



The Game:

Cascade Effect is played on a 3.66 m x 3.66 m (12'x12') square Field with approximately 30.5 cm (1')-high walls and a soft foam mat playing surface. Two randomly selected teams are paired together as an Alliance to play a match against a second Alliance. Alliances are designated as either "Red" or "Blue."

Scoring Elements are 160 white plastic balls - large (40) and small (120). In the middle of the field is the Center Field Structure which contains two Ball Dispensers with trap doors held in place by Alliance-specific Kickstands. There are also two Center Goals - one Red and one Blue - with Infrared Beacons placed beneath each Goal. The field has six Alliance-specific Rolling Goals with clear Ball Tubes of various heights (30 cm, 60 cm, 90 cm) as well as two Alliance-specific Ramps, Platforms, and Parking Zones.

At the start of the Match, the Balls (large and small) are loaded in the Dispensers in the Center Field Structure. Each Team is given two balls (one large and one small) that can be pre-loaded onto their robot.

Autonomous Period: The Match starts with a 30-second Autonomous Period where Robots are operated via pre-programmed instructions only. Prior to the start of the

Autonomous Period, the Center Structure will be rotated to one of three positions. Points will be awarded for Robots achieving certain tasks including placing Autonomous Balls in the Rolling Goal and/or Center Goal, Robots moving off the Platform, knocking over the kickstand (and releasing balls into the field of play), and moving their Rolling Goals into the Alliance's Parking Zone.

Driver-Controlled Period: In the next two minute Driver-Controlled Period, Robots are tasked with collecting Balls and placing them in the Rolling Goals. Balls Scored In the Rolling Goals are worth points based on the length of the Ball Tube and the Ball Height (at the end of the Match), as shown in the table below.

End Game: The last 30 seconds of the Driver-Controlled Period is called the End Game. During the End Game, Robots may Score Balls into the Center Goal as well as the Rolling Goals. Teams can also earn bonus points for every Robot and Rolling Goal that is not in contact with the floor when the Match ends and by moving their Rolling Goals and/or Robots into the Alliance Parking Zone.

Game Period	Autonomous Period	Driver-Controlled Period	End Game
<i>When Scored</i>	<i>End of Period</i>	<i>Scored at End of Game</i>	
Driving from Platform On to Playing Field floor	20 points		
Releasing the Kickstand to distribute Balls	30 points		
Autonomous Ball In any Rolling Goal	30 points/Goal		
Autonomous Ball In Center Goal	60 points		
Moving Rolling Goal In Parking Zone	20 points/Goal		
Balls Scored In 30 cm Rolling Goal		1 point per cm	
Balls Scored In 60 cm Rolling Goal		2 points per cm	
Balls Scored In 90 cm Rolling Goal		3 points per cm	
Robot / Rolling Goals In Parking Zone			10 points/item
Robot / Rolling Goals Completely Off the Floor			30 points/item
Balls Scored In Center Goal			6 points/cm