



LEGO Carnival

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Everyone loves a good carnival, especially the rides! In addition to adrenaline, fun, and excitement, carnival rides provide us a perfect example of simple machines in action. In this project, students combined their understanding of simple machines, motorized mechanisms, LEGO construction, 3D modeling, and engineering design thinking to create their own LEGO Carnival. In groups of four, students designed and constructed “Carnival LEGO” rides, each including a motor and a mechanism using gears or pulleys. Each team also designed and built a unique, scaled LEGO piece to improve the functionality of their ride, as well as an architectural feature scaled to minifigure size to be placed in our carnival. Students designed the LEGO piece and architectural feature on Google SketchUp, and printed them on our 3D printer.

Teacher Reflection

It is important to me that the students make connections between engineering design and real-life applications, such as the use of simple machines in amusement rides, and the ability to create unique, useable parts on a 3D printer. I enjoy presenting open-ended design challenges so the students can witness the creativity and variety of final designs. The excitement and enchantment of the final carnival exceeded my expectations as guests entered the room, hearing carousel music mixed with the whirring of LEGO motors and exploring the colorful LEGO rides, the beautiful architectural features, and computers displaying the students’ SketchUp designs.

Student Reflections

I am proud of my architectural feature because I put a lot of hard work into my Churro Stand. I am also proud of our ride engineer for making our ride happen. The best part was watching it function in our exhibition.
—Rosy

Before the start of this project I didn’t even know what SketchUp was! I also learned a lot about gears, pulleys, and levers. It was also very interesting learning about how the 3-D printer worked.
—Paula

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