

# Plegofield

*Multi-purpose*  
**Playing Field for Electronic Game Robot**

## *Instruction Manual*

*An invention of:*  
**School Of Robotics**

<http://www.schoolofrobotics.com>  
<http://www.plegofield.com>

## Preface

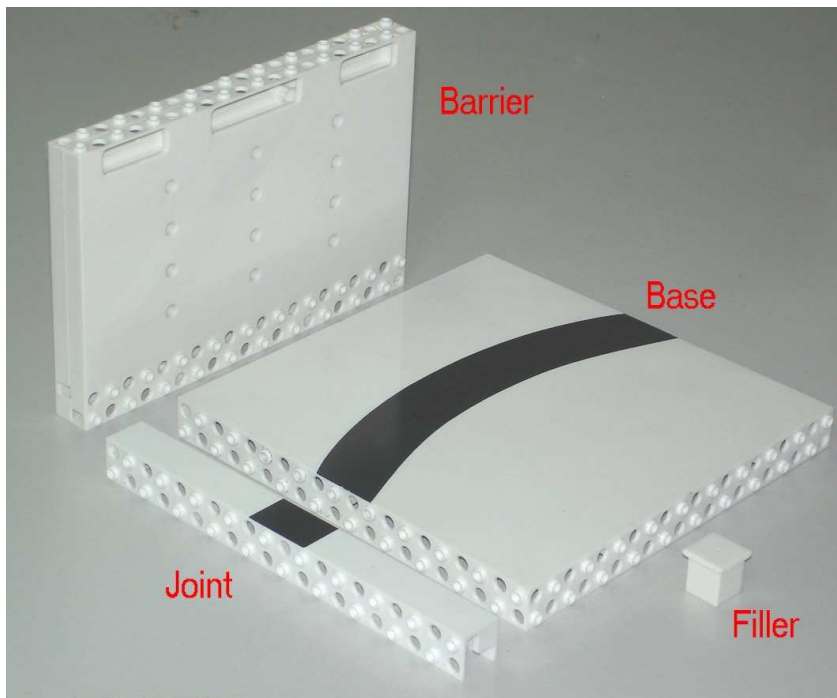
Thank you for using Plegofield. Inspiration for this invention came upon after watching the numerous students competing on a playing field using small electronic driven robots. Construction of a fixed playing field was difficult and costly. Unfortunately, without that, it was difficult for students to test their robots. I realized that schools have to balance the cost of purchasing a costly fixed playing field against using the money on other activities. Moreover, a fixed playing field is only useful for that few months. To solve their problems, I've worked out a modular playing field that can be assembled to form various challenges. It is very cost effective and never obsolete. We hope that this invention will save you time and money and bring you many hours of challenging and fun experiences. Thank you.

Lim Beng Cheng  
Principal of School of Robotics

The advantages of Plegofield are numerous however, I shall list only a few here:

- **Enjoyable, Creative.** When introduced to children, they indeed spent hours enjoying themselves creating new playing fields. In fact, creating the playing fields is by itself quite enjoyable and develops their creativity. They are also more enthusiastic to program their robots to run on their very own newly created Plegofield.
- **Sharpens Problem Solving Skills.** You can build walls to create maze that a robot must negotiate, steps for higher skills climbing robots and tilting ram of varying slopes for fresh challenges. By adding pebbles or green beans, you can add textures to the floor and see the robots being stuck there! Cruel? This can spark off the students into thinking of new robot designs to overcome problems just like the real world, which is never smooth.
- **Suitable for All Ages and Skills.** Each set has 14 different track patterns for creating tracks of different flow and different level of difficulty. Therefore making it suitable for children of all ages and skills levels.
- **Stretches Thinking Cap.** You can add Lego pieces to enhance the Plegofield and create bizarre obstacles. This will further stretch the students' thinking cap.
- **Solves Your Storage Woes.** Plegofield is Lego-like and can be re-assembled into new playing fields of any pattern and design. They can be packed up for storage and easily transported even on buses and MRT, thus saving space and convenient. It is never obsolete.
- **Durable, No Maintenance Cost.** Unlike fixed playing field that can be damaged, when a piece of Plegofield is damaged, another piece can be used and no repair is required. Furthermore, Plegofield is made of ABS plastic, which is the same type of high quality plastic used by Lego, and it is very durable.

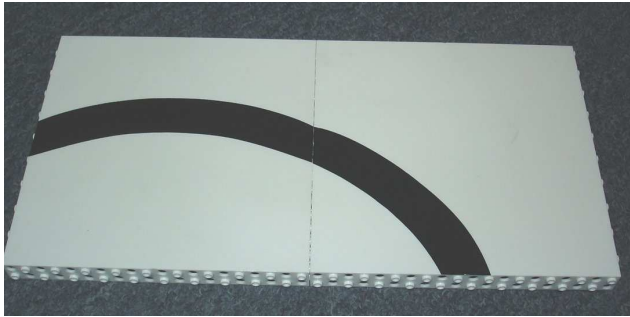
## Packing List



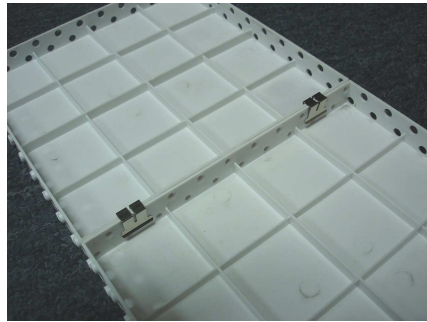
Base:	100 pieces
Joint:	100 pieces
Filler:	80 pieces
Barrier:	80 pieces
Steel clips:	720 pieces (not shown)
Clipper:	1 piece (not shown)
Container for clips:	1 piece (not shown)
Manual:	1 piece

### Notes:

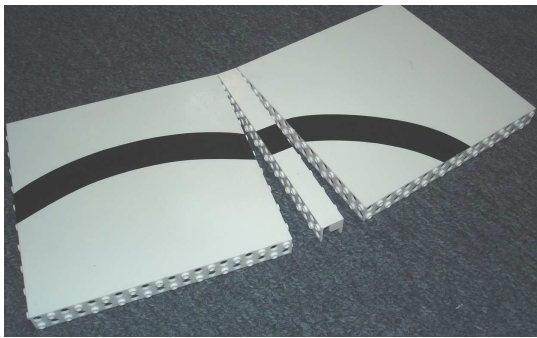
- The Base pieces come in an assortment of patterns and some pieces are not painted. Please refer to Annex A for details.
- 60 of the Joint pieces are painted as shown above. 40 pieces are plain white.



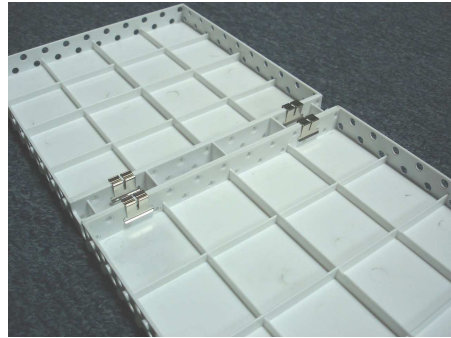
Assembling of 2 Base pieces.  
The track of each piece will meet. Depending on the pieces used, it may not be smooth curve but this will not be a problem for the robot to track.



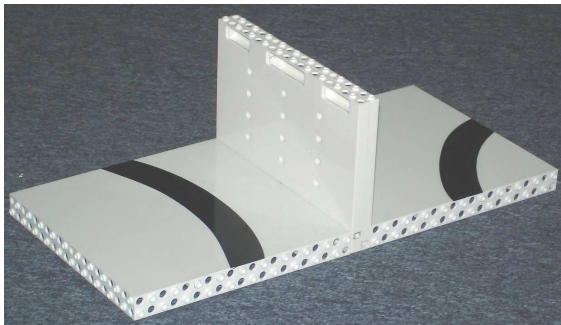
The underside view.



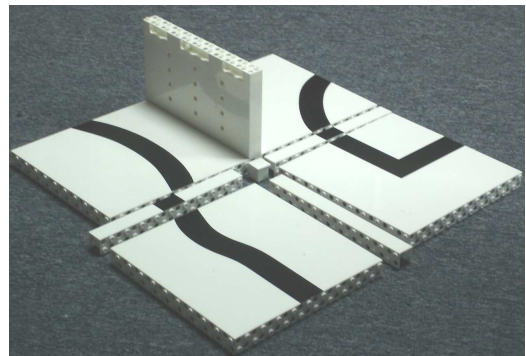
Assembling using a Joint piece.



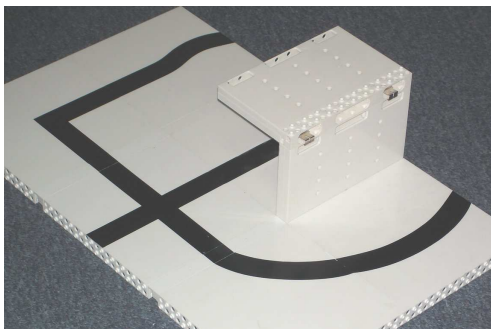
The underside view.



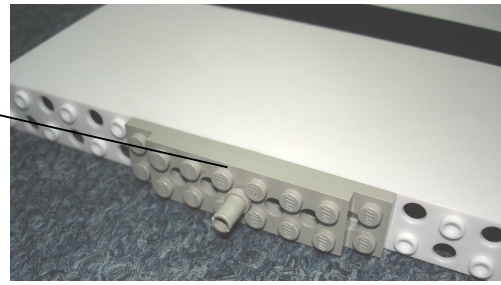
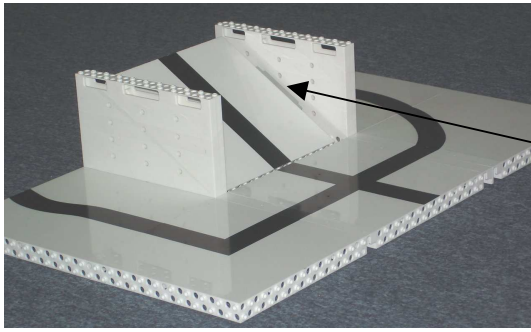
Assembling using a Barrier piece.



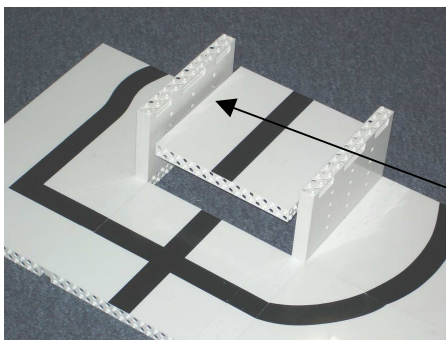
Using a combination of all types.



Using 2 Barriers to form a step.  
The challenge is for a robot to climb over or to retrieve an object under the step.

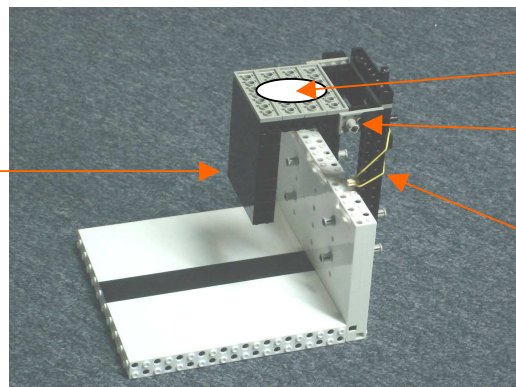


Using 2 Barriers to form a ramp (with some additional Lego parts).  
For wider ramp, 2 Base pieces can be used.



Building a step using some Lego parts.

Robot pushes  
here to cause  
object to drop.



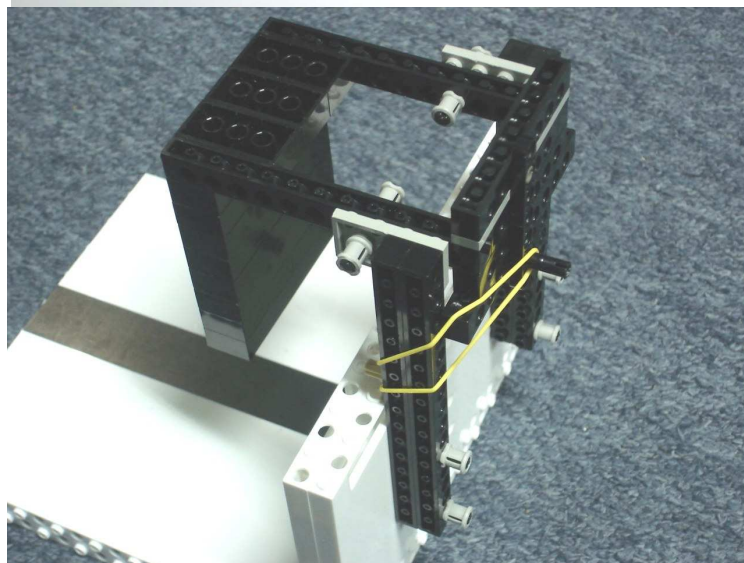
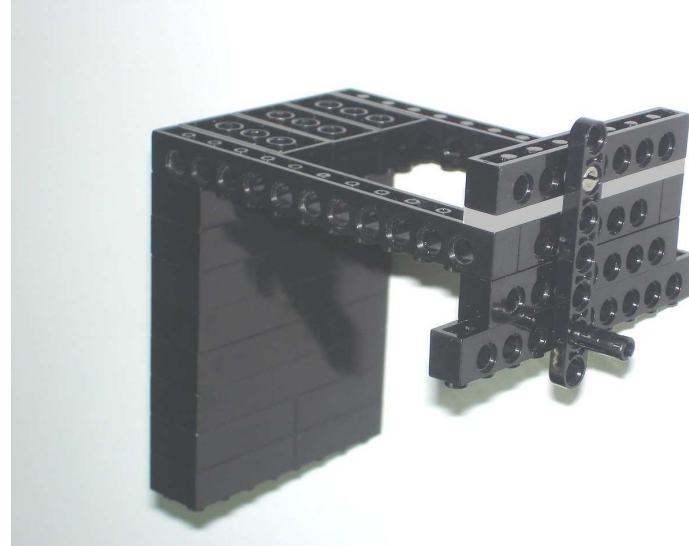
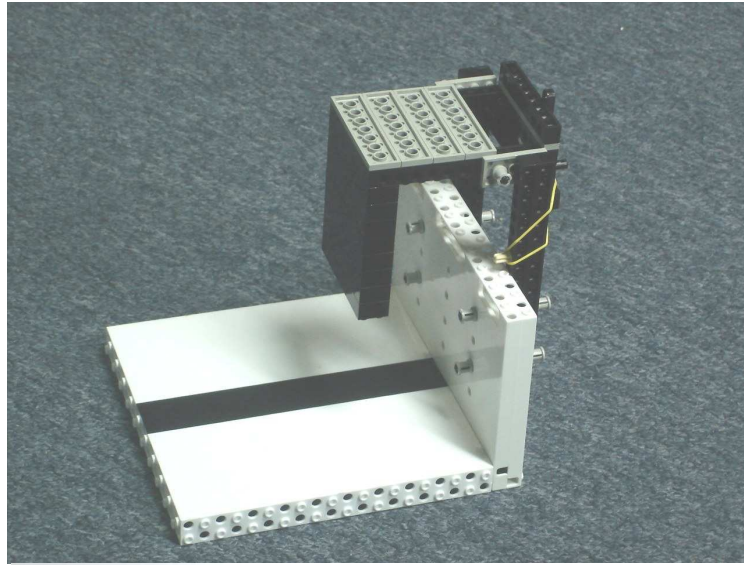
You can place object here.

Pivot of Rocker.

Rubber band to provide  
tension and to hold rocker  
in position.



## Detailed construction of the Rocker



## PRECAUTION



### Caution – open mouth

If the mouth of the clip is already open (due to leaving the clip on the Plegofield over long period of time, you should avoid using it. Although it can be still be used, it will not slide down easily inside the clipper. You may have to push 6 clips in the clipper to push it down. It's a little troublesome.



### Caution – watch your weight

Do not step on the Plegofield. It is not designed to withstand the weight of a person standing on it. It can break.

### Caution – clipper care

When using a new clipper for the first time, it may be a bit difficult to push the clips out. This is because the clips are very tightly guided along the passage. However, after about 10 pushes of the clips, the passage will be smoother and clipping becomes easier.

If you store the clipper together in the same container as the clips, some of the clips may get into the clipper via the clipper clipping end. This can impede the clipper's ability to operate.

**You must remove the offending clips that enter from the wrong end before usage.**

*Tips: Either keep the clipper in a plastic bag before putting it into the same container as the clips or fill the clipper with the maximum of 7 clips to minimize chances of the clips getting in from the wrong end.*

### Caution – plastic is not unbreakable

Although they are made using ABS plastic that is a very high quality and durable plastic well known for its precision during production. It will not break when dropped but the corners can be dented. Unlike small pieces, large pieces are breakable if you apply forces to bend it. Therefore during assembling, the pieces are overturned. After assembling, turn it gently over getting help from a few people and supporting the playing field on all sides. Do not lift it on one side as the weight can over stress the pieces and causes cracks.

## Annex A

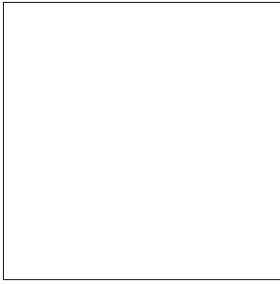


Fig 0 – 38 pieces

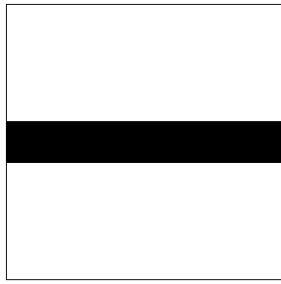


Fig 1 – 14 pieces

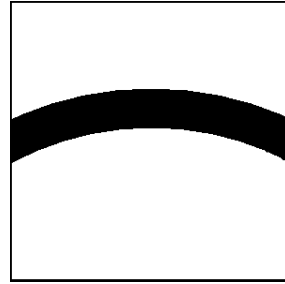


Fig 2 – 10 pieces

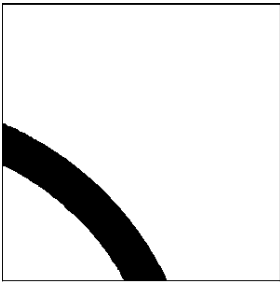


Fig 3 – 4 pieces

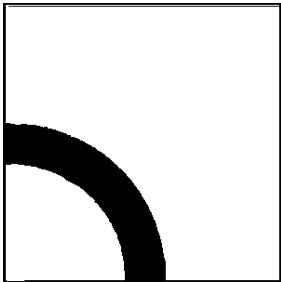


Fig 4 – 8 pieces

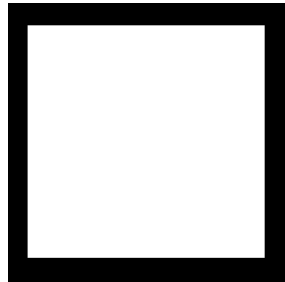


Fig 5 – 2 pieces

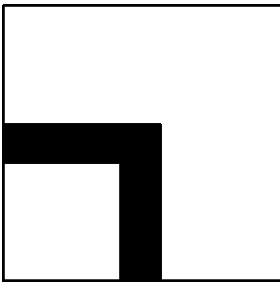


Fig 6 – 4 pieces

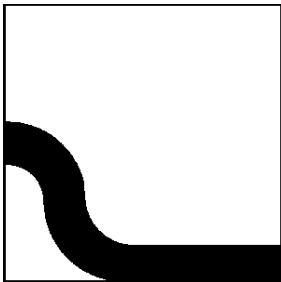


Fig 7 – 1 piece

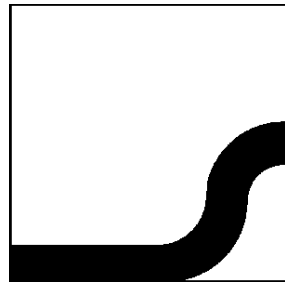


Fig 8 – 1 piece

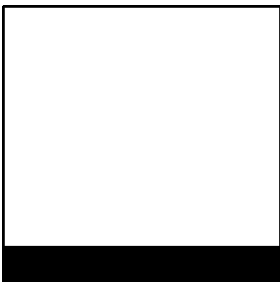


Fig 9 – 3 pieces

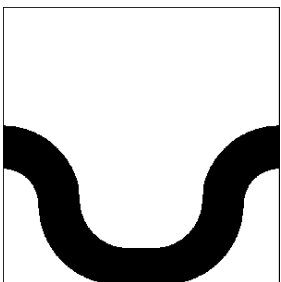


Fig 10 – 4 pieces

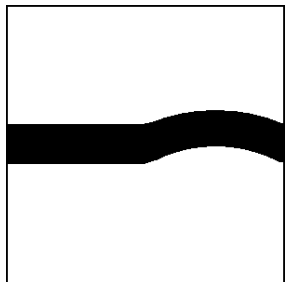


Fig 11 – 4 pieces

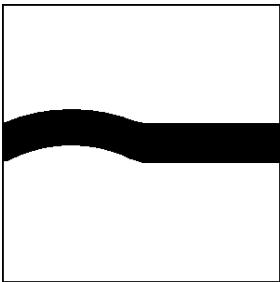


Fig 12 – 4 pieces

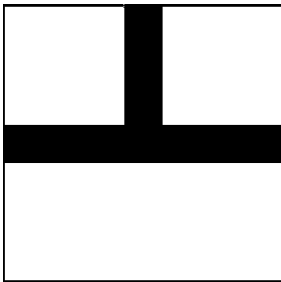


Fig 13 – 2 pieces

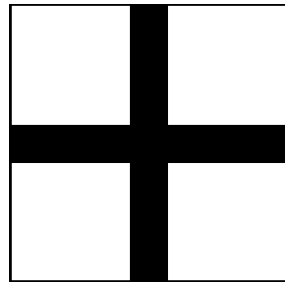


Fig 14 – 1 piece