

LOWER SCHOOL DESIGN CENTER

SummitSchool

Inspiring Learning

The Design Center originated about 10 years ago as a kindergarten activity that expanded into 1st grade, and eventually through 4th grade. Our goal is to engage students in the design process through hands on making experiences.

Students in kindergarten and first grade come to the design center in small groups, usually 4 at a time. Students in grades 2 - 4 come with their class (these range in size from 12 - 22) during their regularly scheduled studio time shared with technology.

Karen House leads the design activities and often co-teaches with technology teacher, Stephane Rogers. Karen started out as a math and science teacher at Summit in 1985. For the last 15 years she has worked with technology and design. She is also the web administrator.

Equipment/Tools/Materials: generally low-tech design - craft sticks, balloons, string, rubber bands, hot glue, sponges, wooden skewers, buttons, cloth scraps, CDs, tape, straws, clothespins, dixie cups, scissors. Software used includes KidPix, GollyGee Blocks, and SketchUp.

Kindergarten- Students are learning to view design as a process that begins with a plan. This year students worked on big box projects. They decided as a class what they would like to make from the big box (one class chose a house, another an ice cream truck, and another an airplane). They visited the design center in small groups, each group contributing to the process in different ways. The first group did a lot of planning and drawing. Later groups followed up on the plans and added many details. We also did a mitten project, tied to the book, *The Mitten*, that they read in class. Students designed a mitten and at least one animal to go in their mitten. We talked about the importance of creating a layout for our design.





Famous Americans Day
Summit School, 2014

First Grade- Students explore 3-dimensional design on the computer using GollyGeeBlocks, create voicethreads to share what they are learning about insects, design t-shirts using KidPix for Famous Americans Day, and design paper airplanes (using the design process to test simple changes to their designs).

Second Grade- The focus of this year has been communicating ideas. We start out the year practicing basic doodling techniques to help in drawing out ideas. Students are also learning to better notice details. One activity to reinforce this is LEGO building puzzles where one student describes a photo of a structure to another student in such a way that he can build the structure without seeing it. Second graders also use GollyGeeBlocks to create birds (a second grade topic of study).

Third Grade- Students are using LEGO building kits to learn about simple machines: levers, pulleys, wheel and axle assemblies (part of the science curriculum). They continue to use GollyGeeBlocks for 3D design, creating something that flies. We follow this up with a parachute design challenge: they must design a parachute for their client (a gummi bear) who wants to be able to descend safely from the second floor of the building to the first floor and be able to see out as he travels. We stress the importance of meeting the client's needs and thinking of things from the client's perspective (empathy). Third graders are introduced to SketchUp for 3D design.

Fourth Grade- The focus of this year is designing things that move. Students are challenged to build a variety of vehicles: hovercraft, balloon cars, rubberband cars, LEGO windmills, paper airplanes. This allows us to explore several science concepts: friction and drag, gravity, lift, stored (potential) energy. Students typically work with a partner from ideation through experimentation and redesign. In fourth grade students are working more independently. We stress the importance of becoming comfortable with things not working the way we expect. It's ok to try things that don't work. Sometimes LOTS of things that don't work. Fourth Graders become more adept with SketchUp, using it to design a small house.



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