NFFS Guidelines for Science Olympiad Event Supervisors
Helicopter B/C (2025-26)
Draft 09-03-2025

This document is intended to help you to supervise the Helicopter event, particularly if you have little or no experience in doing so. It contains information specific to the rules for the 2025-26 season, so if this is a subsequent year, please look for and use an updated version. This resource is an overview of the supervision process, and links to details for number of tasks that will occur on the day of the tournament. You may wish to print some of this content for your reference on the day of the competition.

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1. Rules

Read the current Helicopter rules (Div C rules, but same for division B) carefully several times so that you are familiar with them. Take a look at the Rules Corrections and Clarifications page on the National SO website (soinc.org). Since these are considered an extension of the rules, you should include a copy of any Helicopter specific items with your copy of the official rules. These documents will be a handy reference during the competition, and may help to quickly resolve disputes, as sometimes students will claim that the rules say "X", whereas they either say "Y" or don't say anything about the area of concern.

2. Venue - Considerations before the tournament

For Helicopters, the most important thing is to have a flat ceiling with minimal obstructions, as they spend much of their flight time pinned up against the ceiling. Though SO airplanes are often flown in gyms, most gyms are not suitable for helicopters. If possible, see if you can arrange to have the ventilation system shut off during the competition. Contact the tournament organizer about the above, and be sure to remind them that SO rules specify that the room dimensions should be announced to the teams in advance of the competition day.

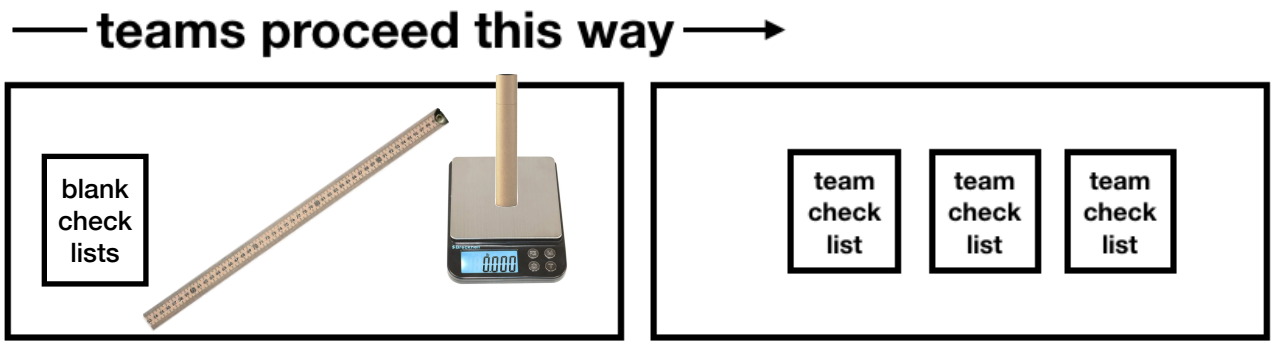
3. Equipment and supplies you will need

You will need a digital scale that reads to 0.01 g for use in massing the helicopters. You should also have a paper towel tube or similar to set on the scale so that the helicopter doesn't touch the table while being massed. You will need 3 digital stopwatches (or other timers) that read to 0.01 s. You will also need an interval timer (like a kitchen timer) for timing the 10 minute flight period. You will need a meter stick to measure the boxes. (This must be marked in cm to match dimensions specified in the rules!)

You will need paper team checklists from the SO website, (needs link to 2026 version) equal to the total number of teams. It is a good idea to label these with team names and numbers in advance. (This allows you to check that you either have a filled-in checklist for each team that competed, or a blank one for a no-show. Otherwise if a completed checklist was misplaced or mistakenly taken by a student, you might not realize it). The tournament organizer may be able to provide you with pre-printed labels for this purpose if you ask them in advance.

4. Day of the Event: Preparing the Venue

Set up a table(s) for check-in. One efficient way to organize it is shown in the diagram. At the end where the students enter is a stack of blank check-lists with team names and nur



Following that is the meter stick that you will use to measure the box. Next, the digital scale, with the cardboard tube to hold the helicopter while it is massed and to support it above the scale as mentioned previously.

Finally, it is nice to have a place where you can line up the completed team check-lists to queue them for timing. The impounded motors can be placed on top of these.

The SO flying events are historically among the most popular with spectators, and it is nice if they can watch the teams fly. On the other hand, the rules specify that once the competing students are in the competition area, they may not receive assistance or communication from others. In addition, you will want to avoid the possibility of spectators interfering in other ways, such as creating air movement that affect the flights. With these things in mind, you may want to think about how to limit spectators access to certain areas, depending on the configuration of the space that the helicopter event is assigned. If you are not familiar with the flying venue that has been assigned, you could ask the tournament organizer about this.

5. Day of the Event: Helicopter pre-flight check-in, Timing, Scoring

NEVER handle the competitors' helicopters during the following procedure! The students should be the only ones touching them throughout check-in and competition.

A. Helicopter inspection: Ask students for their team name and number, and find their checklist. Ask them to put their box on the table. Answer the questions in the "Construction and Competition Parameters" section of the checklist. An explanation of how to evaluate each question can be found here.

You will measure a team-supplied measurement box, rather than measuring the helicopter itself. The box must fit the MAXIMUM dimensions in the rules. The helicopter must fit fully within the box in flying configuration without deformation.A separate resource that explains how to measure the measurement box can be found here.

B. Flight Logs: Rule 4 explains log requirements. The log must contain at least 6 parameters that are recorded for at least 10 flights. Three of the parameters are specified in the rules, while three are up to the team.

If you are not familiar with how and why flight data is recorded for helicopters, you will want to take a look at the sample log on the NFFS website, which incudes a detailed explanation. Otherwise, there is a slide show format discussion that will explain the basics of how to evaluate logs. The end result is a log that satisfies the

rules. You can print this as your reference at the competition. A log that is free of infractions counts as Complete, one with one or more problems is Partial, and "Not present" is exactly what it says. Record log status in the space provided on the checklist.

C. Motor impound: As a last step before the students are cleared to fly, impound any motor that the students plan to use, and set them on top of their checklist in order of check-in. No limit to the number or mass of the motors, so nothing specific for you to check here. At this point, you keep the checklists/motors, and the students' 10 minute flight window starts when the motors are returned to them by the timers.

D. Timing: The rules recommend the use of 3 timers per timing team, and the use of the median time to count as the official time aloft for each flight. A timing team can probably handle 5-6 teams per competition slot. How you organize your team(s) will depend on the number of helpers you are assigned. Details of how to time can be found in .

E. **Scoring**: If you are using the Scilympiad platform to score (ask the tournament director), enter the numbered data and the log status into the relevant areas in each team's scoring page. If you are not using Scilympiad, you should use the scoring spreadsheet provided on soinc.org. (Make sure that the 2026 version has been posted)

The numbered items on the checklist correspond directly to the entry locations on this spreadsheet. If you know in advance that you are using this spreadsheet, you will want to enter team names and numbers into it in advance of the tournament, unless the tournament organizer has done that for you.

Whichever scoring method you used, the tournament organizer will specify how the results should be submitted and verified. Once that is done, you are finished.

Finally, don't forget to thank your volunteers!