

## Game overview

Ahoy mateys! Welcome to this year's game: Pirate Plunder! Two fleets of buccaneers are sailing the seven seas looking for treasure. Alliances must store gold Doubloons on Treasure Island, hire crew mates to keep watch over their treasure, and climb aboard their Masts before the Kraken awakes.

Robots start on their Hideout and may preload up to 2 Doubloons. Additional Doubloons are located in the Ports, Reefs, and Atolls. During the first fifteen seconds of the match, robots autonomously disembark from their Hideout to gather and bury Doubloons for double the points. Alliances work to hire additional crew mates by depositing Doubloons onto the Bidding Table. The fleet with the highest bid has their side of the bidding table light up, indicating their treasure is more secure and worth more.

During the following two minute and fifteen second teleoperated period, alliances continue collecting Doubloons off the seafloor. Doubloons are buried into the low Beaches and high Mountains of Treasure Island, and fleets that bury enough Doubloons will receive one ranking point. Doubloons are recycled through the human player treasure chest on Treasure Island. Ports along the alliance wall load robots with limited supplies of Doubloons. As fleets increase their non-refundable security bids, Doubloons become more scarce throughout the archipelago.

In the final thirty seconds of the match, pirates race to escape the waking Kraken. They park on their hideout, ascend their masts, and raise their Jolly Rogers to escape the beast. The alliance that lights up their flag first receives additional points. Fleets that successfully evade the Kraken receive an extra ranking point. Stash your fortunes, batten down the hatches, and get all hands on deck for this year's game: Pirate Plunder!

## Description of notable field elements

Pirate Plunder is played on a ~61' by ~27' carpeted playing field. 80 gold Doubloons—size 1 soccer balls approximately 6" in diameter—are scattered throughout the field and player stations. Each alliance has an Atoll, a 3" elevated 6'x6' protected shooting platform made of HTPE. The Reefs, situated along the player station, houses Doubloons encased by 3"x1" steel boundaries. Ports are human players' stations that store 16 Doubloons and are located on the opposite side of the player station.

Robots start fully contained on their elevated Hideout—the section of the large center platform that matches their alliance color. On top of the central platform lies the Bidding Table. The Bidding Table resembles a large seesaw that tips towards an alliance when Doubloons are placed into it.

Robots can score either on the Beach Goal or the Mountain Goal of Treasure Island. The Beach Goal is 20 inches high, 72 inches long, and unprotected. The Mountain Goal is a 24" by 18" rectangle 96 inches above the playing field, requiring Doubloons to be shot in. There is a protected zone directly in front of the goal. Each alliance also has an Atoll, a protected zone approximately 150 inches from their Mountain Goal.

An X-shaped vision target is present below each of the Mountain Goals, and all four of the loading stations. They consist of two pieces of 2" 3M 8830 Scotchlite Reflective Material. Teams may use vision tracking to aim their shots into the Mountain Goal.

## Description of expected robot actions

During autonomous, robots disembark from their Hideout and score their two pre-loaded Doubloons in the Mountain Goal, Beach Goal, or Bidding Table. They may then pick up more Doubloons from the field, such as the ones on the Reef, and score those as well.

Once the autonomous period is over, human players within Treasure Island and the Ports may now return Doubloons onto the field. The Bases, Atolls, and Reefs are semi-protected zones. If a robot is fully in a semi-protected zone belonging to the opposing alliance, they will be penalized if they contact an opponent robot. In addition, if a robot is partially or fully over the triangle of tape directly in front of their Mountain Goal, an opposing robot who contacts them will be penalized.

Robots may hold up to four Doubloons at one time. They may either intake them from the ground, the Port, or the return slots on Treasure Island. Robots then cross the field to score their Doubloons into the Mountain Goal or Beach Goal or deposit onto the Bidding Table. Robots may attempt to block their opponents, but must be careful not to pin an opposing robot for more than six seconds. Pinning is defined as contacting an opponent robot and obstructing their motion. Robots should also be wary of protected zones.

In the endgame period, robots may either drive onto the Hideout to park or to their Base to ascend. For an ascend to count, a robot must be fully supported by the rungs of the mast and/or another ascended robot and at least 6" off the ground. If they climb to the second bar, a robot may also press an elevated button to raise their Flag.

## **If element [chain] used, a description of how?**

The Pirate Plunder field utilizes a number of chains hanging from the interior of the Mountain Goals. They are primarily there to slow the velocity of Doubloons being shot in. Because the human players will be confined to Treasure Island, it is important that they are able to safely and quickly store and deposit Doubloons. By adding chain to the Mountain Goal, Doubloons scored will drop down in front of the human players rather than behind them, which is far simpler, safer, and efficient. This method has been effectively utilized to slow down game pieces in other FRC games, including 2010's Breakaway. In Breakaway, teams shot soccer balls in a method somewhat similar to Pirate Plunder. We saw that year that the chains were effective in arresting momentum, and so it stands to reason that they'd be useful for this game as well. In addition to that, the chain in the goals serve other secondary purposes. It helps prevent Doubloons from bouncing back out of the goals and onto the field. The sound of the chain moving can also provide audio feedback to drivers, giving teams an indication that they have scored successfully. Finally, the chain simply fits aesthetically with the theme of pirates, and the overall design of the game elements.