Lowell Milken Center for Unsung Heroes
ARTEFFECT

Impact Statement

Lily Manoochehri Farr, Grade 9
Puzzle of A Life, 2026
Pen, ink, sharpie, posca markers, acrylic paint on wooden cubes, 6 x 4 x 2 inches
Private Art Studio, San Diego, California, USA
Unsung Hero: Muhammad ibn Musa al-Khwarizmi

Al-Khwarizmi was a Persian mathematician who is often described as the father of algebra. He achieved a lot in his lifetime. He was able to introduce concepts of algebra and Hindu-Arabic numerals into European math. His way of working through math was unique. He would explain problems in words and solve them with diagrams. He was born in 780 CE in Khwarizmi, then would later move to Baghdad. The reason why I chose Al-Khwarizmi is because I found his story impressive and genuine. He started working on an easier way to solve math problems out of curiosity and ended up forever affecting how those problems are solved. I admire how he worked with algebra because he saw what he could improve. Without these contributions, It could have taken us many more years to get to the point we are now in math.

Khwarizmi's impact on algebra is still constantly being used today and taught in schools, leaving a huge impact on history. Al-Khwarizmi first started working at the House of Wisdom in Baghdad. The House of Wisdom was a well-known research center. He mostly translated texts from Greek and Indian to Arabic. After working as a translator, he was quickly promoted to become the director. After being a director at the House of Wisdom for a while, he started to think that there must be a better way to solve the math problems he was working with. He soon developed the first algebra book. His book was called "Al-Kitab al-Mukhtasar fi Hisab al-Jabr wal-Muqabala" which translates to "The Compendious Book on Calculation by Completion and Balancing". This book impacted many parts of Europe and was translated into Latin. He wrote many other important books later on.

After reading about him, I already had an idea about what I wanted to do for my project. I knew I wanted to create an interactive puzzle. My idea was that each one of the cubes I painted had a piece of information about him. While I was reading about Al-Khwarizmi it felt like I was solving a puzzle. I was putting piece after piece of information together to discover the bigger picture.

The first thing I painted was his face; I used an image of an old stamp for reference. Then, I added a map where I could draw him moving throughout the country. I also painted an image of his first book. I saw a photo of a memorial building that is placed in Khwarizmi, and I thought it would be perfect for the last image. I added lots of details such as his name written in Farsi over the map, words around his face describing his equations, 6 main formulas in algebra written around his book, and 6 main engineering majors by his memorial building. I didn't want to leave a single side of a cube blank, so I made sure to add as much information as possible.

I think that Khwarizmi had a very important effect on how we use algebra today, so I was shocked when I first learned about him. I thought that I surely would have heard of him before. It made me think a lot about how we should be taught more about these important historical figures in school. However, I think that teaching students more about people like Al-Khwarizmi could cause students to be more interested in math and help them build a more personal connection to the subject. I hope that my artwork can help others learn more about Khwarizmi and how he helped us advance in math.

References:

https://www.schoolsobservatory.org/learn/history/biographies/al-khwarizmi

https://www.lowellmilkencenter.org/programs/projects/view/muhammad-ibn-musa-al-khwarizmi/hero

https://www.britannica.com/biography/al-Khwarizmi