# Program and Curriculum Design Projects

Smart Art Camp

Smart Art is one of the many camps that I designed while working at TinkRworks. It is a STEAM based camp that I developed for students ages 6-9 yrs. In this camp, students created multiple art and DIY projects using math and science. I based each project off a specific mathematical concept, such as symmetry, tessellations, and spirals, and presented real art forms that utilized these principles. I also connected each project to cultural art forms from multiple parts of the world, such as Indian mandalas, tessellations on Muslim mosques, and Native American dream catcher patterns. Not only did the students create 2D art work, they also were introduced to TinkerCAD and were able to 3D print decorations for their projects. Finally, I designed a simple mechanical doorbell that the students built while learning about circuits and sound.
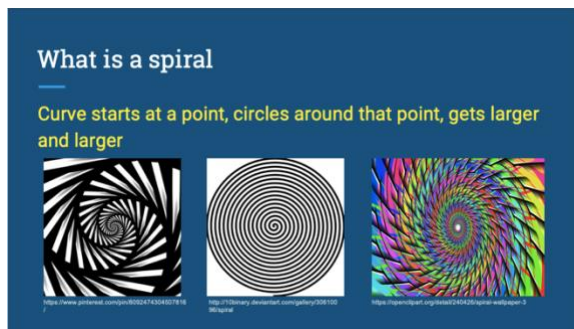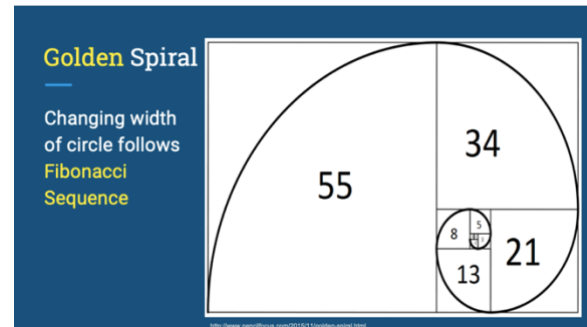

1. Introduce mathematical concept


2. Connect cultural significance

3. Relate concept to real world

4. Explain how to create mathematical figure

This is a project that I called "Golden Spiral Animal". I led the students through drawing and cutting out shapes of construction paper with dimensions that followed the golden ratio of the Fibonacci sequence, and they then formed their spirals and incorporated them as a part of an animal. This example shows the spiral as a pig's tail.
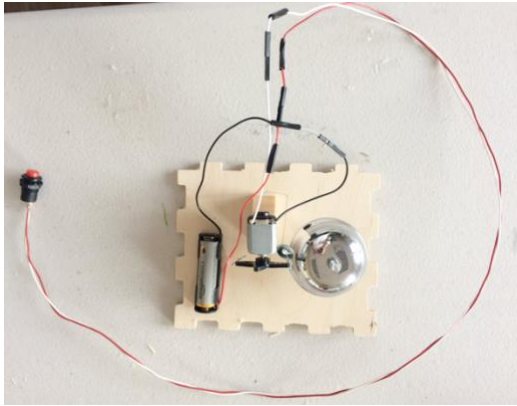
This is a photo of the mechanical doorbell prototype I designed. The doorbell consists of a DC motor, powered by a AA battery, with an arm attachment that spins and hits a call bell. This project was an excellent approach to teaching the students about how circuits work and how electricity travels through conductive materials. I collaborated with another designer to develop a wooden enclosure for the doorbell with a latched door, which the students were able to paint and personalize.

Hack O' Lantern Class

Hack O' Lantern was a class that I helped create in which students assembled a "haunted house" candy container that made Halloween sounds and lit up when a person reached in through the door to grab candy. The students learned about the scientific properties behind their projects, such as how light and sound travel, and they were able to decorate their own houses as well.

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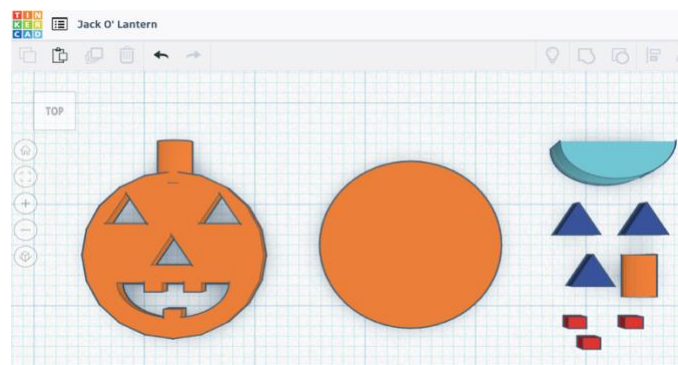
The right photo displays the prototype of the student project. The project is made of wood, and controlled by an Arduino. Further iterations were created which eliminated sharp edges and reinforced the facade.

The left photo portrays an activity that I designed for young students in TinkerCAD. After introducing 3D design, I taught them the basics of how to navigate within the program, move shapes, and adjust their sizes. In this activity, students were challenged with dragging premade shapes into the circle and grouping them to create a Jack O' Lantern face.