

# Kid Logo Investigation

## Learning objective:

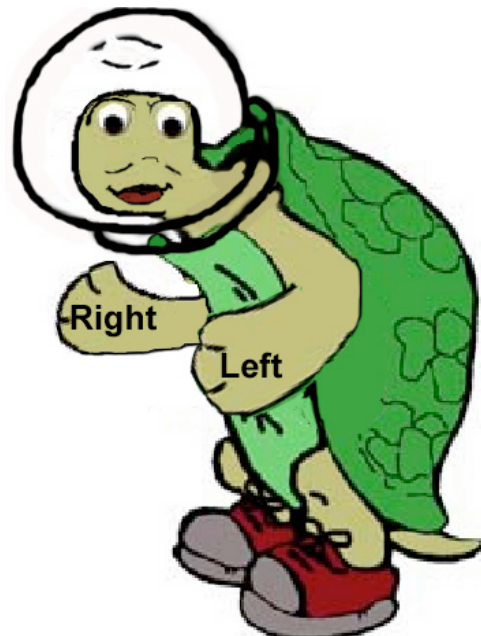
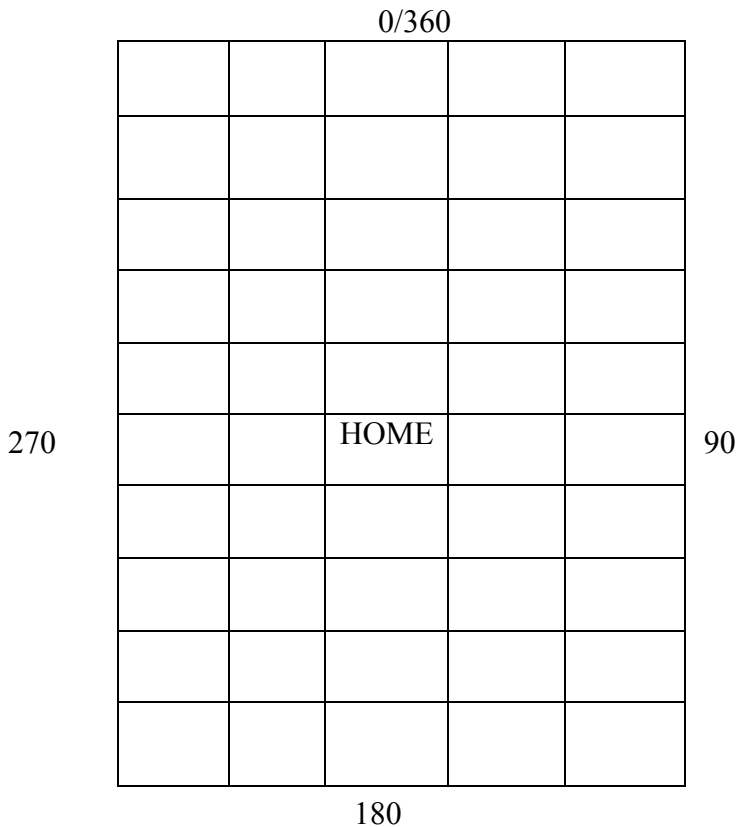
- Learn to use basic commands
- Gain familiarity with the Logo grid
- Recognize errors in using commands

## Prior to class:

1. Print out copies of the basic commands from the web resources for this investigation.
2. Use (white or blue) index cards to write the numbers 1, 2, 3, 4, and 5 on. Write **No Trespassing** on 6 cards, or use a different colored (red) card than the numbered cards.
3. Make a floor grid
  - Use large paper, such a roll of bulletin board paper, use masking tape to mark off a grid on the floor or use the pattern of the tiles on the floor. For this set of instructions, a 10 ft length of 3-4 ft wide bulletin board paper is required.
  - On the paper draw a grid of 5 squares by 10 squares. Make the squares large enough for a student to stand in.
  - In the center square, write HOME.

## Turning directions (Compass Rose)

At the top of the HOME column- write 0/360, at the bottom of the Home column- write 180, at the right of the HOME row- write 90, at the left of the Home row- write 270. See sample below.



### **How to play:**

Place the numbers 1, 2, 3, 4, and 5 in random squares around the grid.

Note: For this investigation, the commands for turns are RT or LT with 90, 180, 270 or 360 degrees.

### **Turtle's Role**

- Ask one student to become the turtle and stand on HOME facing 0 degrees.
- Instructions for the student turtle:
  - Follow the commands given *only* if they are accurate. For example, if you are given the command FD, say "I don't know how." If you are given the command RT, say, "I don't know how."
- The teacher should point out the importance of having a space between the command and the number, but for this investigation, it is not necessary to say "space" as they give their commands.

### **Commander's Role (Listener)**

Ask another student to orally give the commands needed to move the student turtle along a path to the space with card number 1 on the grid. (As an alternative, you could use a small dry erase board for the students to write their commands.)

Students should have a copy of the basic commands sheet from the web resources. Commands should be given one at a time, allowing time for the student turtle to respond. New commands might also be posted wall or written on the board.

### **Teacher's Role (Facilitator)**

- The teacher listens carefully to each command, checking student instructions for accuracy. Should a command need correction, remind the student turtle to say "I don't know how" and let the students figure out why the turtle doesn't move.
- The commander can restate the command or ask for help from the students who are watching.
- Students who are watching, are to raise their hand if they hear an error in the command or if the student turtle does not correctly follow the commands given. It is easy for the student turtle to interpret what the command meant, but the objective of the task is to give and follow accurate commands.

Repeat the process for cards numbered 2, 3, and 4 with different students as the "turtle" and the "commander".

### **Challenge your students:**

To raise the level of difficulty, place the commander so that they are facing the turtle at HOME. This encourages the student to stretch their ability to give accurate commands, as a right turn for the turtle is a left turn for the commander.

For another challenge, place the commander so that they face the student turtle's left or right side. Again, this stretches their ability to give accurate commands as they are not aligned with the student turtle.

Card number 5 is used for a super challenge. Before selecting the student turtle and commander, block off up to 6 squares with **No Trespassing** squares. Place them in squares that block a direct path to the targeted space. Tell the students that these are no trespassing squares and they may not be used by the

student turtle to reach card number 5. The commander must give commands that move the student turtle around the obstructions to reach card number 5. You can extend this challenge by asking a second student to give commands to reach card number 5, but using a different path.

When you are confident all students are familiar with the process of entering accurate commands they can be sent to their computers to explore with Logo.

***Suggestions for using “Taking Off With LOGO!”***

For their first explorations, you might ask them to complete the “Taking Off With LOGO!” investigation.

They can work on parts 1 – 3, showing their results to the teacher. Then they should write in their journal to reflect on what they learned. This will give you some feedback on each student’s experiences and the level of understanding he/she is achieving.

For Homework, you might assign #4 along with the handout on the web site resources. Look for “Writing your initials in Logo.”

For a challenge for students who are quick to catch on, you can have them work on #5 or use their imagination to draw any shape or object that reflects the study of space.

Be sure to ask student to write in the journal each day.