

# VEX Robotics Competition In the Zone – Appendix A

## Low Cost Field Options



### Introduction

The field components and game objects used in *VEX Robotics Competition – In the Zone* are all available for purchase from [www.vexrobotics.com](http://www.vexrobotics.com) (P/N 276-5544 and P/N 276-5370), however not every team needs the exact objects which will be used at official VEX Robotics Competition Tournaments. This section will outline some options for teams wishing to use lower-cost substitutes for field objects.

### Field Perimeter Cost Reduction

*VEX Robotics Competition – In the Zone* utilizes the VEX Competition Field Perimeter (278-1501) as the outer edge of the playing area. This custom sheet-metal and lexan frame is robust and designed to be a high-end solution for anyone holding a VEX Robotics Competition. In some cases, however, having a high-end rigid perimeter wall is not important. Some teams may wish to practice with something as simple as a perimeter of tape laid out on the floor. For information on cost reducing the field perimeter and for detailed plans to construct one example of a low-cost perimeter consult the Low-Cost Field Perimeter Guide.

### Field Object Cost Reduction

The field objects specific to playing *VEX Robotics Competition – In the Zone* are available from [www.vexrobotics.com](http://www.vexrobotics.com). These objects include the Starting Bar, Stationary Goals, Loaders, as well as the Mobile Goals, Cones, and Hardware.

The key things to think about when cost reducing these field objects are the following two questions:

1. What field functionality do I actually need?
2. How can I achieve this functionality with the minimum effort and cost?

The simplest way to reduce cost is to use less. Does every team need a full set of Cones? Maybe a handful is enough for prototyping and practicing. Does the team need eight Mobile Goals?

There are a variety of reasons to build or purchase field objects, in many of these cases the official "spec" field components are unnecessary. By analyzing the functionality needed for an application, one can build a "stand-in" object which will interact with robots in the same manner as an 'official' component. These "stand-in" objects can be extremely useful during the prototyping phase of the design process.



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## **Example Prototyping Ideas**

As discussed above, when considering building unofficial field objects, consider the functionality required. A mock-up Stationary Goal could be as simple as a cardboard tube cut to length. It may be possible to build the entire field out of wood and successfully simulate robot functions – it just depends what is being tested.

Detailed specifications for the “official” pieces are included in Appendix A – a team must determine which dimensions are important for their mockups and build them accordingly.

Every school will receive two sample game objects in their welcome kit. These samples should help teams to learn about the nature of the objects, but also to find things they can use to simulate objects. The samples will provide a good benchmark as teams look for “placebo” objects.

## **VEX In the Zone Practice Kit**

VEX Robotics is happy to offer lower-cost kits to VEX Robotics Competition participants who do not wish to purchase a full field. The Game Element Kit includes a number of Cones as well as two Mobile Goals. With this kit (and some PVC pipe for Zones) teams can build enough for their robot to test its scoring abilities.

More information on these kits is available in the *VEX Robotics Competition – In the Zone* section of [www.vexrobotics.com](http://www.vexrobotics.com).

## **Further Questions**

Any further questions should be directed to the VEX Technical Support & Community Forum at [www.vexforum.com](http://www.vexforum.com). There is a section specifically for the VEX Robotics Competition including a Q&A section where teams can ask for official rulings from the VEX Robotics Competition Game Design Committee, and will receive answers from the GDC Chairman – Karthik Kanagasabapathy. Look for “Official In the Zone Q&A.”