RoboRAVE Greece

Today's Play, Tomorrow's Pay

a - MAZE - ing

Official handbook 2026

RoboRAVE Greece

Our slogan is : "Today's Play, Tomorrow's Pay."

1.1 What is the game of a - MAZE - ing?

The **a-MAZE-ing** challenge is a great introduction to the world of robotics competitions, designed to spark the imagination of our youngest participants. This challenge involves programming robots to navigate a one-way path of straights and turns, without the use of sensors. This unique constraint encourages young minds to think creatively and strategically, seeking innovative solutions to guide their robots through the track.

The challenge lies in the need for precision and careful programming, as the robots are required to complete the course without falling off the edge of the track. Each course offers a different layout, ensuring a new experience and the need for adaptability in each attempt. The simplicity of the design, combined with the necessity of careful planning, makes the **a-MAZE-ing** the ideal first step into the world of robotics.

1.2 Who can compete on a team?

The a-MAZE-ing competition has the following age categories:

- Ages 6 -10 years old (Elementary School) - Born in 2016-2020
- Ages 11 -14 years old (Middle School) - Born in 2012-2015
- Ages 15 -18 (High School) – Born 2008 - 2011

Teams must consist of 2 to 4 members. Teams with more than 4 members will not be allowed to participate in the competition unless they register additional teams to comply with the regulations.

In the event that there are no more than 5 groups in an age category, then the categories will be merged. The judging and scoring will be unified.

1.3 The specifications of the robot.

Robots must meet all of the following criteria to be eligible to participate in the competition:

1. The total cost of the robot should not exceed **1,500 euros** .
2. Robots can be built from any platform and material.
3. Robots can be prefabricated.
4. Multiple engines and processing units can be used, but sensors are not allowed .

- **Exception:** Internal motor encoders and **gyro** sensors are allowed.

5. The robot must be fully autonomous and not use remote control capabilities.

- The use of devices such as remote controls or cables to control the robot is not permitted.
- Programs can be run from an external device (e.g. laptop) only when the robot is in its base (Home) and the device does not operate while the robot is in motion.

6. The robot must not exceed the dimensions of **18 cm x 25 cm** , with no height restriction.

2. The race track

2.1 What are the track specifications?

All official a-MAZE-ing tracks meet the following specifications:

1. The track consists of MDF pieces in various sizes (rectangular and triangular), which are cut from a single MDF plate measuring 1200x1200x9mm.

2. The slab is cut into the following pieces, with a possible deviation in dimensions of up to ±10mm:

- 1 piece 1200 x 240mm
- 1 piece 800 x 240mm
- 4 pieces 600 x 240mm
- 2 pieces 400 x 240mm
- 3 pieces of 240 x 240mm, which are cut diagonally to form 6 triangles.

3. The pieces are used to construct straight sections and 45°, 90° and 135° bends.

4. A black line of electrical tape is placed:

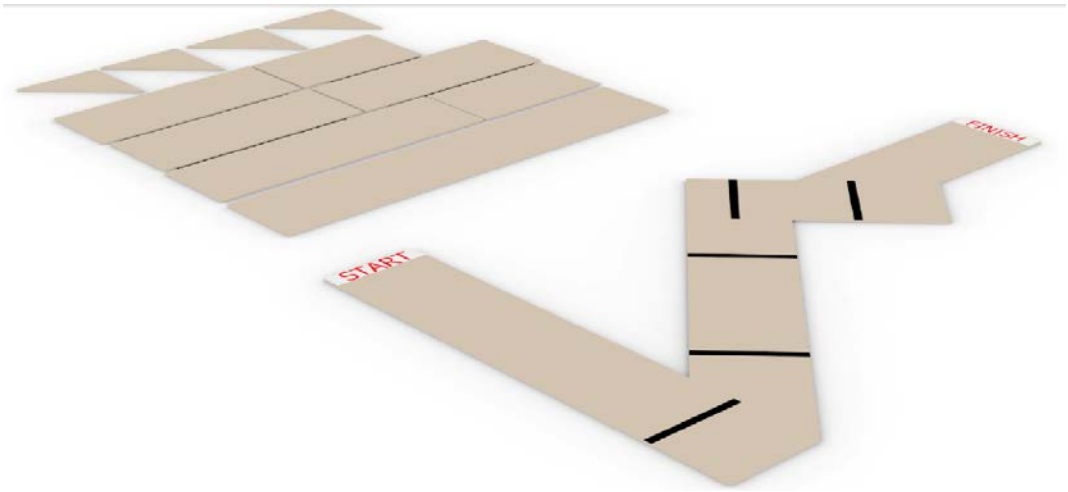
- 200mm from the end of each straight section.
- 100mm after each corner turn.

These lines are used to mark the completion of each section by the robot.

5. The track sections are joined together with gaffer tape at the bottom of each connection. Every effort is made to ensure that the tracks are smooth, without gaps or irregularities.

<u>The track includes 4 straight sections and 3 corners.</u>

Standard track construction for the ES category and example of a-MAZE-ing track layout .



3. The competition process

3.1 How do the teams compete?

Route along the Track:

1. On the day of the competition and before the official matches, teams will have 30 minutes of testing time to program their robot for the specific competition track.
2. Robots start from the Home Line and can move as soon as the timer gives the ok . Interaction of competitors with the robot is only allowed when it is at the base (Home) or at the Starting Line.
3. The robot earns points as it follows the track, with points awarded for each section it successfully completes, until it reaches the Finish Line.
4. If the robot falls off the edge of the track or goes outside its boundaries, it will need to return to the start. The robot operator picks it up and places it back at the start.
5. In case of failure, the robot can try again. However, time will continue to run until the game is completed.

3.2 What are the rules of the competition?

The following rules are applied during official matches by the referee:

1. The referee will ensure that the team and robot comply with the rules:
   - If the referee determines that any of the criteria are not met, the Head Referee will be notified for further decisions to be made.
   - A team or robot that does not meet the criteria is not allowed to compete and will have to make changes according to the decision of the Head Referee.
2. The match lasts up to 2 minutes and the time is recorded by the referee. It is the only time during which the robot can earn points. The match is held on a pre-defined field, which complies with the rules of section 4, and its configuration is revealed on the day of the competition.
3. The robots are placed with their back (the vertical projection) touching the Home Line at the beginning of the game or for any subsequent attempt.
4. A section of the track is considered complete if the robot crosses it without falling off the edge of the track or without going outside the track boundaries.
5. The robot is considered out of bounds when any part of it touches the outside of the track. The robot operator can then return it to the Starting Line for a new attempt, with the clock continuing to run.
6. At the finish line and in its straight line, there will be an extra piece of track so that the robot does not fall off the track.
7. There are several reasons why a robot may be returned to the Start Line:
   - If a competitor touches the robot or the field outside the base (Home) or the first section of the track.

- The referee may choose to end the match if interference on the field provides a significant advantage to the robot.
- With the referee's permission, competitors may return the robot to the base for any reason.

8. Only competitors are allowed to handle and interact with the robot during the competition.

Remember:

"Players play, coaches guide, parents encourage."

4. The scoring of the event

4.1 How is grading done?

Challenge	Maximum score per mission
4.1.1 Straight lines	**20 points (5 points x 4 straight lines)**
4.1.2 Turns	**30 points (10 points x 3 turns)**
4.1.3 Final straight	**10 points**
4.1.4 Time	**1 point for each second left**
Total points	**60 points + time**

Points are only awarded the first time a specific mission is completed.

1. **Straight segments (5 points/segment):**

o For each straight segment the robot completes, 5 points are awarded.

o Points are awarded only when the robot touches or protrudes (the vertical projection) from the line of the corresponding segment.

o If the robot falls off the section, no points are awarded.

2. **Corner sections (10 points/section):**

o For each corner segment that the robot completes, 10 points are awarded.

o Points are awarded only when the robot touches or protrudes (the vertical projection) from the line of the corresponding segment.

o If the robot falls off the section, no points are awarded.

o The points awarded do not depend on the angle of the segment.

3. **Final section (10 points):**

o If the robot crosses the Finish Line, it earns 10 points.

o The robot must complete the route within the time limit to be awarded points.

o Points are awarded only when the robot touches or protrudes (the vertical projection) from the Finish Line.

4. **Time (1 point/second):**

- For every second remaining on the timer at the end of the match, 1 point is awarded.
- Time points are only awarded to robots that have earned points for the Final Section.

5. Qualification and winner selection

5.1 How do teams qualify for the next phase?

The finals are used in the official competition to determine the top teams in each category. The best teams compete live to determine the best team and robot. The teams that will participate in the a-MAZE-ing finals are determined as follows:

1. **Official timed races:**
   - Teams will participate in official timed matches on the day of the competition. The number of matches to be played is determined by the Head Judge at the beginning of the competition and depending on the number of entries, but there will be at least three.
   - An official match is any game that is played under the supervision of a referee and for which a score is recorded.
2. **Best match selection:**
   - Only the best match of the qualifying phase for each team will be taken into account for the finals.
3. **Qualifying for the final stages:**
   - The teams with the best matches in each category will qualify for the finals.
   - In the event of a tie between two teams, both teams will qualify.

5.2 How the finals are held

The a-MAZE- ing finals are conducted according to the following rules:

Final phase:

- The top 4 teams compete in an additional series of matches.
- The track changes layout and teams have 10 minutes to reprogram their robots.
- Each team has 3 matches and a total of two minutes to perform their best route to qualify for the Grand Final.
- The score achieved in the finals determines the team's final ranking in the tournament.

Awards:

- All top three finishers will receive awards in recognition of their achievements.

a - MAZE - ing : Find the way, think creatively, become a champion!

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RoboRAVE International
A Collaborative Robotics Program