

Arms Race

During the Cold War the United States and the Soviet Union became engaged in a nuclear arms race. They both spent billions and billions of dollars trying to build up huge stockpiles of nuclear weapons. Near the end of the Cold War the Soviet Union was spending around 27% of its total gross national product on the military. This was crippling to their economy and helped to bring an end to the Cold War.



Soviet and United States build up of nuclear weapons

The Nuclear Bomb

The United States was the first to develop the nuclear weapons through the Manhattan Project during World War II. The US ended the war with Japan by dropping nuclear bombs on the cities of Hiroshima and Nagasaki.

Nuclear bombs are extremely powerful weapons that can destroy an entire city and kill tens of thousands of people. The only time nuclear weapons have been used in war was at the end of World War II against Japan. The Cold War was predicated on the fact that neither side wanted to engage in a nuclear war that could destroy much of the civilized world.

Start of the Arms Race

On August 29, 1949 the Soviet Union successfully tested its first atomic bomb. The world was shocked. They did not think the Soviet Union was this far along in their nuclear development. The Arms Race had begun.

In 1952 the United States detonated the first hydrogen bomb. This was an even more powerful version of the nuclear bomb. The Soviets followed up by exploding their first hydrogen bomb in 1953.

ICBMs

In the 1950s both countries worked on developing Intercontinental Ballistic Missiles or ICBMs. These missiles could be launched from long range, as far away as 3,500 miles.

Defense

As both sides continued to develop new and more powerful weapons, the fear of what would happen if war broke out spread throughout the world. Militaries began to work on defenses such as large radar arrays to tell if a missile had been launched. They also worked on defense missiles that could shoot down ICBMs.

At the same time people built bomb shelters and underground bunkers where they could hide in the case of nuclear attack. Deep underground facilities were built for high ranking government officials where they could reside safely.

Mutual Assured Destruction

One of the major factors in the Cold War was termed Mutual Assured Destruction or MAD. This meant that both countries could destroy the other country in the case of attack. It wouldn't matter how successful the first strike was, the other side could still retaliate and destroy the country which first attacked. For this reason, neither side ever used nuclear weapons. The cost was too high.

The Cuban Missile Crisis

The Cuban Missile Crisis occurred for 13 days in 1962 when the Soviet Union began to install nuclear missiles in Cuba. The United States refused to allow this and, after thirteen tense days and many secret negotiations, the Soviet Union agreed to remove the missiles. This is perhaps the closest that the United States and the Soviet Union came to nuclear war during the Cold war.



Missile fired from a submarine

Other Countries Involved

During the Cold War, three other nations also developed the nuclear bomb and had their own nuclear weapons. These included Great Britain, France, and the People's Republic of China.

Détente and Arms Reduction Talks

As the Arms Race heated up, it became very expensive for both countries. In the early 1970s both sides realized that something had to give. The two sides began to talk and take a softer line towards each other. This easing of relations was called détente. In order to try and slow down the Arms Race, the countries agreed to reduce arms through the SALT I and SALT II agreements. SALT stood for Strategic Arms Limitation Talks.

End of the Arms Race

For the most part, the Arms Race came to an end with the collapse of the Soviet Union at the end of the Cold War in 1991.

Interesting Facts About the Arms Race:

- The Manhattan Project was top secret, even Vice President Truman didn't learn about it until he became president. However, Soviet Union leader Joseph Stalin's spies were so good, he knew all about it.
- The US B-52 bomber could fly 6,000 miles and deliver a nuclear bomb.
- It is estimated that by 1961 there were enough nuclear bombs built to destroy the world.
- Today India, Pakistan, North Korea, and Israel also have nuclear capability.

Mind Mapping Activity

On a separate sheet of paper, create a mind map about the Arms Race during the Cold War. Your mind map must include the following information:

- **The importance/impact of the Arms Race**
- **Major events during (at least 3) the Arms Race - name each event and provide a description**
- **3 Acronyms from the Arms Race – Give the acronym and explain what it stands for**
- **Three colored pictures (of terms or events)**

Space Race



Man on the Moon

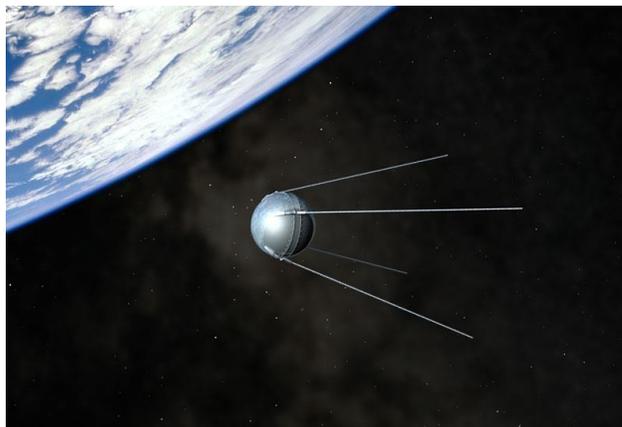
During the Cold War the United States and the Soviet Union engaged a competition to see who had the best technology in space. This included such events as who could put the first manned spacecraft into orbit and who would be the first to walk on the Moon. The Space Race was considered important because it showed the world which country had the best science, technology, and economic system.

The Race Begins

After World War II both the United States and the Soviet Union realized how important rocket research would be to the military. They each recruited the top rocket scientists from Germany to help with their research. Soon both sides were making progress in rocket technology.

The Space Race began in 1955 when both countries announced that they would soon be launching satellites into orbit. The Soviets took the US announcement as a challenge and even established a commission whose goal was to beat the US in putting a satellite into space.

On October 4, 1957 the Russians placed the first successful satellite into orbit. It was called Sputnik I. The Russians had taken the lead in the Space Race. The Americans successfully launched their first satellite four months later called the Explorer I.



Sputnik I

The First Man in Orbit

The Soviets again won the race for putting the first man into space. On April 12, 1961 Yuri Gagarin was the first man to orbit the Earth in the spacecraft Vostok I. Three weeks later the US launched the Freedom 7 and Alan Shepherd became the first American in space. Shepherd's craft did not orbit the Earth, however. It was nearly a year later on February 20, 1962 when the first American, John Glenn, orbited the Earth on the Friendship 7 spacecraft.

Race to the Moon

The Americans were embarrassed at being behind the Space Race. In 1961 President Kennedy went to congress and announced that he wanted to be the first to put a man on the Moon. He felt this was important for the country and the western world. The Apollo Moon program was launched.

The Gemini Program

In conjunction with the Apollo program the US launched the Gemini program which would develop technology for use on the Apollo spacecraft. Under the Gemini program the Americans learned how to change the orbit of a spacecraft, spent significant time in orbit to learn how the human body would be affected, brought two spacecraft together in a rendezvous in space, and also went on the first space walks outside of a space craft.

Man on the Moon

After many years of experiments, test flights, and training the Apollo 11 spacecraft was launched into space on July 16, 1969. The crew included astronauts Neil Armstrong, Buzz Aldrin, and Michael Collins. The trip to the Moon took three days.

Upon arriving Neil Armstrong and Buzz Aldrin moved to the Lunar module, called the Eagle, and began their descent to the Moon. There were some malfunctions and Armstrong had to land the module manually. On July 20, 1969 the Eagle landed on the Moon. Neil Armstrong stepped outside and became the first man to walk on the Moon. With his first step on the Moon, Armstrong said "That's one small step for man, one giant leap for mankind".

The End of the Space Race

With the Gemini and Apollo programs the US had taken a huge lead in the Space Race. In July of 1975 with relations between the US and the Soviet Union beginning to thaw, the first US-Soviet joint mission occurred with the Apollo-Soyez project. The Space Race was effectively over.

Interesting Facts About the Space Race:

- The Russians called their space pilots cosmonauts meaning "sailors of the universe". The Americans were called astronauts meaning "star sailors".
- Before Kennedy was assassinated, the Russians and the Americans were discussing working together to put a man on the Moon. After he was killed, the Russians backed off the joint venture.
- The US would likely have had the first satellite in orbit if they had been allowed to use military rockets from the start. However, Eisenhower was worried he would be called a warmonger if he used military rockets for space. He told the scientists they must use research rockets instead.
- The Space Race was not a long series of successes. Both sides had plenty of failures including crashes and explosions that resulted in the death of several astronauts.

Mind Mapping Activity

On the other side of your paper, create a mind map about the Space Race during the Cold War. Your mind map must include the following information:

- **The importance/impact of the Space Race**
- **Major events during (at least 3) the Space Race – name each event and provide a description that explains the event and its importance**
- **Important key terms (at least 3) of the Space Race- give the term and its definition**
- **Famous/important people of the Space Race- give their name and their achievement/importance**
- **Three colored pictures (of people or events)**