REGULATION OF THE “STEM ROBOT MOUSE” CATEGORY

Participants age: from 4 to 6 years.
Team: 2 people
Robots: according to the Regulation requirements.
Procedure of competition: in turn, according to the toss, parallel on 2 tables.
Objective: to perform tasks of 3 rounds, to achieve maximum points

1. Robots and site requirements.
The competition is held on the basis of the following equipment:
- “1 Mouse Programming Skills Development Set”, Learning Resources, original title “Code & Go™ Robot Mouse Activity Set”, article LER 2831;
- “4 Mouse and Playing ground Programming Skills Development Set”, cooperative development with Learning Resources;
- Competition table 1180 mm × 1180 mm.

2. Rules.
2.1 Team consists of 2 people.
2.2 The first competition participant takes part in the first two round (1st round - “Labyrinth making”; 2nd round - “Route programming”).
2.3 The second competition participant takes part in the third round that consists of 3 stages (3d round – “Individual round at the group site”).
2.4 Organizers provide sites (labyrinth and field sections) for competition.
2.5 Participants use their own mouse robots and power equipment resources (accumulators, batteries).
2.6 After passing by the another participant of the 1st round, a service break is announced (no more than 5 minutes), during which:
  - the judge checks the correctness of the labyrinth construction and fills in the score sheet;
  - in case of error detection, the judge invites a coach to the competition area, who shall correct the labyrinth and prepare it for the 2nd round to be passed by the participant;
  - if there are no errors in labyrinth construction, the coach is not allowed to the competition area.
2.7 After passing by the other participant of the 2nd round, a service break is announced (no more than 5 minutes), during which:
  - the judge checks the correctness of the labyrinth construction and fills in the score sheet;
  - The judge examines the labyrinth, prepares the site, invites the next participant.
2.8 After passing the 2nd round by all participants, a break is announced (at least 10 minutes).

3. Score sheet
3.1 Score sheet contains information on participants, points and execution time.
3.2 Information on points and time are to be filled in score-sheet after completion of each round.


1st round “Labyrinth making”

Objective: During the first round, competitors shall demonstrate their spatial reasoning ability and assembly of labyrinth for robot mouse according to the given image.

Requirements: The round is held based on “1 Mouse Programming Skills Development Set”, Learning Resources, original title “Code & Go™ Robot Mouse Activity Set”, article LER 2831.
The labyrinth path is composed of 16 single sections. The size of one section is 4 inches. The path of the
labyrinth is the same for all participants.

**Rules:**
1. Participants are invited to the competition zone and by a signal of judge proceed to the performance 1st round tasks (card).
2. By assembling the labyrinth, the location of the connecting elements of the section is taken into account.
3. The correctness of labyrinth assembly measures in a score system. For each correct placed section one point is awarded.
4. The completion time of the task (column 4 of the sheet) is taken into account, after which the temporary results are converted to a point system (column 5 of the minutes). The number of points awarded is inversely proportional to the number of teams participating in the competition. *(Example. Number of teams is 16. The team that gives the best time result based on results of 3 rounds, is awarded by 16 points. Teams that give the worst time result, is awarded by less points at interval of 1).*
5. The total number of points for passing the round is determined by summing up the points for the correct placement of sections and the time for completing the task of the round (column 6 of the sheet).
6. The total time for completing the task is which the participant is suspended from the sheet indicates the execution time - 5 due to the time limit expiration, 0 point is sheet. The points scored for the placement of taken into account when evaluating the 6. Regardless of the exemption of the due to the expiration of the time limit, the pass the next round.

2nd round «Route programming».
Objective: In the 2nd round participants demonstrate their robot mouse movement programming skills.

Requirements: The round is held based on “1 Mouse Programming Skills Development Set”, Learning Resources, original title “Code & Go™ Robot Mouse Activity Set”, article LER 2831. The site serves as a passing route for one robot mouse.

Rules:
1. Round includes 2 stages:
   - movement algorithm making by use of programming cards;
   - robot mouse programming and route passing.
2. There is no break between stages. Right after the algorithm is compiled participant proceed to the 2nd round performance.
3. Participants are invited to the competition zone and by a signal of judge proceed to the performance 1st round tasks.
4. Participant lays route program of the robot mouse using programming cards (in line).
5. Options to the movement algorithm, leading to the goal, can be different. The participant should as far as possible choose the shortest path in the labyrinth.
6. For the movement algorithm making, leading to the goal, 1 point is awarded (column 7 of the score sheet).
7. For the movement algorithm making, not leading to the goal, 0 point is awarded.
8. Robot mouse of the participant shall pass scheduled route. The movement ends when the element “Cheese” is found.
9. For passing the route and achieving the goal, 1 point is awarded (column 8 of the sheet).
8. When participant detects error in algorithm making, he can adjust the route of movement by programming a robot mouse.
8. For the route line-off 0 point is awarded. (column 8 of the sheet).
9. When leaving the route, points scored for the algorithm making remain unchanged and are taken into account when evaluating the results of the round.
10. The total number of points for passing the round is determined by summing up the points for the labyrinth making and passing the route (column 9 of the sheet).
11. The total time for completing a round task is limited to 5 minutes, after which the participant is suspended from the round. For exemption due to the expiration of the time limit at the stage of passing the route, 0 point is awarded (column 8 of the sheet).
12. When withdrawing due to the expiration of the time limit, the points accrued earlier for the design of the algorithm are saved and taken into account when evaluating the results of the round.
13. Regardless of the exemption of the participant from the round due to the expiration of the time limit and when leaving the route at the 2nd stage, the participant is allowed to pass the next round.
14. Rectilinear robot mouse movement is not always possible due to technological reasons. In the event of the robot mouse sliding off the route for the above reasons, the judge adjusts the robot mouse without lifting the robot above the plane of the maze.
15. Independent adjustments to the movement of the mouse-robot by the participant are prohibited. The participant is excluded from the participation in the round. 0 point is awarded for exemption.

3rd round “Individual round at the group site”

Objective: to perform tasks of the 3 rounds in minimum of time.
Requirements: The round is held based on “4 Mouse and Playing ground Programming Skills Development Set”, cooperative development with Learning Resources.
The site is a competitive field for four participants.

Rules:
1. The round includes 3 stages. The participant consistently performs tasks according to the 3 cards.
2. The performance of the task of the stage by the participants is carried out on the judge’s command. The participant, after completing the task envisaged by the stage, is located next to the competitive field waiting for the start of the next stage.
3. Participants are invited to the competition zone and by a signal of judge proceed to the performance 1st round task (card 1).
4. After the completion of the 1st stage participants proceed by a judge’s signal to perform task of the 2nd stage (card 2).
5. After the completion of the 2nd stage participants proceed by a judge’s signal to perform task of the 3rd stage (card 3).
6. Robots mouse shall pass scheduled routes. The movement ends when the number indicated on the card is reached.
7. The route completion time on each card is taken into account (Columns 10, 11, 12 of the sheet). The total route completion time is the sum of the route completion time of the 3 stages (column 13 of the sheet).
8. The temporary results are converted to the point system (column 14 of the sheet). The number of points awarded is inversely proportional to the number of teams.
   (Example. Number of teams is 16. The team that gives the best time result based on results of 3 rounds, is awarded by 16 points. Teams that give the worst time result, is awarded by less points with 1).
9. The total time for task completion of the stage is limited to 5 minutes, after which the participant is excluded from the participation in the task of the tour stage. In columns (10 or 11, or 12) of the sheet, the execution time is filled in - 5 minutes. The exemption due to the expiration of the time limit does not mean the removal of tasks from other stages of the tour.
10. The participant is given 2 attempts to pass each stage of the tour. In the case of leaving the route after the second attempt, the participant is suspended from the assignments of the tour stage and in the columns (10 or 11 or 12) of the protocol the execution time is filled - 5 minutes. The suspension from the tasks of the tour stage does not mean the discharge from the tasks of the other stages of the tour.

**Winner identification**
With the same result, following the results of 3 rounds, participants are given an additional task (card) and an additional stage is assigned at the group site.
The scored the maximum number of points on the results of 3 rounds participant is declared the winner.

**Regulation flexibility**
1. The organizers of the competition may make amendments and exceptions to the regulations before the start of the competition, after which they become permanent throughout the event.
2. Participants must be notified of changes or cancellation of competition regulations in advance (no later than 15 minutes) before the start of the competition.
3. Adjusted rules remain unchanged during the competition.

**On responsibility**
1. During the operation, the team's robot safety and competitors are personally responsible and liable in accordance with the legislation of the Republic of Kazakhstan for any accidents caused by the actions of members of teams or robots.
2. The organizers shall not be liable in case of a crash or an accident caused by the actions of members of teams or their equipment.