



Referee Guide and Quiz

2020-21 RePLAYSM season



Thank you!

Thank you for volunteering your time. Thank you for volunteering and thank you for being awesome. Tournament day will be one of those days that is life-affirming – a day that will make you realize how amazing and talented our *FIRST*® LEGO® League Challenge teams are. Refereeing is an important job. You will be different things to the teams – the friendly face that greets them at the Robot Game table; the supportive, but fair and knowledgeable referee who will take scoring their robot match very seriously; and the role model they will remember long after the day is over. If you bring your sense of humor and maybe a silly hat, we're sure you'll enjoy the day.

The Goal of the Teams

Teams will try to have their robot score as many points as possible by solving the missions of the RePLAYSM game. Only their highest score of at least three separate 2.5-minute matches counts. The Robot Game allows teams to demonstrate how well their robot design and program worked. The Robot Game will also showcase how the teams embody the *FIRST*® Core Values and express *Gracious Professionalism*® -- the spirit of friendly competition unique to all *FIRST* programs.

Referee Role

There are two main parts to your role as referee. One is to regulate the action and fairness of the Robot Game during the tournament. You'll need to do some preparation to ensure you are equipped to do this job well. The second part of your job is to be role model and ensure the teams have an amazing experience, regardless of how many points they score.

Before the Tournament

Your tournament organizer and/or head referee should help you prepare for your role.

Study the *Robot Game Rulebook*

By knowing the Robot Game, your actions and judgment calls will be consistent with the expectations of the teams and other referees. If you have questions during the event, your head referee is there to support you.

The [Robot Game Rulebook](#) contains:

Field Setup - All fields need to be prepared before the first match. After that, only "resets" are needed between matches. You will be responsible for inspecting the field before every match.

Missions - The missions describe the specific match results required for points to be scored, and they put some constraints on how those points can be scored. The missions are carefully worded to allow a variety of solutions. The RePLAY



Robot Game Missions video is a helpful tool to demonstrate the points scored for each mission.

Rules - It's important to read and know the rules, but the head referee is there to help you if you have any questions. The rules are there to back up your decisions.

Challenge Updates

[Challenge Updates](#) are posted as the season progresses, so be sure to review them for any rule changes prior to your tournament. Your head referee should also tell you about any changes on tournament day.

Referee Quiz

On or before tournament day, the Referee Quiz is a useful way to practice your referee decision-making. If a few answers are not clear to you, don't worry - some situations require a thoughtful "best" answer, or a "benefit-of-the-doubt" call. Remember, the ultimate goal is always to inspire and motivate the teams, as well as score their matches consistently and fairly.

During the Tournament

You will referee one team at a time at a Robot Game competition table, while another team competes on the opposite table with their own referee.

Before the match, reset and inspect the field.

Put the team at ease.

Perform the team equipment inspection (Mission 00 and Rule R09).

Check the team is ready for the start of the match.

Only two team members, called technicians, are allowed at the competition table at a time.

The match begins when the emcee signals, "3, 2, 1, LEGO!"

During the match, watch the interaction between the team, the robot and the field.

Allow or do not allow action.

Example 1: If the team tries to reset a model outside home for "another try," you would stop them. (Rule 12)

Example 2: If there are three team members at the table, you would have one step away. (Rule 8)

Determine where things go after they are moved.

Example 1: If a robot part breaks off, the team can have that part returned to them in home. (Rule 12)

Example 2: If the robot loses control of cargo outside home, the cargo is left as is in place. (Rule 19)

Make judgment calls.

Every tournament presents referees with situations which might seem difficult to rule on, but don't worry. Follow the rules as they are written. If a detail isn't mentioned, it doesn't matter. Don't forget Rule 25, which gives the team the benefit of the doubt when calls are close. Remember again, the goal is to be fair and motivating. Be consistent with details and facilitate the children to have a wonderful time on their big day.

Ensure the team stops attempting new missions at the end of the match.

Work together with the two team technicians to score the match.

Most of your scoring will be based on what is visible at the end of the match. Use a Robot Game scoresheet to record the match results. Do this before anyone touches or resets the field.

Consult a head referee if you are stuck or need help.

Once the scoresheet is complete, send it to the score keeper.

Reset the field for the next match.

Head Referee Responsibilities

As your referee knowledge and skills advance, you may be asked to become a head referee in your region. Here are the high-level responsibilities of that role.

Before the Tournament

Recruit, communicate with, and train your referees.

Send them the relevant items from the Referee Toolkit – the *Robot Game Rulebook*, the Referee Guide and Quiz, and the RePLAY Robot Game Missions video. You can also use the Refereeing the Game Powerpoint as needed. Be sure to review any game-related Challenge Updates with your referees before the matches begin.

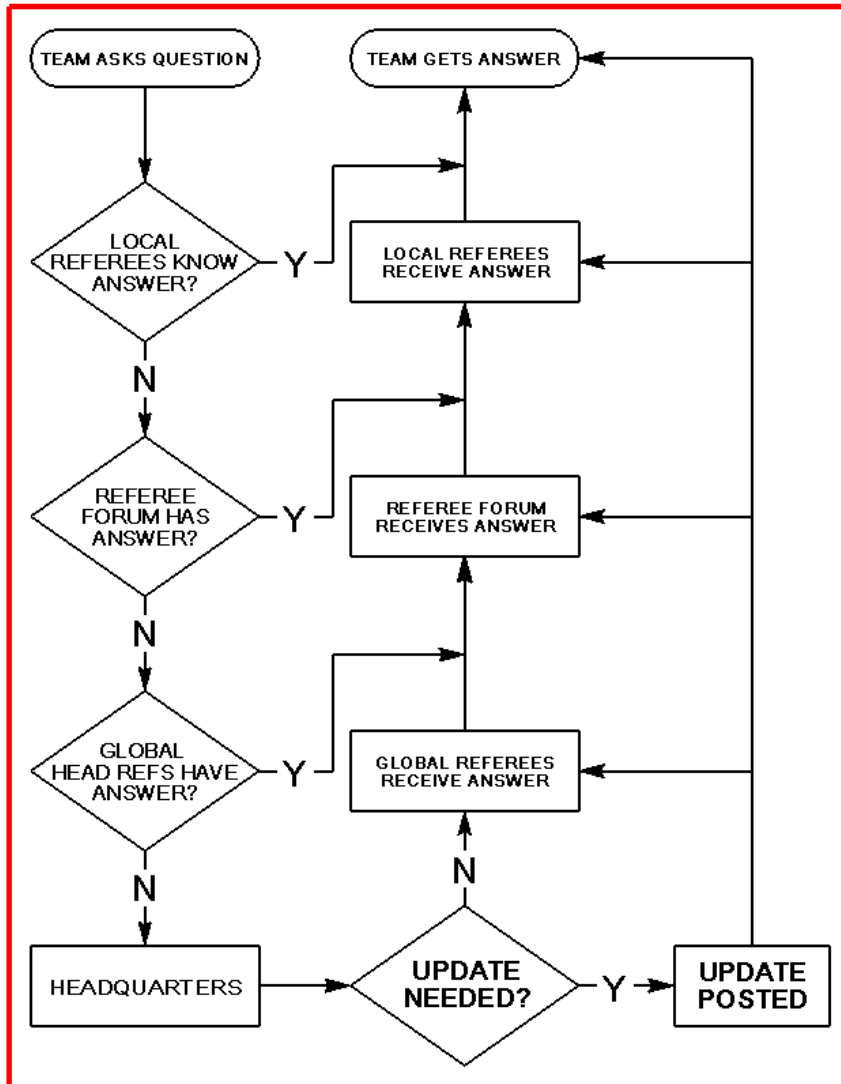
Perform quality assurance on all tournament Challenge Sets.

Ensure all mission models are built and setup correctly according to the Field Setup in

the Robot Game Rulebook. Make sure no pieces are missing prior to the event. Check all competition and practice fields again the night or morning before the event.

Work with your tournament director to prepare referee shirts, clipboards, scoresheets, pens, and schedules for referees.

Answer game-related questions in your region, by a suitable method. If a question cannot be answered with confidence the robot game question flow chart below shows how it should be elevated.



During Tournaments

Work with tournament director, referees, emcee, scorekeeper and any event staff to keep things on schedule.

Report any [Participation Rules](#) concerns to your tournament director.

Support your referees in difficult decision-making situations.

Make final decisions when robot performance action or scoring is in dispute. If teams are tied for Robot Performance Awards, look at second- or third-highest scores to determine the winners.

Referee Quiz

This “quiz” is **not** to test your knowledge. Use it to practice your decision-making in realistic tournament situations.

1 - The robot is out in the field, and the technician is preparing a separate attachment in home while it's operating. Is this allowed?

2 - A slide figure's frame is in home, but the minifigure part is not. Can this score?

3 - Can the robot be launched by the team putting a finger in front of a color sensor?

4 - The robot is entering home but extends over the west border wall before clearing past the west edge of the mat. The technician grabs the robot. Is this an interruption?

5 - The robot delivers a second yellow cube into the boccia target without using the shooter. Can this score?

6 - Before the robot comes fully into home, the technician drops a slide figure onto it through the air. Is that an interruption?

7 - An out-of-control robot crashes into the pull-up bar and knocks off a health unit, which was looped over the post. What do you do?

8 – In a similar situation, the robot is out of control and heading toward the pull-up bar. The technician interrupts it just in time to prevent the collision, which might have knocked some health units off. Is this allowed?

9 - A critical wheel has popped off the robot in the center of the field with 45 seconds left in the match. The technician grabs the robot, but not the wheel. What do you do?

10 - You learn that a certain team used a different robot in match 2 than in match 1. Is this allowed?

11 - The robot gets tangled and stuck at the slide while moving the health units from the launch area to the pull-up bar. A technician picks up the robot. What happens to the health units?

12 - There are two color sensors present in each of three separate attachments, making a total of six sensors. Is this allowed?

13 - The technicians say the robot failed a mission due to debris under the mat. There is indeed debris there. What do you do?

14 - A parent comes to you in match 3 and says the team thinks their match 2 score is inaccurate. What do you do?

15 - The robot is only half out of the launch area when it delivers a cube into a bench square. Can this score?

16 - A team member away from the table is holding equipment. What do you do?

17 - The match started at least 10 seconds ago, when you notice the row machine hasn't been reset. What do you do?

18 - An aiming jig banks against the west border wall and clearly reaches into the launch area, where the robot is pressed against it, and the technician is holding the jig in place. Should you allow this launch?

19 - Is it ever a good idea to mark scores before the match is over?

20 - The technician is all ready to launch, but a wire is clearly extending past the west edge of the mat. What do you do?

Answer Key

This quiz is a training tool. Refer to the official Robot Game Rulebook, which includes the rules, field setup and missions, and also check the Challenge Updates.

1 - No problem. Since the equipment is separate from the robot and in home, touching it does not qualify as an interruption. (Rules 15 and 3)

2 - No. (Rule 4, bullet 3)

3 - Yes. (Rule 14)

4 - Yes. (Rule 12, bullet 3, and Rule 16, bullet 2)

5 - Yes. No method is required for the delivery of either yellow cube, but it will only score 5 points for being a cube in the frame and not an additional 10 because there is already another yellow cube in the target. (Mission 8 text)

6 - Yes. If the technician drops something onto the robot, she or he has interacted with it. (Rule 15, bullet 4)



7 - Leave it there. No points are scored until the end of the match. (Rule 12, bullet 5, and Rule 22)

8 - No problem. This is very common and does not qualify as strategic interruption, since no new points or advantage were created. (Rule 15, bullet 3, and emphasis on Rule 23)

9 - Remind the technicians they can pick up broken robot parts by hand, no problem. (Rule 12, bullet 5, exception 2) If they cannot reach, consider carefully grabbing it for them.

10 - No problem. Equipment limits are assessed in each match, independent of other matches. (Rule 1)

11 - Since the health units were with the robot at its most recent launch, the team gets the health units back in home. (Rule 18)

12 - No problem. There are no quantity limits on sensors. (Rule 1)

13 - Score the mission a success. This is a clear benefit-of-the-doubt call. (Rule 25)

14 - Refer the parent to the head referee, not the score keeper. The score keeper should not be distracted.

15 - Yes. (Mission 8 text, and emphasis on Rule 23, bullet 2)

16 - Remind the team member the equipment needs to be kept in home. (Rule 12)

17 - Quickly but carefully reset it. If you don't get to it in time, apply the benefit-of-the-doubt rule. (Rule 25)

18 - Yes. Although this would have been an illegal launch position in the past, the rules have changed. (Rules 9 and 12, bullet 6)

19 - Yes. On rare occasions, a mission requires an action or a method. For example, in Mission 6, the robot has to pass completely through the pull-up bar's upright frame. This is an exception to Rule 22. Record successful actions or methods as soon as you see them, so memory doesn't fail you.

20 - Wires are equipment and the launch rules are clear (Rules 13 and 14). Have the technicians tuck the wire into the launch area before letting them launch their robot.