



Unit Map 2011-2012
Hampshire Regional School District
Heffernan, John / Technology 2 / Grade 2 (District Elementary School)

Friday, October 21, 2011, 9:57AM



Unit: Amusement Park Open Ended Engineering Challenge (Week 12, 6 Weeks)



Enduring Understandings	Essential Questions
Rides (and other transportation machines) must be safe and fun.	Can you design and build a great amusement park ride using your Lego WeDo robot kit?
Engineering design is an iterative process.	What is it like to be an engineer who designs and builds fun products for people to use?

Curriculum Frameworks and Learning Standards

MA: Science and Technology/Engineering, MA: PreK - 2 , Physical Sci (Chemistry & Physics)

Position and Motion of Objects

- 3. Describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.
- 4. Demonstrate that the way to change the motion of an object is to apply a force (give it a push or a pull). The greater the force, the greater the change in the motion of the object.
- 5. Recognize that under some conditions, objects can be balanced.

MA: Science and Technology/Engineering, MA: PreK - 2 , Technology/Engineering

1. Materials and Tools

- 1.1 Identify and describe characteristics of natural materials (e.g., wood, cotton, fur, wool) and human-made materials (e.g., plastic, Styrofoam).
- 1.2 Identify and explain some possible uses for natural materials (e.g., wood, cotton, fur, wool) and human-made materials (e.g., plastic, Styrofoam).

2. Engineering Design

- 2.1 Identify tools and simple machines used for a specific purpose, e.g., ramp, wheel, pulley, lever.

MA: Science and Technology/Engineering, MA: PreK - 2 , Science Inquiry Skills

Skills of Inquiry

- Ask questions about objects, organisms, and events in the environment.
- Tell about why and what would happen if?
- Make predictions based on observed patterns.
- Name and use simple equipment and tools (e.g., rulers, meter sticks, thermometers, hand lenses, and balances) to gather data and extend the senses.
- Record observations and data with pictures, numbers, or written statements.
- Discuss observations with others.

Content	Skills
<p>Electrical energy is transformed to mechanical energy by a motors.</p> <p>There are different ways to transfer energy in a mechanical system from a motor to mechanical parts via gears, pulleys, belts, and cams.</p> <p>People design ads to attract other people to a product or service.</p> <p>Engineers need to consider the safety of products.</p>	<p>Design a prototype.</p> <p>Test a prototype and make adjustments as needed.</p> <p>Build and program an amusement park ride of their own creation using Lego kits.</p> <p>Create a poster to advertise their creation.</p>
<p><u>Assessments</u></p>	
<p>Observation and Final Poster Formative: Performance: Authentic Task Teacher observes students working in their group. Are they working through problems? Are they using simple machines in their design? Is the ride safe? Is the ride interesting? Does their ad poster do a good job showing off the best features of their design?</p>	
Learning Activities	Resources
<p>Design and exciting, interesting, and safe amusement park ride using your WeDo Robot kit and your computer.</p> <p>With your partner, talk about a design and draw a picture and/or use words to describe your idea. Make sure you can actually build your idea using your WeDo kit.</p> <p>People should be able to get on and off safely.</p> <p>The ride should be fun and interesting. You can use the computer to change speeds, make sounds, change directions.</p> <p>If you have time, add a sensor to start your ride automatically.</p> <p>After you finish make an poster for your ride using words and pictures.</p>	<p>Lego Education WeDo Robotics Kits</p> <p>Laptops with WeDo software</p> <p>Paper and markers for designs</p> <p> Reflection Worksheet</p>

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