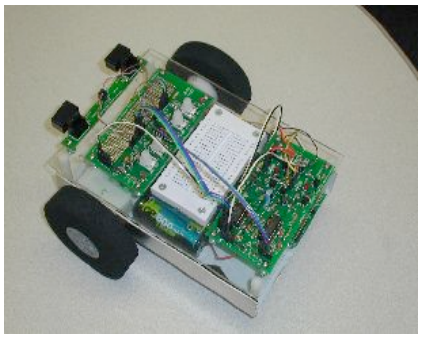

The SPIRIT Project

Educational Robotics

Lesson Building Block Template

Author_____Jennie Premer____

Grade Level: _7th Date: ____8/06/06____

Directions: Directions: Definition of a Lesson Building Block: This is a "Lesson Building Block" from the SPIRIT educational robotics institute. A 'lesson building block' is in essence an educational activity that might be later turned into a more formal classroom lesson by a creative teacher. The SPIRIT Institute is striving to put a variety of "lesson building blocks" up on the web for the potential use of teachers as they try to prepare more formal educational lessons using the TekBot robotics platform.

I. Concepts Adding and Subtracting Integers
Word Problems

II. Standards

8.2.2 By the end of eighth grade, students will identify the appropriate operation and do the correct calculations when solving word problems.

8.2.3 By the end of eighth grade, students will solve problems involving whole numbers, integers, and rational numbers (fractions, decimals, ratios, proportions, and percents) with and without the use of technology.

III. Learning Activity Context

Context: _X_ *Moving TekBot* __ *Building a TekBot* __ *Engineering / Notebook* __ *Other*

Abstract: Students will be able to see the Tekbot demonstrate adding and subtracting integers. Teacher will place a number line on the bottom of the baseboard. The Tekbot will move in a backward motion to show negative numbers and forward to show positive numbers. The students will have a visual learning of this concept.

IV. Teacher and Student Suggestions/Tips

Let student pick which direction and how far the Tekbot will go. Give students time to guess where the Tekbot will end up before the Tekbot is done.

V. Teacher Questions

The Tekbot moves 4 spaces forward and 5 back where does it end up?
If the Tekbot starts at 4 and ends up at -1 how many spots did the Tekbot move?
What does the forward motion represent?

VI. Assessment Ideas

Give students time to do the problem first. Give a Tekbot quiz.

VII. Other Information

You could use the Tekbot to show greater than and less than.

VIII. list of materials

I. Concepts Perimeter
Problem Solving

II. Standards

8.3 MEASUREMENT

8.3.1 By the end of eighth grade, students will select measurement tools and measure quantities for temperature, time, money, distance, angles, area, perimeter, volume,

capacity, and weight/mass in standard and metric units at the designated level of precision.

III. Learning Activity Context

Context: _X Moving TekBot __ Building a TekBot __ Engineering / Notebook
Abstract: Demonstrating perimeter.
Teacher can use existing tiles on a floor to map out shapes.
The teacher can use the Tekbot to show the perimeter of each shape.
This will give students a visual showing of perimeter. The TekBot can also help show the sides of a figure to figure out area.

IV. Teacher and Student Suggestions/Tips
Have students try to guess what the perimeter of each object would be before the Tekbot demonstrates.
Students could do the actual demonstrations. The TekBot could be installed with some type of counting device and the students could figure out the perimeter of a larger area.

V. Teacher Questions
If there is a pre-made shape and the perimeter is 30, what can you see from the sides of shape that would give you 30?
The width of a shape is 5 and the perimeter total is 22. What is the length?
What is the perimeter of that desk?

VI. Assessment Ideas
Give a quiz of shapes before and after lesson with the TekBot. See if students progressed.

VII. Other Information
Students could figure out how far a Tekbot can go. Convert the information into miles. Then the students can figure out the perimeter of the United States or Nebraska.

VIII. list of materials