



**Unit Map 2011-2012**  
**Hampshire Regional School District**  
**Heffernan, John / Technology 3 / Grade 3 (District Elementary School)**

Friday, October 21, 2011, 9:57AM



**Unit: Adventure Stories - ELA and Robots (Week 11, 7 Weeks)**  

Enduring Understandings	Essential Questions
<p>Students understand that...</p> <ul style="list-style-type: none"> <li>• There are different types of writing including: scripts, interviews, and logs.</li> <li>• Sensors allow a robot to interact intelligently with its environment.</li> </ul>	<p>Can you create an adventure story and adventure robot and capture the story in different ways?</p>
<p><b>Curriculum Frameworks and Learning Standards</b></p>	
<p><b>MA: ELA &amp; Literacy in History/Social Studies, Science, &amp; Technical Subjects K-5(2011), MA: Grade 3 , Writing</b></p> <p>3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</p> <ul style="list-style-type: none"> <li>• 3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</li> <li>• 3a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.</li> <li>• 3b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.</li> <li>• 3c. Use temporal words and phrases to signal event order.</li> <li>• 3d. Provide a sense of closure.</li> </ul> <p>Production and Distribution of Writing</p> <p>4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <ul style="list-style-type: none"> <li>• 4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</li> </ul> <p>5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.</p> <ul style="list-style-type: none"> <li>• 5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.</li> </ul> <p><b>MA: ELA &amp; Literacy in History/Social Studies, Science, &amp; Technical Subjects K-5(2011), MA: Grade 3 , Speaking and Listening</b></p> <p>Comprehension and Collaboration</p>	

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

- 1b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- 1c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

- 4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

### **MA: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5(2011), MA: Grade 3 , Language**

Conventions of Standard English

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

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- 1i. Produce simple, compound, and complex sentences.

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- 2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- 2a. Capitalize appropriate words in titles.
- 2c. Use commas and quotation marks in dialogue.
- 2d. Form and use possessives.
- 2e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, happiness).
- 2f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
- 2g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

Knowledge of Language

3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

- 3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- 3a. Choose words and phrases for effect.
- 3b. Recognize and observe differences between the conventions of spoken and written standard English.

6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when

encountering an unknown term important to comprehension or expression.

- 6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).

**MA: Science and Technology/Engineering, MA: Grades 3 - 5 , Physical Sci (Chemistry & Physics)**

Forms of Energy

- 4. Identify the basic forms of energy (light, sound, heat, electrical, and magnetic). Recognize that energy is the ability to cause motion or create change.
- 5. Give examples of how energy can be transferred from one form to another.

Electrical Energy

- 6. Recognize that electricity in circuits requires a complete loop through which an electrical current can pass, and that electricity can produce light, heat, and sound.

**MA: Science and Technology/Engineering, MA: Grades 3 - 5 , Technology/Engineering**

1. Materials and Tools

- 1.2 Identify and explain the appropriate materials and tools (e.g., hammer, screwdriver, pliers, tape measure, screws, nails, and other mechanical fasteners) to construct a given prototype safely.
- 1.3 Identify and explain the difference between simple and complex machines, e.g., hand can opener that includes multiple gears, wheel, wedge gear, and lever.

2. Engineering Design

- 2.1 Identify a problem that reflects the need for shelter, storage, or convenience.
- 2.4 Compare natural systems with mechanical systems that are designed to serve similar purposes, e.g., a bird's wings as compared to an airplane's wings.

**MA: Science and Technology/Engineering, MA: Grades 3 - 5 , Science Inquiry Skills**

Skills of Inquiry

- Ask questions and make predictions that can be tested.
- Conduct multiple trials to test a prediction. Compare the result of an investigation or experiment with the prediction.

**MA: Technology Literacy, MA: Grades 3 - 5 , Computer Proficiency**

Standard 1. Demonstrate proficiency in the use of computers and applications, as well as an understanding of the concepts underlying hardware, software, and connectivity.

Basic Operations

- G3-5: 1.1 Demonstrate basic steps in using available hardware and applications (e.g., log into a computer, connect/disconnect peripherals, upload files from peripherals).
- G3-5: 1.3 Use various operating system features (e.g., open more than one application/program, work with menus, use the taskbar/dock).
- G3-5: 1.4 Demonstrate intermediate keyboarding skills and proper keyboarding techniques.

Content	Skills
<p>Students will...</p> <ul style="list-style-type: none"> <li>• Understand and use tilt sensor values to control the timing of the motor and the type of sounds played.</li> <li>• Understand that numbers control the timing of the motor and the type of sounds played.</li> <li>• Understand how the speed of the motor and the timing of the sounds relate to the rocking pattern of sailboat.</li> <li>• Understand and use tilt sensor values to control the timing of the motor and the type of sounds played.</li> <li>• Understand that a repeat loop can repeat or conditionally repeat parts of a computer program.</li> <li>• Understand that multiple programs can run simultaneously.</li> </ul>	<p><b>AIRPLANE RESCUE</b></p> <p><b>Science</b> Trace the transmission of motion and transfer of energy through the machine.</p> <p><b>Technology</b> Create a programmable model to demonstrate the knowledge and operation of digital tools and technological systems.</p> <p><b>Engineering</b> Build and test the airplane's power level and movement. Improve the airplane by programming sounds to coordinate with the feedback from the tilt sensor.</p> <p><b>Mathematics</b> Understand and use tilt sensor values to control the timing of the motor and the type of sounds played.</p> <p><b>Language</b> Use interview questions to find out information. Organize that information to write a story, maintaining a focus on the events. Use technology to create and communicate ideas. Communicate in spoken and written forms using the appropriate vocabulary.</p> <p><b>GIANT ESCAPE</b></p> <p><b>Science</b> Trace the transmission of motion and transfer of energy through the machine. Identify the range of motion as well as the pulley and gears at work in the model.</p> <p><b>Technology</b> Create a programmable model to demonstrate the knowledge and operation of digital tools and technological systems.</p> <p><b>Engineering</b> Build and test the giant's movement. Improve the giant by adding the motion sensor and programming the giant to respond when someone comes near.</p> <p><b>Language</b> Write a script with a dialogue among the three characters: Mia, Max, and the giant. Use technology to create and communicate</p>

ideas.  
Communicate in spoken and written forms using the appropriate vocabulary.

### **SAILBOAT STORM**

#### **Science**

Trace the transmission of motion and transfer of energy through the machine.

Identify the range of motion as well as the gears and the gearing down at work in the model.

#### **Technology**

Create a programmable model to demonstrate the knowledge and operation of digital tools and technological systems.

#### **Engineering**

Build and test the sailboat's power level and movement.

Improve the sailboat by adding the tilt sensor and programming sounds to coordinate with the movement.

#### **Language**

Write a logical sequence of events.

Organize those events to create a story, maintaining a focus on the characters and objects.

Use technology to create and communicate ideas.

Communicate in spoken and written forms using the appropriate vocabulary.

### **Assessments**

#### **Adventure Story**

##### **Formative: Performance: Dramatization**

Teacher(s) will evaluate the adventure story the students act out.

#### **Adventure Story Written Assignment**

##### **Formative: Written: Narrative**

Teacher(s) will evaluate the script, log, or interview according to the Common Core Standards using a checklist.

#### **Robot Build and Program**

##### **Formative: Performance: Authentic Task**

Teacher(s) will evaluate, by observation of the development and final performance, of the student robots and programming.

### **Learning Activities**


Students will do one or more of the 3 Adventure Story robots: Giant Escape, Sailboat Storm, and/or Airplane Rescue and

### **Resources**

Lego Education WeDo Robotics Kits  
Lego Education WeDo Teacher's Guide  
Laptops with Lego Education WeDo software

the corresponding writing activity: log, script, or interviews as well as act it out in front of the class.

installed  
Paper and pencil

 [Kids Engineer Web Site](#)

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