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Assignment

Write a comprehensive essay on the term "Nuclear weapons"

A nuclear weapon is also called an atom bomb, nuke, atomic bomb, nuclear warhead, A-bomb, or nuclear bomb is an explosive device that derives its destructive force from nuclear reactions, either fission (fission bomb) or from a combination of fission and fusion reactions (thermonuclear bomb). Both bomb types release large quantities of energy from relatively small amounts of matter, nuclear weapons are very dangerous

Nuclear weapons have been used twice in war, both times by the United states against Japan near the end of the second world war.

Since the atomic bombings of Hiroshima and Nagasaki nuclear weapons have been detonated over two thousand times for testing and demonstration. Only a few nations possess such weapons or are suspected of seeking them. The only countries known to have detonated nuclear weapons—and acknowledge possessing them—are (chronologically by date of first test) the United States, the Soviet Union (succeeded as a nuclear power by Russia), the United Kingdom, France, China, India, Pakistan, and North Korea. Israel is believed to possess nuclear weapons, though, in a policy of deliberate ambiguity, it does not acknowledge having them. Germany, Italy, Turkey, Belgium and the Netherlands are nuclear weapons sharing states. South Africa is the only country to have independently developed and then renounced and dismantled its nuclear weapons.

The Treaty on the Non-Proliferation of Nuclear Weapons aims to reduce the spread of nuclear weapons, but its effectiveness has been questioned, and political tensions remained high in the 1970s and 1980s. Modernization of weapons continues to this day

 Nuclear weapons produce enormous explosive energy. Their significance may best be appreciated by the coining of the word’s kiloton (1,000 tons) and megaton (1,000,000 tons) to describe their blast energy in equivalent weights of the conventional chemical explosive TNT. For example, the atomic bomb dropped on Hiroshima, Japan, in 1945, containing only about 64 kg (140 pounds) of highly enriched uranium, released energy equaling about 15 kilotons of chemical explosive. That blast immediately produced a strong shock wave, enormous amounts of heat, and lethal ionizing radiation. Convection currents created by the explosion drew dust and other debris into the air, creating the mushroom-shaped cloud that has since become the virtual signature of a nuclear explosion. In addition, radioactive debris was carried by winds high into the atmosphere, later to settle to Earth as radioactive fallout. The enormous toll in destruction, death, injury, and sickness produced by the explosions at Hiroshima and, three days later, at Nagasaki was on a scale never before produced by any single weapon. In the decades since 1945, even as many countries have developed nuclear weapons of far greater strength than those used against the Japanese cities, concerns about the dreadful effects of such weapons have driven governments to negotiate arms control agreements such as the Nuclear Test-Ban Treaty of 1963 and the Treaty on the Non-proliferation of Nuclear Weapons of 1968. Among military strategists and planners, the very presence of these weapons of unparalleled destructive power has created a distinct [discipline](https://www.merriam-webster.com/dictionary/discipline), with its own internal logic and set of doctrines, known as nuclear strategy.

 The first nuclear weapons were bombs delivered by aircraft. Later, warheads were developed for strategic [ballistic](https://www.merriam-webster.com/dictionary/ballistic) missiles, which have become by far the most important nuclear weapons. Smaller tactical nuclear weapons have also been developed, including ones for artillery projectiles, land mines, antisubmarine depth charges, torpedoes, and shorter-range ballistic and cruise missiles.

 By far the greatest force driving the development of nuclear weapons after World War II (though not by any means the only force) was the Cold War confrontation that pitted the United States and its allies against the Soviet Union and its satellite states. During this period, which lasted roughly from 1945 to 1991, the American stockpile of nuclear weapons reached its peak in 1966, with more than 32,000 warheads of 30 different types. During the 1990s, following the dissolution of the Soviet Union and the end of the Cold War, many types of tactical and strategic weapons were retired and dismantled to comply with arms control negotiations, such as the Strategic Arms Reduction Talks, or as unilateral [initiatives](https://www.merriam-webster.com/dictionary/initiatives). By 2010 the United States had approximately 9,400 warheads of nine types, including two types of bombs, three types for intercontinental ballistic missiles (ICBMs), two types for submarine-launched ballistic missiles (SLBMs), and two types for cruise missiles. Some types existed in several modifications. Of these 9,400 warheads, an estimated 2,468 were operational (that is, mated to a delivery system such as a missile); the rest were either spares held in reserve or retired warheads scheduled to be dismantled. Of the 2,468 operational warheads, approximately 1,968 were deployed on strategic (long-range) delivery systems, and some 500 were deployed on nonstrategic (short-range) systems. Of the 500 nonstrategic warheads in the U.S. arsenal, about 200 were deployed in Europe.

 The Soviet nuclear stockpile reached its peak of about 33,000 operational warheads in 1988, with an additional 10,000 previously deployed warheads that had been retired but had not been taken apart. After the disintegration of the Soviet Union, Russia accelerated its warhead dismantlement program, but the status of many of the 12,000 warheads estimated to remain in its stockpile in 2010 was unclear. Given limited Russian resources and lack of legitimate military missions, only about 4,600 of these 12,000 warheads were serviceable and maintained enough to be deployed. Of the 4,600 operational warheads, some 2,600 were deployed on strategic systems and some 2,000 on nonstrategic systems. A global security concern is the safety of Russia’s intact warheads and the security of nuclear materials removed from dismantled warheads.

Beginning in the 1990s, the arsenals of the United Kingdom, France, and China also underwent significant change and consolidation. Britain eliminated its land-based army, tactical naval, and air nuclear missions, so that its arsenal, which contained some 350 warheads in the 1970s, had just 225 warheads in 2010. Of these, fewer than 160 were operational, all on its ballistic missile submarine fleet. Meanwhile, France reduced its arsenal from some 540 operational warheads at the end of the Cold War to about 300 in 2010, eliminating several types of nuclear weapon systems. The Chinese stockpile remained fairly steady during the 1990s and then started to grow at the beginning of the 21st century. By 2010 China had about 240 warheads in its stockpile, some 180 of them operational and the rest in reserve or retirement.

Israel maintained an undeclared nuclear stockpile of 60 to 80 warheads, but any developments were kept highly secret. India was estimated to have 60 to 80 assembled warheads and Pakistan about 70 to 90. Most of India’s and Pakistan’s warheads were thought not to be operational, though both countries—rivals in the [incipient](https://www.merriam-webster.com/dictionary/incipient) arms race on the Indian subcontinent—were thought to be increasing their stockpiles. North Korea, which joined the nuclear club in 2006, may have produced enough plutonium by 2010 for as many as 8 to 12 warheads, though it was not clear that any of these was operational.

 Finally. Because of governmental secrecy, it is impossible to give exact figures on the makeup and yield of global nuclear arsenals. But much is publicly known. An estimated 13,470 nuclear weapons are deployed worldwide by eight countries, with another 14,000 weapons held in reserve, according to the 2005 edition of the *SIPRI Yearbook*, published by the Stockholm International Peace Research Institute. Overall, the total number of nuclear weapons has decreased in the past few years, yet all eight nuclear weapon states continue to maintain and modernize their arsenals and assert (either publicly or covertly) that nuclear weapons play a crucial role in their national security of a nation.