It's the Science of Doing.
Immerse students in making, problem-solving, and design thinking. **uEngineer It! Maker Crates** provide resources to help students tinker with ideas – from magnets and motors to batteries, buzzers, and rubber bands. Maker Crates are perfect for nurturing a STEM-focused curriculum. Students build, collaborate, and invent, as you engage them in science and engineering.

**uEngineer It! Maker Crates—All your makerspace supplies in one place**

- Create maker time – time for problem-solving and inventing.
- Engage all types of learners with open-ended experimentation.
- Integrate inquiry-focused science with engineering and design thinking.
- Initiate cross-curricular projects that involve science, math, art, and literacy.
Experience the STEM Challenge!

The design challenges on the following pages allow students to explore engineering ideas as they create simple devices and design solutions. **uEngineer It! Maker Crate** parts, supplies, and electronics encourage students to realize their ideas, test, and improve their innovations.

Use the design challenges on the following pages to inspire students to solve real-world problems.
Design Challenge: Amusement Theme

Have you ever been to a carnival or amusement park? Tea cups spin and twirl around. Ferris Wheels climb high in the sky while you rock back and forth in your seat. Horses, seals, and ducks move up and down on the merry-go-round. These are common rides you can experience at amusement parks. Many of them are gas-powered and produce by-products that pollute the sky. Others run on electricity which can be quite costly. How can you assist this industry by solving some of these challenges below?

• Create a model amusement ride that runs on solar energy.
• Build a zip-line device that can move objects across a given distance and back again.
• Design a way to move people through the park or up and down a slope.
• Design a new type of amusement park attraction or ride.
Design Challenge: Construction Theme

Some of the world’s greatest inventions started in a garage! The computer industry, for example, was started by someone who had an unique idea to join some simple circuits together. Motorcycles were created by 20-year-old William Harley. He had the crazy idea to design an engine-powered bicycle! Sometimes the next ‘best thing’ starts with thinking about something we use everyday and asking yourself, “How can I make using this easier or better?” or “Can I make some slight modifications to make this fit another use?” Take a moment to think about the challenges below. What can you design that could make a difference in the world?

• Design a structure to support a given weight and/or uses the least amount of materials.
• Create a catapult that tosses an object a given distance.
• Build a bridge of a specific length that will support the most weight.
• Construct a prosthetic device that mimics a hand, an arm, a leg, a wing, a beak, a claw, or even a fin!
• Be creative and develop a new design for a better flycatcher, a new type of pet feeder, or a new door alarm.
Design Challenge: Energy Theme

There are many different forms of energy. Light, heat, and sound are forms of energy. Look around and see if you can recognize where energy plays a part in the world around you. How can you use the different forms of energy to benefit your community, school, or family and friends?

- Construct a device that uses wind energy to perform a task — lift a mass, move water, or generate electricity.
- Create a model house that uses solar energy to power its lights and heat.
- Design a game that uses moving water as its source of energy.
- Build a Rube Goldberg Machine™ that models multiple transfers of energy. How many energy transfers can you make occur?
Design Challenge: Transportation Theme

We rely on energy to help us get from Point A to Point B. There are many ways people harness resources to utilize energy in order to move things. For example, some boats use a combination of wind and sails to glide effortlessly across water. Balloons use helium to float in the air, and people use their feet to pedal and make bicycles move. Design a device that can transport people or things. Think of the different ways you can harness energy to make your device move.

- Build the fastest, lightest, or smallest device.
- Make a device that must travel a given distance.
- Design and build a device to carry cargo or navigate an incline.
- Try using different resources to power your device or create a sail that captures the wind.
See the Full List of Maker Crate Materials!
PearsonSchool.com/ExperienceIT