



## Unit Map 2011-2012

Hampshire Regional School District

**Collaboration / Technology K\* (D)** / Kindergarten (District Elementary School)

Wednesday, May 23, 2012, 10:05AM



### Unit: BeeBot Robotics with ELA and Math (Week 14, 7 Weeks)

Enduring Understandings	Essential Questions
<p>Special machines called robots can be programmed to do different things.</p> <p>You can estimate the distance between 2 objects.</p>	<p>How can make your BeeBot move in different ways?</p> <p>Can you make a robot count? Add? Follow a piece of tape? Make different letters?</p> <p>Can you estimate (or guess) how far apart 2 objects are?</p>

#### Curriculum Frameworks and Learning Standards

##### MA: Mathematics (2011), MA: Kindergarten, Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

##### MA: Mathematics (2011), MA: Kindergarten, Counting & Cardinality

K.CC: Know number names and the count sequence.

- 1. Count to 100 by ones and by tens.
- 3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

K.CC: Count to tell the number of objects.

- 4. Understand the relationship between numbers and quantities; connect counting to cardinality.
- 4a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- 4c. Understand that each successive number name refers to a quantity that is one larger.
- 5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

##### MA: Mathematics (2011), MA: Kindergarten, Operations & Algebraic Thinking

K.OA Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

- 1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- 5. Fluently add and subtract within 5.

##### MA: Mathematics (2011), MA: Kindergarten, Measurement & Data

K.MD Describe and compare measurable attributes.

- 1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

##### MA: Mathematics (2011), MA: Kindergarten, Geometry

these objects using terms such as above, below, beside, in front of, behind, and next to.

**MA: Kindergarten Learning Experiences, MA: Kindergarten, English Language Arts**

Structure and Origins of Modern English

- K.L.5.3: Students will identify correct capitalization for names and places (Janet, I, George Washington, Springfield), and correct capitalization and commas in dates (February 24, 2001). Kindergarten children can demonstrate understanding and knowledge of the alphabet and printed letters, differentiate between some upper- and lowercase letters, and recognize that names begin with capital letters.

**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.

**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.
- Record observations and data with pictures, numbers, or written statements.
- Discuss observations with others.

<b>Content</b>	<b>Skills</b>
<p>The different buttons on the BeeBot make the BeeBot move in different ways.</p> <p>Numbers go from 0 to 10 on a number line.</p> <p>Numbers can be added together to make a bigger number.</p> <p>Letters have specific shapes and can be recognized.</p>	<p>Program the BeeBot to move forward, back, left, right and go in different combination to accomplish specific tasks.</p> <p>Reset the previous BeeBot program by using the Clear button.</p>

**Assessments**

**Observation Assessment**

**Formative: Performance: Authentic Task**

Teacher(s) will observe students as they work and also check worksheets from those activities that have them. Students will be given extra help as needed.

<b>Learning Activities</b>	<b>Resources</b>
<p>BeeBot Free Play - students are shown what the 4 directional buttons do and can explore their use.</p> <p>BeeBot Estimation and Measurement - Using taped "courses" around the room, students estimate the number of BeeBot steps to get from the Start to the Finish. They then measure the actual number of steps needed.</p> <p>BeeBot Adding - using laminated number lines around the room, students "teach" their BeeBot to add by by</p>	<p>Laminated BeeBot number lines Masking tape BeeBots - one for each pair of students Extra AA batteries</p> <p> <u>Estimation Worksheet (Word)</u></p>

BeeBot Subtracting - using laminated number lines around the room, students "teach" their BeeBot to subtract by programming it to go forward the first number, then backwards the second number of steps, and seeing where the BeeBot ends up.

BeetBot Letter Recognition - using block letters made from masking tape, students "teach" their BeeBot to recognize different letters. Each letter should be made from an whole multiple of BeeBot steps. Letters can include letters like F, H, and R that need backtracking. Students should be taught the math technique of "acting out" where they move their BeeBot manually as they program their BeeBot.

BeeBot Race - students program their BeeBot to go across a start line to a finish line and race their BeeBots across the course.

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