Exploring Robotics with Cubelets Lessons - Standards Met

The Cubelets lessons can assist in meeting the following science and engineering standards. Teachers may need to modify the assignments and assessments to assure that the standards are met by a particular lesson. Note that each state may have a different description or specific annotation for these standards.

**ISTE: International Society for Technology Education**

- Creativity and Innovation 1.a, 1.b, 1.c, 1.d
- Communication and Collaboration 2.d
- Critical Thinking, Problem Solving, and Decision Making 4.a, 4.b, 4.c, 4.d
- Technology Operations and Concepts 6.a, 6.b, 6.c, 6.d

**CCSS: Common Core Standards**

- ELA-Literacy.W.4.10
- ELA-Literacy.W.5.10
- ELA-Literacy.W.6.10

**NGSS: Next Generation Science Standards**

- NGSS Grades 4 and 5 3-5-ETS1-1, 1-2, 1-3
- NGSS Grade 6 MS-ETS1-1,1-2, 1-3

**Engineering Design Grades K-2:**

1. Ask questions, make observations, and gather information about a situation people want to change that can be solved by developing or improving an object or tool.
2. Generate multiple solutions to a design problem and make a drawing (plan) to represent one or more of the solutions.
3. Analyze data from tests of two objects designed to solve the same design problem to compare the strengths and weaknesses of how each object performs.

**Engineering Design Grades 3-5:**

1. Ask questions and predict outcomes about the changes in energy when objects collide; distinguish between scientific (testable) and non-scientific (non-testable) questions; define a simple design problem, including criteria for success and constraints on materials or time.
2. Define a simple design problem that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost that a potential solution must meet.

3. Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and constraints of the design problem.

4. Gather information using various informational resources on possible solutions to a design problem. Present different representations of a design solution.

**Physical Science:**

1. Describe and classify different kinds of materials by observable properties of color, flexibility, hardness, texture, and absorbency.

2. Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other.

3. Define a simple design problem that can be solved by applying the use of the interactions between magnets.

**Technological Systems:**

1. Use informational text to provide examples of improvements to existing technologies (innovations) and the development of new technologies (inventions). Recognize that technology is any modification of the natural or designed world done to fulfill human needs or wants.

2. Use sketches or drawings to show how each part of a product or device relates to other parts in the product or device.