

LINCOLN PUBLIC SCHOOLS  
Engineering Learning Expectations: Grade 4

**Strand**

Robotics Using  
Sensors

**Massachusetts  
Standard:**

Students will understand that engineering design requires creative thinking and strategies to solve practical problems generated by needs and wants.

**Big Ideas**

- ❑ Technology and Engineering uses math, science and creativity to solve problems.
- ❑ Technology and Engineering makes life easier or better through engineered products.
- ❑ The Engineering Design Process is used to design prototypes that solve specific problems.

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**Key Outcomes**

- ❑ Students will demonstrate an understanding of **robotics** by equipping a robot with one or more sensor and programming it to solve problems.

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**Essential Knowledge and Skills**

*Students will be able to:*

- ❑ Use the engineering design process to guide their work.
- ❑ Know what engineering and technology are and demonstrate what engineers do.
- ❑ Understand that robots and sensors are man-made inventions used to perform a variety of tasks remotely.
- ❑ Work as a team to plan, build and redesign a prototype.
- ❑ Use tools and various materials to build a robot with sensors
- ❑ Identify relevant design features (e.g., size, shape, weight) for building a prototype of a solution to a given problem.
- ❑ Program a sensed-robot to perform complex tasks.
- ❑ Communicate their designs solutions such as sketches, lists, and graphic organizers and present their results using a variety of tools such as PowerPoint presentations, video presentations, demonstrations, and question and answer sessions.