



# The SPIRIT Project

## *Educational Robotics*

### Lesson Building Block Template

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**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** (Give a list of one or more concepts that might be taught using this activity)  
Graphing time to travel certain distances by using extrapolation.

**II. Standards:** (Standards for Technological Literacy)  
Pre-Algebra Standards 04,05, and 06.

### **III. Learning Activity Context** (Describe the overall context for the learning activity)

Using a moving Tekbot on a level surface, time the speed of the Tekbot covering the distances of 3 ft., 6 ft., and 9 ft. If the Tekbot travels these distances, for example, in 4 sec., 8 sec., and 12 sec., students would extrapolate the number of seconds it would take to travel 15 ft., 18 ft., and 21 ft. Then, students will plot on a graph the recorded distances and times, and their extrapolations.

### **IV. Teacher and Student Suggestions/Tips**

Some suggestions are grouping students in threes (a timer, a recorder, and a Tekbot user). Mark off distances on floor with masking tape. Have several trials for each distance (3-5) and average before plotting.

### **V. Teacher Questions**

(Give a list of questions that teachers might ask students during the activity)

1. What were your extrapolated times for 15, 18, and 21 ft. ?
2. After extrapolating, test estimated times by timing above distances.
3. What factors might affect differences trail measurements and extrapolated times?
4. How else might you use the Tekbot in extrapolating data?
5. After teaching Interpolation, develop a test for measuring missing data.

### **VI. Assessment Ideas**

(Give an idea or two about how the lesson activity might be assessed)

The plotting of data, answering related questions, and developing ideas for using Tekbots for extrapolation and interpolation would be the assessment.



### **VII. Other Information**

(Give any other information that might be useful or a visual or two)

### **VIII. A materials list**