



The Game:

Submarine Survival, a robotics competition for students in 6th grade and younger, is played on the field shown above which is approximately 4' x 12'. Alliances, made up of two randomly paired teams, collaborate to score as many points as possible. Matches are 1:30 (one minute and thirty seconds) in length. The controller of the robot must be passed from one driver to the other between thirty (30) and sixty (60) seconds within a match.

The object of the competition is to attain a higher combined score than all the other teams. Points are scored by placing oxygen atoms (pit balls) in the oxygen storage tanks, (two (2) rectangular goals) and getting the hydrogen atoms (golf balls) outside the submarine (triangular corner goals). Raising the periscope earns points as well if it remains raised at the end of the match. Launching the Diving Bell (large colored ball) scores points and collaboration points can be scored if both robots are touching the periscope at the end of the match.

The Details:

There are a total of fourteen (14) molecules of water made up of twenty-eight (28) hydrogen atoms (golf balls) and fourteen (14) oxygen atoms (pit balls), one periscope with base, one diving bell and two (2) water intake pipes. Each team has two (2)

water molecules it can pre-load onto their robots, two (2) water molecules are placed in the side water pipes and the other eight (8) molecules are available as match loads, four (4) per team. Match loads are introduced by members of the teams during match play. Robots are placed on the same end the field so that at least one wheel is touching the hydrogen exhaust vents (corner goals).

Each robot (no larger than 14" x 14" x 14" to start) will collaborate within its Alliance in order to maximize its score. The breakdown of the scoring can be seen below.

Scoring

Object	Goal	Score
Hydrogen (Golf Balls)	Triangular corner goals	1
Oxygen (Pit balls)	Rectangular goal	1
Oxygen (Pit balls)	Square goal	2
Periscope	Raised to the upright position	15
Diving Bell (Large ball)	Launching it outside the submarine	10
Water molecule (2 hydrogen atoms and 1 oxygen atom)	2 hydrogen atoms in corner goals and 1 oxygen atom in rectangular goals	10
Observation bonus 1	1st robot on touching the periscope	5
Observation bonus 2	2 nd robot touching the periscope.	10