



The SPIRIT Project

Educational Robotics

Lesson Building Block Template

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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 (Give a list of one or more concepts that might be taught using this activity)
Concepts cooperative learning, adaptations, gathering data, using the data to construct graphs and compute mean, median and mode.

II. Standards: (Standards for Technological Literacy)

Science

Examine problems using scientific inquiry.

Integrate unifying concepts and processes in science experiences.

Investigate the diversity of organisms on Earth and the effects of technology on populations, resources and the environment.

Math

Read and interpret table, charts, and graphs to make comparisons and predictions.

Collect, construct, and interpret data displays and compute mean, median, and mode.

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

Moving TekBot, Building a TekBot, & Engineering/Notebook

Context: X Moving TekBot __ Building a TekBot X Engineering /
Notebook __ Other

Abstract:

Students will work in teams to design a maze. They will practice driving the Tekbot. Then they will have 3 timed trials through the maze start to finish. Then 3 timed trails finish to start. After class, the teacher makes adjustments to the Tekbot so that the wheels turn in the opposite direction (rear wheel drive) and the students repeat the activity from the day before. Students will keep their data in their science notebook.

The teacher can also add mountains so the students have to figure a way to get up the ramp. What needs to adapt, the mountain or the Tekbot?

Students need to graph their data.

IV. Teacher and Student Suggestions/Tips

Students can draw their maze with chalk so it can be used for 2 days. Make sure the custodian doesn't vacuum.

V. Teacher Questions

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

After first set of tries, what do you notice about the times? Is it getting easier to drive the Tekbot? Could this be called adapting to your surroundings?

What do you think will happen to the times if you change the course and go from finish to start? Write hypothesis in you notebook.

Day 2 What is the difference in how the Tekbot drives? What do you think will happen to the times? Write your hypothesis in your notebook.

People change the shape of the earth to fit their needs, is this adaptation?

VI. Assessment Ideas

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

Is the information written in their notebook? Did the teams work together or argue?

Did the students collect the data, use the data to compute mean,

VII. Other Information

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

Student teams will need stop watches and maybe a lesson on how to time a trial.

VIII. A list of materials