

The Institute for Personal Robots in Education Presents:

Making the Robot Color Arena (a.k.a Fort Scribbler)

The Robot Color Arena is a standardized environment used for several IPRE assignments. You are free to create other environments for your robots, but if you follow these directions your arena will be of the same size/shape/construction as the environment we used when developing the “Color Arena” assignments and activities.



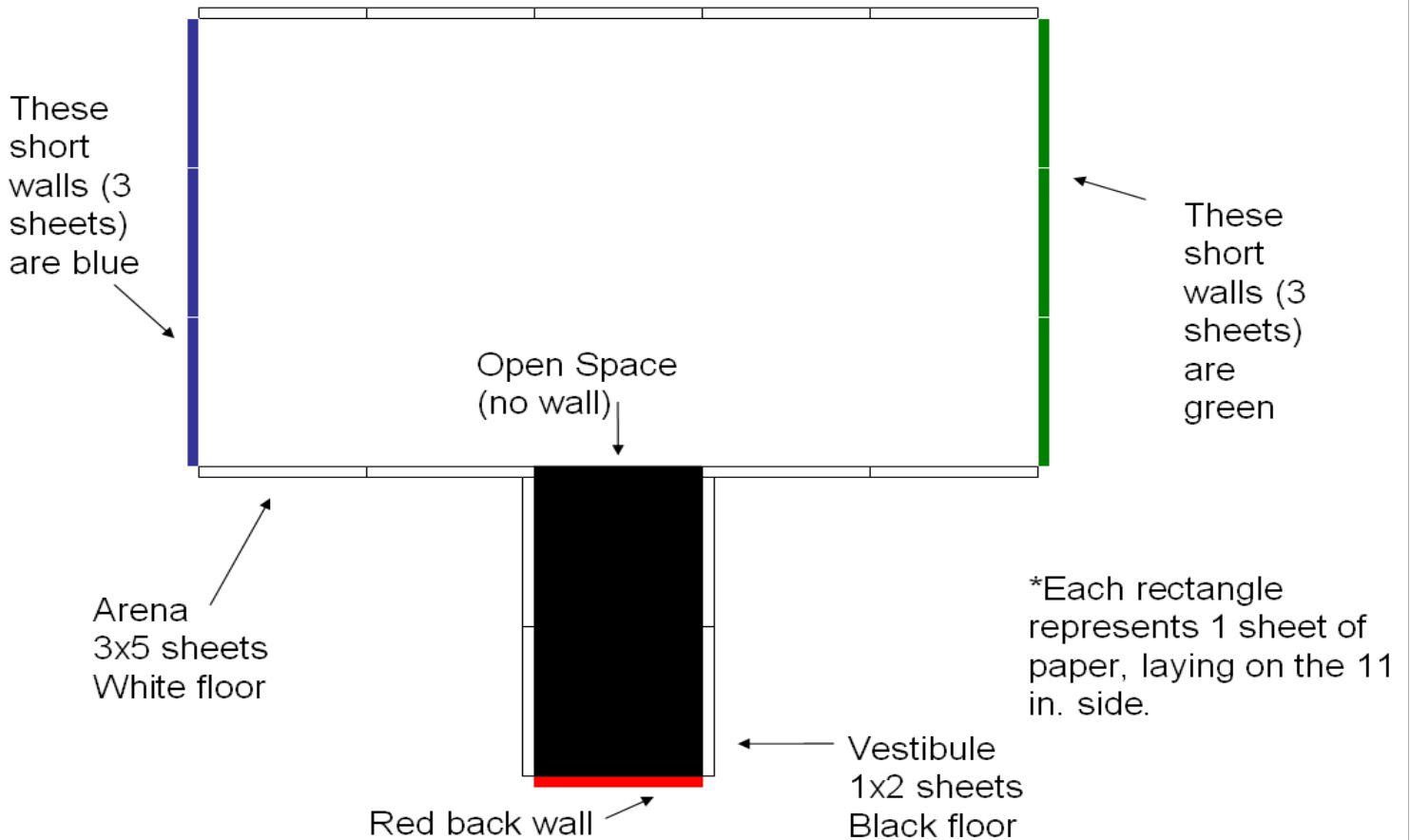
Step 1: Acquiring the necessary materials

Things you will need:

- 33 sheets of 8.5x11 white paper (such as computer paper)
- 3 sheets of 8.5x11 blue paper (such as construction paper)
- 3 sheets of 8.5x11 green paper
- 3 sheets of 8.5x11 black paper
- 1 sheet of 8.5x11 red paper
- Tape (I suggesting masking tape)
- Enough supports to hold up the walls (I suggest cardboard boxes)

Step 2: Building

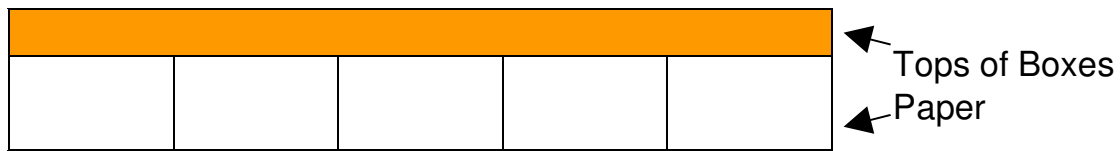
In the end, your arena will look like this:



It is best to begin by building the walls. One side is **5 sheets** of **white** paper lying lengthwise and taped together. Since paper can't support itself vertically very well, this is where the cardboard boxes (or a wall or a table or what have you; something tall, flat, and not likely to be moved, basically.) come in handy. Simply tape the pieces of paper to the boxes, and you've got walls that won't fall down. It does not matter if your supports are taller than the paper!

Note: If you use cardboard boxes, make sure to weigh them down/tape the boxes together. This way, if the robot hits the edge of the arena, the walls won't move.

Frontal Wall View:

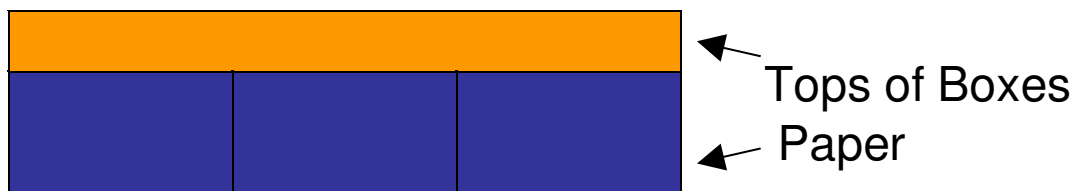


There, now you have made the first wall! Let's move on to the short walls

First Short Wall:

This is remarkably similar to the previous step, aside from 2 key differences. Firstly, you will be using **3 sheets** of paper, and secondly, the paper will be **blue**. Otherwise, it's the same deal.

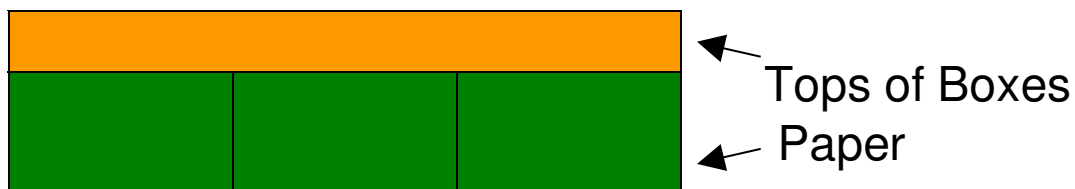
View:



Second Short Wall:

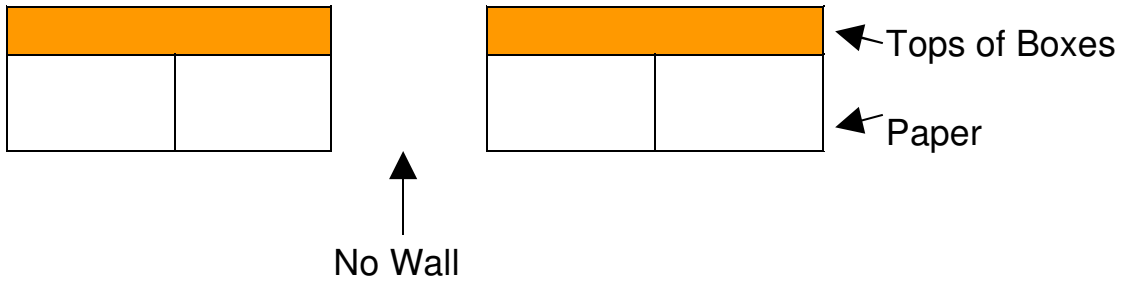
This is the same as the first, except that here you use the **green** paper.

View:

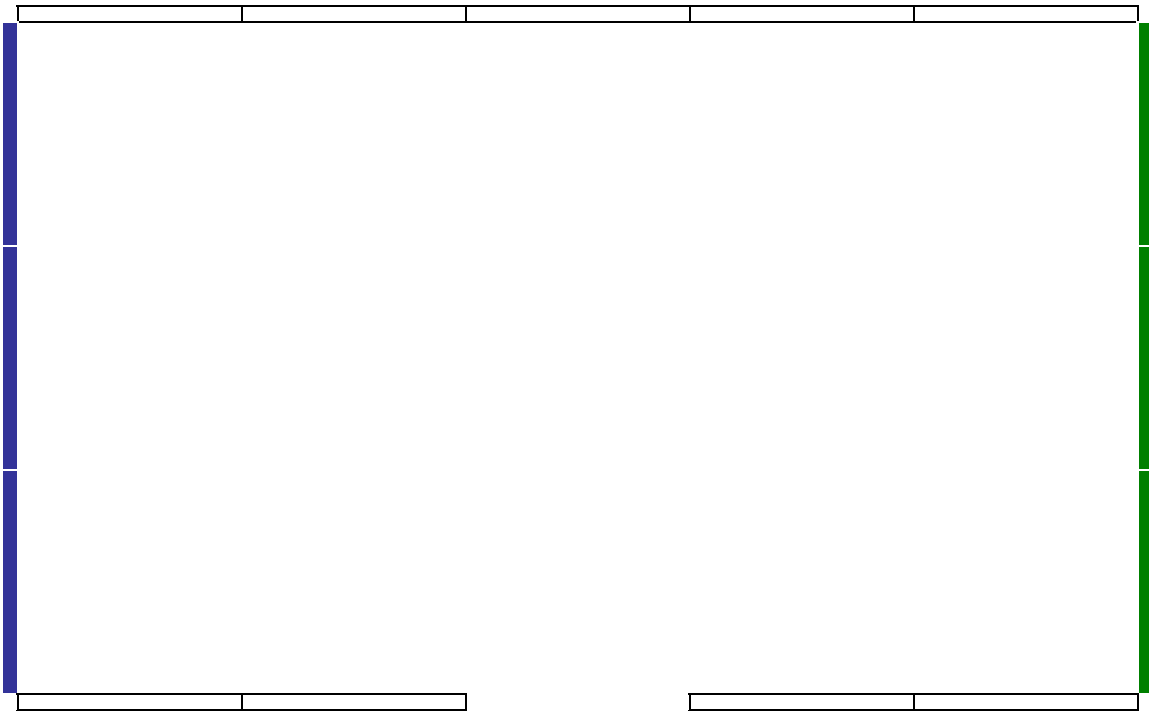


Now, for a change of pace, we shall build...another wall! For this one, you'll need **4 sheets** of **white** paper. However, instead of sticking all 4 together, we need to make a gap in the middle (this is the entrance to the vestibule, which will be built in the next step.) Thus, tape 2 pieces of paper, leave a gap the exact size of a piece of paper, and then tape the other two (obviously, you'll have two sets of wall going on here.)

View:



Now, connect the walls together into a rectangle, with the papers facing inward.
From the top, it should like this so far:

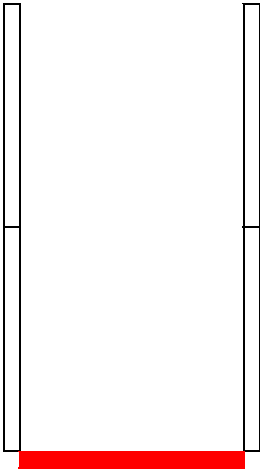


Now, we want to make the vestibule, which is a small area attached to the gap in the wall.

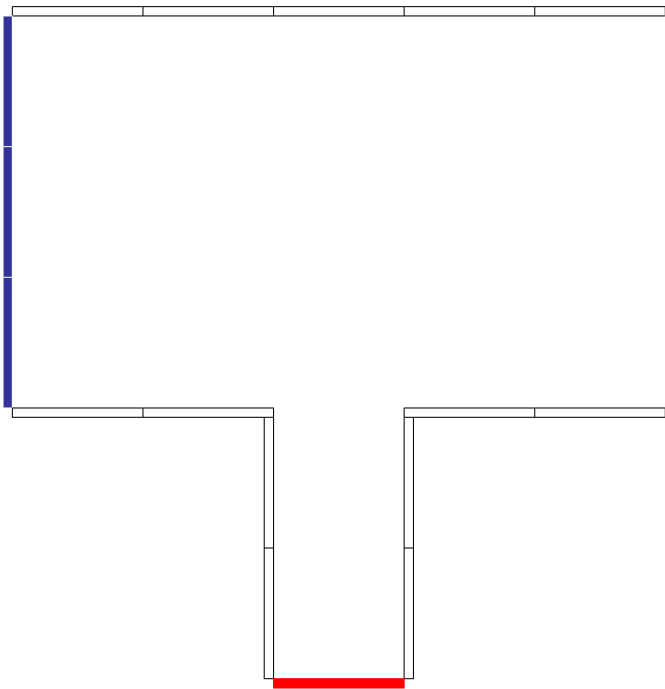
Vestibule:

You will need **4 sheets** of **white** paper and the **1 sheet** of **red**.

Since you're probably old hat at making walls, I think we can do with fewer pictures. You will make 2 long walls, each consisting of 2 sheets of white paper, still lying lengthwise and being taped end to end. For the one short wall (the back wall of the vestibule), you will use the red piece of paper, again in the same arrangement as the others. When you are finished, it should look like this:



Attach the vestibule to the gap in the main room, and you get the familiar shape from the beginning of these instructions:

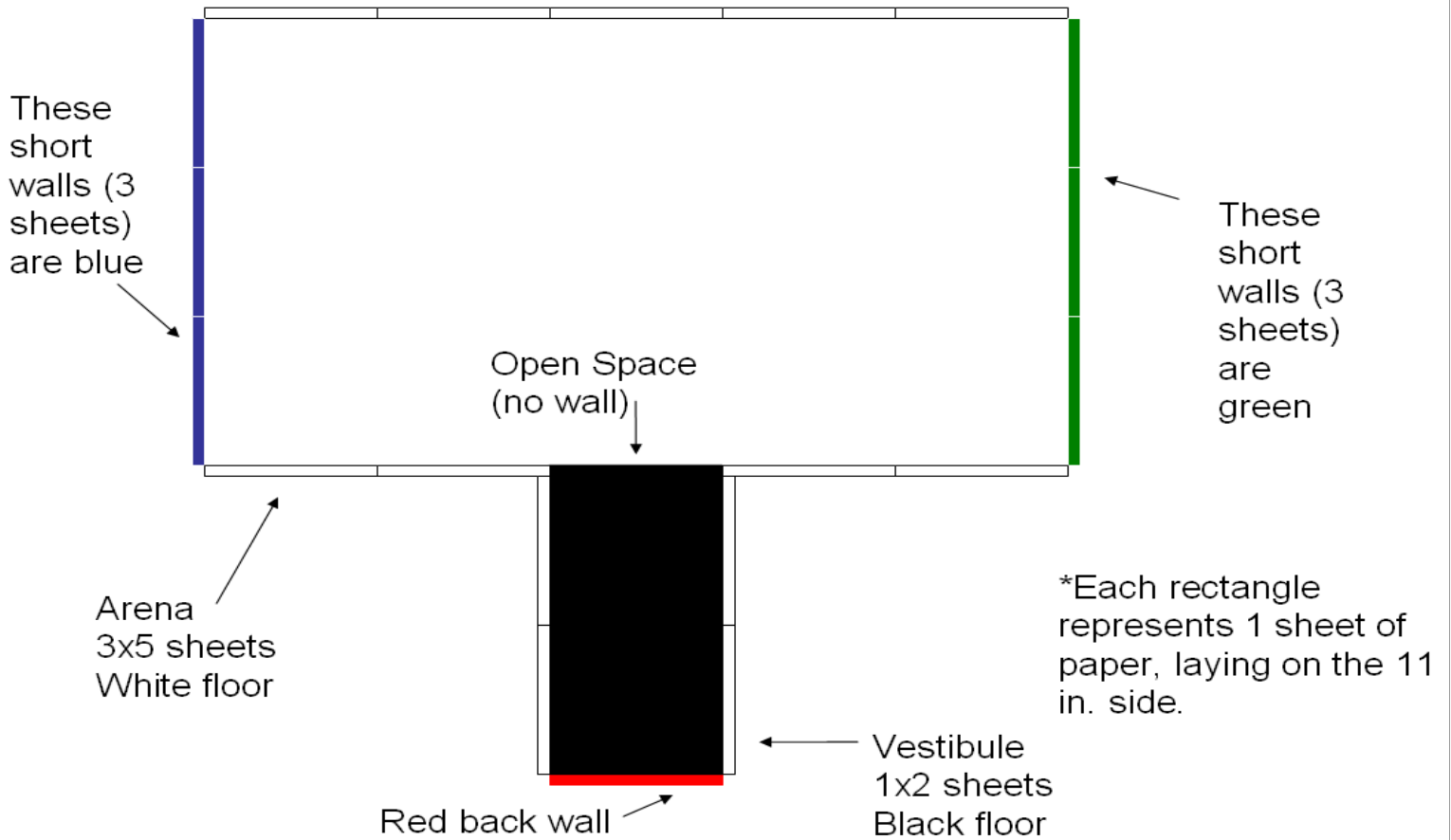


The Floor:

The floor isn't much trouble at all, it just involves a lot of tape and paper. The main arena will have a white floor, so just start taping down white paper to cover the 3x5 space. Try to keep things flat. I managed to get it covered in about 20 sheets of paper, but whatever arrangement you use is fine, provided that it's flat and **ONLY** the main arena has a white floor.

Here's where the small tricky part comes in. The vestibule needs to have a black floor, but ONLY the vestibule. There needs to be a division between the vestibule and the main floor, so the robot can find out when it's entered the vestibule.

If you've followed the instructions correctly, you'll end up with a lovely robot arena resembling the image from the beginning:



Happy Exploring! Color Arena Directions by: Melody L.L. Nailor, Photo by BoHao Li.