What is engineering?

In simple terms, engineers identify a problem and come up with a solution, often creating something completely new in the process. As an engineer, you might develop the next generation of iPhone, improve a medical device that will help doctors diagnose an illness, create a spacecraft that will carry humans to Mars, or construct a system to bring clean water to an underdeveloped region. Using the foundations of math and science, engineers apply what they know to real-world problems that have not yet been solved. Engineering is a natural fit for children because they are born problem solvers and are curious about the world around them. Engineering also encourages students to see how math and science can be relevant to their lives by applying it to authentic problems.

Engineering Design Process

Hands-on, problem and project based learning is essential to becoming an engineer. To solve engineering problems, engineers follow a series of steps called the Engineering Design Process. This process is iterative, meaning that engineers repeat the steps as many times as needed, making
improvements along the way as they learn from failure. Encouraging students to become engineers and follow the steps of the design process allows them to think creatively as there is no “right answer”. Engineers are encouraged come up with their own open ended design through continuous improvement and testing. The Engineering Design Process the stigma from failure because failure is an important part of problem solving, leads to critical thinking, and is seen as a positive way to learn.

**Engineering Habits of Mind**

Engineering activities often require our students to work together in teams where they must collaborate and communicate effectively. These are important 21st century skills that will be necessary in any future career field. These traits along with creativity, optimism, persistence, conscientiousness, and systems thinking about known as the “Engineering Habits of Mind”. We cultivate these traits in our students through our engineering activities by encouraging them to work in teams, think creatively, maintain a positive attitude, communicate their ideas, and compromise. These qualities help our students succeed in their engineering endeavors.