ADA LOVELACE DAY

ANNUALLY OBSERVED ON OCTOBER 8TH

Ada Lovelace Day is a global celebration of the accomplishments achieved today and in history of women in science, technology, engineering and mathematics (STEM). The goal is to increase the number of women in STEM and, in the process, develop new role models who will empower more girls into STEM careers and encourage women already working in STEM to keep going.

S.T.E.M.

STEM education is a teaching approach that combines science, technology, engineering and math. STEM learning also promotes critical thinking, curiosity, consistency, decision-making, leadership, entrepreneurship, acceptance of failure and more. The Department of Defense states that more than 80% of jobs over the next decade will require STEM skills. The world we live in is evolving, and we must keep pace with it!

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ADA'S EARLY DAYS

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Augusta Ada Byron was an intelligent woman born in London in 1815 to parents Lord Geroge Gordon Byron and Lady Anne Isabella Byron. It is believed she was named after her father's half-sister, Augusta Leigh, but her middle name was often used instead. Since she was titled the 'Countess of Lovelace', she eventually went by the name of Ada Lovelace. Since her parents separated while she was still a child, her bond with her mother grew while the bond with her father diminished. As Ada grew, her mother insisted on hiring tutors to teach subjects like science, math, and linguistics. Because Lord Byron was, and still is, known to be one of the best Romance Poets of all time, Lady Byron feared Ada would grow to be impulsive and emotionally charged like her father. Ada eventually grew a love for mathematics and science which helped her realize how gifted she was with numbers and problem-solving. Her intelligence allowed for mentorship opportunities under individuals such as Mary Somerville (one of the first women to be admitted into the Royal Astronomical Society) and Charles Babbage (mathematician, philosopher, inventor and engineer). Charles grew fond of Ada and fully took her under his wing to teach her advanced mathematics and computer engineering.

THE PROGRAM

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At the age of 14, Lovelace met Charles Babbage, and a friendship immediately was formed. Babbage took her under his wing and taught her the language of the *Difference engine*, a machine made for solving complex calculations. Though many debate Ada's work having an impact on the topic of computer programming, many argue that her calculations were the first program to ever be written. Inevitably, Lovelace being a woman was a factor that often made this dispute a charged one. The effort to suppress her from being known as the first programmer is often defended by the fact that the computer she was targeting, *Babbage's Analytical Engine*, was never built. Babbage's idea was organized into the *'Sketch of the Analytical Engine'* by a French professor and later translated from French into English by Ada. By mid-1843, the translations and notes were complete. Today, her work is viewed as the earliest and most comprehensive account of computers. She was the first to make the distinction between numbers and symbolic operations. It was the beginning of the understanding that machines could do more than just calculate, they could also perform complex tasks.

'THE HELLO GIRLS'

When the US began its involvement in World War I, there was a high demand for telephone operators to join the *Army Signal Corps*. Since most men were being drafted, more than 223 bilingual women and young girls were selected to create the first female telephone operator's unit, known as the "Hello Girls". The role of a fellow 'Hello Girl' was to create communication between the front lines and the command centers, an essential piece to the process of coordinating movements and setting up supply drops. Although they were considered to be civilian employees, uniforms were worn and army regulations were enforced. Finally receiving recognition years later for their work, the story of the Hello Girls highlights the evolution of women in the military and society.

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SEE ARCHIVES

WATCH THE PLAY

ADMIRAL GRACE MURRAY HOPPER

Born Grace Brewster Murray in New York City on December 9, 1906, Grace Hopper knew from an early age that she wanted to study mathematics and physics. After earning a bachelor's degree from Vassar College and a master's from Yale University, she continued her education at Yale and was one of the first women to receive a doctorate in mathematics. While earning her degrees, Hopper joined the US Naval Reserve and was later assigned to the *Bureau of Ordinance Computation Project* at Harvard University. Within this project, Grace was taught to program the Mark 1 Computer and later Marks 2 and 3. While working on the mark 2, she found a moth within the computer that caused slight damage to its wiring, in which the term 'computer debugging' became popular. When she retired from the Navy in 1986 at the age of 79, she was a rear admiral as well as the oldest serving officer in the service at the time.

WATCH INTERVIEW

WATCH LECTURE

MARK 1 COMPUTER

THE ARMY'S RISING CIVILIAN STARS

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CARA, *the Army's chemical, Biological, radiological, Nuclear, Explosives command's CBRNE Analytical and Remediation Activity,* hired four young women in 2023 who are making themselves known in the military science community. This all-civilian organization hires scientists to work in stationary and mobile expeditionary laboratories, giving them the opportunity to be shipped worldwide where needed. Military and civilian units send air, soil and water samples to be examined, and the scientists analyze whether the samples contain hazardous substances. The team often assists in emergency responses and remediation occurrences involving chemical warfare materials. As military tech continues to develop, the Department of Defense would like to continue increasing the number of women in the field.

HEDY LAMARR

INVENTOR OF FREQUENCY -HOPPING SPREAD SPECTRUM

WATCH VIDEO

The international beauty icon, along with co-inventor George Anthiel, developed a "Secret Communications System" to help combat the Nazis in World War II, often compared to modern- day Bluetooth.

JOAN CURRAN

HELPED INVENT RADAR EVASION TECHNOLOGY

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Welsh physicist who played important roles in the creation of radar and the atomic bomb during World War II. She devised a method of releasing a radar technique credited with lowering losses among allied bomber crews.

MARTHA COSTON

INVENTOR OF THE COSTON FLARE

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An American inventor and entrepreneur who developed the *Coston* flare, a signaling device often used at sea and typically provided to emergency personnel, military, and those who work with pyrotechnics.

STEPH-ANIE KWOLEK

INVENTOR OF KEVLAR

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A Polish American chemist best known for inventing Kevlar (*poly-paraphenylene terephthalamide*). In 1995 she became the fourth woman to be added to the National Inventors Hall of Fame.

THE GOAL TO *REDUCE* GENDER BIAS IN S.T.E.M.

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Closing the gender gap in STEM is a complex issue that requires a multifaceted approach—from instilling confidence in girls within families to creating incentives for women to join and stay in STEM. We have the collective opportunity to elevate human endeavor by empowering women with the freedom of choice in educational tracks and career trajectories. Ultimately, through a more inclusive economy, we can unlock the full potential of STEM-related industries and tackle the world's most pressing challenges. Gender Equity can...

1. ... foster diversity and inclusion, leading to more innovative solutions to societal challenges.
2. ... help address the skills gap in the STEM workforce, leading to increased economic growth and creation of more jobs.
3. ...lead to improved research, as diverse perspectives can provide unique insights into research questions.
4. ...lead to the development of products and services that better meet the needs of all consumers.
5. ...contribute to broader social progress and can lead to a more just and equitable society.

ANNUALLY OBSERVED ON OCTOBER 17TH IS THE

'WOMEN IN MILITARY SERVICE FOR AMERICA' 28TH MEMORIAL ANNIVERSARY

MILITARY WOMEN'S MEMORIAL

Dedicated to the women who have served our country since the American Revolution, the *Military Women's Memorial* is located near the *Arlington National Cemetery* and is the nation's only major memorial to honor all women who have defended the nation, from the Revolution to the present.

TAKE THE *M.W.M.* VIRTUAL TOUR!

When thinking of the armed forces, it is natural to think of the men who give their lives for our country. However, hundreds of brave women have also sacrificed for this country's armed forces for generations but are often overlooked. Women were typically nurses or cooks in war camps, but later, they too decided to join the fight. Historic records show women in the US have been part of the military for over 200 years, and the lives of many of these women were lost before their efforts would be recognized by the world.

THE 6888TH

WATCH VIDEO

The urgency to deploy men during WWII led to an abundance of open job positions in the workforce. Many women like the Rosies were encouraged to work in said roles to keep the wheels turning in the US. On the other hand, there were women who were more interested in utilizing their skills overseas to defend their country. Groups like the ***6888th Battalion***, a part of the ***Women's Army Corps (WACs)***, were deployed to Scotland and England with the mission to clear a massive backlog of undelivered mail. Many soldiers at the time were unable to receive mail due to the rapid speed of fatalities occurring during the war that left mail rooms in Europe without workers. Warehouses had to be filled with the overflow of letters and packages for two years, but thanks to the 855 women in the 6888th, the job was done within six months. Of those 855 members, 14 are said to be buried in ***Arlington's National Cemetery*** with other US military heroes.

The image below shows an inspection of the first arrivals to the 6888th Central Postal Directory Battalion at a temporary post in Birmingham, West Midlands, England, 15th February 1945.

'THE BLACK ROSIES'

WATCH VIDEO

The image of Rosie the Riveter was heavily used during WWII to promote the enlisting of women into the workforce. Although the message was clear and resulted in a mass growth in women workers, the poster is often seen as a reminder of the history regarding one specific group of women and overshadowing the minority. The 'Black Rosies' were a group of African American women who played a big role in the workforce during WWII with their involvement in factories, shipyards, and offices. Since it was harder for black and Latina women to obtain said positions compared to white women, President Roosevelt took this into consideration and signed the ***Executive Order 8802*** which put a stop to discrimination of race within defense jobs. This EO gave black women new opportunities to learn trades and excel in work like welding and metalwork. WWII provided these ladies a chance to make a decent wage and help our nation's freedom, even when civil rights were not extended to them yet.

A lathe operator at an aircraft manufacturing plant in Milwaukee, Wisconsin, 1942.

THE LADIES OF THE VIETNAM WAR

The names of these eight brave women, all nurses (seven from the Army and one from the Air Force), are inscribed next to their fallen brothers on The Wall in Washington, D.C. at the Vietnam War Memorial:

Hedwig Diane Orlowski
ARMY // 1LT
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Carol Ann Elizabeth Drazba
ARMY // 2LT
READ MORE

Sharon Ann Lane
ARMY // 1LT
READ MORE

Annie Ruth Graham
ARMY // LTC
READ MORE

Eleanor Grace Alexander
ARMY // CPT
READ MORE

Elizabeth Ann Jones
ARMY // 2LT
READ MORE

Pamela Dorothy Donovan
ARMY // 2LT
READ MORE

Mary Therese Klinker
AIRFORCE // CPT
READ MORE

GENDER DIVERSITY AND DEFENSE OPERATIONS

WATCH VIDEO

Women play increasingly important roles in all branches of the U.S. military. The evolution of gender acceptance and growth in number of women soldiers has created a more positive impact on building local and international connections. The creation of the ***Women, Peace and Security (WPS)*** creates an honorable and tactical benefit for U.S. foreign policy and national security. When we support WPS strategies through programs and policies, we support peace, international security, and a stable economy. For many special operations and deployments, the roles of gender advisors were created to identify the individual needs of not just women and girls but the entire community on the ground. These advisors, for example, were needed in 2021 across many U.S. bases to help welcome refugees from Afghanistan. In this event, the military deployed more than two dozen gender advisers to help with what later became known as ***Operation Allies Welcome***. With different cultural and religious perspectives being taken into consideration, comfort was found in the presence of said advisors. Seeing women in crucial roles within the military can influence younger generations to pursue said careers that will hopefully create a future in which gender inequality is a rarity and diversity is heavily encouraged.