KAGA PROGRAMMING CHALLENGE 2026

Robot Road Challenge Gyro

Competition Rules

1. Competition Overview

This programming competition challenges competitors to make a robot car drive autonomously along a course made from wooden boards and reach the finish without falling off. Competitors program the robot's travel distances, turning angles, motor speeds, and other settings, then repeatedly improve their programs based on the results of their runs.

In the Gyro competition, part of the course is sloped, and the robot uses a gyro sensor to navigate the course.

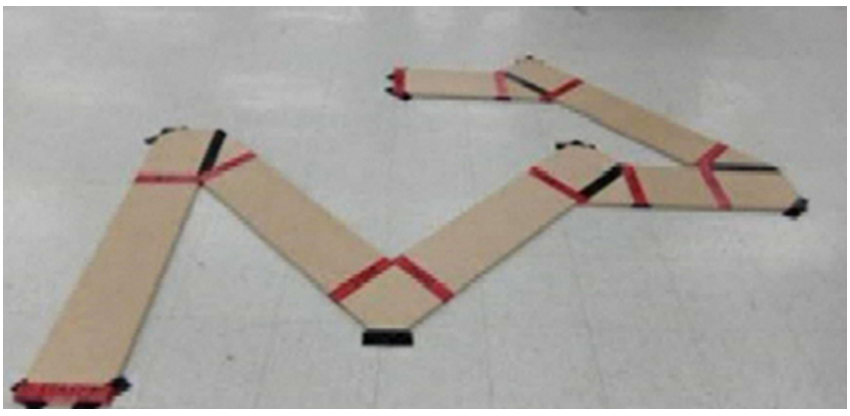
Competitors aim to achieve one of three ranks - Bronze, Silver, or Gold - based on the number of successful finishes and their run times.

2. Eligibility

- Elementary school students (using the elementary school flat course with part of it converted into a slope).
- Junior high school students (using the junior high school flat course with part of it converted into a slope).

3. Course

- The course is made by joining boards that are 24 cm wide and approximately 2 cm high.
- The course consists of straight sections and several corners, with designated starting and finishing points.
- The elementary school course consists of four straight sections and three corners.
- The junior high school course consists of six straight sections and five corners.
- Part of the course is sloped.
- Boards come in three lengths: approximately 46 cm, 76 cm, and 134 cm.
- There are three types of corners: 45°, 90°, and 135°.
- The joints between sections of the course are secured with tape.



Example of a junior high school course

4. Robots and Check-In

Robots must comply with the following requirements.

Item	Requirement
Platform	No restrictions
Robot type	**Autonomous.** The robot must run automatically under program control. Remote control using a controller or other device is not permitted after the start. A computer or tablet may be used to trigger the start.
Build cost	Approximately JPY 100,000 or less
Size	65,030 cm^3 or less. The robot must not expand after it has been placed in the starting position.
Number of controllers	One
Sensor types	A gyro sensor may be used. External sensors, such as those used to detect a fall, may not be used. **Examples of eligible robots** LEGO SPIKE, Sphero series
Motors	No restrictions on type or number

- Each team may use one robot in the competition.
- A spare robot may be used if the competition robot becomes unusable due to damage or another reason.
- Robots will be checked for compliance at the competition. A robot that does not meet the requirements may not be allowed to compete.

5. Rules and Scoring

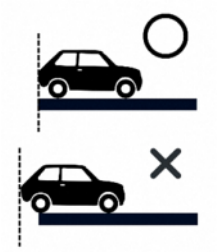
- Complete the course within the one-minute time limit.
- There is no limit to the number of scored attempts. The team's final score is the sum of its five highest scores.
- Points are awarded each time the robot passes through a straight section or a corner.
- Within the time limit, competitors may restart from the starting position as many times as they wish.
- The attempt ends and the score is tallied if the robot falls off the course, can no longer continue moving, is touched, is judged unable to continue by the referee, or if the competitor declares that they give up.

5. Rules and Scoring (continued)

- If the robot completes the course within one minute, the whole-number part of the time remaining in seconds is added as bonus points.
- Touching the side of the course is treated as falling off the course.

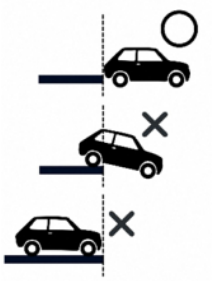
Starting position

To start, place the robot so that its rearmost point is aligned with the rear edge of the course. The robot's rearmost point means its farthest-back part, whether or not that part touches the ground.



Finish

Drive through the finish without stopping, continuing forward and falling off the end of the course. The finish does not count unless the robot's rearmost point has passed beyond the end of the course.



Circle = correct / valid. Cross = incorrect / not valid.

Scoring table

Division	1st straight	1st corner	2nd straight	2nd corner	3rd straight	3rd corner	4th straight	4th corner	5th straight	5th corner	6th straight
Elementary school	50	150	200	300	350	450	500 (Finish)				
Junior high school	50	150	200	300	350	450	500	600	650	750	800 (Finish)

6. Rank Certification

Sum of the five highest scores

Rank	Elementary school	Junior high school
Bronze	2,100 points or more	3,300 points or more
Silver	2,400 points or more	3,700 points or more
Gold	2,700 points or more	4,100 points or more