WHY STEM?

“Education is not the learning of facts, but the training of the mind to think.”
- Albert Einstein

“We are currently preparing students for jobs that don’t yet exist, using technologies that haven’t yet been invented, in order to solve problems we don’t even know are problems yet.”
- R. Riley, Former Secretary of Education

“From phones to cars to medicine, technology touches every part of our lives. If you can create technology, you can change the world.”
- Susan Wojcicki, CEO YouTube

“STEM education can lead to productive employment and is critical to the nation’s innovation capacity... all people, particularly young people, need to have some degree of scientific and technological literacy in order to lead productive lives as citizens.”
- STEM Integration in K-12 Education
National Research Council 2014

“What students learn about the science disciplines, technology, engineering, and mathematics during their K-12 schooling shapes their intellectual development, opportunities for future study and work, and choices of career, as well as their capacity to make informed decisions about political and civic issues about their own lives.”
- Successful STEM Education
A Workshop Summary, National Research Council 2011

For more information visit
www.barrington220.org/STEM

Barrington 220 School District
310 E. James St. | Barrington, IL 60010 | (847) 381.6300
**OUR STEM MISSION**

To empower our students to become innovative designers, global collaborators and digital citizens.

**WHAT IS STEM?**

- **Science**
- **Engineering**
- **Technology**
- **Mathematics**

Our STEM program engages students in collaborative problem solving through engineering design and robotic challenges. Our STEM students develop cognitive competencies such as...

- Collaboration
- Critical thinking
- Scientific Inquiry
- Design Thinking
- Communication
- Creativity

**GRADE LEVEL STEM SEQUENCE**

- **Kindergarten**
  Introduction to Programming and Robots

- **First Grade**
  Introduction to Engineering

- **Second Grade**
  Programming and Robotics

- **Third Grade**
  Engineering Design Process with Robots

- **Fourth Grade**
  Engineering Design Process with Robots
  Application with Space Mission Challenges

- **Fifth Grade**
  FreshINC Entrepreneur Experience

**BARRINGTON ELEMENTARY STEM EXPERIENCES**

- Engineering Design Challenges
- Robotics (LEGO WeDo 2.0, LEGO Mindstorms EV3, Cubelets, Dash, Robot Mouse, Ozobot, Kibo)
- LEGO – Learn2Learn and Build to Express
- LEGO PreK/K - Duplo Simple Machines and Balls and Tubes
- Computer Programming (Tynker, Kodable, codeSpark Academy, Hour of Code)
- Circuits (littleBits)
- Family STEM Events
- STEM at Home library kits
- Scientific Inquiry in life, physical, and earth science
- Math structured investigations and open explorations (Math in Focus)
- 5th Grade FreshINC entrepreneurship program

**DEFINE THE PROBLEM**

REFLECT AND REDesign

PLAN SOLUTIONS

MAKE A MODEL

TEST THE MODEL

**ENGINEERING DESIGN PROCESS**

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