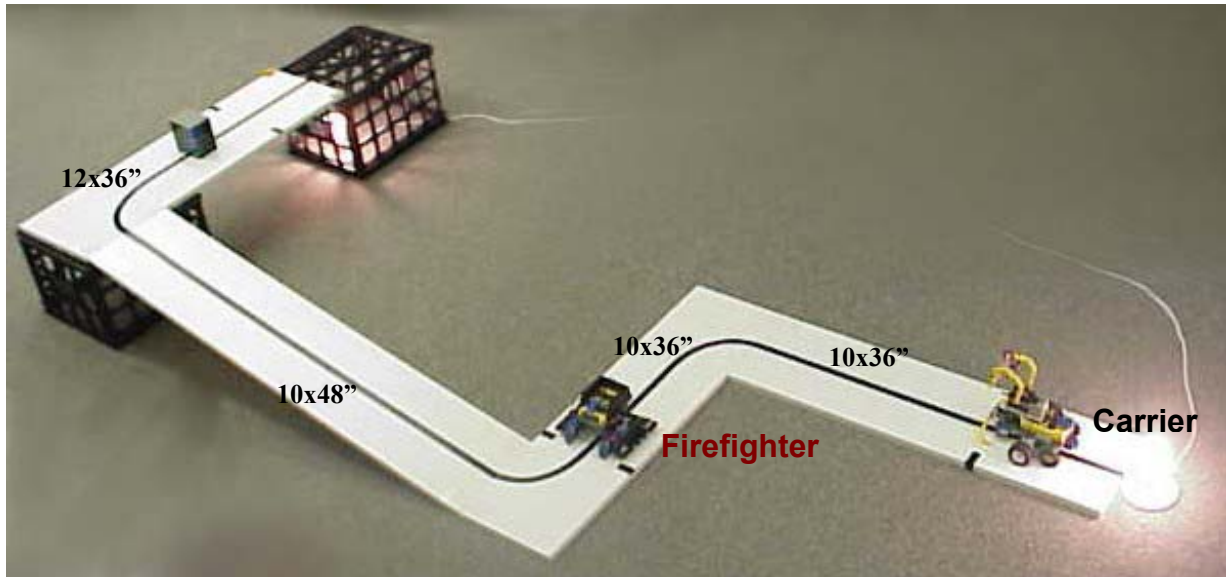


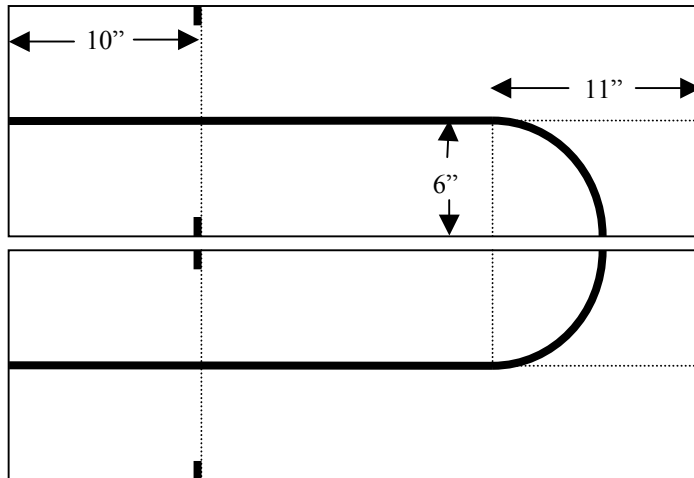
## RoboFest 2002 Playing Field Instructions and Purchase List



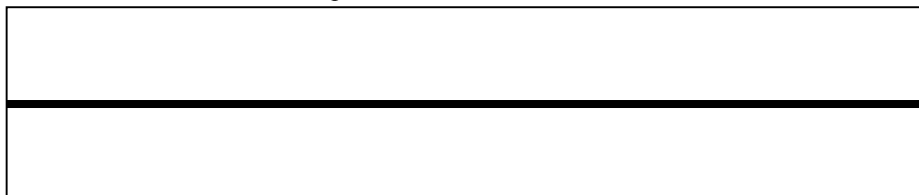
### Tracks

Multipurpose white shelves with black line as shown below are to be used. Note that the actual width of the 10"x36" bookshelves you can buy from local stores is slightly less than the specified size. The thickness of the bookshelves is about 5/8". Black standard electrical tape (width of 0.75") will be taped approximately in the middle of each shelf. The length of the tape outline for the "life-saving-zone" is 0.5 inches.

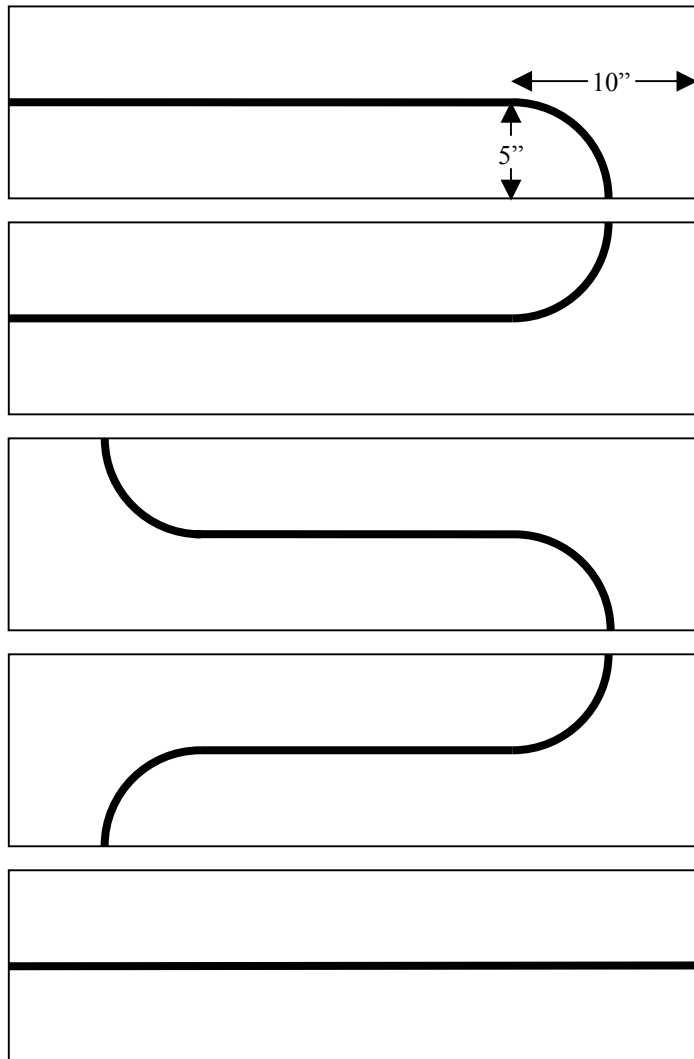
One of the following 12x36"s for the shelf on the crates:



One 12x48" is used for the ramp.



Three from the following four 10x36" shapes are to be used for the area before the ramp. Note that this means the length of the total path is unknown. The first shelf will have a starting zone of which length is 12 inches and marked by one inch black tapes similar to the ones on the 12x36" shelf.

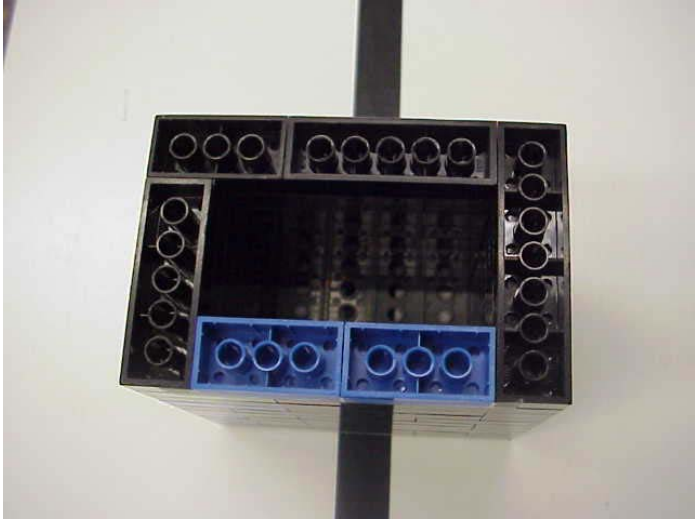
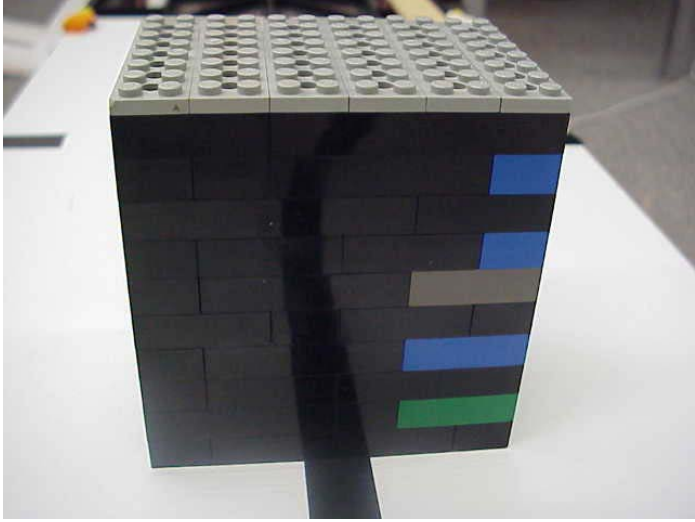


All the shelves will be scotch-taped together. Especially, white electrical tape will be used to cover the crack between the ramp and the 12x36" shelf on the crates. If your robot is using skids, make sure they are all right with tapes.

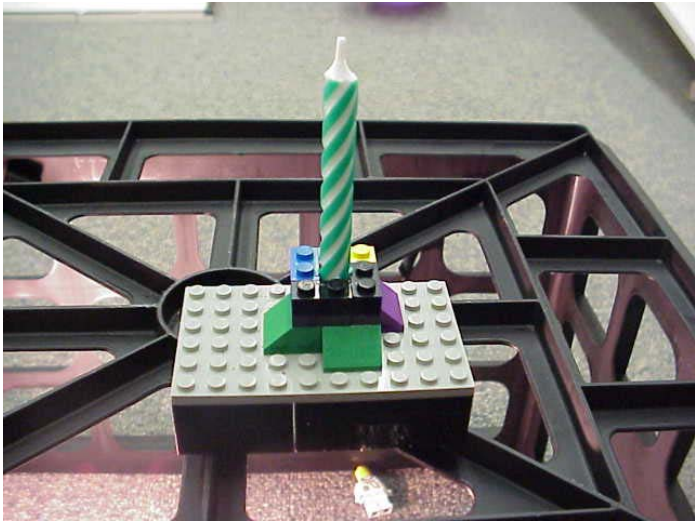
The color of the floor where the shelves will be placed is dark (dark blue). You may use this knowledge for your navigation method. Team members are responsible for catching the robot if it falls off.

### Concrete block

Made of standard Lego blocks as shown below.

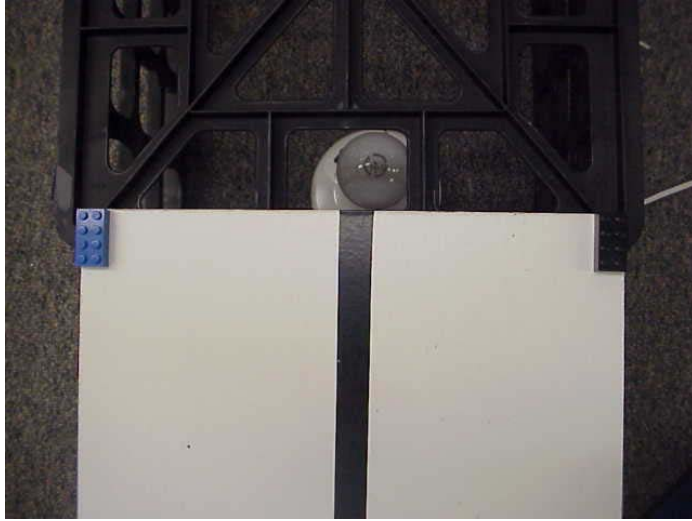


**Candle Holder for Advanced Robot Division**



## Two Trapped People

We will be using just a Lego block for each trapped person as shown below.



### Purchase list for Lego Robot Division

Item	Spec / Description	Quantity	Estimated Unit Price	Estimated Price
Plastic pull chain lamp holder (**)	Leviton	2	\$2.96	\$5.92
Easy-to-wire plug (**)	Leviton	2	\$1.87	\$3.74
Electrical wire (**)		20ft	\$0.13	\$2.60
All purpose white shelf*	5/8 thick, Approx. 10"x48"	1	\$7.89	\$7.89
All purpose white shelf*	5/8 thick, Approx. 10"x36"	2 (or 3)	\$6.29	\$12.58
All purpose white shelf*	5/8 thick, Approx. 12"x36"	1	\$7.39	\$7.39
Crate (black)*	Sterilite, 10.5" height, 13.75"x15"	2	\$2.00	\$4.00
40W Bulb (**)	GE Softwhite x 4	1	\$1.48	\$1.48
Standard electrical tape (*)	Black, PVC tape	1	\$1.19	\$1.19
			<b>Total</b>	<b>\$46.79</b>

(\*) purchased at a Meijer

(\*\*) purchased at a HomeDepot

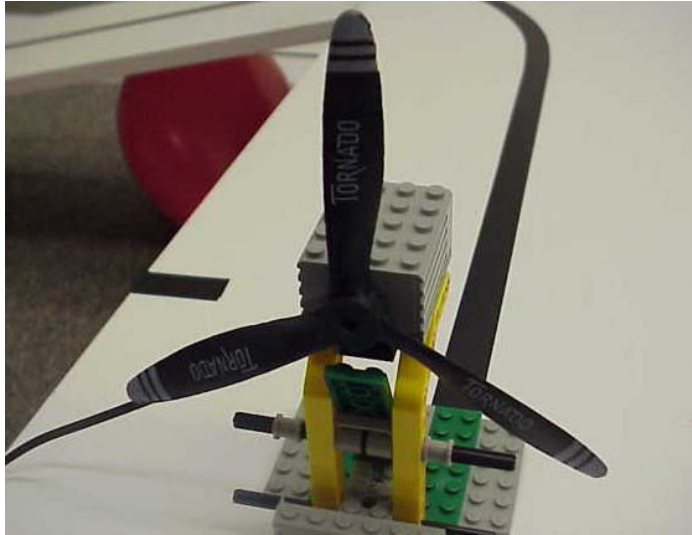
The following Lego items may be needed

- One extra 9V geared motor (Lego item number: 775225, \$16.25) for the Carrier.
- Extra Light Sensors (Lego item number: 779758, \$22.00) for the better performance (however, programming becomes harder and harder).
- Additional Lego Pieces

### Extra Purchase list for Advanced Robot Division

Birthday Candles: 3/8" x 3.5"

Fan: Use a fan with two or three wings for toy planes that you can buy from Hobby Centers such as Joe's in Farmington (248-477-6266). Here is an example: Tractor 3 blade, Magnum series, size 6-3 or 6-4, by Grish Products Inc., [www.grishproducts.com](http://www.grishproducts.com). You may need to drill the hole and/or extra material to attach it to the axle of the Lego motor.



Motors for the fan: there are three ways to construct the motorized fan

1. Use the standard Lego geared motor: You need to use gear chains to speed up the fan.
2. Use non-geared motor (L775144, \$17.50): R. P. M is faster than geared motor. Gearing may be necessary. Note that this motor is not powerful.
3. Use 9V DC motor with external 9V battery as shown in the picture below. Motors can be purchased at Radio Shack ([www.radioshack.com](http://www.radioshack.com)) or any Hobby Shop. This is the most powerful, economical, and recommended way. You may tape **only** the fan parts such as external batteries. See a photo below.



### Where to purchase Lego parts

- <http://www.pitsco-legodacta.com/>
- <http://shop.lego.com/>

However, calling the following number is better, since their online shopping cart programs do not check inventories (my last December's experience).

- ✓ Lego Dacta: 1-800-362-4308
- ✓ Lego Shop: 1-800-453-4652