Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_

**VEX IQ Overview Lesson 1**

What is Engineering?

Engineering is all about using practical & scientific knowledge to create solutions for identified problems. Engineers use math and science to create most of the products, buildings and structures we see every day. Engineers often use an engineering notebook to help them think about and solve problems. You will have the chance to use “Idea Book” pages alongside activities that help you to think like an engineer!



**There are Five Basic Types of Engineering:**

**Chemical engineering** – Using physical and biological sciences to convert raw materials or chemicals into more useful forms for the purpose of solving a problem.

**Civil engineering** - Using design, construction, and maintenance of physically and naturally built environments to solve a problem. Environmental and structural engineers are two examples.

**Electrical engineering** – Using electricity, electronics, and electromagnetism to solve a problem.

**Mechanical engineering** – Using design, construction, and mechanical power to create machines and mechanical systems that solve a problem.

**Specialized engineering fields** – These engineering fields use two or more types of engineering together to form a brand new kind of engineering. Biomedical and robotics engineers are two examples.

***How do we practice engineering? Using Vex IQ!***

Robotics is the type of specialized engineering that deals with the design, construction, operation, and application of robots. A Robot is any man-made machine that can perform work or other actions normally performed by humans.

Robots can be operated by remote control (known as **teleoperated robots**), automatically by themselves (known as **autonomous robots**), or a combination of teleoperated and autonomous operation (known as **hybrid robots**). Robots have become more popular over time because they are able to perform very repetitive tasks or very dangerous tasks in the place of humans.