The Laboratory

Season 2026 - 2027



Unibots Rulebook

Powered by the UKESF

Version 1.1

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Rulebook Change Log:

Version 1.0	29/09/26	Initial release
Version 1.1	06/11/26	Updated link to team sign up

Introduction

Welcome to Unibots - Season 2026-2027! Through this competition, we challenge students to create simple machines, and provide an opportunity to experiment beyond the scope of your university degree. Project-based learning allows you to explore real-world problems and challenges, and builds strong critical thinking, problem solving, and communication skills.
We hope that this competition helps you grow your engineering skills, alongside being something you actually enjoy working on!

Objective

This year, we dive into the laboratory, where four teams at a time play against each other to try to discover a new isotope - chemists and physicists, suspend your disbelief! Teams will collect **Atoms** and **Compounds** in their **Match Coloured Scoring Nets** with their fully autonomous robots, making sure to avoid other robots trying to do the same - as if your robot gets stuck, it might just be stuck until the end of the **Match**! **Game Points** are awarded for scoring, and **League Points** are given after each **Match** to rank teams on the **Event** leaderboard. The top four teams will then face off in **Knockout Matches** to win!

Events

Throughout the season, there are five events to take part in:

- Regional: North, England - February 2027
- Regional: Edinburgh, Scotland - February 2027
- Regional: Midlands, England - February 2027
- Regional: East, England - March 2027
- Nationals: London, England - June 2027

Remember: Regional events are not qualifying, and teams can attend multiple regionals! However, there is all to play for at the nationals, and we look forward to seeing as many teams as possible throughout the season!

Registration

Remember to register your teams using the Unibots Hub! Here you can update all your team details, which events you intend to attend, and receive all the information about them you could need!

Team leads can sign up here: https://hub.unibots.uk, and once a team is made, can share it with their team members to join too!

Quick Definitions

Event:
Either a regional event or a national event, which consists of a series of **League Matches** and **Knockout Matches**.

Match:
Either a **League Match** or a **Knockout Match**.

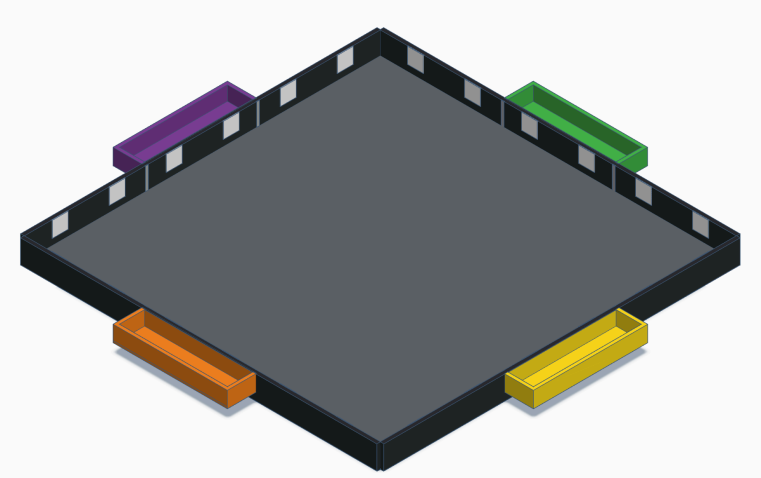
League Match:
Played with four robots in the **Arena** over 180 seconds, with teams collecting **Atoms** and **Compounds** and earning **Game Points**. At the end of the **Match**, teams are awarded **League Points** depending on how many **Game Points** they earned.

Game Point:
Awarded to a team at the end of a **Match** when **Atoms** are scored or held, **Compounds** are scored, or the robot is parked.

League Point:
Awarded to each team at the end of a **League Match** depending on how many **Game Points** they scored.

Knockout Match:
Played with two robots in the **Arena** over 180 seconds, with teams again collecting **Atoms** and **Compounds**. The winning team progresses to the next **Knockout Match**, following a standard single elimination bracket with a bronze medal match.

Arena:
The 2500mm x 2500mm square **Arena** where robots earn points. **Match Coloured Scoring Nets** are attached to the external walls, where teams attempt to score the available 21 **Compounds** (7 red, 7 green, and 7 blue) and 24 **Atoms**.

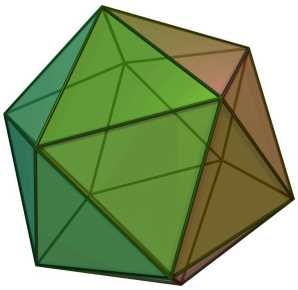


Game Element:
Either an **Atom** or a **Compound**.

Atom:
A 20mm carbon steel ball-bearing, which when held at the end of a **Match** gives 1 **Game Point**, or when scored gives 2 **Game Points**.



Compound:
A 30mm tip-to-opposing-tip 3D printed icosahedron, in either red, green, or blue, which when scored at the end of a **Match** gives 4 **Game Points**. A Tri-Compound is a combined red, green, and blue **Compound**, and gives an additional 4 **Game Points** per Tri-Compound when scored.



Match Colour:
Either yellow, orange, purple, or green. Teams are advised which colour they will be playing in advance of a **Match** on the match schedule. Teams should expect to play all 4 **Match Colours** throughout the competition.

Match Coloured Scoring Net:
The net that is attached to the outside of the **Arena** where teams score **Atoms** and **Compounds** into. If a team is playing as the yellow **Match Colour**, they will score into the yellow **Match Coloured Scoring Net**.

Scoring Guide:
Two gunmetal grey lines on the walls of the **Arena** that indicate the boundary of the **Match Coloured Scoring Net**, and indicate valid starting/parking positions.

Game Rules (G)

Unibots events and **Matches** follow an easy structure that aims to give teams as many opportunities to score and compete. In this season there are four regional events, and the nationals event.

Remember: the regional events are not qualifying, and exist as an opportunity to practice, test, and learn from one another. Anyone is welcome to attend the nationals in London and points gained at regionals do not transfer, however, the competition may be fierce!

Matches

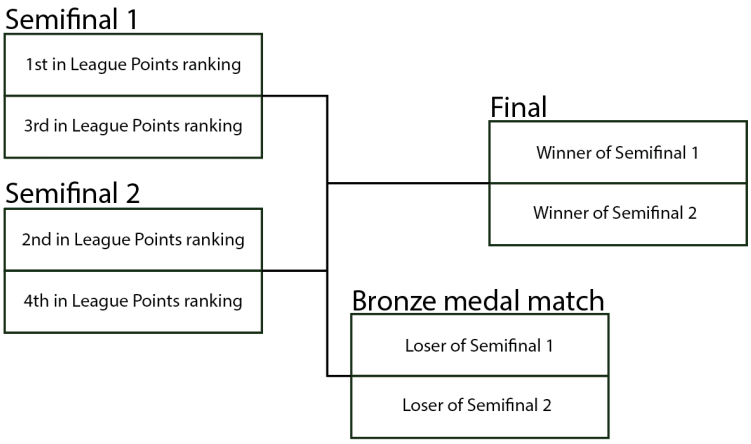
G1) Robots will earn League Points through a series of League Matches, before the top four teams progress to the Knockout Matches.
In the event of tied league positions, the teams will be ranked by their cumulative **Game Points** scored throughout their **League Matches**.

G2) Each League Match will consist of four teams.
If a team fails to turn up to a **Match**, or decides to skip, a **League Match** may be played with less than 4 teams. In the event only a single team is participating in a **League Match**, the **Match** will still be played in full to allow for **Game Point** scoring.

G3) Each Knockout Match will consist of two teams.
If a team fails to turn up to a match, or decides to withdraw, the remaining team will automatically progress, and the **Knockout Match** will not be played in full.

G4) Each Knockout Match will be played according to a standard single elimination bracket with a bronze medal match.
Each of the **Knockout Matches** are as follows:

- Semifinal 1: 1st in **League Points** ranking vs 3rd in **League Points** ranking,
- Semifinal 2: 2nd in **League Points** ranking vs 4th in **League Points** ranking,
- Bronze medal match: loser of Semifinal 1 vs loser of Semifinal 2,
- Final: winner of Semifinal 1 vs winner of Semifinal 2.



G5) Each Match will last for 180 seconds.

G6) Each Match will be played in a competition arena as specified in the Game Setup section.

G7) Each team will play a minimum of four League Matches.
At regional events, the match schedule for **League Matches** will be created the morning of the event. At the nationals, the organisers will endeavor to release the match schedule the day before match day. Depending on the number of teams, number of arenas, and amount of time, more than four **League Matches** may be played, but it will remain equal across all teams.

G8) The match schedule for League Matches will be as balanced as possible.
The match scheduler will attempt to limit:

- Teams playing against the same other teams in **League Matches**,
- Teams playing **Matches** back-to-back,
- Teams playing too many **Matches** close together,
- Teams playing the same **Match Colour** multiple times.

Note: Match scheduling is an imperfect mathematical problem, and if it is not possible to limit the above conditions, they will be made as balanced as possible.

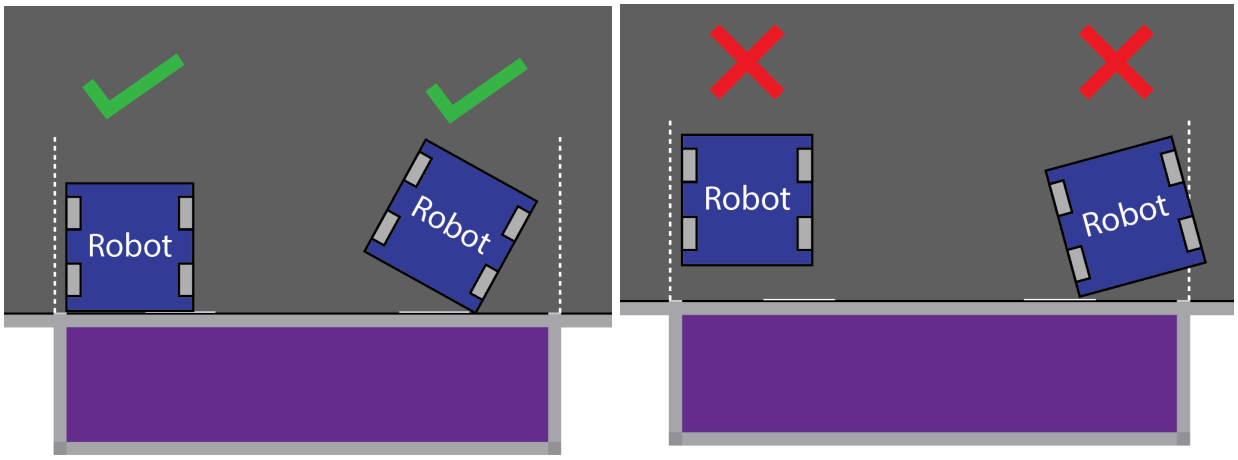
G9) Teams will be informed of their Match Colour in the match schedule.
Match Colours are either Yellow, Orange, Purple, or Green. The **Match Colour** dictates a team's valid starting position and **Match Coloured Scoring Net**, and thus teams will be informed of their **Match Colour** before a **Match** begins to allow for any code modifications to be made.

G10) Teams will arrive at their Matches on time, and Matches will start on time.

Gameplay

G11) Robots will start in a valid starting position according to their assigned Match Colour.
A valid starting position requires two conditions:

- The robot must be touching the wall of the **Arena**,
- The robot must be within the **Scoring Guides**, with no parts extending outwith the guides.



G12) Teams will limit the number of Arena-side team members to a maximum of two.
If an event is using multiple **Arenas**, teams in the preparing **Arena** may have more than two members while they are setting up their robot.

G13) Teams who are not playing in the current Match will stay behind the safety barriers.

G14) Team members, referees, field resetters, and other volunteers who are Arena-side will wear safety glasses during a Match, if a robot implements any kind of launch mechanism.

G15) Robots will be scored throughout each Match by their associated Match Colour referee.
Any queries on **Game Points** should first be directed at a team's own referee, before being escalated to the field manager, or in exceptional cases, a Unibots organiser.

G16) Robots will not be touched, controlled, or interacted with in any way once a Match has begun.
Robots will not be reset, picked-up, or moved in any way unless due to a safety concern. In that case, only field resetters are permitted to enter the arena during a **Match**.

G17) Robots will be started by the use of a physical start button present on the robot's body.
Robots cannot start their robot using a remote method, e.g. SSH, a remote controller.

G18) Any Game Element that leaves the Arena by any means during a match will be returned to the Arena floor by a field resetter.
The **Match** timer will not be paused while this happens, and the **Game Element** will be randomly placed back on the **Arena** floor by a field resetter.

G19) A Match may be restarted only in the event that all teams and the field manager agree unanimously.
The **Match** timer will not be paused while this decision is made.

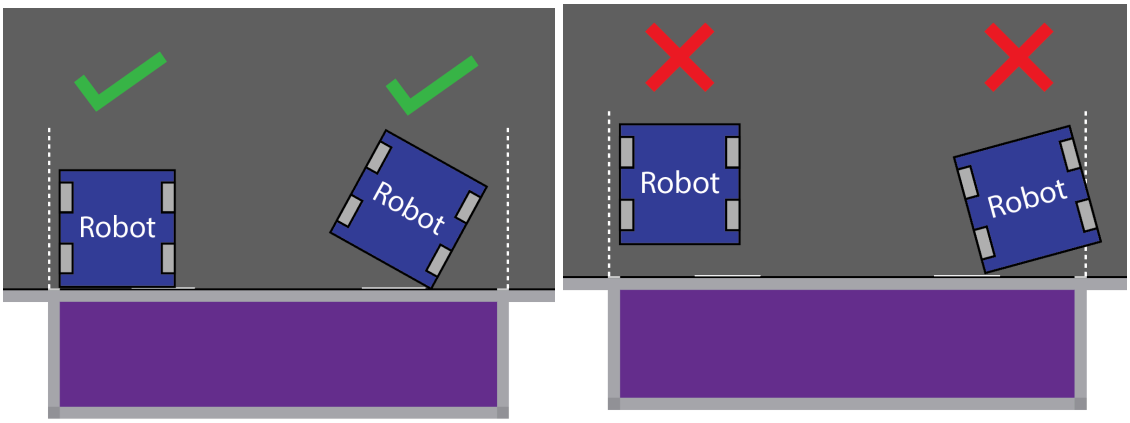
G20) Robots will stop automatically at the end of the Match.
Teams should implement an accurate timer which stops the robot at the end of a **Match**. If a robot fails to stop automatically, a field resetter may enter the **Arena** to press the physical button to stop it. Any **Game Points** scored after the end of the **Match** **are not counted**.

Scoring

G21) Teams will be awarded Game Points by scoring Game Elements throughout a Match.
At the end of each **Match**, **Game Points** will be calculated based on where **Game Elements** were at the exact end point of the **Match**.

G22) Teams will be awarded 5 Game Points for successfully parking their robot at the end of a Match.
To be parked, the robot must have moved from from its starting position, and returned to another valid starting position as described:

- The robot must be touching the wall of the **Arena**,
- The robot must be within the **Scoring Guides**, with no parts extending outwith the guides.

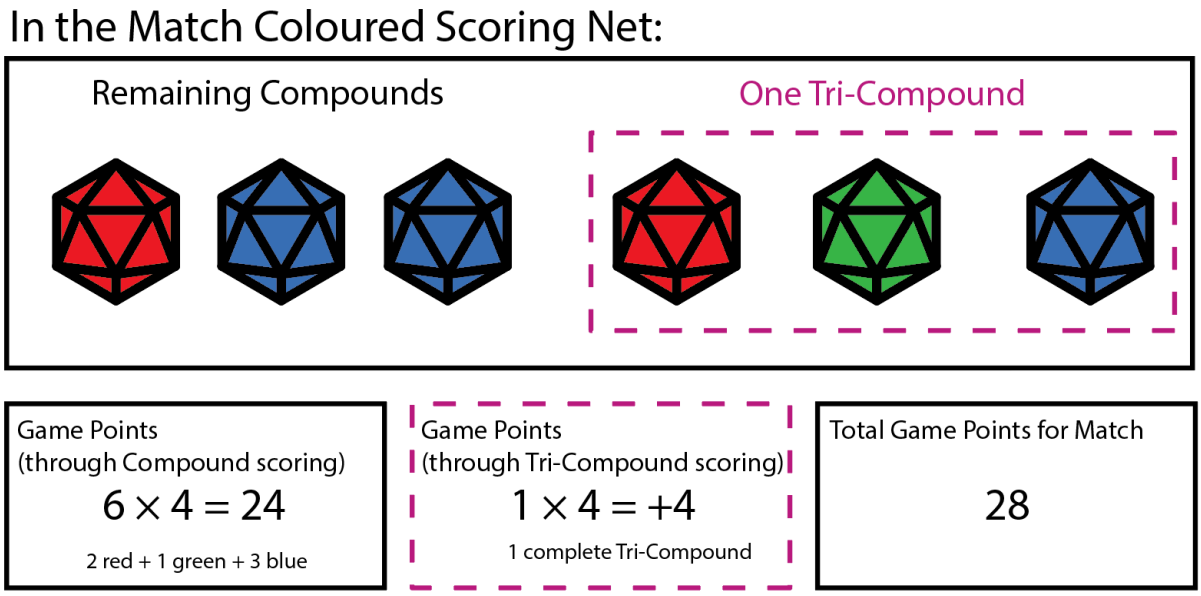


G23) Teams will be awarded 1 Game Point for each held Atom at the end of a Match.
A robot is holding an **Atom** if and only if, when the robot is lifted from the ground, the **Atom** travels with the robot, either through physical contact or magnetism.

G24) Teams will be awarded 2 Game Points for each scored Atom at the end of a Match.
Scored refers to an **Atom** being within a team's associated **Match Coloured Scoring Net**.

G25) Teams will be awarded 4 Game Points for each scored Compound at the end of a Match.
Scored refers to a **Compound** being within a team's associated **Match Coloured Scoring Net**.

G26) Teams will be awarded an additional 4 Game Points for each scored Tri-Compound at the end of a Match.
Scored refers to a Tri-Compound being within a team's associated **Match Coloured Scoring Net**. A Tri-Compound is "created" when a team has one Red, one Green, and one Blue **Compound** in their **Match Coloured Scoring Net**. Multiple Tri-Compounds can be "created."
For an example Compound scoring, see below:



G27) Teams will be awarded League Points based on their ranked position in Game Points per League Match.
Teams ranked from the highest to the lowest in their **Game Points** will be awarded 8, 6, 4, and 2 **League Points**, respectively. See below for an example:

Example League Match:

Team	Game Points	Rank	League Points
Team A	10	1st	**8**
Team B	5	2nd	**6**
Team C	3	3rd	**4**
Team D	1	4th	**2**

In the event of a draw, an average will be taken based on the rankings of where they would have placed (e.g. two teams both ranking 2nd are both awarded (6 + 4) ⁄ 2 = 5 **League Points**).

G28) Robots will not place Game Elements into opposing teams Match Coloured Scoring Nets.
Any **Game Elements** scored into opposing teams **Match Coloured Scoring Nets** will be removed immediately by the associated **Match Colour** referee, and placed randomly back into the **Arena** by the field resetters.

G29) Robots will not remove or interfere with Game Elements in opposing teams Match Coloured Scoring Net.
Doing so once during a **Match** shall be counted as a warning, doing so twice will see the team disqualified from the **Match**, earning them no **Game Points** or **League Points**.

Awards

G30) Placement awards will be given to the top three teams after the Knockout Matches.
The awards will be given as follows:

- First place is awarded to the team that wins the Final **Knockout Match**,
- Second place is awarded to the team that loses the Final **Knockout Match**,
- Third place is awarded to the team that wins the Bronze medal **Knockout Match**.

G31) Further awards will be announced throughout the season.

G32) Regional events may skip Knockout Matches and only play League Matches.
In that case, placement awards will be given to the top three teams based on their **League Points** ranking.

Robot Rules (R)

We try to make the Unibots competition as creative and inventive as possible, however, for the safety and fairness of everyone, robots must also be built and designed with care. The following rules apply at all Unibots events:

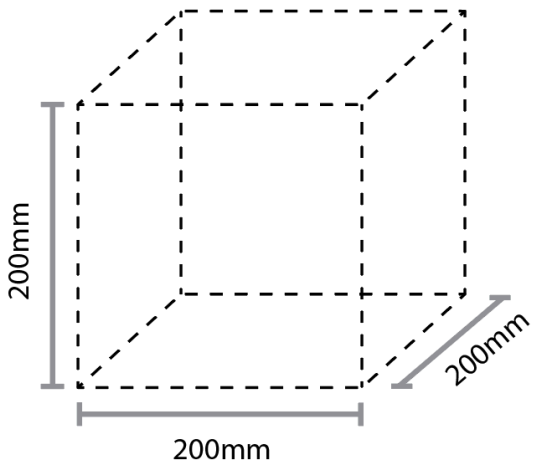
R1) Robots will be inspected before they can access the Arena.
Robots must pass all Safety Inspection Points before **Arena** access will be granted. If Gameplay Inspection Points are not passed, **Arena** access may still be granted at the discretion of the organisers, however the robot will not be eligible for any awards or participation in **Knockout Matches**. The full inspection list can be found in Appendix A.

R2) Robots may be withdrawn from a Match or testing at any time if the organisers deem it unsafe.

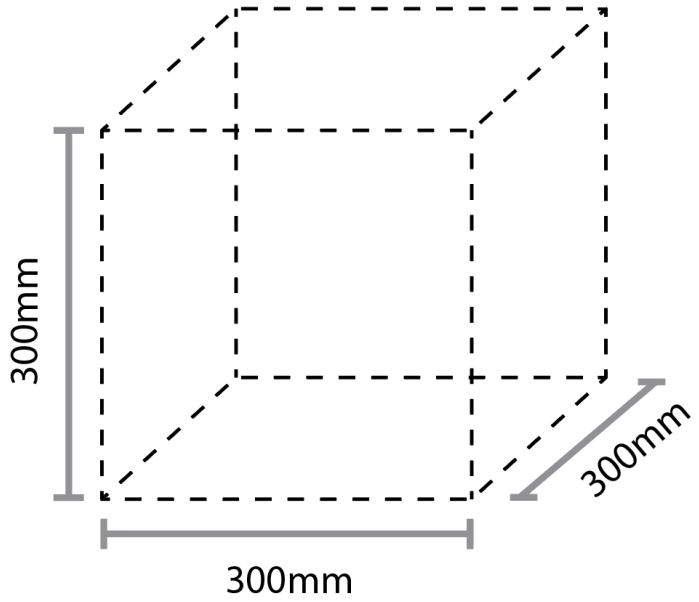
R3) Robots and associated software may be re-inspected as deemed necessary by the organisers at any point.

R4) Robots will not be modified or repaired while actively playing in a Match.

R5) At the start of a Match, robots will not exceed 200mm x 200mm x 200mm.
As assessed by a 200mm sizing tool.



R6) During a Match, robots will not exceed 300mm x 300mm x 300mm.
Robots are allowed to expand once a **Match** has begun. This must happen fully autonomously, and cannot be actuated by hand. The non-expanded and expanded versions of a robot must be inspected before **Match** access is granted.



R7) Robots will display their team number on the side of the robot.
This sign must be at least 50 mm x 50 mm, and have the team number clearly identifiable. If teams arrive at the competition without a sign, it will be provided to them, and must be included on the robot otherwise it will not be allowed within the **Arena**.

R8) Robots will be completely autonomous.
Team members must not remotely control their robot in any way (SSH, controller, running shell commands etc.) during a **Match**. All computer vision, machine learning, and any sort of processing which influences the robot in any way must be performed on the robot. For example, using a Raspberry Pi, ESP32-P4X-EYE, or even a mobile phone acting as a processor.

R9) Robots will not intentionally damage other robots or the Arena.
It is difficult to define intentionality. However, we hope that teams will act with respect and care throughout all Unibots events. If deemed necessary, a warning will be given on the first infraction during a **Match**. If a second instance occurs, the team will be disqualified from the **Match**, earning them no **Game Points** or **League Points**.

R10) Robots will implement collision avoidance.
This is a non-contact competition. Robots intentionally designed to disrupt other robots' play, via direct contact or indirect contact, may be disqualified. Robots should use sensors or computer vision to detect their surroundings, especially other robots. As **G16** states, there will be no human interaction with a robot in any way once a **Match** begins!

R11) Robots will have an easily and safely accessible identifiable physical power switch.
Which must be easily accessible at all times, for example for field resetters to switch off if a robot fails to stop after a **Match** ends.

R12) Robots will have a physical start button.

R13) Robot batteries will be securely fixed to the robot using a removable mounting method, and will not come loose during a Match.
For example, velcro, removable zip-ties, or a small latch to keep it within a container.

R14) Robot batteries will be protected from accidental puncture.
For example, they may be contained within the internals of a “box-on-wheels”, or have a rigid material such as a 3D printed enclosure placed around them. Li-po or Li-ion cells should not be visible from the outside of the robot, unless through a transparent material.

R15) Robots will be free of any loose or dangling wiring.
Such that no other robot, field resetter, or otherwise can become entangled in the wiring.

R16) Robots will be free of sharp edges.
Such that if a field resetter or team member picks the robot up, they will not be injured.

R17) Robots will not include any weapons or dangerous elements of any description.
For example, any device intended to disrupt the play of other robots, including but not limited to: air cannons, high speed spinning devices, any object intended to be released (e.g. darts, nets, shrouds, other than the **Game Elements** collected during play), or any flammable objects.

R18) Teams will store and transport their robot’s batteries safely.
For example, when Li-ion or Li-po batteries are not in use, they must be stored within a fire-safe or “Li-po bag”. Chargers and battery wires must also not be frayed, and no batteries swelling.

R19) Teams will charge their robot’s batteries according to venue restrictions.
Batteries must not be left charging unattended, and must be charged in the prescribed locations, such as on top of a fire brick / concrete block, using a charger that has been inspected. Any inappropriately charged or unattended batteries may be confiscated by volunteers or Unibots organisers and returned upon request.

R20) Teams will limit any launch mechanisms to a safe maximum via hardware limitation.
During inspection, teams will be asked to demonstrate the maximum power of their mechanism. If it is deemed excessive, for example launching over 2 meters or launching at speeds which may cause injury, it must be limited to pass inspection.

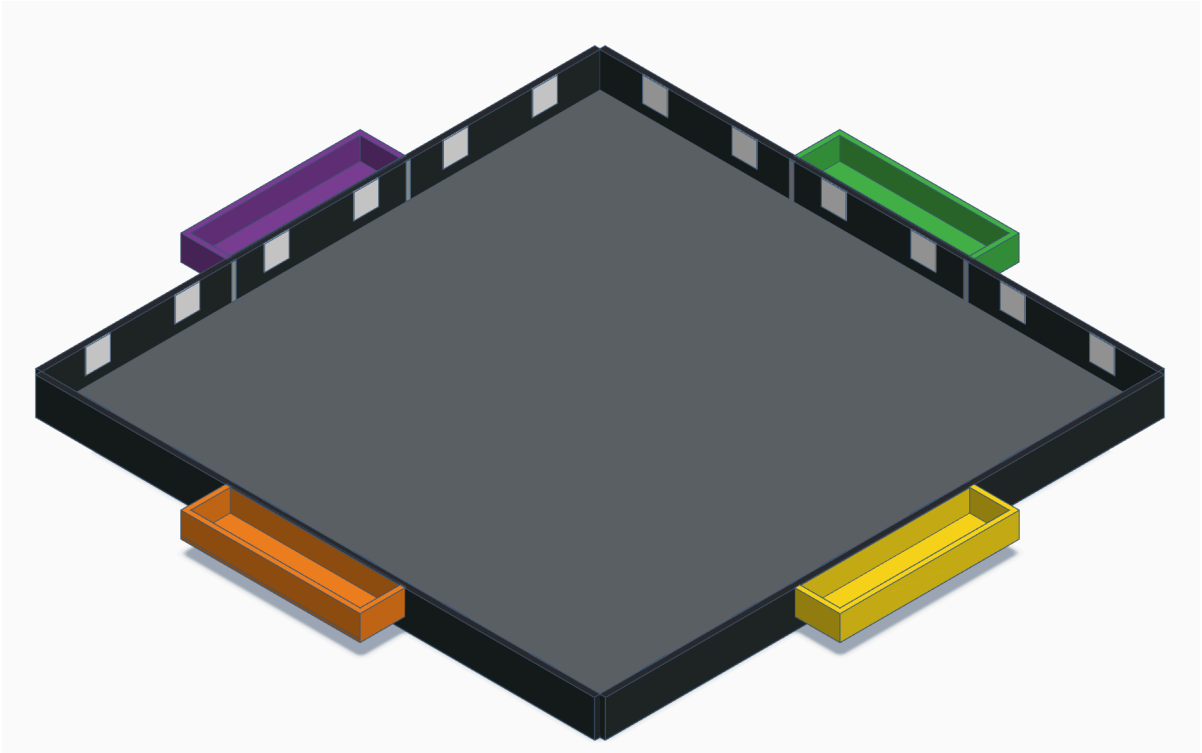
Game Setup (S)

The Unibots **Arena** is designed to allow teams to be as innovative as possible, while keeping the construction simple to encourage early season testing. In this section we will present details for the Arena setup, and participants are encouraged to use this information to help their designs perform on competition day.

Arena

The Unibots **Match** comprises the floor, walls, navigation elements, and **Game Elements** contained within it. The official **Arena** manufacturing method is described below, but we encourage teams to recreate sections to aid development and testing. The **Arena** is designed to be transportable between events. We do therefore provide tolerances below in case parts are manipulated during transport or by robots in an event.

Tip: Robots that are able to tolerate these changing tolerances will perform better in any variation of the **Arena**!



Floor

S1) The Arena floor will be a 2500mm x 2500mm square.
The tolerance of these two dimensions is **± 50mm**

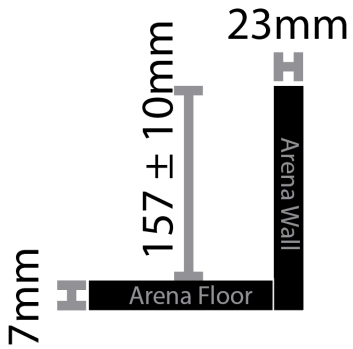
S2) The Arena floor will be made from 500mm x 500mm x 7mm grey interlocking floor tiles.
A 5 x 5 grid of 25 floor tiles are used to construct the full 2500mm x 2500mm square **Arena** floor. This flooring tile was chosen to solve the problem of robots “sinking” into the floor, and to prevent robots getting stuck on the floor when operating a scoop mechanism. The link to the exact flooring tile will be provided soon.

Walls

S3) The Arena floor edge will be bounded by the Arena walls.
These walls are modular and split into 16 segments:

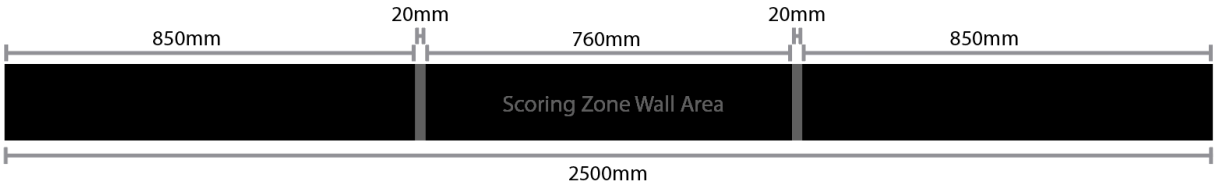
- 4x Wall with **Match Coloured Scoring Net** segments,
- 4x Corner segments,
- 8x Extension segments.

S4) The Arena walls will be 157mm tall (from the Arena floor), and 23mm in depth.
. Walls and flooring tiles are placed directly onto the ground, such that the playable space inside the **Arena** is as close to 2500 x 2500mm as possible, within tolerances, and the height of the walls from the top of the floor to the top of the walls is 157mm **± 10mm**. The tolerance of this height is **± 10mm**, due to the potential for uneven ground. See below:



S5) The Arena walls will be constructed using a 20mm x 20mm aluminium profile frame, with 3mm plywood panels attached to the front of each wall section.
Segments are manufactured starting with aluminium profile lengths cut to exact sizes by our manufacturer. They are then assembled using 20x20 series corner brackets and 3 way 20 series cube corner brackets. Finally, the plywood panel is cut to the size of the segment, attached using t-nuts in the profile with countersunk screws hidden under stickers, and painted the appropriate colour using spray paint. Decorative back panels may also be attached using the same method.

S6) The Arena walls will be painted black with grey Scoring Guides.
Scoring Guides are 20mm in width, and indicate the boundaries of the **Match Coloured Scoring Net** on the other side of the wall. They are also used to indicate valid starting positions. The tolerance for the position of these lines is **± 2mm**.



S7) The Arena walls will be painted consistently.
All paints used are Rust-Oleum spray paints, and using the following coloured cans:

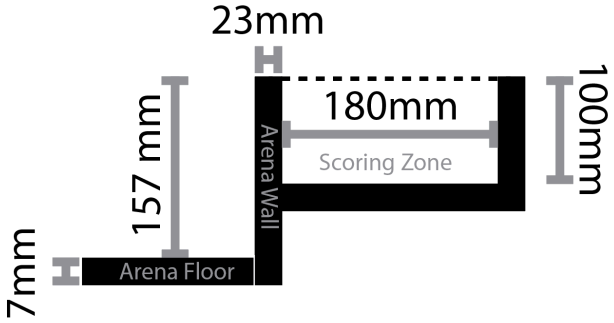
- Black - Painter's Touch Multi-surface Matt black,
- **Scoring Guides** - Gun Metal Metallic Paint.

With all paints, there will be variations depending on the can, batch, and lighting. The best performing robots will be tolerant to these subtle colour changes and will have been tested in different lighting environments.

Scoring Nets

S8) Match Coloured Scoring Nets will be attached to the external side of each wall.
These scoring nets are also constructed using aluminium profile and plywood, however, the plywood is sunk into the profile to be flush.

S9) Match Coloured Scoring Nets will be 760mm long, 180mm in depth, and 100mm in height.
The tolerance for all of these measurements is **± 10mm**, and the nets will be placed in the center of each wall to a tolerance of **± 10mm**.



S10) Match Coloured Scoring Nets will be internally painted a Match Colour.
All paints used for **Match Colours** are Rust-Oleum Painter's Touch Multi-surface decorative spray paints, and using the following coloured cans:

- Yellow - Sun yellow gloss,
- Orange - Real orange gloss,
- Purple - Purple gloss,

- Green - Meadow green gloss,

With all paints, there will be variations depending on the can, batch, and lighting. The best performing robots will be tolerant to these subtle colour changes and will have been tested in different lighting environments.

S11) The aluminium profile frame adjacent to the Match Coloured Scoring Net will have a plastic slot cover to prevent Game Elements getting stuck in the profile slot.
It is still possible that **Game Elements** may get stuck in the slot. If **Game Elements** are stuck in this slot and stationary at the end of a **Match**, they will be counted as scored. The slot covers used can be found (here), and are shown below:

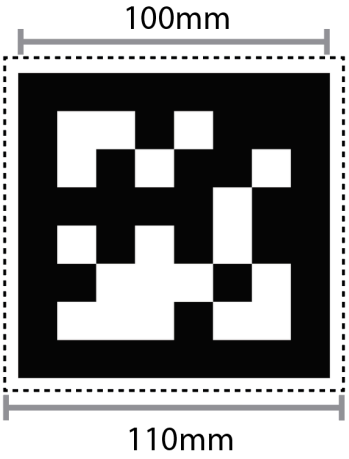


Navigation Elements

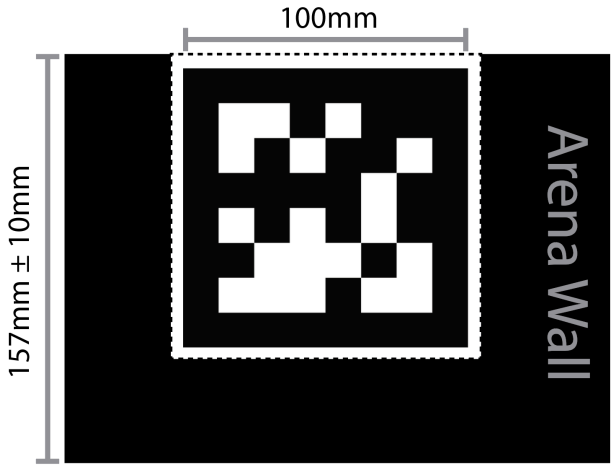
S12) AprilTags will be placed on each of the four Arena walls.
AprilTags attached to the walls are counted as part of the walls for valid starting positions and parking points.

S13) AprilTags will be from the 36h11 family.

S14) AprilTags will be 100mm x 100mm in size, with a 5mm white border on each side.
As many AprilTag libraries require a white or light background for detection, we have manually added a white border around the outside of the tag.



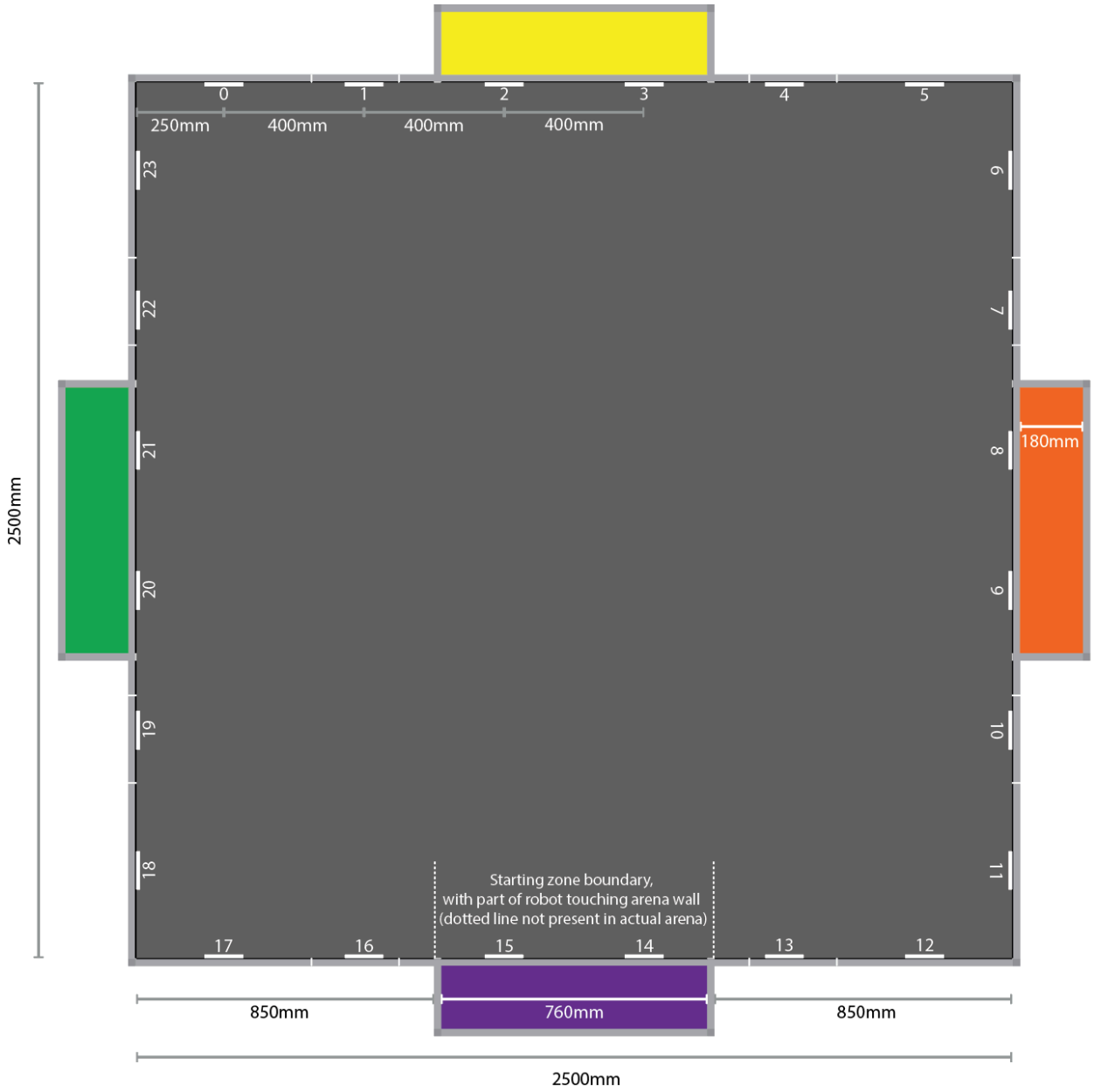
S15) AprilTags will be placed such that the top of the border is in line with the top of the Arena wall.



S16) AprilTags will each have their own unique ID, ranging from 0 to 23.
Printable PDF versions of the AprilTags with ID's from 0-23 can be found at https://unibots.uk/downloads. AprilTags are placed in known locations, with the following tags on each wall:

- **Match Colour** Yellow scoring wall: 0 to 5,
- **Match Colour** Orange scoring wall: 6 to 11,
- **Match Colour** Purple scoring wall: 12 to 17,
- **Match Colour** Green scoring wall: 18 to 23.

The diagram below gives further details on the location of each tag, where tags will be placed with a tolerance of **± 10mm**:



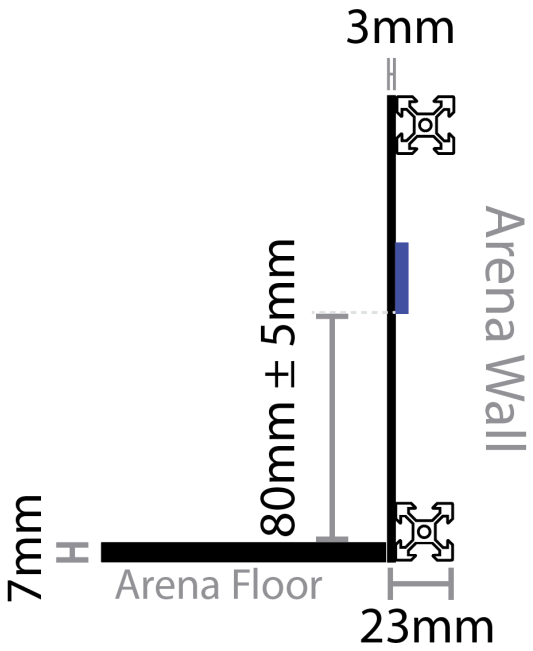
S17) AprilTags will be laser cut using 2-ply 1.5mm acrylic laminate sheets.
The exact material can be found here: Kitronic Laminate Sheets, and are the black on white variant. The white areas of the tags are then engraved, leaving a robust and detectable tag, adhered to the **Arena** wall using adhesive. The AprilTags will therefore protrude from the wall by 1.5mm. Trotec Ruby compatible laser cutting files can be found at https://unibots.uk/downloads.

S18) NFC Tags will be adhered behind the panel of each team's Match Coloured Scoring Net wall.

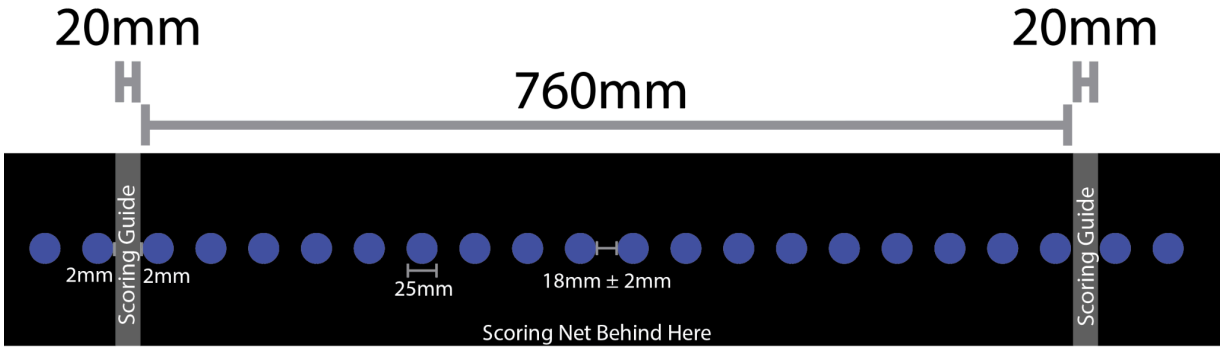
S19) NFC Tags will conform to ISO/IEC 14443 Type A specifications.

S20) NFC Tags will be 25mm in diameter and use a thin sticker to append to the rear of the Arena wall.

S21) NFC Tags will be approximately 80mm ± 5mm from the Arena floor.
In the diagram below, the 25mm NFC tag is shown in blue. For a reminder of the Arena wall construction method, see rule **S5**.



S22) NFC Tags are spaced 18mm ± 2mm apart, 2mm from the edge of the Scoring Guide, resulting in 18 tags within the two Scoring Guides per wall. Two additional tags are placed, following this same spacing pattern, on the outside of either Scoring Guide.
In the diagram below, NFC tags are shown in blue.



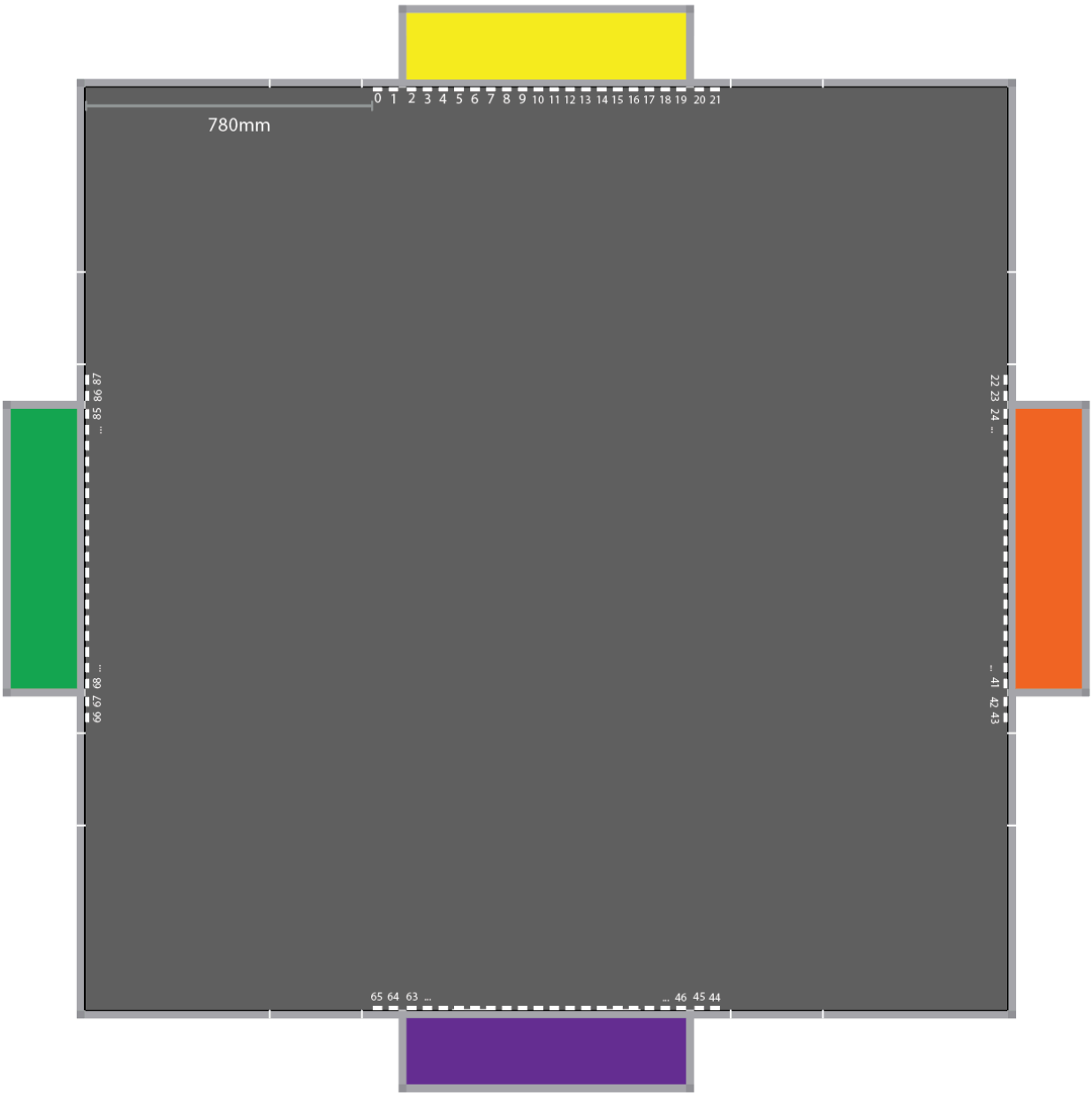
S) NFC Tags will have unique ID's in memory as a text record.
An NFC NDEF Text record will be created to store the unique ID, using the NFC Tools PRO Android app. For further guidance on how to recreate these tags, see the knowledge base in the Unibots Hub.

S23) NFC Tags unique ID's range from 0 to 87.

The following tags are placed on each wall:

- **Match Colour** Yellow scoring wall: 0 to 21 ,
- **Match Colour** Orange scoring wall: 22 to 43,
- **Match Colour** Purple scoring wall: 44 to 65,
- **Match Colour** Green scoring wall: 66 to 87.

The diagram below shows the location of each tag, and follows the rules above for height and location placement:



Game Elements

S24) Atoms will be 20mm diameter magnetic ball bearings made from a steel alloy and weighing approximately 34g.

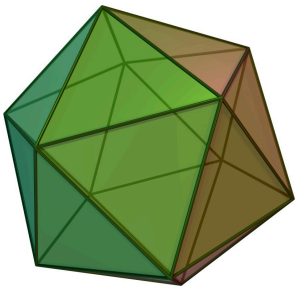
The ball bearing is ferromagnetic: it can be pulled by magnets, but it does not act as a magnet on its own. Carbon steel **Atoms** will be used for the competition (Link).



S25) Compounds will be regular icosahedrons 3D printed out of either red, green, or blue PLA filament.

Compounds are 3D printed, and the following filaments will be used:

- Red - Filamentive ReFill PLA “Red” Filament (Link),
- Green - Bambu Lab - PLA Basic “Bambu Green” 10501 (Link),
- Blue - Bambu Lab - PLA Basic “Blue” 10601 (Link).



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S26) Compounds will be approximately 30mm from tip to opposing tip, and weigh approximately between 3.5g and 4g.

As 3D printing can have subtle variability, the best robots will be able to adapt to slight imperfections on the surfaces of the **Compounds** and the colours of the **Compounds** .

Below the dimensions of the **Compounds** measured from tip to opposing tip (30mm) and face to opposing face (24.23mm) are shown:





S27) Compounds will be printed consistently.
The following settings are used on a Bambu P1P or A1 printer:

- 0.4mm nozzle diameter,
- 0.2mm layer height,
- 15% grid infill,
- 2 wall loops,
- With an outer brim, which is cut off using a knife leaving flush edges,
- A textured build plate is used, this one face of the icosahedron will have a different texture to the others and slight difference in reflectiveness.

A STL file used can be downloaded from https://unibots.uk/downloads.

S28) At the start of a Match, there will be 45 Game Elements in the Arena: 21 Compounds (7 red, 7 green, and 7 blue) and 24 Atoms.
These will be placed randomly but approximately fairly distributed throughout the Arena. Game Elements will not be placed in any valid robot starting position.

Appendix A - Robot Inspection Checklist:

Inspection Checklist v1.0

Season 2026 - 2027 Last Modified: 20/09/2026

Safety Inspection Points

Rule	Description	Check or notes
G16 - R4	Remind participants that during the match, they **cannot touch their robot, nor attempt to connect to it via ssh, and to do so may see them disqualified from the match.**	
G29	Remind participants that intentionally disrupting play by removing or interfering with Game Elements in opposing teams Match Coloured Scoring Nets may see them disqualified from a match.	
R7	Verify that teams have a sign of 50 x 50mm with their team number attached to the robot (white card/stickers of 50 x 50mm are provided at the inspection table)	
R8	Verify that all processing (computer vision, action prediction etc) is performed **on-board the robot** and is not offloaded to a nearby laptop or other internet connected server. Verify that the participants' code briefly looks reasonable, and is not obviously connecting to the internet, or awaiting instructions from an external device (**robots must be autonomous**).	
R9	Remind participants that intentionally damaging other robots or the arena may see them disqualified from the match.	
R10	Check participants' collision avoidance capabilities. If the robot will obviously ram into other robots at high speed, this must be addressed before matches.	
R11 - G17	Check for a physical start button and/or power switch which can be used by the field resetters to switch a robot off completely.	
R13	Verify that batteries within robots are removable (e.g. with velcro, removable zip ties), but secure such that they won’t become loose during a match	
R14	Verify that batteries within robots are protected from puncture by a rigid material around the battery (e.g. if they are within the shell of a box-on-wheels, this is protected).	
R15	Verify that robots are free from loose or dangling wiring, and there are	

	no other entanglement risks.	
R16	Verify that there are no sharp corners or mechanisms which will damage the arena floor or perimeter, or other robots/humans if contact occurs.	
R17	Verify that robots contain no dangerous elements or “weapons” of any description, e.g.: ● Air cannons, ● High speed spinning devices, ● Objects intended to be released, e.g. nets, shrouds, darts), ● Any flammable object.	
R18	Verify that teams are storing their batteries safely, such as in “Li-po” bags. Verify teams chargers and batteries (inc. spare) have no frayed wires, are not damaged in any way, and are not “swelling”.	
R19	Verify that teams are charging their batteries on a suitable surface.	
R20	Verify any launch mechanisms for balls via demonstration and check maximum power. Teams must ensure that balls cannot be launched over a distance of 2 meters, or at speeds which will cause injury to humans or robots who are within or next to the arena.	

Gameplay Inspection Points

Rule	**Description**	**Check or notes**
G12	Remind participants that only two team members are allowed next to the arena during a match.	
G14	Remind participants that match-side team members must wear safety glasses.	
R5	The initial dimensions of the robot must fit within a 200 x 200 x 200mm cube, verified by the **blue** size checker.	
R6	The robot is allowed to extend to up to 300 x 300 x 300mm once the match has begun, and is verified using the **transparent** size checker.	
R12	Verify robots have a physical start button and verify with the team that it will be pressed to begin any autonomous code running on the robot.	

The referee below confirms that the items on this list have been checked, and that the robot is safe to play in a Unibots competition.

Team Number	Verified by