Name _____ Date _____

Instructions: Read each question carefully and choose the best answer.

1. When air is heated, _____.

Ⓐ it expands and becomes more dense

Ⓑ it contracts and becomes less dense

Ⓒ it expands and becomes less dense

Ⓓ it contracts and becomes more dense

2. An **experiment** is _____.

Ⓐ funding given by the government to scientists

Ⓑ a scientific test or trial

Ⓒ a festival held each year for scientists to show their work

Ⓓ a gathering of scientists to share ideas

3. What is the main idea of the section "Constructing 'Smoke-Powered' Balloons"?

Ⓐ The English chemist Henry Cavendish identified hydrogen as an element.

Ⓑ The Montgolfier brothers began burning different combustible materials to identify ones that produced a lot of smoke.

Ⓒ The Montgolfier brothers gained favor with the king and were given government funding.

Ⓓ Without really understanding how hot-air balloons worked, the Montgolfier brothers were still successful enough with their early designs to attract attention.

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4. What is the author's purpose for writing this book?

Ⓐ to persuade the reader that traveling by hot-air balloon is not as dangerous as it used to be and should be a major mode of transportation

Ⓑ to inform and entertain the reader with comical stories about the first hot-air balloon flights

Ⓒ to persuade the reader that the work of Jacques Charles was more advanced than the work of the Montgolfier brothers

Ⓓ to inform the reader about the Montgolfier brothers' work and impact on the history of air travel

5. Why were the first hot-air balloon passengers considered heroes?

Ⓐ King Louis requested the passengers personally.

Ⓑ They flew around the world on the balloon.

Ⓒ They flew even though the dangers of flight were still unknown.

Ⓓ They helped save the duck, rooster, and sheep from another hot-air balloon.

6. When something is **immersed**, it is _____.

Ⓐ combined with other substances and burned to make smoke

Ⓑ placed into a fluid or substance that surrounds it completely

Ⓒ mixed with helium to help make it float

Ⓓ covered completely with paper or with cloth to create a seal

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7. Which event occurred in July 1783?

Ⓐ Charles started working on his balloon with the help of public donations.

Ⓑ The German aircraft *Hindenburg* crashed in New Jersey.

Ⓒ The element of helium was discovered and used in balloons.

Ⓓ The Montgolfier brothers discovered that using "Montgolfier gas" was an effective way to make a balloon float.

8. Why was Joseph Montgolfier's first attempt to float paper spheres with hydrogen gas unsuccessful?

Ⓐ The hydrogen was too flammable and caught the paper on fire.

Ⓑ He could not find a reliable source of hydrogen to use for his experiments and did not have enough to make the spheres float.

Ⓒ The hydrogen atoms were so small that they passed through the paper.

Ⓓ The hydrogen produced too much foul-smelling smoke.

9. Why is helium a much better gas for balloons than hydrogen?

Ⓐ It does not catch fire or explode.

Ⓑ It is much less expensive.

Ⓒ It allows the balloons to fly higher.

Ⓓ It is lighter than hydrogen.

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10. A **physicist** named Jacques Charles proposed building a hydrogen balloon. What is a **physicist**?

Ⓐ a scientist who studies chemical elements and how chemicals interact

Ⓑ a scientist who studies items that are easily able to catch fire and burn

Ⓒ a scientist who studies the nature and properties of energy and matter

Ⓓ a scientist who studies wingless aircraft capable of powered flight

11. Extended Response: How did the work of the Montgolfier brothers impact the legacy of lighter-than-air flight?

12. Extended Response: In what ways do you think rivalry helped advance the evolution of aircrafts? Use specific examples from the text.

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Quick Check Answer Sheet

The Balloon Brothers

Main Comprehension Skill: Cause and Effect

1. Ⓒ *Cause and Effect*
2. Ⓑ *Vocabulary*
3. Ⓓ *Main Idea and Details*
4. Ⓓ *Author's Purpose*
5. Ⓒ *Cause and Effect*
6. Ⓑ *Vocabulary*
7. Ⓐ *Sequence Events*
8. Ⓒ *Cause and Effect*
9. Ⓐ *Main Idea and Details*
10. Ⓒ *Vocabulary*
11. Answers should include the following: *The work of the Montgolfier brothers set the stage for lighter-than-air vehicles. People continued to experiment with air travel despite the risks. By the 1800s, lighter-than-air vehicles had rudders and motorized propellers, so they were more controllable. By the 1930s, huge airships were flying passengers across the Atlantic Ocean. After the crash of the* Hindenburg, *however, airships were no longer used for large numbers of passengers. Today, airships are used mostly for advertising, and many people continue to enjoy hot-air balloons.*
12. Answers will vary but should include the idea that, with competition and rivalry, inventors are always looking to improve their experiments and always coming up with new ideas. For example, even though the Montgolfier brothers gave up on using hydrogen to float their balloons, Charles continued his experimentation with hydrogen, which ultimately led to the birth of airships.

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