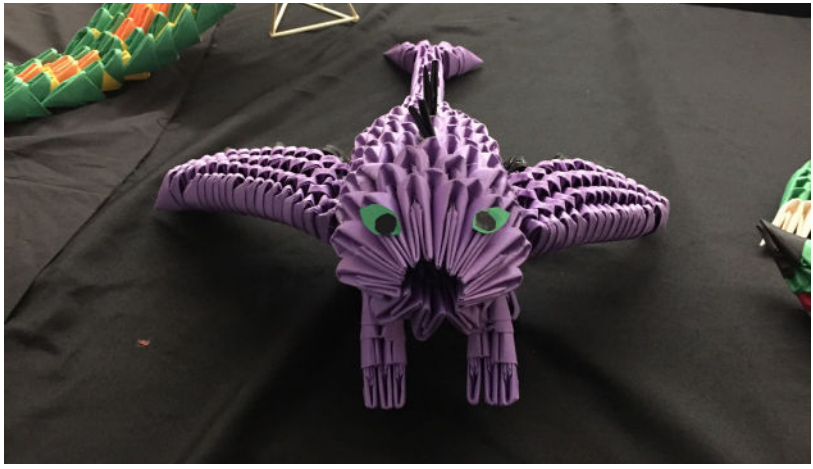

Mathigami

Kristin Komatsubara and Perla Myers, Ph.D.
6th/7th Grade, Mathematics
High Tech Middle & University of San Diego

Mathigami is a program designed at the University of San Diego by Perla Myers and Celina Gonzalez, in collaboration with students and teachers, that reimagines mathematics as a joyful exploration.

Mathigami is the exploration of mathematical concepts through the art of paper folding. In this year-long project, students explored two essential questions: "What does it mean to do mathematics?" and "How does origami inspire creativity, discovery, and deeper understanding of mathematical ideas?" Students explored fractions, surface area, and scale—building Sonobe cubes. They applied properties of angle relationships to find missing angles within their triangle-edge module folds. Using the Question Formulation Technique (QFT) protocol, students posed and explored their own mathematical questions for the origami Golden Venture models they created. A visit to the University of San Diego allowed students to partner with university undergraduates to explore new folds such as a hyperbolic paraboloid and a giant firework. Through the project, students recognized the importance of making mistakes, of persevering, of exploring deeply and of being precise in their calculations, folds, and communication of mathematical ideas.

Teacher Reflection
As math teachers, we should also be math students and have first-hand experiences with productive struggle, posing questions, and collaborative learning. Mathigami has ignited my love for origami but more importantly, helped me to redefine the math skills and experiences we value. Students now see math as a creative discipline where their math ideas and questions drive the learning.

—Kristin Komatsubara

Student Reflection
Mathigami seemed so far from what I considered to be math. I approached it as more of an art project and so did many of my peers. However, we came to learn that it was far more than just about aesthetics but rather about the mathematics behind our art. Looking at how far along some other groups were compared to us didn't bring us down but rather challenged us to try harder and work more efficiently to achieve the most precise project we possibly could.

—Hisami Oliva