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## ARTICLE TITLE: Space Shuttle Explodes, Killing Crew

By Boyce Rensberger, Philip J. Hilts, Al Kamen and Michael Schrage

Published in the *Washington Post*, January 29, 1986

The space shuttle Challenger, carrying six astronauts and schoolteacher Christa McAuliffe, exploded in a burst of fire 74 seconds after liftoff yesterday, killing all seven aboard and stunning a world made witness to the event by television.

The unexplained explosion occurred without warning as the flight seemed to be proceeding flawlessly at about 2,900 feet per second, 10 miles above Earth and eight miles down range from Cape Canaveral. The spacecraft appeared to disintegrate into bits of debris that rained into the Atlantic Ocean. Those aboard, still strapped into their seats, had no means of escape....

It was the worst accident in the history of space exploration and the first time anyone has been killed during an American space flight. The tragedy occurred 19 years and one day after U.S. astronauts Virgil I. (Gus) Grissom, Roger A. Chaffee and Edward H. White died during a training session when a fire broke out in their sealed Apollo spacecraft on the launch pad.

Five hours after yesterday's tragedy, Jesse W. Moore, associate administrator for space flight of the National Aeronautics and Space Administration, announced from Cape Canaveral that the shuttle program had been suspended for an exhaustive investigation. But President Reagan, who postponed his State of the Union speech from last night to next Tuesday, vowed in a nationally televised statement from the Oval Office that exploration of space would continue.

"There will be more shuttle flights and more shuttle crews and, yes, more volunteers, more civilians, more teachers in space," Reagan said. "Nancy and I are pained to the core over the tragedy of the shuttle Challenger. We know we share this pain with all of the people of our country. This is truly a national loss."

## QUESTIONS

Was this article mostly fact or opinion? \_\_\_\_\_

If the article was mostly fact, copy one sentence that states a fact. If mostly opinion, copy one sentence that states an opinion.



## ARTICLE TITLE: It Is Time to Call the Shuttle Obsolete

By T.A. Heppenheimer

Published in the *Los Angeles Times*, January 29, 1986

....Challenger points out the folly that NASA has been pursuing for nearly 30 years: not to provide the nation with the routine and reliable space-launch services that it needs, but to pursue a sequence of showy space spectacles. The result has been the Apollo and shuttle programs, which have stood largely as monuments to themselves. By contrast, the routine launching of useful satellites has taken a back seat.

Remarkably, NASA has deliberately given itself no alternative to the shuttle for launching satellites. All its satellite launching capability has been in four shuttle orbiters – one of which has now blown up. Inevitably, then, many important satellites will sit on the ground for months, or even years, as investigations and studies take up much of NASA's time.

The Europeans have not been so foolish. They have the Ariane, an unmanned rocket that they have been launching with good success. It has had failures, but those problems have not brought the sort of national grief that we associate with presidential assassinations. NASA used to have a stable of similar unmanned rockets, but it gave them up, putting all its eggs into the shuttle basket. The usefulness of such rockets as well as the folly of using expensive and rare shuttle spacecraft for routine satellite launches now is clear. NASA has said that beyond the shuttle the "next logical step" is the space station. Instead, it should be clear that the next logical step is to face up to the limits of the shuttle as a technology....

NASA must abandon its exclusive reliance on the shuttle, saving those valuable craft for the rare occasions when they are indispensable. NASA must return to the tried and true unmanned rocket, thus assuring the nation that it can launch our satellites reliably and routinely. And NASA must look beyond the rocket, seeking its eventual replacement.

## QUESTIONS

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If the article was mostly fact, copy one sentence that states a fact. If mostly opinion, copy one sentence that states an opinion.



## ARTICLE TITLE: 'Columbia Is Lost'

By Michael Grunwald

Published in the *Washington Post*, February 2, 2003

The space shuttle Columbia, returning to Earth after a 16-day scientific journey through space, disintegrated yesterday morning high above the central Texas plains, killing seven astronauts who had dedicated their lives to exploring the heavens.

"The Columbia is lost," President Bush told the nation. "There are no survivors."

The Columbia, the oldest shuttle in the U.S. fleet, was streaking through the sky at 12,500 mph when it burst into flames about 9 a.m., shortly after reentering Earth's atmosphere. The crew of six Americans and the first Israeli astronaut -- Ilan Ramon, who had carried a Holocaust survivor's miniature Torah scroll into space -- was scheduled to land in Florida about 15 minutes later....

This was the Columbia's 28th mission -- its first, in 1981, launched the space shuttle program - and it had already been hailed as a scientific success. The crew had worked on more than 80 microgravity experiments designed to help treat prostate cancer, predict earthquakes, suppress fires and develop new products ranging from paints to perfumes. They had studied the effects of weightlessness on spiders, fish and silkworms in experiments designed by students in Melbourne, Beijing and Tokyo. They also studied themselves, swallowing calcium tracers and drawing their blood to help track bone loss and protein production in space.

The mission had encountered one glitch during liftoff, when a chunk of insulating foam from the external fuel tank detached and apparently struck the shuttle's left wing. NASA officials had pronounced the damage insignificant, but yesterday, after the first signs of trouble came when sensors on that same wing stopped transmitting data, investigators said the issue would be studied closely....

"We will not fly again until we have this understood," shuttle chief Ron Dittemore said at a news briefing in Houston. "Somewhere along the line we missed something."

## QUESTIONS

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If the article was mostly fact, copy one sentence that states a fact. If mostly opinion, copy one sentence that states an opinion.



## ARTICLE TITLE: From Giant Leaps to Baby Steps

By Eugene F. Kranz

Published in the *New York Times*, August 3, 2005

To read and listen to the coverage about the space shuttle, you would think NASA's mission team has taken careless risks with the lives of the seven astronauts who went into space on the Discovery last Tuesday. During the launching, foam fell off the external tank. For the risk-averse, the only acceptable thing to do now is retire the shuttle program immediately and wait for the divine arrival of the next generation of spacecraft. I am disgusted at the lack of courage and common sense this attitude shows.

All progress involves risk. Risk is essential to fuel the economic engine of our nation. And risk is essential to renew American's fundamental spirit of discovery so we remain competitive with the rest of the world....

The technical response to the Columbia accident led to a significant reduction in the amount of debris striking this shuttle during launching. Mission managers have said that the external tank shed 80 percent less foam this time than on previous launchings. Only in the news media, apparently, is an 80 percent improvement considered a failure. Rather than quit, we must now try to reduce even more the amount of foam that comes off the tank....

There are many nations that wish to surpass us in space. Does the "quit now" crowd really believe that abandoning the shuttle and International Space Station is the way to keep America the pre-eminent space-faring nation? Do they really believe that a new spacecraft will come without an engineering challenge or a human toll? The path the naysayers suggest is so out of touch with the American character of perseverance, hard work and discovery that they don't even realize the danger in which they are putting future astronauts – not to mention our nation.

## QUESTIONS

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# Writing Facts and Opinions

**Topic:** \_\_\_\_\_

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