



# RULE of 3 RAP

# THINK ABOUT

## Student Benchmarks Level 4

### To the Teacher

- \* These reading and writing benchmarks have been reformatted for the students. The benchmarks are to be used at the end of every unit. The benchmark assessments review the words and the standards.



*Linda D. Ventriglia*

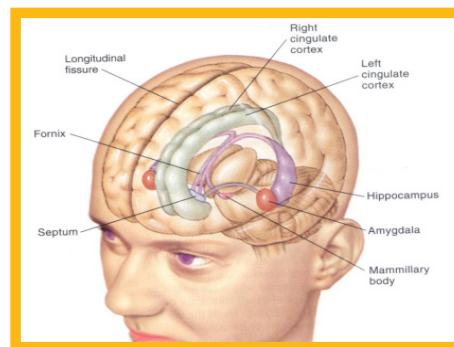
L.D. Ventriglia, Ph.D.



## THINK ABOUT Unit 1: Student Benchmark Reading

### Directions for Reading for Main Ideas and Key Details

1. Read the passage entitled *The Incredible Power of the Human Brain: The Computer Versus the Human Brain* to a partner.
2. Underline the Power Words from Unit 1 in the passages with a partner.  
*unique, special, remember, speech, current, advantage, disadvantage, produced, thought, limited, huge, supply, demand*
3. Answer the questions about the main ideas and details using evidence from the passage and the chart.



### The Incredible Power of the Human Brain *The Computer Versus the Human Brain*

#### Brain Power

<sup>1</sup> Most people take for granted the power of the human brain. Did you know that without a human brain, you would not run away from a lion? It is the human brain that tells you the lion is dangerous and signals you to run away. It also starts the flow of a chemical called adrenalin through your body. Adrenalin gives you increased power to run away from the lion.

<sup>2</sup> The brain has a huge supply of knowledge. For example, it knows the right amount of finger pressure needed to hold a pencil. Moreover, it is programmed to change the amount of pressure needed to pick up a baseball or a bowling ball.

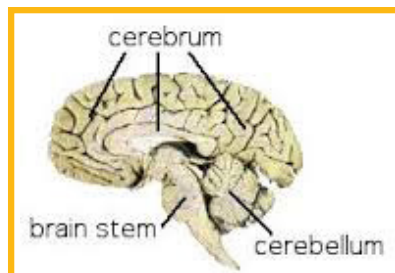
## The Brain: A Message Center

<sup>3</sup>The brain is a message center. Your brain has more than 100 billion cells called neurons. Together the neurons in your brain process information and send messages. The brain is not limited in the number of messages it can send. Every second, the brain receives over 100 million nerve messages from your body. The amazing thing is that the brain knows what to do with all these messages.

<sup>4</sup>The brain has a unique inbuilt Google that gives you facts upon demand. The brain is special in that it not only enables you to remember facts; it relates these facts to other learned facts. For example, if you think about a fox, the brain relates this thought to all your learning about foxes, including their color, their speed and even the use of fox fur for coats.

## Three Parts of the Brain

<sup>5</sup>The brain keeps you breathing and your heart pumping. It is your brain that enables you to see, hear, write, think and live. It also controls your speech. Each part of the brain does a unique job.



<sup>6</sup>The brain is the most complex part of the human body. This small three-pound organ, which is the size of a cantaloupe, is the seat of intelligence, the interpreter for the senses, initiator of movement and controller of behavior.

<sup>7</sup>The brain has three main parts: the brain stem, the cerebrum, and the cerebellum. The brain stem has the job of acting like a message transmitter. It regulates the heat of your body and your blood pressure. The cerebellum is the center for all your movements. It controls your balance and coordination. Without the cerebellum, you could not walk, run or jump rope.





<sup>8</sup>The cerebrum has gray matter on the outside which is the cerebral cortex. The cerebral cortex is where most thinking happens. It handles the functions of seeing, hearing, tasting, remembering, speaking and writing.

### **Computers and the Brain**

<sup>9</sup>For years, scientists have produced computers modeled after the human brain. Scientists have brainstormed ways to build a computer that would outperform the human brain. After years of experimentation, the scientists produced the supercomputer K from Fujitsu. This supercomputer has an advantage over the human brain. It can calculate numbers four times faster than the human brain. It can also hold 10 times as much data as the human brain.

<sup>10</sup>The disadvantage of the supercomputer is that it uses a great amount of electricity. It uses enough electricity to power 10,000 homes. The human brain is far more energy efficient. It uses less electricity than a dim light bulb. Despite the power of the current supercomputer, it is unable to create beyond that which it is programmed to do. The advantage of the human brain is that it can create and think on its own.




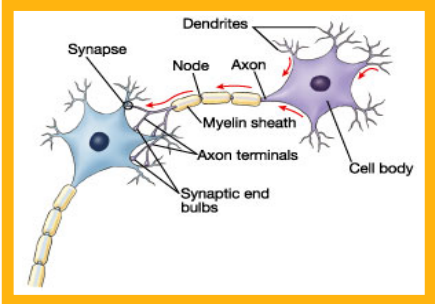
<sup>11</sup>In fact, it is through the creativity of the human brain that computers were developed. Furthermore, the human brain has served as a model for the computer. Therefore, there are some similarities between a computer and the brain. There are also some differences.

<sup>12</sup>The following chart shows the similarities and differences between the human brain and the computer.

**<http://curiosity.discovery.com/topic/robotics-artificial-intelligence>**

# The Human Brain versus the Computer

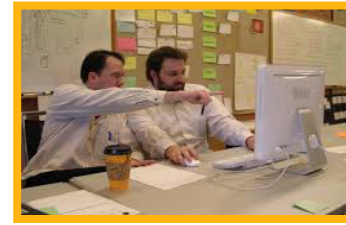


Similarities	Differences
<p><b>Both the computer and the human brain use electrical signals to send messages.</b></p>	<p>The brain uses chemicals to transmit information.</p>  <p>The computer uses electricity.</p> 
<p><b>Both the computer and the human brain have a memory that can grow.</b></p>	<p>Computer memory grows by adding computer chips.</p>  <p>The human brain grows by synapse connections. As you learn, specific dendrites grow and connect at specific synapses to create larger and more complex networks.</p> 



**Both the computer and the human brain can learn.**

The computer must be programmed to learn new tasks.

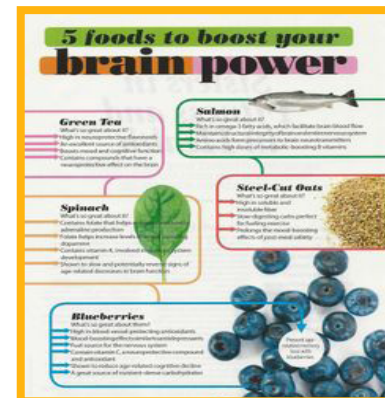


It is much easier for the brain to learn new things. New learning connects and grows from previously learned skills. When you learn to ride a bike, you use some of the skills you already have.



**Both the computer and the brain need energy.**




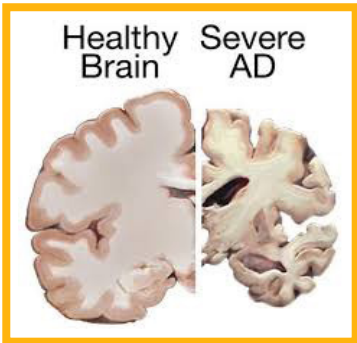
The brain needs food and oxygen for power.



The computer needs electricity.





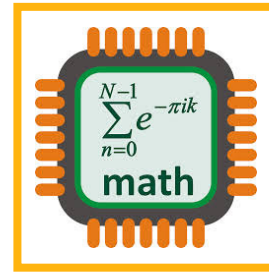
<p><b>Both the computer and the brain can be damaged.</b></p>	<p>It is easier to fix a computer than the human brain. A computer that is damaged may need new parts.</p>  <p>There are no new or used parts that can be purchased for the human brain. Sometimes surgery can help repair the brain.</p> 
<p><b>Both the computer and the human brain can get sick.</b></p>	<p>The computer can get a virus.</p>  <p>There are many diseases that can affect the brain.</p> 



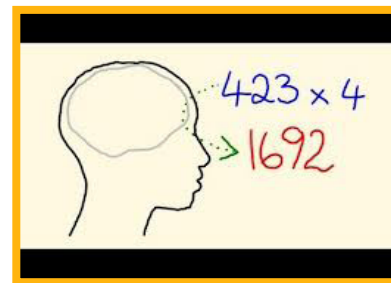


**Both the computer and the human brain can do arithmetic computations.**

The computer may be faster at doing arithmetic computations. The computer must be programmed with ideas.

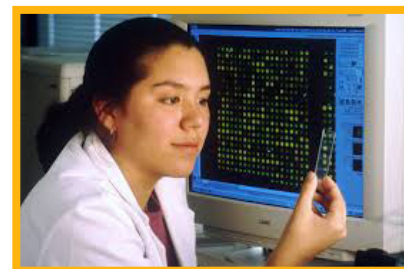


The human brain is better at coming up with new ideas.

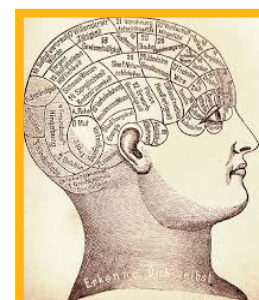


**Both the computer and the human brain are studied by scientists.**

Scientists understand how computers work.



Scientists study the human brain. However, there is more that scientists do not know about the brain than they do know.





**Both the computer and the human brain can recognize patterns.**

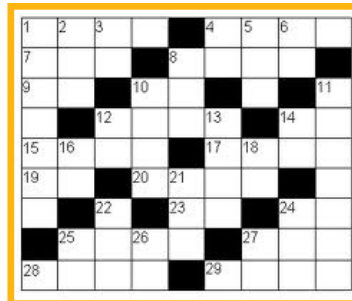
The human brain is very good at recognizing patterns. It can recognize the Big Dipper and other constellations.



Computers have trouble recognizing patterns. Patterns that can be reduced to numbers are more easily recognized.

**Both the computer and the human brain can solve crossword puzzles.**

A computer solves crossword puzzles by sifting through a database of words for the answers. The computer stumbles when it faces an unusual word.



The human brain can solve crossword puzzles better than a computer. The human brain is better at seeing patterns and recognizing unusual words.





**Both the computer and the human brain can compete in video games like Starcraft.**

The computer when matched with humans does not succeed in winning as many video games like Starcraft.



The human brain gives video-game players faster reflexes and the problem-solving skills to analyze patterns. This makes them able to win continued computer-human video game matches.



**Both the computer and the human brain can create works of art.**

It is the human brain that is incredibly better than computers at creating works of art.



A computer can offer the means for people to create pictures, write a poem, a blog or a text, but it cannot create these things on its own.



# THINK ABOUT Unit 1: Reading Benchmark



## Directions:

- ✓ Find the direct or inferred evidence in the passage to support each statement.
- ✓ Highlight the sentence or sentences in the passage that give the direct or inferred evidence to support each statement.
- ✓ Read and discuss your answers with a partner.

**Direct Evidence:** The facts are directly stated in the passage.

**Inferred Evidence:** The ideas are inferred in the passage.

### 1. The brain is a complex organ that has many functions.

Is the evidence direct or inferred?

Evidence: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 2. The brain is larger than a golf ball.

Is the evidence direct or inferred?

Evidence: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 3. The computer is not as creative as a human being.

Is the evidence direct or inferred?

Evidence: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 4. The new supercomputer has an advantage over the human brain.

Is the evidence direct or inferred?

Evidence: \_\_\_\_\_  
\_\_\_\_\_



## THINK ABOUT Unit 1: Student Benchmark Writing

### Directions for the Informative Writing Prompt

1. Reread the article on

*The Incredible Power of the Human Brain  
The Computer Versus the Human Brain*

2. Read the writing prompt to a partner.

***If you could use the power of your brain to invent a new computer that would help students learn at school, what would you program the computer to do?***

***Write a passage that explains your new computer. Explain how your computer would help students learn. Be sure to give information and details about your computer.***

3. Brainstorm with a partner the type of computer you would invent.

4. Read the Steps for Informative Writing to a partner.

5. Write one paragraph to respond to the writing prompt.

6. Follow the Steps for Informative Writing.

7. Score your writing with a partner using the Informative/Explanatory Writing Rubric.

# Informative Writing

## Steps for Informative Writing

1. State a topic.
2. Give at least two facts or details about the topic.
3. Repeat the topic sentence in a different way.

## EXAMPLE of Informative Writing:

Students write the title in capital letters. Students indent the first line of the paragraph. Students use the Informative/Explanatory Writing Rubric to check their writing.

**This is an example of a fourth-grade informative writing that states the topic, supplies some facts and finally provides some sense of closure.**

### **Staying Healthy with Exercise**

Exercise is important for staying healthy. Exercise keeps you trim and fit. It burns off calories. The more you exercise the more calories you burn. Besides keeping you trim and fit, exercise gives you more energy. It also improves muscle strength and boosts endurance. Daily exercise helps you stay healthy by burning calories and giving you more energy.

### **EXAMPLE: Informative Writing Graphic Organizer**

**Title:** Staying Healthy with Exercise

#### **Topic Sentence**

Exercise is important for staying healthy.

#### **3 facts or details that support the topic sentence.**

Exercise keeps you trim and fit.

Exercise burns off calories.

Exercise gives you more energy.

#### **Conclusion: Restate the topic sentence in a different way.**

Daily exercise helps you stay healthy by burning calories and giving you more energy.

# Informative Writing Graphic Organizer

**Title:** \_\_\_\_\_

**Topic Sentence**

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**3 facts or details that support the topic sentence.**

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**Conclusion: Restate the topic sentence in a different way.**

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## Informative/Explanatory Writing Rubric

Writing Quality	4	3	2	1
<b>Has a topic sentence</b>	I have a clear topic sentence that begins the paragraph.	I have a topic sentence that begins the paragraph.	I have an unclear topic sentence for my paragraph.	I do not have a topic sentence.
<b>Gives facts and details to support the topic sentence</b>	I have clear facts and details that support my topic sentence.	I have facts and details that support my topic sentence.	I have some facts and details that support my topic sentence.	My writing does not explain the topic with facts or details.
<b>Links ideas using words and phrases</b>	I use linking words like “for example” and “because.”	I use linking words like “also”, “and”, “more” and “but.”	I use some linking words.	I do not use linking words.
<b>Has a conclusion that restates the topic sentence or main idea</b>	I have a concluding sentence which clearly restates the topic sentence.	I have a concluding sentence that restates the topic sentence.	I have a concluding sentence that does not restate the topic sentence.	I do not have a concluding sentence.
<b>Vocabulary</b>	My paragraph uses descriptive and vivid vocabulary.	My paragraph uses some descriptive vocabulary.	My paragraph needs more descriptive vocabulary.	My paragraph has no descriptive vocabulary.
<b>Grammar and punctuation</b>	My paragraph has correct capitalization, punctuation and no spelling errors.	My paragraph has correct capitalization, punctuation and very few spelling errors.	My paragraph has some correct capitalization and punctuation.  I have some misspelled words.	My paragraph does not have correct capitalization and punctuation.  I have many misspelled words.