



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



Friday, October 21, 2011, 9:54AM

Unit: BeeBot Engineering Challenge (Week 21, 5 Weeks)  

| Enduring Understandings | Essential Questions |
|---|--|
| <p>The students will understand that robot can be programmed to move in different ways to accomplish a task.</p> <p>It helps to plan a route before going on a journey.</p> | <p>Can you program a mobile robot (BeeBot) to go around an obstacle?</p> <p>"Can you make your BeeBot find the honey?"</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.
- 4. Model with mathematics.

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

K.G Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

- 1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

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.
- 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>There are different ways to get from a starting point to an end point going around an obstacle.</p> <p>Different methods, such as tracing paths, or acting out can be used to plan a route.</p> | <p>Program a robot (BeeBot) using forward, back, left, right, and go buttons to take a complex route from a starting point to an end point going around an obstacle.</p> <p>Use methods to help accomplish the above task: visual projection, projecting a route with rulers, or acting out.</p> |
| <p><u>Assessments</u></p> | |
| <p>Perform the Task Formative: Performance: Authentic Task Watch the child's attempts and final solution to the task. The children draw their solution after they solve the problem.</p> | |
| Learning Activities | Resources |
| <p>Students are giving the assignment of teaching their BeeBots to go from the hive to the flower around on obstacle. Students previously did the same task without an obstacle. If needed, demonstrate how to use BeeBot rulers to plan a route. You can also demonstrate how to act out the route with the BeeBot. Students draw their route at the end. As an extension, they can program the BeeBot to also come back to the hive.</p> | <p>Wooden blocks, 12 inches long, or other obstacles.</p> <p>6 inch wooden blocks with a flower picture on them (optional)</p> <p>Laminated beehive graphic (optional)</p> <p>BeeBots, one for each pair of students</p> <p>Extra AA batteries</p> <p>BeeBot rulers. Oak tag cut into 15 cm lengths to use for route planning</p> <p> Bee Hive Image (JPEG)</p> <p> Flower Image (JPEG)</p> <p> Map (Word)</p> |

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