

As an architect and educator, I would like to pick 3D modeling as an art form to engage my students in integrating math, science, and technology with creative, artistic, and architectural expressions. There are various 3D modeling software that come with their own visual programming counter parts, such as Rhino with Grasshopper, Revit with Dynamo, 3D studio max with Max Creation Graph, etc. These visual programming platforms will allow the students to learn coding concepts and mathematical relationship of the form they are creating and modelling.

One of my goals as an educator is to utilize my professional knowledge as an architect to teach about advanced geometry by revealing the interesting mathematical relationships, intriguing visual qualities, and various design applications. While geometry is often taught as a math topic conventionally, its application to visual art and engineering are apparent. Hence, I think geometry is a perfect platform for a STEM curriculum to expand upon. Not only will students learn to model different 2D and 3D geometric shapes digitally, they will also get to explore the mathematical formula and how the form will be affected when they adjust the variables in the formula through visual programming platform.

I believe 3d modeling is a great platform to generate interdisciplinary context with the combination of geometric understanding, digital visualization, and visual programming. The students will get to learn basic 3d knowledge of axis, units, and view orientations just by exploring the interface of the 3d modeling program. Once they start modeling particular form, they will begin to learn about various geometric rules and how they are developed in the digital space. From points to lines and curves, then surfaces and solid shapes, it is the most hands-on and interactive way for students to build up their geometric understandings. Through these 3d modeling platforms, they will also learn various ways to present and visualize what they have designed and built digitally. Visual programming can also be integrated in the process for students to develop deeper and more advanced understanding of the parametric relationships between the forms. I am lucky to have the chance to lead such a lesson in the coming Fall semester.