

Limit Balance Rules

Introduction: The limit balance competition takes the balance state of the work as the basic requirement, and designs a bridge-shaped model that continuously extends outward. Through the competition, the team members are familiar with the concepts of symmetrical balance, asymmetric balance and scattering balance, learn the principle of leverage, and explore various ways to solve problems with the cooperation of the team.

Group: Preschool

Rule revision v3-2023.5.30

Revised 3.3 G competition expanded to 2 rounds, highest score ranking

Rule Revision v2-2022.1.5

Revise the time requirements of 3.2 to clarify the balance test and the referee's scoring arrangement

Rule Revision v1-2021.10.17

The rules of the event were created

1 Team members request

- A. Team members should be of preschool age.
- B. Each team has ≤ 3 members and 1 adult assistant.

2 Work requirements

2.1 Competition table

- A. The competition table is 2 meters long, 1 meter wide and 0.4 meters high.

2.2 Competition equipment requirements

- A. Restrict Lego pellet equipment.
- B. 40 2x2 Duplo blocks, 60 2x4 Duplo blocks, 20 2x4 sheets, 1 24x24 base plate (9701). Only the above 120 pellets are allowed in the competition.
- C. On-site competition equipment shall be provided by the Organizing Committee.

2.3 Measuring tool

- A. Gravity hammer, ruler, timer.

3 Rules of the game

3.1 Entry requirements

- A. In the competition, the parents of one team member will be invited to participate in the competition. Before the competition, the parents of the team will be given their certificates. Note that the parents are only allowed to be responsible for physical work, order management and cooperation of the team members on the spot, and are not allowed to participate in the construction of the robot structure. There will be an independent rest and observation area at the beginning of the competition.
- B. Players are not allowed to leave the playing surface during the game.
- C. Before the start of the competition, the referee will check the equipment of each team, which must meet the requirements of the number of particles per specification. When entering the competition stage, the equipment of each team must be in the state of spare parts, and no spliced particles are allowed.

3.2 Time requirements

- A. The total construction time is 5 minutes. The construction of the base and works should be completed within 5 minutes. The team that completes ahead of schedule can raise their hands and the referee will record the completion time. There will be a referee's stopwatch timing and electronic timing to double prompt the game time.
- A. At the end of the 5 minute period, the referee will start the 5 minute timer again. All teams will enter the 5minute stability test, during which the judges will complete the length measurement of each work and judge the score. If the work collapses or the extended part touches the ground within 5 minutes of the stable test time, it will be regarded as

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a failure of the challenge and the results will not be recorded. If the work collapses after the stable test time, it is still regarded as a successful challenge, and the score of the work is valid.

- B. Within 5 minutes of the construction time, the team that completes the construction of the work ahead of schedule still needs to start the 5-minute stability test together with all the teams.

3.3 Game flow

- A. Each team has only one chance to build and score works.
- B. During the competition, according to the number of competition platforms, teams will compete on the stage according to the group arrangement, and non-competition teams and auxiliary construction personnel will have a rest to watch the competition area.
- C. Just as the unit team needs to share a set of equipment, it is allowed, but before the start of the competition, the assistant should lead the team members to dismantle the equipment.
- D. Before the start of the game, the referee will check the condition of the equipment.
- E. During the competition, if a member of the team maliciously damages other people's works, he will be convicted of a foul and will have no competition results. The referee will give time to repair the non-malicious damaged construction works according to the situation.
- F. When the competition time is up, the team members are not allowed to touch the works again. If two warnings are invalid, they will be convicted of violations and no competition results.

3.4 Scoring rules

- A. Erection requirements: a base with a height of not less than 10 conventional 2 * 2 or 2 * 4 vertically stacked building blocks shall be erected on a 24 * 24 base plate (9701). If the erection height does not meet the requirements, the score will be 0. Build the rebate as shown in Figure 1:



Figure 1

- B. On the basis of maintaining the balance of the work, try to expand the Lego building blocks outward with the base as the center. In the process of expansion, the shape, height and balance of the work are not limited. The extension part can not touch the ground. After the completion of the construction, it can stand on the site smoothly. An example of the build specification is shown in Figure 2



Figure 2

- C. The construction time is 5 minutes, the time is recorded by the 5-minute timer on the spot, and the time of a single team will be recorded by the assistant referee. If the construction is completed in advance, the team members can raise their hands to indicate the completion of the construction. After the indication, they can not touch the work again. The referee will record the completion time. If there is a final split, the ranking will be judged according to the completion time of the work. When the 5-minute building time is up, the team members should stop building immediately and leave the building blocks with both hands. If the construction is continued and the referee's warning is ignored for more than two times, the competition score will be invalid.
- D. Team members can increase the height of the base according to the needs of the work, but the increased part will not be added.
- E. After 5 minutes of construction time, there will be 5 minutes of stability test and length measurement time, which will be uniformly timed and measured by the referee. If the work collapses or the extended part touches the ground within the stable test time (as shown in Figure 3), it will be regarded as a failure of the challenge, and the results will not be recorded.
- F. If the work collapses after the stable test time, it is still regarded as a successful challenge, and the score of the work is valid.

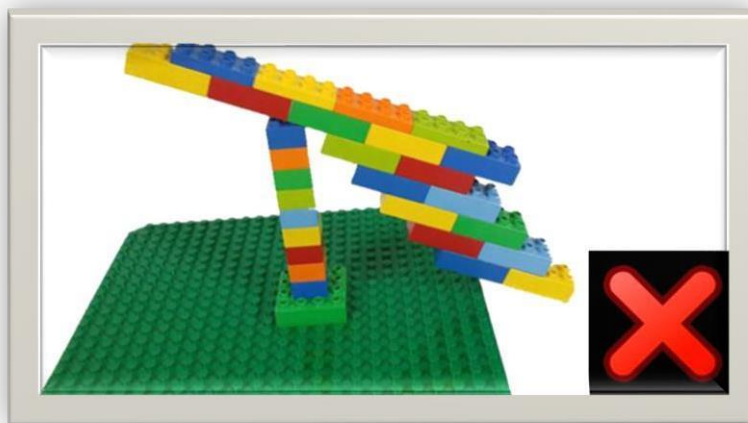


Figure 3

- G. The object of the judge's measurement is the longest end of the work extending out of the base.
- H. The length of the judge's work is measured by the distance from the point where the work extends out of the farthest end of the base and projects vertically to the ground to the closest vertical projection point on the edge of the base. As shown in the figure 4.

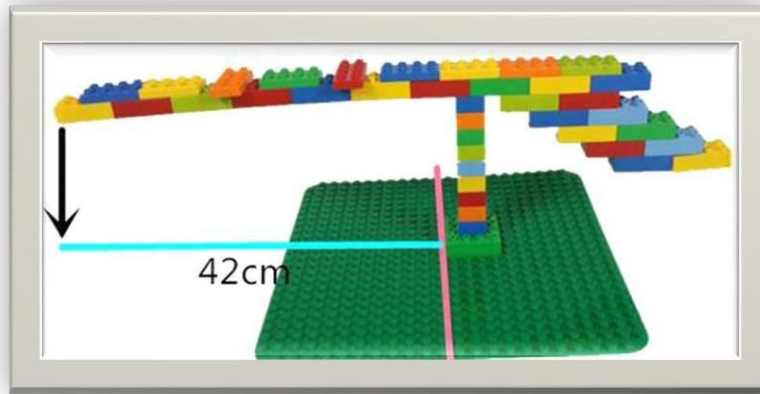


Figure 4

- I. Scoring starts at 0, with 1 point for every 1 cm of measured distance. As shown in Figure 4, if the measurement distance is 42 cm, the score is 42. There is no upper limit for the score, and the score can have decimals.
- J. If the length of the work is the same, the team that uses fewer blocks will get a higher ranking. At the end of the 5minute stability test, the referee will arrange for the team to dismantle the work and record the number of building blocks.
- K. If the works are of the same length and the same number of blocks are used, they will be judged according to the completion time of each team. If the completion time is the same (such as 5
- L. Minutes to complete), then according to the referee on the spot to arrange an extra match, or the same ranking.

4 Award setting

- A. The competition will set up a team of gold, silver and bronze prizes, as well as a number of excellence priz