Rockets That Reached Farther

How work in Alabama helped power the Space Race

SS24.5.14b "Describe how technological innovations boosted space exploration during the Space Race, including the role of Redstone Arsenal and the Marshall Space Flight Center."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two rocket innovations, circle the names of two Alabama sites, and number two places where the passage explains how an innovation helped a mission.

From Huntsville to the Moon

1 In 1957, the Soviet Union sent Sputnik 1 into orbit. The United States raced to send its own spacecraft higher and farther. At Redstone Arsenal in Huntsville, Alabama, an Army rocket team built rockets and tested ways to launch them. A rocket based on the Redstone design helped launch Explorer 1, the first U.S. satellite, in 1958. Stronger rockets could carry heavier spacecraft into space.

2 In 1960, NASA opened the Marshall Space Flight Center at Redstone Arsenal. Many Army rocket workers joined NASA there. Marshall led the work on Saturn V, a much larger rocket built for Moon trips. Its three stages worked one after another. When one stage used its fuel, it dropped away. The next stage fired, so the rocket did not have to carry the empty stage.

3 A rocket also needed to stay on course. Guidance equipment checked the Saturn V's direction and helped steer it during flight. Powerful engines and the three-stage design gave the rocket enough force to send astronauts toward the Moon. In 1969, a Saturn V launched the Apollo 11 crew from Florida. Work in Alabama helped turn new rocket ideas into a flight that carried people to the Moon.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did rocket work at Redstone Arsenal help the United States reach space in 1958?

2. How did dropping an empty stage help the Saturn V travel farther?

3. Why was guidance equipment important even though the Saturn V had powerful engines?

4. How did the work at Marshall Space Flight Center build on the earlier rocket work at Redstone Arsenal?

3 YOUR TURN

Your own words

A museum visitor says, "The Apollo 11 crew flew toward the Moon only because its rocket was bigger." Write a four-sentence museum label that responds to this idea. Include Redstone Arsenal, Marshall Space Flight Center, and two innovations that helped the flight.

ANSWER KEY

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GRADE 5 · SS24.5.14b

PART 1 · READ AND MARK

Underline two rocket innovations, circle the names of two Alabama sites, and number two places where the passage explains how an innovation helped a mission. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did rocket work at Redstone Arsenal help the United States reach space in 1958?	**An Army team there worked on rockets. A rocket based on the Redstone design helped launch Explorer 1, the first U.S. satellite.**
2	How did dropping an empty stage help the Saturn V travel farther?	**The rocket did not have to carry the empty stage, so the next stage could push a lighter rocket onward.**
3	Why was guidance equipment important even though the Saturn V had powerful engines?	**Guidance equipment checked the rocket's direction and helped steer it during flight.**
4	How did the work at Marshall Space Flight Center build on the earlier rocket work at Redstone Arsenal?	**Many Army rocket workers joined NASA at Marshall, which opened at Redstone Arsenal. Marshall led work on the larger Saturn V for Moon trips.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A bigger rocket was only part of the story. Rocket work at Redstone Arsenal helped launch an early U.S. satellite, and workers there later joined NASA at Marshall Space Flight Center. Marshall led work on the Saturn V, whose stages dropped away after using their fuel so it did not carry empty stages. Guidance equipment helped steer the rocket that launched the Apollo 11 crew toward the Moon.

Accept any two passage-supported innovations in the museum label, such as stages that dropped away, guidance equipment, or powerful engines. The response should explain how the innovations helped, not just name them.