Rockets and Rivalry

How new technology changed two Cold War competitions

SS24.WH.15a "Explain the development of new technologies and their significance in the nuclear arms race and space race."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each new technology, circle dates that show its development, and number details that explain how it changed the arms race or space race.

From Bigger Bombs to Satellites

(1) In 1945, the United States used atomic bombs against Japan, showing that splitting atoms could destroy a city. The Soviet Union tested its own atomic bomb in 1949, ending the U.S. monopoly. Both countries then developed thermonuclear, or hydrogen, bombs. These weapons used energy from an atomic explosion to start fusion and could be far more powerful. The United States tested one in 1952, and the Soviet Union tested one in 1953. Each advance raised fears that the other side could strike first. Building stronger bombs did not guarantee safety; it made the possible damage from war much greater.

(2) A powerful bomb mattered only if it could reach its target. During the 1950s, engineers in both countries improved long-range rockets, building on wartime missile research. An intercontinental ballistic missile, or ICBM, could carry a nuclear warhead across an ocean in roughly half an hour. The Soviet Union tested an ICBM in 1957. The United States tested its Atlas ICBM that year and achieved a full-range flight in 1958. Unlike bombers, these missiles could arrive with little warning and were difficult to stop. Leaders had less time to judge an alarm, while pressure to build more missiles pushed the arms race forward.

(3) The same rocket advances also opened a route into space. In 1957, a Soviet rocket launched Sputnik 1, the first artificial satellite to orbit Earth. Listeners on the ground could hear its radio signals. The launch showed Soviet scientific skill, but it also suggested that rockets powerful enough to reach orbit might deliver nuclear warheads over great distances. The United States launched Explorer 1 in 1958 and created NASA that year to expand civilian space research. By 1960, U.S. reconnaissance satellites began returning photographs of Soviet territory. These images offered evidence about a rival's weapons, although a satellite launch could still signal military power.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did thermonuclear bombs build on atomic technology, and why did their development intensify the arms race?

2. How did improved rockets change the delivery of nuclear weapons, and why did this make leaders' decisions harder?

3. How did rocket advances lead to Sputnik 1, and why did its launch matter to both the space race and the arms race?

4. How did U.S. satellite technology develop between 1958 and 1960, and how could that change the way leaders judged a rival's weapons?

3 YOUR TURN

Your own words

Imagine you advise a government in 1960. In four or five sentences, recommend investing in either reconnaissance satellites or more powerful nuclear weapons. Use two specific developments from the passage to explain how your choice might affect Cold War competition and the danger of conflict, and name one drawback.

ANSWER KEY

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GRADE 9 · SS24.WH.15a

PART 1 · READ AND MARK

Underline each new technology, circle dates that show its development, and number details that explain how it changed the arms race or space race. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did thermonuclear bombs build on atomic technology, and why did their development intensify the arms race?	**They used an atomic explosion to start fusion and could be far more powerful than atomic bombs. Their development increased fears of a first strike and the possible damage from war.**
2	How did improved rockets change the delivery of nuclear weapons, and why did this make leaders' decisions harder?	**ICBMs could carry nuclear warheads across an ocean in roughly half an hour. Their short warning time gave leaders less time to judge an alarm.**
3	How did rocket advances lead to Sputnik 1, and why did its launch matter to both the space race and the arms race?	**A Soviet rocket placed Sputnik 1 in orbit, demonstrating Soviet scientific skill in space. The launch also suggested that powerful rockets might deliver nuclear warheads over great distances.**
4	How did U.S. satellite technology develop between 1958 and 1960, and how could that change the way leaders judged a rival's weapons?	**After launching Explorer 1 in 1958, the United States had reconnaissance satellites returning photographs of Soviet territory by 1960. The images gave leaders evidence about Soviet weapons.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I recommend investing in reconnaissance satellites rather than building more powerful nuclear weapons. Thermonuclear bombs grew from atomic technology and made the possible damage of war much greater. By 1960, U.S. satellites were returning photographs of Soviet territory, offering evidence about its weapons. Better evidence could help leaders judge threats without competing to build an even bigger bomb. However, photographs cannot stop an incoming missile, so this investment would not remove the danger of attack.

Accept either investment choice if the response uses two accurate developments, explains effects on competition and the danger of conflict, and identifies a plausible drawback.