

Directions:

For all questions: Read each passage. Then answer each question carefully by choosing the best answer.

Hardwired for Language

1 All creatures communicate with their own kind, whether through scent messages, body language, or audible signals. In most cases, the communication involves marking or defending territory, seeking a mate, warning of danger, and engaging in similar daily life or survival behavior. Although the warning calls of chickadees and prairie dogs convey a lot of information about the type of threat, animals and humans share certain linguistic abilities and don't share certain others. Why? A minor part of the reason is the structure of the throat, but the primary reason is the anatomy of the brain.

Neuroscientists Study Language and the Brain

In recent years, imaging technology developed for medical purposes has been used by neuroscientists to learn more about the language center of the brain. Two kinds of scans—fMRI (Functional Magnetic Resonance Imaging) and NIRS (Near Infrared Spectroscopy)—show the increased blood flow in areas of brain activity. This allows researchers to observe what part of the brain is used as a person speaks, listens, reads, experiences emotions, or solves problems. By studying scans, neuroscientists have learned that when deaf people communicate by sign language, they use the same part of the brain hearing people use to communicate with spoken language.

Another discovery made possible by these noninvasive ways of looking inside the skull is that people who grow up speaking two languages have more gray matter¹ in their brains than do people who are not bilingual. (Research has shown that the more gray matter present, the greater the person's mental ability. This is especially true in the areas of language use, ease of remembering, and paying attention.) The increase in gray matter is greatest if a person learns a second language before age five. Learning another language at a later age still results in some increase, however.

Besides showing that learning a second language causes physical changes in the brain by increasing gray matter, fMRI and NIRS scans have allowed neuroscientists to see what difference this might make in a person's life. After studying the scans of both bilingual and monolingual people of various ages as they performed a number of mental tasks, researchers came to these conclusions about the two groups:

- Subjects of the study who were bilingual used more parts of the brain for language tasks than monolingual subjects did.
- Bilingual subjects had greater success than monolingual subjects in tasks that weren't language-related.
- Elderly bilingual subjects had better brain function than elderly monolinguals did.

You can see why one researcher compared the improvement in mental skill from using the brain for language to the increase in muscle strength that results from exercise.

Linguists Study the Science of Language

While neuroscientists are interested in language only in relation to the brain, linguists are interested in language itself—especially in how language develops. Linguists agree the human brain is hardwired for language, but the language learned depends on what a young child hears spoken.

Grammar is also hardwired in the human brain. Linguists had noticed similarities in the structure of all languages, but they had no solid evidence to back up the theory that grammar was innate. Then researchers from the University of Rochester studied three boys in Nicaragua who had been deaf from birth. None of the boys knew an official sign language, but each of them had developed his own unique gestural language. Researchers devised an experiment in which each boy viewed a series of sixty-six brief videos that showed a person performing a single action.

The boy would then use his gestural language to describe what he'd seen. Every time, the sequencing, or order, of the gestures showed the same grammatical structure that is present in spoken languages! This proved to the linguists that grammatical structure was indeed hardwired because these boys had never had any exposure to language.

The scans that showed activity in the same part of the brain for sign language and speech support the linguistic theory that spoken language developed from early humans' use of gestures. However, there are still unanswered questions about the origin of language. Among these is why it developed. One possibility is that as men began to hunt in groups, they needed to communicate their plans. Another possibility is that language began as communication between mother and child. But since there is no way to test either of these hypotheses, linguists will never know which one—if either—is correct.

Another question that may never be answered is how language and the brain developed together in early humans. There is no doubt, however, that language and brain development are closely linked in humankind today.

Bilingual or not, here is how to make the best use of your brain.

1. **Get enough sleep.** Concentration and memory suffer when you are sleep deprived.
2. **Eat sensibly.** One study showed that students who had sodas and sweets for breakfast scored the same as seventy-year-olds on memory and attention tests. Students who ate high-protein, high-fibre breakfasts had higher scores.
3. **Be physically active.** Exercise stimulates the growth of new brain cells.
4. **Be mentally active.** Completing a crossword puzzle each day can help keep your mind alert. Other activities that may boost your brain's flexibility include reading, puzzles, taking a class on a new subject, and staying socially active.

¹ *gray matter—a thin layer of nerve tissue in the brain known as “the thinking matter.”*

1. What is the primary reason why animals and humans have different linguistic abilities?

- | | |
|---------------------------------------------|-------------------------------------------|
| <input type="radio"/> A. brain anatomy | <input type="radio"/> B. throat structure |
| <input type="radio"/> C. survival behaviors | <input type="radio"/> D. hearing ability |

Answers

2. What is the function of paragraph 1?

- | | |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="radio"/> A. The paragraph introduces the topic of the brain. | <input type="radio"/> B. The paragraph serves as a body paragraph. |
| <input type="radio"/> C. The paragraph introduces the topic of sign language. | <input type="radio"/> D. The paragraph presents research on the topic. |

Answers

3. What is gray matter?

- | | |
|-------------------------------------------|-----------------------------------------------|
| <input type="radio"/> A. listening matter | <input type="radio"/> B. speaking matter |
| <input type="radio"/> C. thinking matter | <input type="radio"/> D. communication matter |

Answers

4. Which statement about monolingual subjects is true?

- | | |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <input type="radio"/> A. Monolingual subjects have better brain function than bilingual subjects as they age | <input type="radio"/> B. Monolingual subjects use more parts of the brain for language tasks than bilingual subjects. |
| <input type="radio"/> C. Monolingual subjects have greater success in tasks that are not language-related. | <input type="radio"/> D. Monolingual subjects use fewer parts of the brain for language tasks than bilingual subjects. |

Answers

5. What is the intended meaning of the phrase “the human brain is hardwired for language”?

- | | |
|--------------------------------------------------------|--------------------------------------------------------------|
| <input type="radio"/> A. Language is based on learning | <input type="radio"/> B. Gestures show language development. |
|--------------------------------------------------------|--------------------------------------------------------------|

C. Grammar and language are innate.

D. Sign and spoken languages have similar structures.

Answers

6. According to the passage, why will some questions about the origin of language never be answered?

A. Scientists need to answer other questions first

B. Scientists require a lot of money to study this process.

C. Scientists do not have enough interest in this process.

D. Scientists cannot go back and see the original process.

Answers

7. What is the main idea of the passage Hardwired for Language?

A. Language acquisition in humans is a result of many contributing factors.

B. Language and brain development in animals and humans are closely linked.

C. Humans must learn a second language in order to increase brain capacity.

D. Spoken language developed from early humans' use of gestures.

Answers

8. What is the purpose of the bulleted list under the heading Neuroscientists Study Language and the Brain?

A. to explain how sleep supports language acquisition

B. to summarize research results

C. to prove that gray matter affects language

D. to show the connection between brain function and diet

Answers

Answer Keys Link : [Reading Practice Test – 2 \(Reading Comprehension\)](#)

