

*ZB* **Zaner-Bloser**  
**NEXT GENERATION ASSESSMENT PRACTICE**  
English Language Arts / Literacy

**Student Edition**

**Grade 7**  
Narrative

Name \_\_\_\_\_

Date \_\_\_\_\_

## PART I: Close Reading

### Your Task

You will examine three sources about inventors. Then you will answer three questions about what you have learned. In Part 2, you will write a narrative in which these inventors meet to discuss their inventions and how they feel when they are successful.

### Steps to Follow

In order to plan and write your narrative, you will do all of the following:

1. Examine three sources.
2. Make notes about the information from the sources.
3. Answer three questions about the sources.

### Directions for Beginning

You will have 35 minutes to complete Part I. You will now examine three sources. Take notes because you may want to refer to them while writing your narrative. You can re-examine any of the sources as often as you like. Answer the questions in the spaces provided.

## “Wheels in His Head: The Story of the First Ferris Wheel”

“Ladies and gentlemen, boys and girls!” The chairman of the 1893 Chicago World’s Fair rapped the podium for attention. Under the warm June sun he introduced George Washington Gale Ferris to the crowd of fairgoers gathered at the mighty steel base of the towering wheel. After thunderous applause, Ferris expressed the hope that his wheel would represent the skill and daring of all American engineers. Then the mayor of Chicago, Mr. and Mrs. Ferris, and invited guests climbed aboard the mechanical marvel for the first breathtaking journey.

Gradually, the wheel turned, sweeping the passengers far out over the fair. Ferris could barely hear the rhythmic throbbing of the one-thousand-horsepower steam engine that gracefully turned the giant wheel. He looked down at the crowd gazing up in awe at his spectacular creation. Many of the people were unaware that he had approached the fair committee with his idea only a short time before.

It had been a crisp, cool day in early 1892. The thirty-three-year-old engineer from Pittsburgh had traveled to Chicago with his drawing safely wrapped in heavy paper. Ferris was well prepared and eager to propose his idea to the fair officials.

The tall, slim inventor removed his jacket and bowler hat and carefully unrolled his drawing. The sketch he presented showed a giant round structure supported by two tall towers. He called his invention an observation wheel. It resembled a bicycle wheel but was twenty-six stories high, four stories taller than Chicago’s skyscraping “Capitol” building—the world’s tallest building at the time. (In the late 1800s, a ten-story building was a skyscraper!)

Attached to the wheel were thirty-six large wooden rectangular cars. Ferris explained that each car would contain forty revolving chairs with standing room for twenty more passengers. His wheel could hold more than two thousand people at one time. If Chicago wanted to give fairgoers something unique, something grandiose, something unforgettable, this was it! But first Ferris needed to convince the fair committee to grant him permission to build his engineering wonder.

Ferris continued his presentation, referring to his wheel as America’s rival to Paris’s Eiffel Tower. Three years earlier, the colossal observation tower had been a major attraction at the Paris Exposition. Yet to some, it was a lifeless eyesore. Ferris’s wheel, on the other hand, would have the majestic

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grace of a vast body in motion.

But fair officials were shocked by Ferris's idea. Lifeless as the Eiffel Tower may have seemed, it was constructed using well-tried engineering principles. No one had ever attempted to build a structure as gigantic as the one Ferris was proposing. The committee said that people would be afraid to ride it.

But Ferris, an experienced bridge builder and expert on the strength of steel, assured them that he had provided for every conceivable danger. The officials still shook their heads, certain that a structure so monstrous would bend out of shape or, worse yet, collapse. The committee would not even consider it. "He has wheels in his head," declared one fair official.

Ferris rolled up his drawing and bid the gentlemen good-bye. Though disappointed, he was not discouraged. Confident, he returned to Pittsburgh and formed the Ferris Wheel Company.

In late spring of 1892, the committee briefly granted Ferris permission to build the wheel only to change their minds the very next day.

Ferris remained optimistic and stuck to his plan. He continually urged the committee to reconsider. Reluctantly, the officials agreed to take another look at his idea. It was already late autumn, and still nothing was in the works to top

the Eiffel Tower. Then in mid-December, with little time to spare, the officials gave Ferris the go-ahead. He had less than five months to build his mechanical marvel.

The daring engineer shifted into high gear. Ditch diggers bundled up because of the harsh winter weather and broke ground for the foundation.

Once the foundation was built, crews worked around the clock to complete the towering cobweb of steel before opening day. But when the Chicago World's Fair opened on May 1, 1893, the Ferris Wheel was still being built.

One week passed. Two weeks turned to three. At last, after a seven-week delay, the Ferris Wheel was complete.

Now the honored inventor, with his wife and supporters by his side, rose steadily toward the sky and savored the bird's-eye view.

After a brief stop at the summit, the wheel that was once only in his head brought Ferris safely back to earth. He stepped onto the wooden platform amid more applause, and proudly walked through the sea of cheering fairgoers pressing toward the loading deck for the next ride. Ferris's wheel had performed flawlessly and continued to do so during the remaining nineteen weeks of the fair.

The constant clicking of the turnstile guaranteed a profit for the fair, despite the delay of the wheel's opening. Almost

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one and a half million customers paid a pricey fifty cents for a twenty-minute ride. (Today, the ride would cost \$9.25.) But as one California gentleman remarked, “I never got more for 50

cents in my life.” Riding the Ferris Wheel was truly a historic event and an experience never to be forgotten.

“Wheels in His Head: The Story of the First Ferris Wheel” by Diane ZuHone Shore.  
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What were some of the challenges George Washington Gale Ferris faced when trying to get permission to build his Ferris wheel? Include five or more details of his quest to see his invention become a reality.



## “Chester Greenwood’s Ears”

Chester Greenwood had a problem. His ears got very cold in winter. When they got cold, they changed color, from red to blue to white. In the frigid temperatures in the hills of western Maine, near the town of Farmington where he lived, Chester’s cold ears were a constant problem.

In 1873, when Chester was fifteen years old, he got a pair of ice skates for his birthday. Chester couldn’t wait to try them out on a nearby pond.

“Don’t forget to cover your ears—you know how easily they get frostbitten,” his mother warned him.

Covering his ears was a real problem for Chester because he was allergic to wool. His wool cap made his ears itch. So, sure enough, just as Chester was beginning to enjoy himself, his uncovered ears started hurting, and he had to go back home.

But Chester had an idea. His grandmother was at home at her sewing machine, her feet pumping on the pedals. Chester bent a piece of wire to the shape of his head, with circles on each end. Then he asked his grandmother to sew warm flannel and beaver fur on each circle to cover his ears and keep them warm. It worked.

At first the other boys made fun of him. Then they began asking for ear protectors for themselves.

Chester’s idea took off. Over the next three years, he made some improvements. He replaced the wire with flat spring steel, three-eighths of an inch wide, for the band. He also added tiny hinges to the flaps (the circles that covered the ears) to allow the ear protectors to fit tightly against the ears. Chester was now able to fold up his ear protectors and keep them in his pocket when he wasn’t wearing them. And when he was, his ears were now kept even warmer!

On March 13, 1877, the United States Patent Office granted Chester Greenwood patent number 188,292 for his Greenwood Champion Ear Protector. Chester was just eighteen years old.

In 1883, when he was in his mid-twenties, Chester Greenwood employed eleven workers in his factory on the west side of Farmington. That year a reporter wrote, “Mr. Greenwood is a gentleman rather below the middle age—we might almost say a young man—with wonderful mechanical skill, not only in running machines, but in inventing them, and his factory is one of the most interesting places we ever visited.”

In 1883, his factory produced fifty thousand pairs of ear protectors—now made with black velvet and blue wool. When asked about his prospects for 1884, Chester

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responded, “We hope to manufacture one hundred thousand pairs.” Chester went on to build a larger factory in downtown Farmington, making it the earmuff capital of the world. In 1936, the year before Chester died, his factory turned out four hundred thousand pairs of ear protectors.

Even though his business relied on machines, it also depended on the skills of people who could sew—people who could imitate the way his grandmother had attached the fabric and fur to the first pair of ear protectors.

It was common to see schoolchildren carrying boxes of frames for women to stitch at home. Working at home allowed many women to take care of their children and houses and to make extra money at the same time.

In 1977, one hundred years after Chester received his patent, some people in Farmington decided that Chester deserved recognition for his famous invention. The Maine State Legislature officially declared December 21, the first day of winter, as Chester Greenwood Day.

On the first Saturday in December, Farmington still celebrates Chester Greenwood Day. Of all the events, the

parade is by far the most popular. It is led by Clyde Ross, a local retired schoolteacher, who, as Chester Greenwood, and complete with derby and earmuffs, rides in a horse and buggy.

Almost everyone at the parade wears earmuffs on the special day. Horses, dogs, and even llamas wear them in the parade. Police cars and school buses also sport giant earmuffs.

Chester Greenwood died in 1937 at the age of seventy-eight. During his lifetime he had been granted more than one hundred patents. He invented a better spark plug, a washing machine, a folding bed, a shock absorber, a mousetrap that used fake cheese and fake mice to attract the rodents, and machines to make earmuffs. The year before he died, Chester received a patent for a spring-steel rake.

It is said that necessity is the mother of invention. That certainly was true for Chester Greenwood. Cold winters in western Maine inspired him to invent ear muffs. Aren’t we glad he did!

"Chester Greenwood's Ears" by Nancy Weiner.  
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How did Chester Greenwood solve problems to achieve success? Provide at least four supporting details in your response.

From  
*Amazing Inventors*  
Chapter 6

### Lonnie Johnson

People often look at a relatively simple thing and say that "this isn't rocket science." Normally, no one would equate a squirt gun with the massive spacecraft that blast off to launch space shuttles into orbit or carry scientific equipment to faraway planets. But the Super Soaker, one of the most popular toys in the United States, is rocket science. To be more precise, it took a rocket scientist named Lonnie Johnson to invent it.

Johnson was born in 1949 in Mobile, Alabama. He was the third of six children. The family didn't have a lot of money. From a young age, Johnson learned to build toys and other things, often from materials that had been discarded. He also enjoyed taking things apart to see how they worked.

"I was always a tinkerer," he said.

Sometimes tinkering could get him into trouble. When he was in high school, he was especially interested in math and science. One time he used his knowledge of those subjects to make some rocket fuel in the kitchen of his house. It exploded and burned part of the room.

But Johnson didn't give up. Later he used a similar fuel to launch a rocket as part of a school project. For another school project, he built a robot that ran on compressed air. Johnson got most of the parts from junkyards. He used his brothers' walkie-talkies to transmit the signals that controlled it. It won first place in a statewide science fair.

His obvious ability earned him a scholarship to Tuskegee University. His schoolmates gave him the nickname of "the Professor." He received a bachelor's degree in 1972.

Three years later, he left Tuskegee with a master's degree in nuclear engineering. He joined the Air Force and worked as a nuclear safety officer for four years.

At that point, he moved to California for a job with the JPL (Jet Propulsion Laboratory), a company that makes spacecraft for scientific missions to several planets. Three years later, he returned to the Air Force, where he worked on military spacecraft.

He still loved to tinker. He spent much of his spare time working on projects that he hoped would become successful enough to allow him to devote all his time to inventing.

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One morning he was working on a heat pump. At that time such devices used a cooling gas called Freon. Recent studies had revealed that Freon is harmful to Earth's atmosphere. Johnson wanted to develop a heat pump that would use water instead of Freon gas.

As part of a test, he hooked some tubing to the heat pump, fitted it with a nozzle, then attached the other end to his bathroom sink. When he turned on the faucet, a powerful stream of water shot across the room.

"This would make a great water gun," he told himself. He quickly made a simple version of the heat pump using materials he found around the house: plastic pipe, a chunk of Plexiglas, and an empty plastic soft drink bottle. He gave it to his six-year-old daughter to play with. She loved it. So did the neighborhood kids when she showed it to them. It was much better than the squirt guns they were used to playing with.

Squirt guns didn't have much power. Pulling the trigger generated just enough pressure to push a small amount of water through a narrow opening. The stream of water traveled only a few feet.

What Johnson called a "pneumatic water gun" was very different. It had a much larger pump than a squirt gun. The person using it would drive the pump several times. That forced air into a reinforced chamber that was filled with water.

Each stroke added to the pressure buildup. When the trigger was pulled, a powerful stream of water shot out 20 feet or even farther. Johnson made several improvements to his original design and applied for a patent in 1983. Then he began trying to interest toy companies in his invention.

It proved to be a discouraging process. He was turned down numerous times. In spite of the enthusiastic reception that his daughter and the neighborhood kids had given his toy, it was beginning to look like no one else would ever have the chance to play with it.

Early in 1989, he went to a toy fair in New York City. He approached representatives of the Larami Company, a squirt-gun maker. They invited him to come to the company's headquarters and demonstrate his product.

Johnson took time off from work and made a special trip. It was worth the effort. When the company's executives asked for a demonstration, he blasted coffee cups off a table. The executives were impressed and agreed to manufacture the gun.

The gun was rushed into production that year. It sold well. Sales of what was now known as the Super Soaker improved the following year. Larami asked Johnson to make further improvements. He added a second chamber. It dramatically increased the range of the gun and added to its durability. He also widened the nozzle opening. That would lower the

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impact of the stream of water when it hit its target and reduce the possibility of injury.

Sales ever since then have continued at a very high level. It's estimated that at least 200 million Super Soakers have been sold since they came on the market.

The success of the Super Soaker has enabled Johnson to fulfill his lifelong dream. He founded his own business, Johnson Research and Development, near Atlanta, Georgia. So far, he has nearly 80 patents. He is especially interested in inventing things that will benefit people.

One time a magazine writer asked him what advice he would give to someone who was struggling to invent something.

He replied, "Perseverance. There is no short, easy route to success."

That's something you don't have to be a rocket scientist to understand.

*From *Amazing Inventors* by Jim Whiting.  
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Describe at least two challenges and two successes Lonnie Johnson had on the way to becoming an inventor?



## PART 2: Writing to Multiple Sources

You will now have 70 minutes to review your notes and sources, plan, draft, and revise a narrative. You may use your notes and refer to the sources. You may also refer to the answers you wrote to questions in Part I, but you cannot change those answers. Now read your assignment and the information about how your narrative will be scored; then begin your work.

### Your Assignment

Your class is creating a book about famous inventors. You have been asked to write a narrative telling about an imaginary meeting where Chester Greenwood, George Washington Gale Ferris, and Lonnie Johnson discuss their inventions including successes, failures, and how they feel when their ideas work and are accepted. Give an account of how Ferris finally had his most famous invention built, including descriptive details about at least two problems he overcame. Use sensory details to describe at least two challenges and two successes of Chester Greenwood. Finally, describe three details about the challenges Lonnie Johnson faced.

### Narrative Scoring

Your narrative will be scored on the following criteria:

- I. **Focus and organization**—How well did you engage the reader? How well did your ideas flow using effective transitions? How well did you provide a conclusion that follows from and reflects on the experiences or events? How well did the events in the narrative unfold naturally and logically?

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**Narrative Scoring** (continued)

2. **Elaboration of experiences/events**—How well did you use dialogue, pacing, and description to develop experiences, events, and characters? How well did you use precise words and phrases, relevant descriptive details, and sensory language?
3. **Conventions**—How well did you follow the rules of usage, punctuation, capitalization, and spelling?

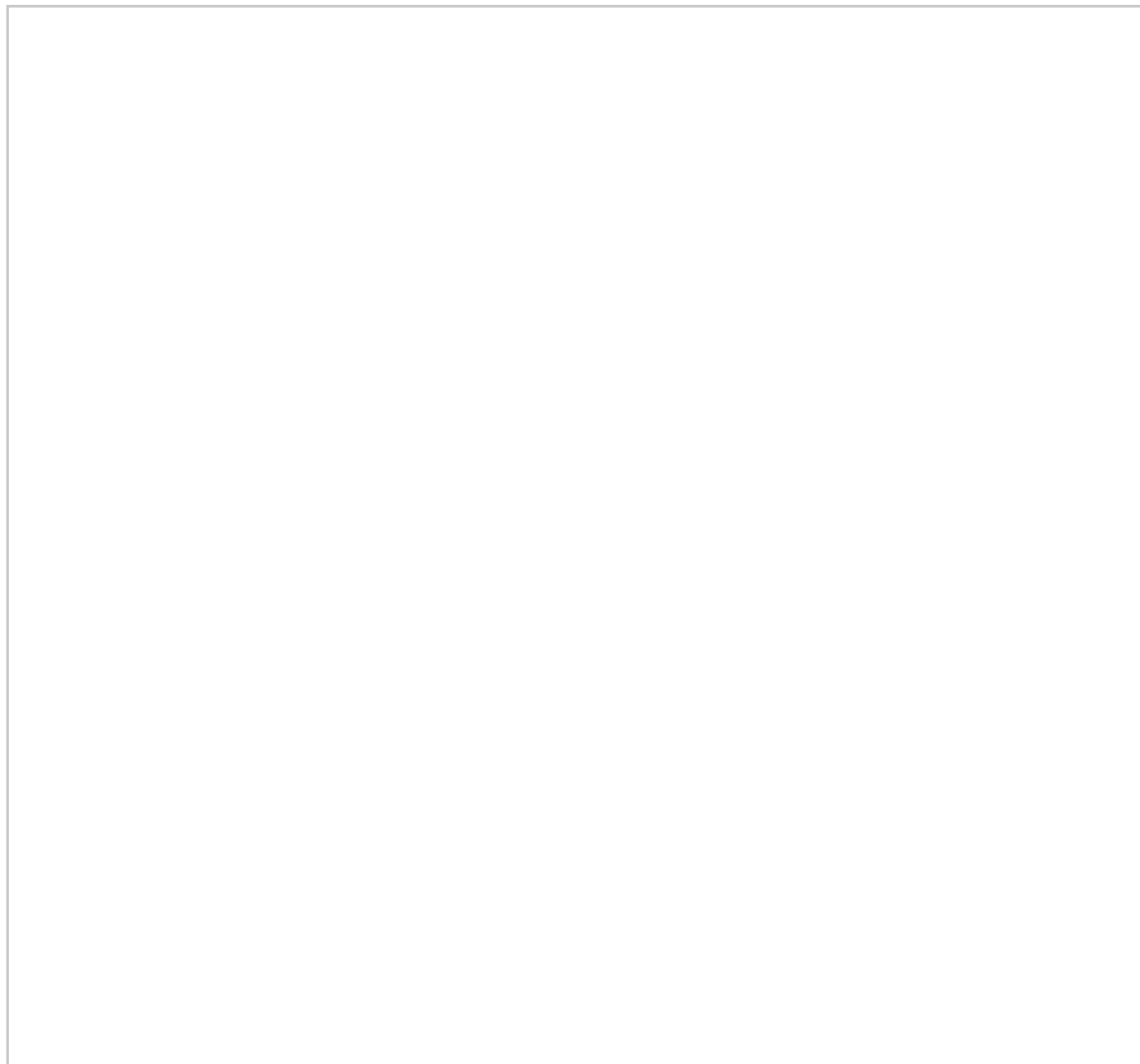
Now begin work on your narrative. Manage your time carefully so that you can:

- plan your narrative.
- write your narrative.
- revise and edit for a final draft.

Spell check is available to use.

Type your response in the space provided on the following page. Write as much as you need to fulfill the requirements of the task. You are not limited by the size of the response area on the screen.

Type your response below.



Go to the next  
page if you need  
more space.





**Continue your response below.**

