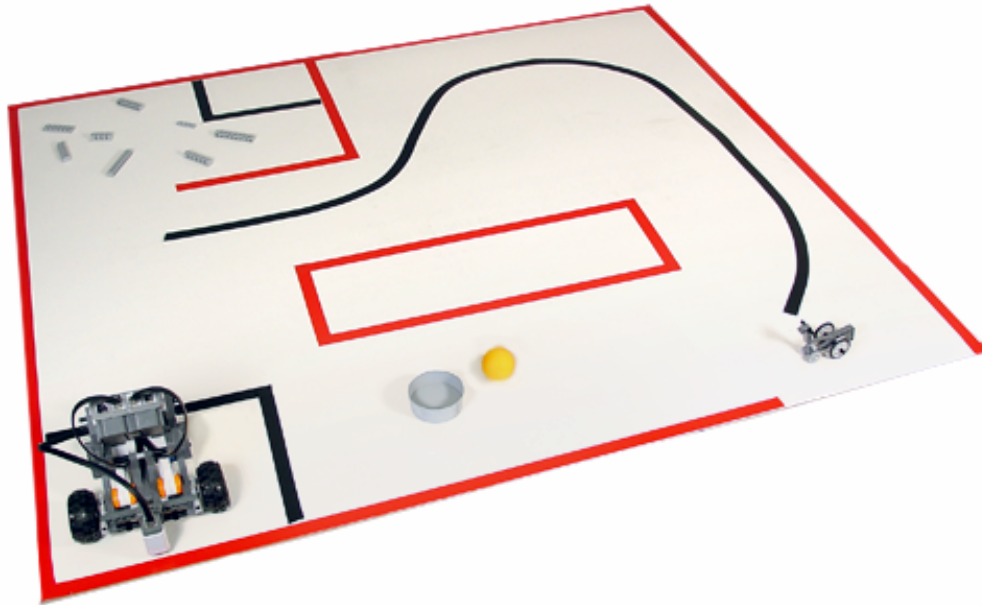


## Personal Assistant: Smart Housekeeping

Introduction to Mobile Robotics > End of Project Activities > Smart Housekeeping

### Gameboard Setup Guide

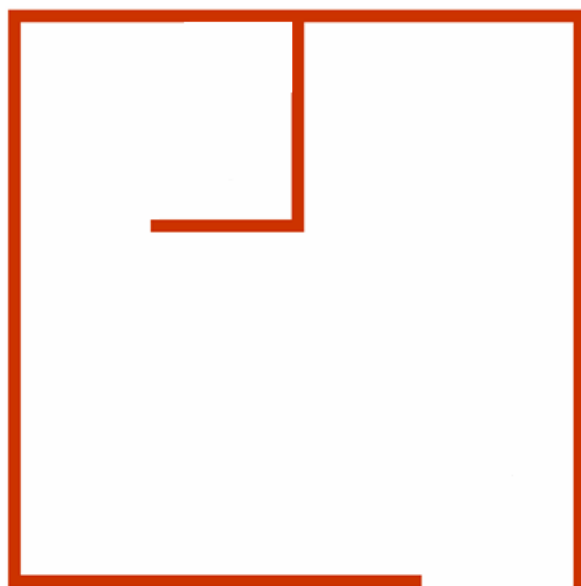


#### Materials:

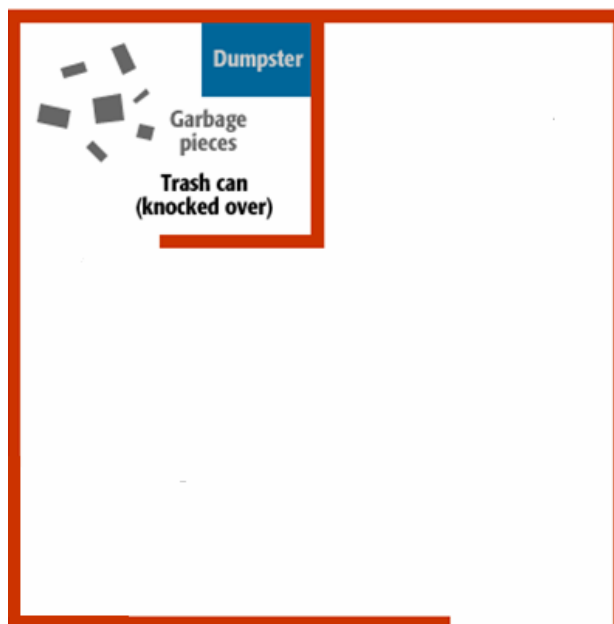
- One roll of black electrical tape
- One roll of red electrical tape
- One 4'x 4' (1.3m x 1.3m) piece of stiff board
- Trash (8 random LEGO pieces)
- A ping pong ball
- A small bowl or paper cup cut down to be 1" (3cm) tall
- A "dog" (a tennis ball, small figurine, or animal made of LEGO parts)

**Instructions:**

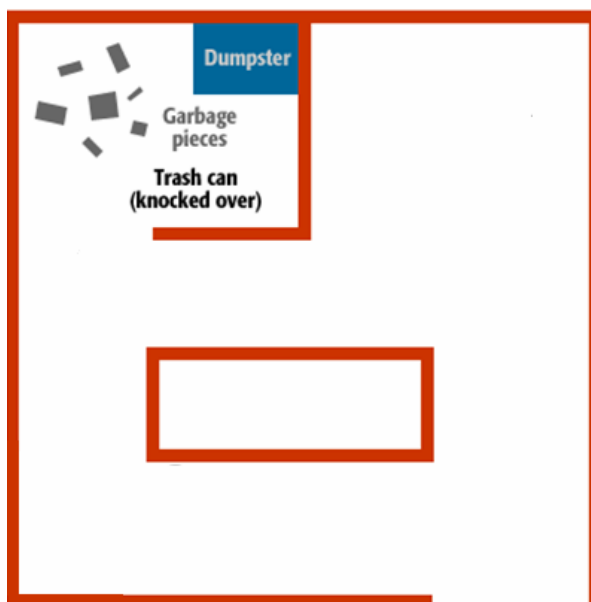
- 1) Take the roll of red electrical tape, and make a square that outlines the outside edge of the 4'x 4' board. Leave a one foot gap at the bottom right corner of the board.
- 2) Next, find the center of the top edge of the board and mark it.
- 3) Using the roll of red electrical tape, lay a vertical line of tape from the mark you made in Step 2 to a point approx.  $\frac{1}{3}$ <sup>rd</sup> of the way down the board.
- 4) Use the red tape to make a one foot (30cm) long line that runs perpendicular from the end of the line made in Step 3 to the left. The board should now look like the diagram below:



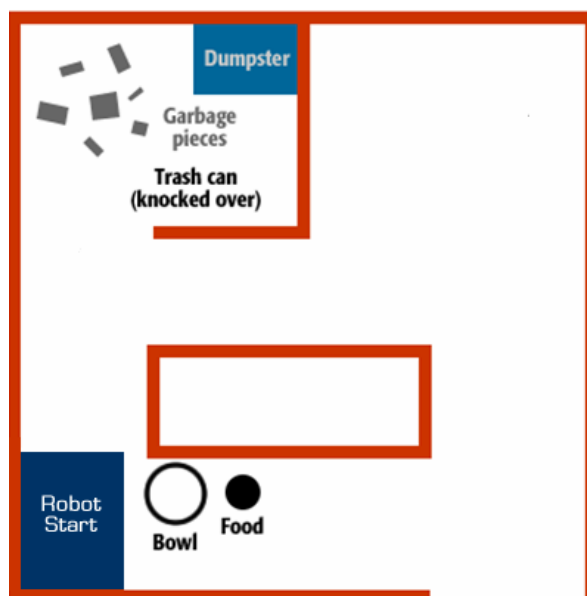
- 5) In the small section created in the top left corner of the board, use the black tape to lay out a small box in the top right corner. The small box should take up  $\frac{1}{6}$ <sup>th</sup> of that section. This is the dumpster section of your game board.
- 6) Scatter the random LEGO pieces outside the dumpster, but keep them within the small section of the main board.



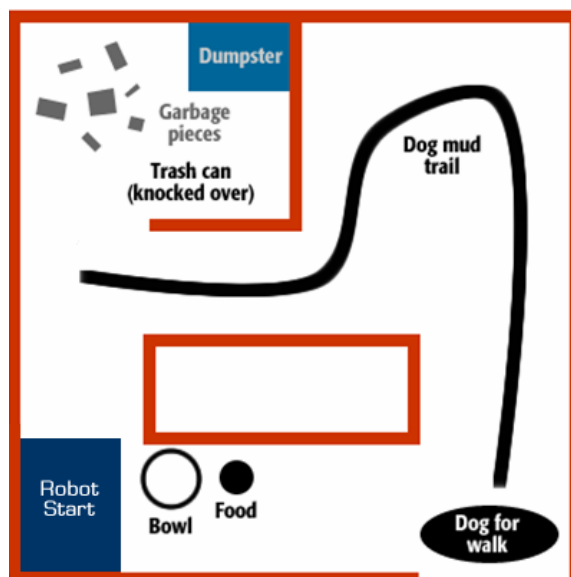
- 7) Make a mark that is one foot (30cm) below the end of the line created in Step 2.
- 8) Using the mark from Step 7, take the red electrical tape and lay a horizontal line 2 feet (60cm) in length horizontally across it. The marking made in Step 7 should be in the center of this line.
- 9) Using this line, create a rectangle that is 1 foot (30cm) wide and 2 feet (60cm) long. The line from Step 8 should be the top of the rectangle.



- 10) In the bottom left corner of the main board make a small box that will fit a robot inside. Next to the box place the bowl and the ping pong ball.



- 11) Next, use the roll of black electrical tape and make a line starting from the entrance to the trash area and ending at the exit of the main board. This line should be above the rectangle in the center of the board and around the open space in the top right corner, similar to the line in the diagram below.



- 12) Near the bottom right corner of the board, place the object that you will use as the family dog. You may choose to use an actual dog figurine, or may make a small object out of unused LEGO parts.