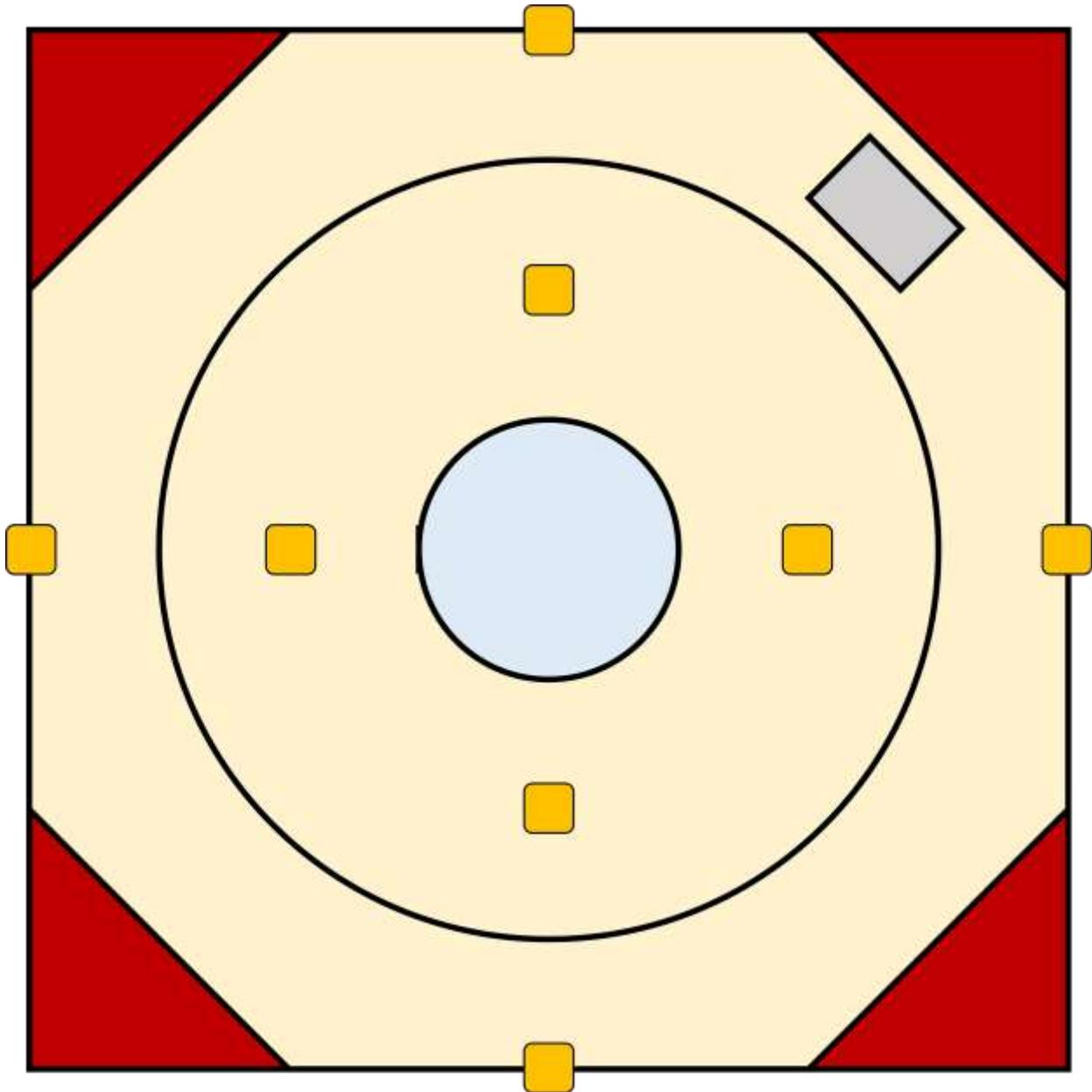


Boys and Girls Club 2015-2016 Game

The Game



This year Skunk Works Robotics has designed our own version of a FIRST Lego League competition for you all to play. The image above this paragraph shows the basic outline of the arena that you all will be building robots to play in. The main objective of this game is to build a

robot out of your own EV3 kit of parts to complete various objectives. There are a variety of ways that you can score points, and so it's up to your teams to create the best strategy, to create a robot to play through your strategies, and refine your design to improve your score. We hope it's fun for you guys, and we think it will be a great challenge for you all to conquer!

Playing the Game

In this game each team will use the robots they build to compete in matches with a two minute duration. The objective is to score as many points as possible in this two minute period. It will be a challenging task, but if a team is able to build a build the perfect robot they will score a total of 160 points. Points can be scored in the following ways:

1. 2 points for each of the ten rubber ducks they are able to place into the pond, the circle in the middle of the field
 - a. Ducks will be considered to be scored if any part of the duck is touching the pond, and this includes the line around the pond
2. 10 points for each rubber duck placed into the crate, a 3" x 8" x 1" box located near one of the corners of the field
 - a. If a team is able to push the crate into the pond, they will score both the 2 points for the duck being in the pond and the 10 points for the duck in the crate. This mean if the crate is in the pond with three ducks, a total of 36 points will be scored (3 x 2 for the ducks in the pond, and 3 x 10 for the ducks in the crate).
3. 10 additional points can also be scored by driving through one of the gates, the pairs of posts located along the track, or outer circle, of the field
 - a. Teams can program their robot to drive through the gates in any direction
 - b. But be careful! If either one of the posts, one of the wooden halves of the gate, falls over, that team will lose 5 points

Action	Points
Moving ducks to the POND.	2pts per DUCK
Placing ducks in the DUCK CRATE	10 pts per DUCK
If the CRATE is in the POND	2 pts Bonus per DUCK
Moving ROBOT through the GATE	10pts per GATE
Knocked down GATE POST	-5 pts per GATE

While these are the ways that your robot can score points in this game, there are a few more rules to consider while building your robots:

1. Robots must be able to completely fit inside of one of the interaction zones at the beginning of the match
2. Human players (that means you!) can touch your robot while it is in any of the interaction zones as well as game pieces that your robot pushes into any of the interaction zones
 - a. This means that you can pick up your robot in an interaction zone and have it start in a different interaction zone
 - b. You can have your robot end one line of code in an interaction zone so that you can start it with a different line of code
 - c. And you can even have your robot push ducks into the interaction zone so that you can pick them up and place them directly into your robot
 - d. Though be careful with the crate, if the crate ever touches the line of an interaction zone, the crate will be returned to the crate zone by a referee
3. The two minute match timer starts from the first time a team hits the “go” button on their robot
4. Once a robot has successfully driven through or knocked over a gate, a referee will remove both gate posts from the arena
5. In order to be considered “inside” a zone, a game piece or your robot only has to be touching the line of that zone. For example a duck with just part of the base touching the line of the pond will be considered “inside” the pond. Additionally, a robot with just one part of the robot touching somewhere inside the interaction zone will be considered inside the interaction zone

Scoring Points

And so that’s how the game is played. This next set of rules is only for the referees to help streamline scoring matches. Referees will hand teams poker chips to help tally their final scores based on the following table:

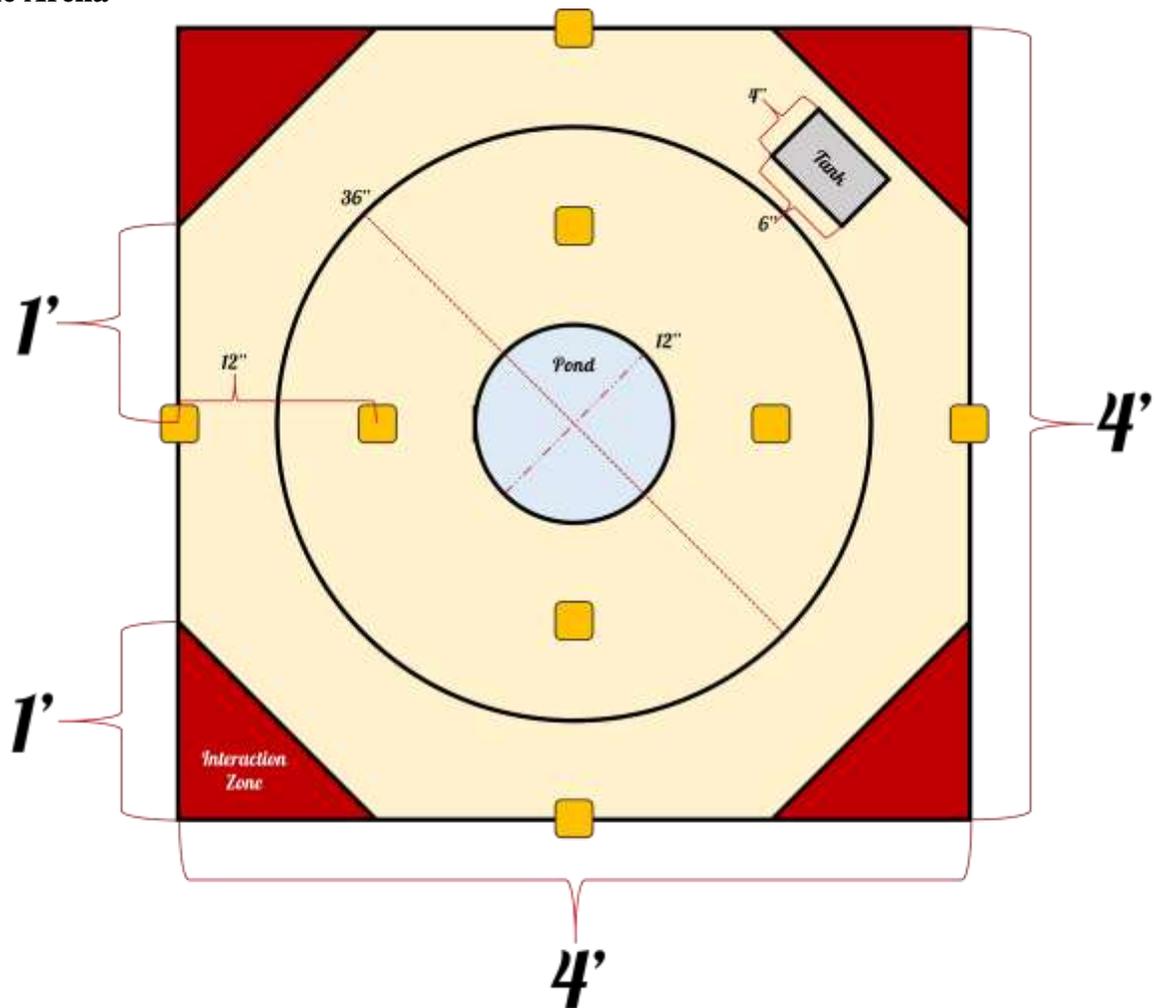
Color	Point Value
White	2 Points
Blue	10 Points
Red	-5 Points

You’ll notice that each of these point values corresponds with an action in the game. For each duck in the pond, a team will get a white chip. For each gate that a robot drives through or each duck placed in a crate, a team will get a blue chip. And finally for each gate that gets knocked over, a team will receive a red penalty chip.

Glossary

- This game is played on a 4x4 ARENA made out of whiteboard material
- There are 8 wooden POSTS that are positioned in pairs of two, and each pair will be referred to as a GATE
- A POST refers to one of the two wooden pieces that complete one GATE
- On the field there will be 10 DUCKS
 - 5 DUCKS will start on opposite sides of the field
- The four corners of the field are called the INTERACTION ZONE
- The CRATE is the wooden box with dimensions H: 1" W: 8" L: 3"
- The POND is the interior circle with a diameter of 12"
- The TRACK is the exterior circle with a diameter of 36"
- Each team will make one machine from their EV3 kit and this machine will be referred to as the ROBOT
- The CRATE ZONE is the location on the field near one of the INTERACTION ZONES where the CRATE will be placed at the beginning of the match and it is marked by two white lines that outline where the CRATE starts

The Arena



- The ARENA is made out of a 4' x 4' whiteboard material
- The interior circle, or POND, has a diameter of 12" and its center is located at the center of the 4' x 4' ARENA
- The exterior circle, or TRACK, has a diameter of 36" and its center is located at the center of the 4' x 4' ARENA
- There are four sets of two posts called GATES that are placed with a 12" separation between each post
 - The outermost post of the GATE is located in the center of each side of the ARENA
- The CRATE is made out of a 3" x 8" x 1" box
- The INTERACTION ZONES are triangles with side lengths 12" measured from the corners of the ARENA
- The DUCKS can be placed near any INTERACTION ZONE with 5 DUCKS placed on each of two opposite sides of the ARENA