

Annex to the Regulations for the VI International Festival of Robotics,  
Programming and Innovation Technologies "RoboLand 2021".

## CATEGORY REGULATION «ROBOT MOUSE»

**Age of participants:** 4-6 years old.

**Team:** 2 people.

**Robots:** as required by the regulations.

**The order of the competition:** one by one, according to the drawing.

**Objective:** to complete the tasks of three rounds in the shortest possible time.

### 1. Robot and Court Requirements

The competition is based on the following equipment:

- "Robot Mouse Activity Set", Learning Resources, original title «Code & Go™ Robot Mouse Activity Set», item number LER 2831;
- Educational and methodical complex "Mouse Competitive Algorithmics" it. CAM 1.0 (kit with 4 robotic mice item LER2841, playing field 1m\*1m, competition cards)
- Table for competition 1180mm × 1180mm – 5 pieces.

### 2. General Rules

2.1 A team should be made up of two people.

2.2 The first participant of the competition takes part in the first two rounds (1st round - "Maze making", 2nd round - "Route programming").

2.3 The second participant of the competition takes part in the third round, consisting of 3 stages. (3rd round - "Individual round at the group court").

2.4 The courts (tables, sections for the maze of LER 2831 kit, fields) for the competition are provided by the organizers of the competition.

2.5 Competitors use their own mouse robots and power sources (batteries).

2.6 After another participant has passed the 1st round there is a technical break for the referee (not more than 5 minutes), during which:

- the referee checks the correctness of the maze and fills in the referee's report;
- in case an error is detected, the referee invites a coach to the competition area who shall correct the maze and prepare it for the contestant of the 2nd round;
- if there are no maze construction mistakes, the coach is not allowed to come in the competition area.

2.7 After the next contestant has passed the 2nd round there is a technical break for the referee (not more than 10 minutes) during which:

- the referee checks the correctness of round run and fills in the referee's report;
- the referee dismantles the maze, prepares the court, invites the 2nd participant of the team to the table of the 3rd round to pass the 3rd round;

2.8 After the participant passed the 3rd round:

- the referee fills in and submits the referee's record;
- the referee invites the next team.

2.9 After all participants have passed the 3rd round, a technical break is announced before summing up the results.

2.10. Competitions using a robot mouse are performed using the maximum speed function (with a switch on the robot body).

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### 3. Report

- 3.1 The report contains information regarding team members, scores and time of task completion.
- 3.2 The data are entered into the referee's report after the end of each round.

### 4. Order of competitions.

#### 1st round "Maze Making"

**Objective:** In the first round, competitors must demonstrate their spatial thinking, the ability to build a maze for a robot-mouse on a given image.

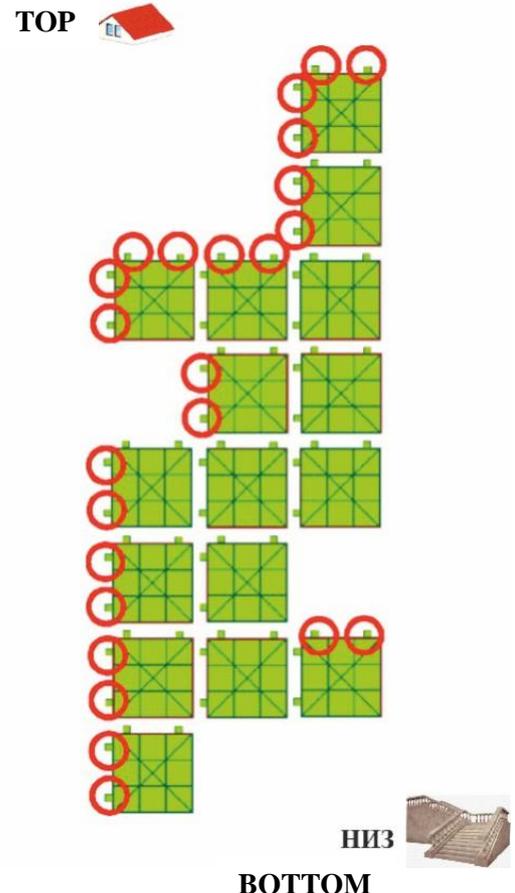
**Requirements:** The round is based on "Robot Mouse Activity Set", Learning Resources, original title "Code & Go™ Robot Mouse Activity Set", item number LER 2831.

#### The rules of the 1st round:

1. The path of the maze is composed of 16 single sections. The size of the section side is 12,5 cm. The maze path is the same for all participants. The maze diagram is shown on the cards with the task, which are the same for all participants.

Fig. 1 Example of a maze

2. Participants are invited to the competition area and at the signal of the referee start the first round task.
3. When building a maze, the location of the connecting elements of the section is taken into account.
4. The correct assembly of the maze is evaluated in the scoring system. For each section incorrectly placed or not installed, one penalty score is awarded (column 3 of the report).
5. Transfer of scores to a temporary scoring system. Scores credited for performing Round 1 tasks are equal to 1 second.
6. Maximum time for performing the task is 3 minutes.
7. Regardless of the result of the round, the participant is allowed to go through the next round.
8. In the course of the round, the participant has the right to move the maze around the table and move around the table.
9. The maze is assembled "from top to bottom". Cards with the task "top" (beginning of assembly) and "bottom" (end of assembly) should be marked.



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2nd round "Route Programming"

**Objective:** In the second round, participants demonstrate the ability to program the movement of a robot mouse.

**Requirements:** The round is based on the equipment " Robot Mouse Activity Set ", Learning Resources, original title «Code & Go™ Robot Mouse Activity Set», item number LER 2831.

Fig. 2. Programming Cards

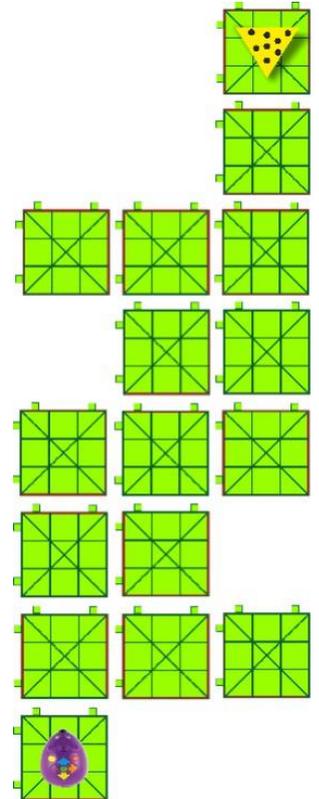


Fig.3 Example of a maze marking the start and finish points

**The rules of the 2-nd round:**

1. The court of the first round serves as a route for a robot-mouse.
2. The diagram of the maze with the designation of the Start and Finish is shown on the task cards, which are the same for all participants.
3. The round includes 2 stages:
  - Compilation of the motion algorithm by means of programming cards;
  - programming the robot-mouse and passing the route.
4. There is no break between the stages of the round. Immediately after drawing up the algorithm, the participant begins to perform the 2nd stage.
5. At the signal of the referee the contestant starts to perform the tasks of the 1st stage of the 2nd round.
6. The contestant lays out the robot-mouse route program using programming maps (in line, from left to right).
7. For a correctly composed algorithm of motion leading to the target, 0 point is awarded (column 4 of the report). 1 penalty point is awarded for a wrongly drawn up motion algorithm.
8. Robot – mouse of the the participant must pass the given maze. The movement ends when the robot hits the last section of the maze, which contains the element "cheese".
9. For passing the route leading to the target, 0 point is awarded. For leaving the route, 1 penalty point is awarded.
10. When drawing up an algorithm with an error and if the participant finds this error, the participant can take this fact into account and when programming the robot-mouse to correct the route.
11. When leaving the route, the points credited for the algorithm are saved and taken into account when evaluating the results of the round.
12. Transferring points to a temporary scoring system. Points credited for performing tasks of the 2nd round are equated to 1 second and summed up. The received result is added to the time of the 1st round.



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2. The court is provided for one-time work of 4 participants and 4 referees. One referee is assigned to each participant.
4. After the end of the stage, the referee enters the data on passing the stage in the referee's report. The participant after completing the task provided by the stage, is next to the competition field, waiting for the beginning of the next stage and at the signal of the referee begins to perform the task of the next stage.
5. Robots mouse of the participant must follow the specified routes. The movement ends when the number indicated on the card is reached.
6. The route time for each card is taken into account. The total time of the route is the sum of the time of passing the 3 stages of the round, after which the time results are converted into seconds.
7. The maximum time for performing the tasks of each stage of the round is 5 minutes, after which the performance of a stage of the round is considered complete. The execution time is filled in that is 5 minutes. Completion of a stage due to the time limit does not mean removal of tasks of other stages of the round from execution.
8. A participant is given 2 attempts to pass each stage of the round. In case of leaving the route after the second attempt, the execution of a round stage is considered completed. The execution time that is 5 minutes is filled in. Completion of a stage due to leaving the route does not mean exclusion from performing the tasks of other stages of the round.
9. Time registration of the participants' task execution is performed by stopwatches. Conversion of milliseconds per second is performed according to the rules of mathematical rounding.
10. The procedure for pressing the buttons on the back of the robot-mouse is as follows: robot-mouse is set to the starting point, and then the buttons are pressed. It is possible to press the "reset" button again and press the buttons again until the robot-mouse starts moving. Once the robot-mouse has started moving, no buttons can be pressed again to change the program.

### Identification of the Winner

If the results of the 3 rounds are the same, the participants are given an additional task (card) and an additional stage is assigned at the group court.

The team with the minimum time of passing 3 rounds is declared the winner.

### Flexibility of Competition Regulations

1. Competition organisers can make changes or exceptions to regulations prior to the competition, after which they are permanent throughout the event.
2. Competitors must be informed in advance (but not later than 10 days) of changes or cancellations to competition regulations before the competition.

### On Responsibility

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1. Teams and participants of competitions bear personal responsibility for performance and safety of robots as well as responsibility according to the Legislation of RK for any accidents caused by actions of participants of teams or their robots.
2. The competition organizers are not responsible in case of a breakdown or accident caused by the actions of team members or their equipment.