# CORAL RESCUE

Welcome to the **CORAL RESCUE** challenge for FIRST Global Team India 2025!

The theme of this year's FIRST Global Challenge is Eco Equilibrium. Our planet is diverse and has a complex ecosystem consisting of plant life, animal life and most importantly humans, who have had a tremendous impact on our environment since the dawn of civilization. In keeping with the theme of maintaining an eco equilibrium across our planet we introduce this year's game CORAL RESCUE.
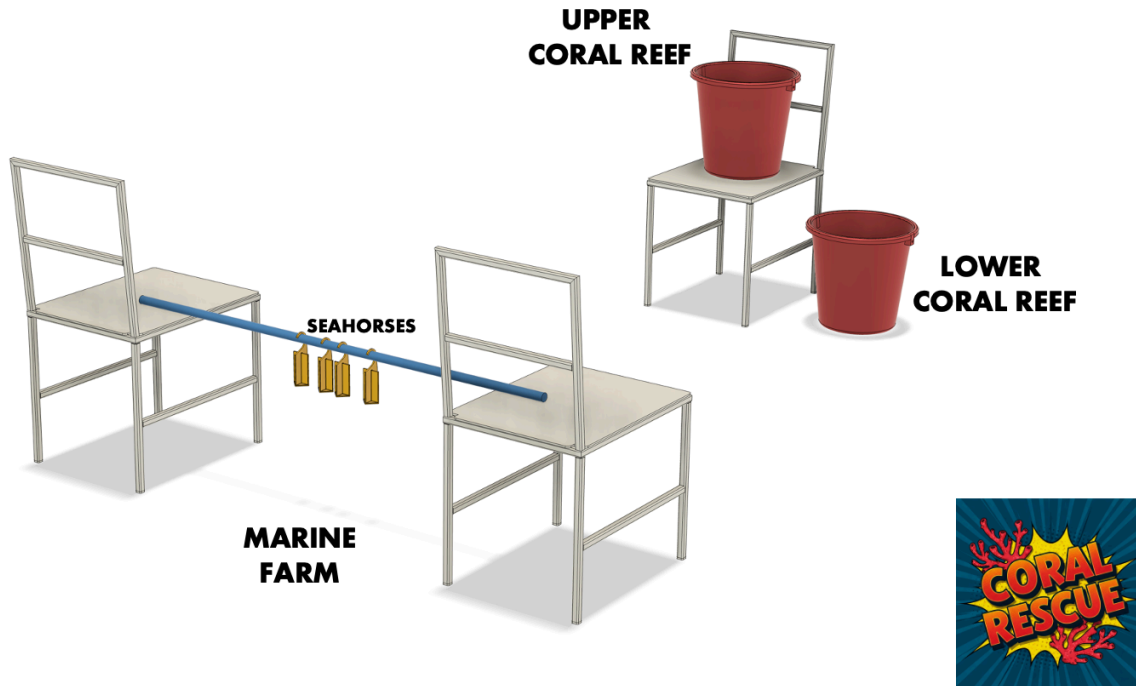
CORAL RESCUE
One of the most important aspects in maintaining a balanced eco equilibrium on earth is restoration of ecosystems that have been damaged due to ignorant human practices and exploitation of natural resources. Sustainable environmental practices need to be introduced to protect and restore ecosystems such as forests, wetlands, and coral reefs, to preserve biodiversity.

Your goal, as a FIRST Global aspirant team, is to sustainably farm a new species of Sea Horse, a small marine bony fish shaped like a horse (therefore the name) and implant them onto freshly formed coral reefs. Your robot should be capable of not just harvesting the Sea Horses from a Marine Farm, but also depositing them onto two Coral Reefs located a distance away.
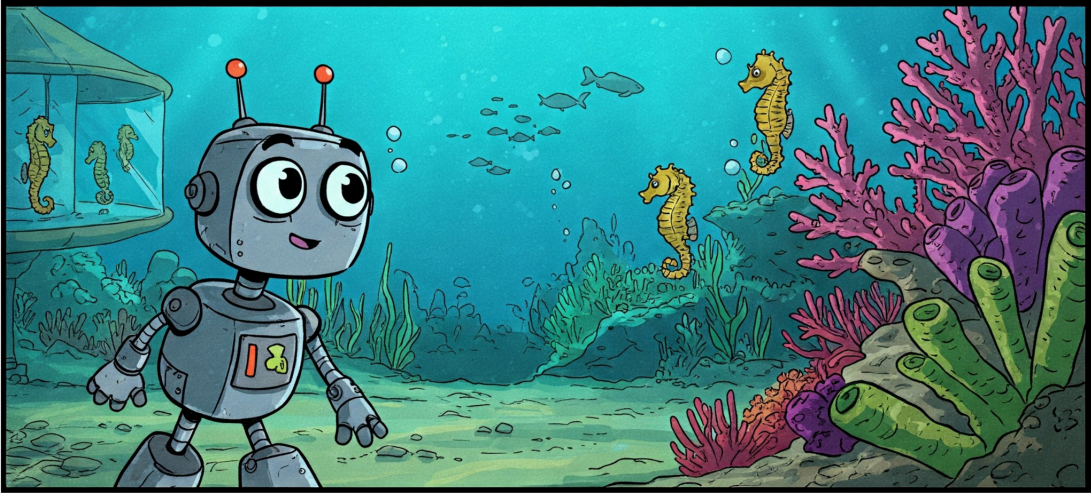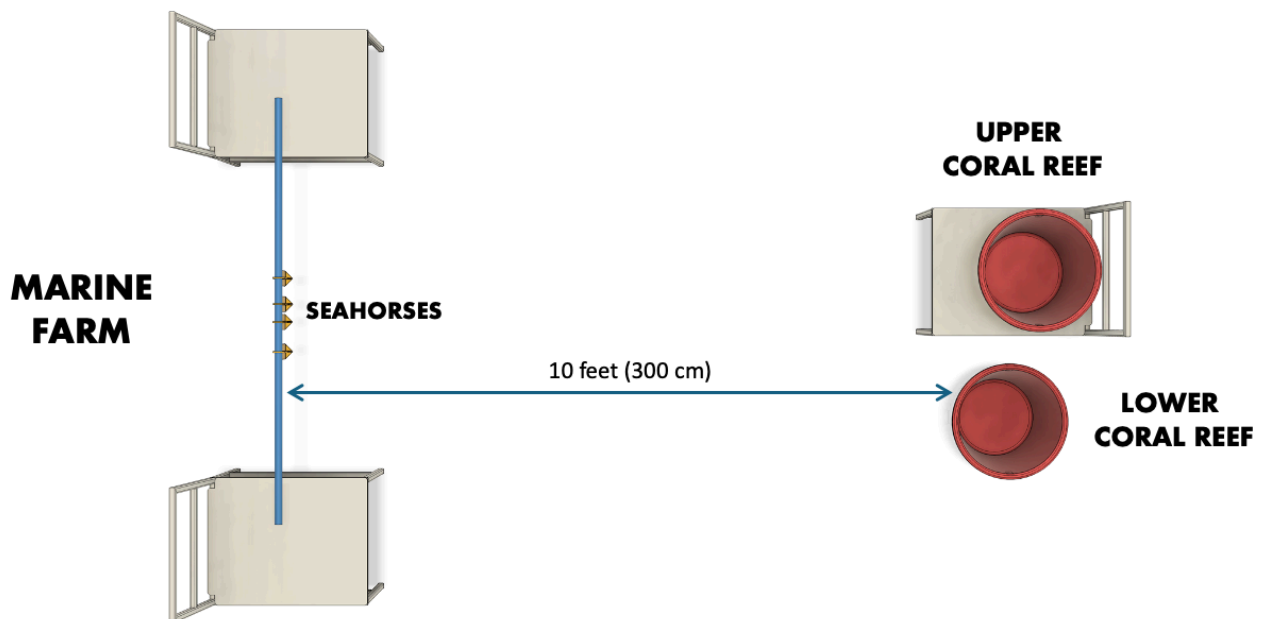
PLAYFIELD SETUP

- The playfield consists of a MARINE FARM in which SEAHORSEs are hanging by their tails
- On the other end of the playfield are 2 coral reefs - UPPER CORAL REEF and LOWER CORAL REEF
- The CORAL REEFs are located at a distance of 10 feet away from the MARINE FARM
- You can construct the playfield using everyday items such as chairs, PVC pipe and buckets. See the diagrams below for instructions

UPPER CORAL REEF

LOWER CORAL REEF

SEAHORSES

MARINE FARM

CORAL RESCUE

PLAYFIELD SETUP

MARINE FARM

SEAHORSES

UPPER CORAL REEF

10 feet (300 cm)

LOWER CORAL REEF

TOPVIEW

- You may construct the MARINE FARM using two chairs placed 4 feet apart as shown
- The SEAHORSEs must be hanging on a 25 mm PVC pipe placed between the chairs

- You may construct the CORAL REEFs using a chair and two medium size buckets
- The UPPER CORAL REEF must be kept on top of the chair seat as shown in the diagram
- The LOWER CORAL REEF must be kept on the ground next to the chair
- There should be a distance of 10 feet between the hanging SEAHORSEs in the MARINE FARM and the CORAL REEFs

GAME ELEMENT
- The game element in CORAL RESCUE is a SEAHORSE
- You can download a STEP file of the SEAHORSE from this location: https://drive.google.com/file/d/1HLTc---O518-eT-qVAPbTGTmQIMwr7bg
- You may print the SEAHORSEs on a 3D Printer and use them as game elements
- Alternatively you may use SPECIMENs from the 2025 FTC game INTO THE DEEP as SEAHORSEs
- There is no limit on the number of SEAHORSEs that may be hanging in the MARINE FARM
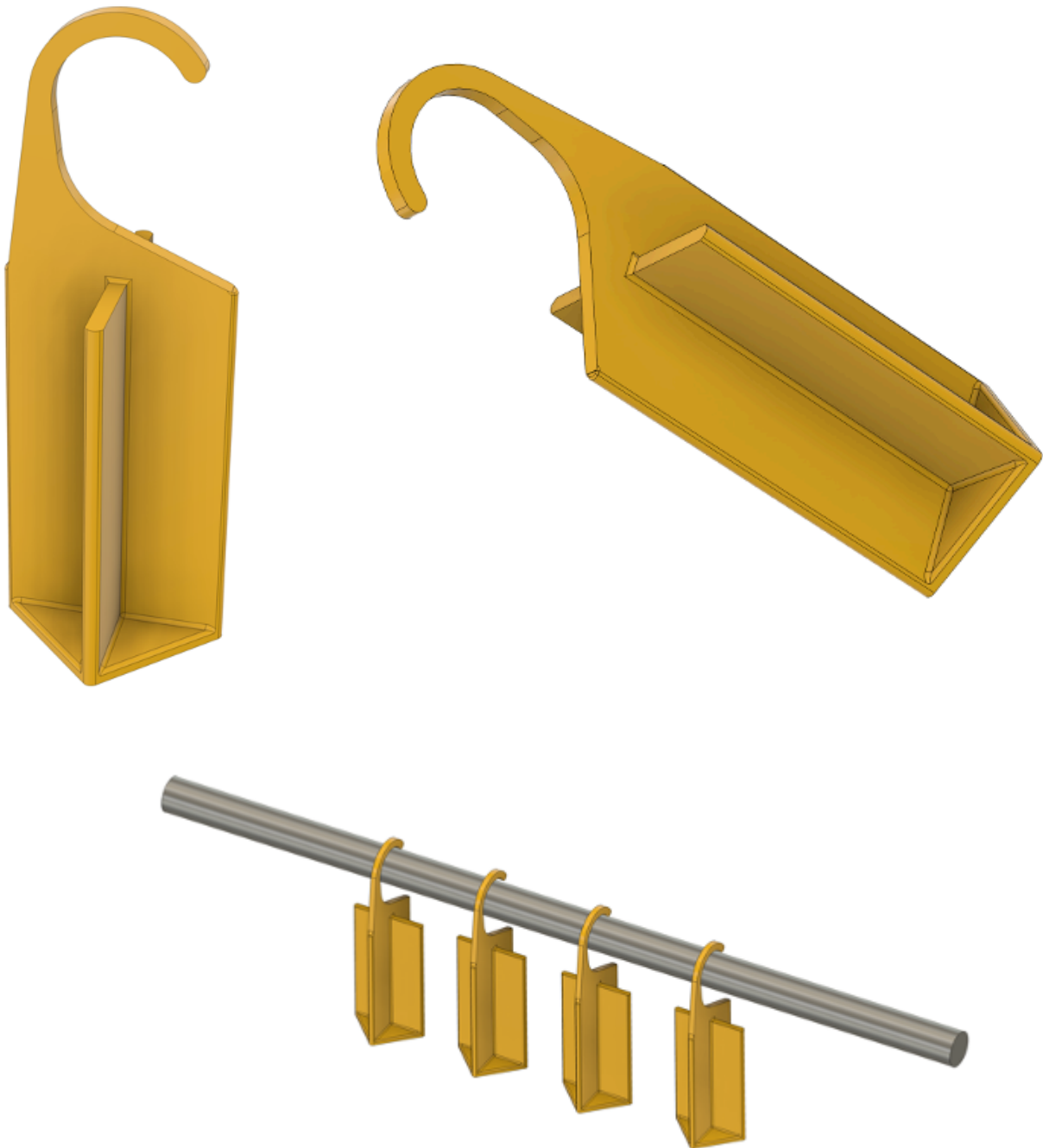
GAME RULES

- The match duration is 60 seconds in which the robot needs to pick up SEAHORSEs hanging in the MARINE FARM and deposit them in the UPPER CORAL REEF or LOWER CORAL REEF
- The robot may carry only one SEAHORSE at a time
- The robot may not launch or throw the SEAHORSE at any point of time. The robot must be in complete possession of the SEAHORSE at all times when travelling between the MARINE FARM and CORAL REEFs
- Each SEAHORSE successfully deposited into the LOWER CORAL REEF earns 10 points
- Each SEAHORSE successfully deposited into the UPPER CORAL REEF earns 20 points
- The robot that scores the maximum number of points in the 60 second period is the winner of the CORAL RESCUE game

ROBOT RULES

- The robot must be designed to start each MATCH within a 50 cm x 50 cm x 50 cm volume
- You may use robot kits from vendors such as REV Robotics, goBILDA and others in order to build the robot. You may also use custom manufactured parts.
- You may alternatively use robot controllers based on Arduino or Raspberry Pi or other similar controllers
- The robot may be operated using one or two gamepads (TELEOP) for the entire 60 second period
- Remember: the design of your robot and the choice of components used to build the robot also matter along with the speed of operation of the robot
- Robot designs that make judicious use of sustainable and low-cost resources will earn you brownie points
- Robots must be completely designed and constructed by the students themselves. Mentors are expected to only guide the students and help them make intelligent choices. They should not be designing or constructing the robot for the students.
- The judges will perform a fair evaluation of the above rule for every team by analyzing the technical complexity of the robot and matching it with the capability of team members (students). Teams violating this rule will be heavily penalized and may even be disqualified from the competition.

ADDITIONAL INFO

- You may reach out to *teamindiafgc2023@gmail.com* for any clarifications
- Be sure to register on the FIRST Global Team India 2025 form in order to receive timely updates and other communication about the competition
- Watch out for a webinar happening soon that will cover more details about the competition and selection process for FIRST Global Team India 2025