

Impact Statement

Kevin Chen, Grade 9

***An Echo Through Time*, 2025**

Digital art on canvas, 11 x 14 inches

Independent Study, Eastlake High School, Sammamish, WA

Unsung Hero: Muhammad ibn Musa Al-Khwarizmi

My artistic project features the hero Muhammad ibn Musa Al-Khwarizmi, commonly regarded as the father of algebra and grandfather of computer science. Al-Khwarizmi's impacts on modern-day society specifically stuck out to me during my early stages of research. His contributions in the fields of astronomy and specifically mathematics have had a profound impact on almost all of our lives today. It's present in many of the topics I'm interested in pursuing, such as computer science, engineering, statistics, physics, and more. I specifically admired his advancements in such an important field in my own life as well as his commitment to bringing accessible knowledge into the world, as seen when he was quoted to have devoted himself entirely to the House of Wisdom. Algebra is often a topic seen as a useless concept we learn in school and disregard in the future of our life, but through this process, we are also disregarding the work of others, who in this case, is Muhammad.

Born around 780 CE, Al-Khwarizmi was a scholar at the House of Wisdom in Baghdad, the first center of advanced scientific research in the Islamic world. At the start of his career, he specialized in translating texts about astronomy or mathematics into Arabic from Greek or Indian. His most significant piece of work was the development of the book *Al-Jabr*, also known as *The Compendious Book on Calculation by Completion and Balancing*, where he introduces algebra as its own subject and spreads the Arabic number system to Europe (the number system we still use to this day). His teachings laid out the systematic approach of solving quadratic equations, finding the area or volume of certain figures, and the solutions to problems about inheritance. Additionally, this specific book laid the frameworks for algebra textbooks in European universities until the 17th century, and it was aimed at finding solutions to practical problems found in the everyday life of Muslims. Al-Khwarizmi's work in *Al-Jabr* laid out the foundation for present-day algebra, a key concept for everything computing related. His name, "Al-Khwarizmi" developed into the word "algorithm", the basis of how computers solve problems.

My artwork aims to visualize Al-Khwarizmi's impact on the fields of algebra, computer science, and astronomy, as well as the long-lasting legacy of his contributions. Muhammad's influence on astronomy paved the way for astronauts to explore space, as seen with an astronaut in my painting reaching out to Al-Khwarizmi. Due to Muhammad being regarded as the father of algebra and grandfather of computer science, I

portrayed him as almost a godlike figure. The astronaut in the center is meant to represent everyone in modern society, reaching out to Al-Khwarizmi for his knowledge and teachings, present on the right side of the piece. This symbolizes the pursuit of knowledge, a key characteristic of Muhammad, as well as how his teachings are still utilized and present today. I utilized acrylic paint and edited my painting with Procreate at the end to make the entire painting seem more cohesive and make Al-Khwarizmi the focal point of the artwork.

My goal with my artwork is to highlight the everlasting influence of Muhammad ibn Musa Al-Khwarizmi's teachings. Through the creation of my artwork, I have been inspired greatly by Al-Khwarizmi's dedication and commitment to his work as well as his interest in sharing his knowledge with others. His story has encouraged me to deeply ingrain the value of pursuing knowledge and the importance of sharing it with others in my everyday life. In the future, I hope to try and elevate my learning in school and other platforms with this mindset from Muhammad. I also wish I could present the story of Al-Khwarizmi at volunteering events or at school to try and introduce this same mindset that inspired me to the people around me. Muhammad ibn Musa Al-Khwarizmi's enduring legacy continues to shape how our world functions today, proving how the contributions of one brilliant mind can survive the test of time and inspire generations to come.