---

---

---



**Use Context Clues** You have been introduced to two vocabulary words from the article about birds' brain power. Those words are checked off in the Word List here. Under "Vocabulary Word" below, write the other eight words from the Word List. Use context clues to predict a meaning for each word under "Your Prediction." Then check the meanings in the Word Wisdom Dictionary. Write the definitions under "Dictionary Says."

- WORD LIST**
- infer
  - principle
  - methodical
  - conscious
  - instinct
  - investigate
  - ingenious
  - outcome
  - insight
  - propose

<b>Vocabulary Word</b>	<b>Your Prediction</b>	<b>Dictionary Says</b>
<b>1</b>		
<b>2</b>		
<b>3</b>		
<b>4</b>		
<b>5</b>		
<b>6</b>		
<b>7</b>		
<b>8</b>		

# Process the Meanings

## WORD LIST

infer  
principle  
methodical  
conscious  
instinct  
investigate  
ingenious  
outcome  
insight  
propose

**Choose the Correct Word** Write the word from the Word List that belongs in each sentence.

- 1 To stop the habit of nail biting, you must be \_\_\_\_\_ that you are doing it.
- 2 Jen's careful, \_\_\_\_\_ approach to problems works.
- 3 Some fish have a(n) \_\_\_\_\_ for returning to a certain place to lay their eggs.
- 4 I left before the game ended, so I don't know the \_\_\_\_\_.
- 5 By studying ancient ruins, archaeologists gain \_\_\_\_\_ into what life was like long ago.

**Find the Synonyms** Write the word from the Word List that is a synonym for the boldfaced word.

- 6 "I suggest a field trip to an amusement park," offered James. \_\_\_\_\_
- 7 Your plan is **clever**; I wish I'd thought of it. \_\_\_\_\_
- 8 Some scientists **study** animal behavior. \_\_\_\_\_
- 9 The paw prints and the ripped trash bag led the homeowner to **reason** that a raccoon was in the neighborhood. \_\_\_\_\_
- 10 Repeating an experiment several times is one **rule** of good science. \_\_\_\_\_



## Apply What You've Learned

**Relate the Meanings** Answer the questions or follow the directions.

**1** Give an example of an instinct one animal has.

---

**2** Name an activity that requires a methodical approach.

---

**3** Name one thing you are conscious of each day.

---

**4** Name an important principle of American democracy.

---

**5** What was the outcome of an exciting game you watched?

---

**6** Name a problem that will be solved with an ingenious idea.

---

**7** Why does a good teacher or scientist need good insight?

---

**8** What might you infer if all the lights in your house went out?

---

**9** How would you investigate what made the lights go out?

---

**10** Propose a change in a school rule.

---



**Write It!** Do you think animals think? Explain your answer. Use several Part 1 vocabulary words.

# Latin Roots

for  
Word  
Wisdom

Mathematics and Mental Illness:

## The Life of John Nash

Despite mental illness, John Nash became one of the twentieth century's greatest mathematicians.

John Nash wanted to discover something new—not a new star or a new species of animal. Nash wanted to discover a new mathematical theory. He wanted to become one of the greatest mathematicians of his time.

In college, Nash focused on different **scientific** fields, like engineering and chemistry. He finally chose to study math. At Princeton University, Nash came up with a new math theory. It was based on the **concept** of game theory. Game theory is the study of making decisions based on probability and statistics.

In 1957 Nash married Alicia Larde. The next year, *Fortune* magazine called Nash one of the world's best mathematicians. He was just thirty years old. This was also the time that he became ill with schizophrenia. This mental illness can cause people to have strange thoughts. They might think people are trying to harm them or that they hear voices. The disease can change their **perception** of the world.


After months of strange behavior, Alicia **supposed** Nash was ill. She put him in a mental hospital. Her **conscience** told her that this was best for him. Over the years, Nash had periods when he was very ill and periods when he was better. Alicia was always there for Nash. So were his friends. They were mathematicians, too. They helped him stay involved with mathematics throughout his illness.


During the 1980s, Nash made some **positive** steps. While it may not have seemed **probable**, John got better little by little. He went back to Princeton for a **purpose**—to again **probe** mathematics. In 1994, John Nash finally received the Nobel Prize in Economics. Thirty years after they had been put to paper, Nash was honored for his ideas about game theory.

Many uninformed people have **preconceived** ideas about mental illness, but these ideas are not the reality. Schizophrenia is a serious mental illness, but John Nash did not let this condition ruin his life. Instead, he went on to become one of the greatest mathematicians of our time.

**Practice the Context Clues Strategy** Here is one of the boldfaced words from the essay on page 56. Use the context clues strategy you learned in Part 1 on page 51 to figure out the meaning of this word.

scientific


 **Read** the sentence that uses the word *scientific*. Read some of the sentences around the word.

 **Look** for context clues to the word's meaning. Do any words describe **What the Word Is Like**?

---

---


---

 **Think** about the context clues. What other helpful information do you know?

---

---

---

 **Predict** a meaning for the word *scientific*.

---

---

---

 **Check** your Word Wisdom Dictionary to be sure of the meaning of the word *scientific*. Write the definition here.

---

---

---





# Unlock the Meanings

Knowing the meaning of some Latin roots will help you decide on the meaning of many English words. All the roots in this part relate to thinking.

Latin Root: *ceiv, cept, cip*  
meaning: to take, to seize  
English word: *principle*  
meaning: a belief or rule

Latin Root: *pos*  
meaning: to put, to place  
English word: *propose*  
meaning: to put forth an idea

Latin Root: *prob, prov*  
meaning: to test, to prove  
English word: *approve*  
meaning: to think well of

Latin Root: *sci*  
meaning: to know  
English word: *conscious*  
meaning: knowing or aware of

**Sort by Roots** Write each word from the Word List under the correct Latin root below.

Latin Root:  
**prob, prov**

Latin Root:  
**ceiv, cept, cip**

Latin Root:  
**sci**

Latin Root:  
**pos**

## WORD LIST

scientific

concept

perception

suppose

conscience

positive

probable

purpose

probe

preconceive

**Thinking**

Prefix

Meaning

com-, con-

together

Example

per-

completely

con- (together) + cept (take) = concept

pre-

before

**Use Roots and Prefixes** Circle the root and any prefix you find in each boldfaced word. Use context clues, roots, and prefixes to write the meaning of each word. Check your definitions in a dictionary.

1 Chris didn't understand the **concept**, so the teacher explained it.

\_\_\_\_\_

2 Our principal is **probing** the possibility of ordering more computers.

\_\_\_\_\_

3 If I want to earn money, I **suppose** I can rake leaves for our neighbors.

\_\_\_\_\_

4 To learn about electricity, Ben Franklin did **scientific** experiments.

\_\_\_\_\_

5 Since Alliya had not met John, she had no **preconceived** ideas about him.

\_\_\_\_\_

6 The president's **positive** comments made everyone hopeful.

\_\_\_\_\_

7 Based on how it acted, our **perception** was that the kitten was scared.

\_\_\_\_\_

8 She followed her **conscience** and told who took the missing bike.

\_\_\_\_\_

9 The ball game was cancelled. Bad weather was the **probable** cause.

\_\_\_\_\_

10 The **purpose** of drama class is to learn how to put on plays.

\_\_\_\_\_

## Process the Meanings

### WORD LIST

scientific

concept

perception

suppose

conscience

positive

probable

purpose

probe

preconceive

**Identify the Synonyms** Write the best synonym for each boldfaced word.

- 1** an unusual concept \_\_\_\_\_  
a. problem      b. decision      c. idea
- 2** probe the surface of Mars \_\_\_\_\_  
a. photograph      b. investigate      c. discover
- 3** the probable cause of the power failure \_\_\_\_\_  
a. unexpected      b. possible      c. likely
- 4** suppose that you could fly \_\_\_\_\_  
a. imagine      b. consider      c. dream
- 5** the main purpose for the meeting \_\_\_\_\_  
a. activity      b. goal      c. rules

**Choose the Correct Word** Write the correct word from the Word List to complete each sentence. Underline the parts of the sentence that helped you.

- 6** Her \_\_\_\_\_ attitude made us all feel that victory was possible.
- 7** My \_\_\_\_\_ that he is taller was corrected when we measured ourselves.
- 8** Ms. Lee did careful research before writing her \_\_\_\_\_ book on tornadoes.
- 9** Ted's \_\_\_\_\_ helped him know the best way to behave.
- 10** A \_\_\_\_\_ opinion is not based on facts.



## Apply What You've Learned

**Give Reasons** Write an answer to each question. Be sure to include the boldfaced words and your reasons in each answer.

**1** Is it probable that your conscience will lead you in the wrong direction?

---

---

**2** What is your perception of people who make positive suggestions?

---

---

**3** How do you suppose you would feel if someone had a preconceived idea about you?

---

---

**4** If your teacher were probing the class with questions, what might be his or her purpose?

---

---

**5** Would an astronaut use a scientific method to better understand the concept of gravity?

---

---



**Speak It!** In a small-group discussion, tell about something you have been probing lately. Use as many of the words from the Word List on page 60 as you can.

# Reference Skills

For  
Word  
Wisdom

Mind Over Matter:

## Stephen W. Hawking

Black holes. Distant galaxies. Time. These are a few of Stephen W. Hawking's favorite subjects. He explored these topics in *A Brief History of Time*, one of the most popular science books ever written.

You have heard of Galileo, Isaac Newton, and Albert Einstein. These are some of the greatest scientists of all time. There are others who belong on that list. In fact, one of these scientists is from our lifetime. His name is Stephen W. Hawking.

Stephen Hawking was born in England in 1942. He began college at Oxford when he was seventeen years old. Hawking was **indecisive** about his course of study, but he finally chose to **concentrate** on physics. After a few years, Hawking noticed that he was having physical problems. He was getting clumsy and would fall for no apparent reason. After weeks of hospital tests, Hawking learned he had an incurable disease. The doctors were not sure what it was, but they **concluded** he had only a few years to live. Hawking was only twenty-one years old.


Hawking had a **notion** that he could do something important with his life, even if it was a short one. From then on, he **intended** to study harder than ever. He wanted his life to be meaningful.


Before long, Hawking dove into life and into his research. He began to **formulate** ideas about difficult scientific concepts. He liked to challenge long-accepted theories. Hawking came up with many **logical** ideas about space and time. He liked to  **muse** about the beginning of time and life in the universe. Hawking has worked with a group of scientists to try to **compute** what they call "the theory of everything."

Hawking later learned that his disease is ALS, or Lou Gehrig's disease. This disease, over time, destroys the control a person has over his or her muscles. In spite of the odds, Hawking has lived with the disease for decades. He cannot walk, talk, or even move very much. He communicates with a computer that **interprets** his voice from words he chooses on the screen. Hawking is grateful for this invention but says, "The only trouble is that it gives me an American accent."

**Practice the Context Clues Strategy** Here is one of the boldfaced words from the essay on page 62. Use the context clues strategy you learned in Part 1 on page 51 to figure out the meaning of this word.

**concluded**


 **Read** the sentence that uses the word *concluded*. Read some of the sentences around the word.

 **Look** for context clues to the word's meaning. Do any words describe What the Word Is Like?

---

---


---

 **Think** about the context clues. What other helpful information do you know?

---

---


---

 **Predict** a meaning for the word *conclude*.

---

---

---

 **Check** your Word Wisdom Dictionary to be sure of the meaning of the word *conclude*. Which meaning for *conclude* fits the context?

---

---

---

## Unlock the Meanings

**Looking Up Base Words** Most dictionaries do not have a separate main entry for every word in the English language. If a word ends with a common suffix, you will usually have to look up its base word.

If you wanted to find the meaning of the word *preconceived* in a dictionary, you would look up the base word *preconceive*. If you wanted to look up the word *scientifically*, you would find it under the entry for *scientific*.

**Find Base Words** Write the base word you would look up in your Word Wisdom Dictionary to find the meaning of each of these words.

1 musing \_\_\_\_\_

2 interpreted \_\_\_\_\_

3 computes \_\_\_\_\_

4 indecisively \_\_\_\_\_

5 formulating \_\_\_\_\_

6 concentration \_\_\_\_\_

7 intended \_\_\_\_\_

8 logically \_\_\_\_\_

9 notions \_\_\_\_\_

10 concluding \_\_\_\_\_



**Find  
the  
Meaning**

1. Use context clues.
2. Look for a familiar root, prefix, or suffix.
3. If the context or a word part doesn't help, check the dictionary.

**Define the Words** Use the steps above to write the meaning of each boldfaced word. Write 1, 2, or 3 to show which steps you used.

**1** I carefully studied my notes before **formulating** a writing plan.

\_\_\_\_\_

**2** The **indecisive** shopper had trouble choosing a new hat.

\_\_\_\_\_

**3** He read about poodles, so he had a **notion** of how they acted.

\_\_\_\_\_

**4** Incomplete research led us to conclusions that weren't **logical**.

\_\_\_\_\_

**5** The loud traffic made it difficult to **concentrate** on homework.

\_\_\_\_\_

**6** I **intend** to practice playing the guitar every day after school.

\_\_\_\_\_

**7** My cousin likes to **muse** about becoming a movie star.

\_\_\_\_\_

**8** Tracks in the snow led us to **conclude** that deer had been here.

\_\_\_\_\_

**9** Dad **computed** the amount of money we need for groceries.

\_\_\_\_\_

**10** Some scientists can **interpret** ancient writing systems.

\_\_\_\_\_

**WORD LIST**

indecisive

concentrate

conclude

notion

intend

formulate

logical

muse

compute

interpret



## Process the Meanings

### WORD LIST

indecisive

concentrate

conclude

notion

intend

formulate

logical

muse

compute

interpret

**Complete the Analogies** Write a word from the Word List to complete each analogy.

1 Student is to pupil as idea is to \_\_\_\_\_

2 Needle is to sew as calculator is to \_\_\_\_\_

3 Solve is to problem as \_\_\_\_\_ is to plan.

4 Art is to creative as science is to \_\_\_\_\_

**Choose the Correct Meaning** For each phrase below, write the word or words that give the best meaning for the boldfaced word.

5 **intended** to become a carpenter \_\_\_\_\_

- a. planned
- b. asked

6 to **concentrate** on learning French \_\_\_\_\_

- a. decide to wait
- b. focus attention

7 will **interpret** the poem \_\_\_\_\_

- a. give a reason for
- b. explain the meaning of

8 an **indecisive** team captain \_\_\_\_\_

- a. slow in making decisions
- b. not helpful to players

9 **concluded** that the person was guilty \_\_\_\_\_

- a. wanted to know
- b. came to a decision

10 was **musing** on yesterday's walk \_\_\_\_\_

- a. thinking deeply
- b. complimenting someone



## Apply What You've Learned

**Give Examples** Write sentences that give an example of each of the following. Use the boldfaced words in your answers.

1 a book you intend to read

\_\_\_\_\_

2 an idea you are formulating for a story

\_\_\_\_\_

3 a time when it is difficult to concentrate

\_\_\_\_\_

4 one thing you are able to compute

\_\_\_\_\_

5 something you have concluded about making friends

\_\_\_\_\_

**Complete the Sentences** Complete each sentence in a way that shows your understanding of the boldfaced word.

6 Kent's indecisive nature made it hard for him to

\_\_\_\_\_

7 Sonia sat by the pond musing about \_\_\_\_\_

8 Mom's notion of proper school dress is \_\_\_\_\_

9 It is difficult to interpret my sister's \_\_\_\_\_

10 Ms. Sims is a logical choice to be our scout leader because

\_\_\_\_\_



**Write It!** Describe how you solved a problem you had recently. Use as many words as you can from the Word List on page 66.