

Bridge 2022
Supplemental Guidelines for Satellite Meets

14 October 2021

These guidelines supplement Official Science Olympiad rules for the Bridge event for both Division B and Division C Satellite meets. The Official Science Olympiad rules can be downloaded for free from <https://www.soinc.org/rules-2022> (<https://store.soinc.org/rules-2022>). These supplemental guidelines are intended to define expectations necessary for consistency of the test apparatus and the testing process.

SAFETY: All participants and the Remote Supervisor must keep in mind that this event includes heavy weights, possible flying objects, and dusts. Safety precaution including wearing of class B eye protection is required. Participants must wear flat full coverage shoes and may not compete with bare feet, flip-flops, or open toed shoes. At any time, the event can be stopped by the Remote Supervisor or Event Supervisor for safety concerns such as a poorly secured test stand. The test will end at that point and the Bridge will be scored.

Paragraph numbers below refer to Official Science Olympiad rules for the Bridge event.

Satellite Meet Guidelines

1. Description: Teams will design and build a Bridge (Structure) meeting requirements specified in these rules to achieve the highest structural efficiency. In addition, the competing team will provide:

- all Test Apparatus meeting the requirements of Section 6 of the Official Science Olympiad rules and applicable Supplemental Guideline requirements in this document
- a Remote Supervisor, a person over the age of 18 that can be an impartial party to attend the test, provide onsite supervision, help verify all dimensions and construction requirements, be a safety observer and operate the mobile camera during the test.
- Two (2) video and audio feeds.
- Eye Protection: Requirements for eye protection shall apply to the team members and the Remote Supervisor.

5. Part I Check-in and Part II Testing

- Video Feed. Prior to 5. Part I, each team must provide two (2) live video and audio feeds as described below via Zoom or the method prescribed by the meet officials. The Bridge will be scored in Tier 3 if no video feeds are provided during the Test Period. If only one camera is provided during all or a portion of the Test Period, then the Bridge may be scored in Tier 2 as long as necessary information can be obtained by the Event Supervisor otherwise Tier 3.
 - Fixed Camera: A camera that is in a fixed position that can show the test stand during the entire test. This camera will need to be capable of joining a Zoom Meeting or the method prescribed by the meet officials. Often a laptop or cell phone on a tripod is used.
 - Mobile Camera: A camera that can move around the test site to provide the Event Supervisor views of the Test Apparatus and test process. This camera will need to be capable of joining a Zoom Meeting or the method prescribed by the meet officials. The Event Supervisor will direct the Remote Supervisor on what needs to be shown by the Mobile Camera. Often a cell phone is used.
- Review and qualify the Test Apparatus. Prior to 5. Part I. the Event Supervisor will review and qualify the Test Apparatus with the Remote Supervisor. Nine (9) minutes will be allowed for this activity.
- 5. Part I Check-in. Five (5) minutes will be allowed for the Supervisor introductions and check-in of the Bridge.
- 5. Part II Testing. Six (6) minutes will be allowed for the set-up and testing of the Bridge to maximum load or failure. If set-up and testing takes longer than the allowed 6 minutes, the Bridge will be scored in Tier 2.

6.a. – Test Apparatus. The Remote Supervisor must provide the Test Apparatus. Failure to meet all Testing Apparatus requirements will result in the Bridge being scored in Tier 2. Test Apparatus includes:

- 6.a Test Base
- 6.b Test Supports
- 6.c Pass Thru Block
- 6.d Loading Assembly
- 6.e Sand
- 6.f Bucket Stabilizing Sticks

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- 6.g Structure Scale. If the scale resolution is larger than 0.1 gram (for example 0.2 gram or 1.0 gram), the Bridge will be scored in Tier 2. The scale must read in grams, if the scale reads in any other unit of measure, the Bridge will be scored in Tier 2. NOTE! Digital scales will be the only acceptable measurement device. If dial scales, manual beam scales, balance scales, spring scales, or similar are used, the Bridge will be scored in Tier 3.
- 6.h Sand Scale and Load Verification. If scale resolution is greater than 10 grams (for example 20 grams or 100 grams), the Bridge will be scored in Tier 2. The scale must read in grams or kg (if kg, then it must display 3 digits to the right of the decimal point) If the scale reads any other unit of measure (newtons, pounds, etc.), the Bridge will be scored in Tier 2. NOTE! Digital scales will be the only acceptable measurement device. If Bathroom scales, dial scales, manual beam scales, balance scales, spring scales, luggage handheld scales or similar are used, the Bridge will be scored in Tier 3.
- Timer. The remote supervisor must provide a countdown timer that has a minimum resolution in seconds and has an audible alarm. If a timer meeting these requirements is not available, the Bridge will be scored in Tier 2.
- Measurement Device. The remote supervisor must provide a length measurement device (for example: meter stick) with a minimum resolution of 1 mm. If the measurement device reads any other unit of measure, the Bridge will be scored in Tier 2.

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Additional Notes for the Remote Supervisors at Satellite Meets.

- Additional information on the rules and building can be found at: [NSO Bridge Page](#)
- Structure Scale: If your school cannot provide a scale for the Bridge measurement, a low-cost scale that meets the minimum requirements for this event is an **ACPro-200** made by American Weigh Scales that sells for about \$20.00 on Amazon. REMEMBER this scale has a 200-gram capacity with a 0.01-gram resolution. If your Bridge will be heavier than 200 grams, this scale will not work. This is simply an example and is not a recommendation or requirement, any scale meeting the rules and supplemental rules may be used.
- Sand Scale: If your school cannot provide a scale for the sand measurement, a low-cost scale that meets the minimum requirements for this event is a **MyWeigh Ultraship Ultra-35**. It sells for about \$45.00 on Amazon. This scale has a 16 kg capacity, measures in grams with a 5-gram resolution. This is simply an example and is not a recommendation or requirement, any scale meeting the rules and supplemental rules may be used.
- Test Time: The time you sign up for is your call -in time. Call in with both Cameras. We will check that you have proper video feed and sound. You will then be placed in a break-out room until an Event supervisor is available, normally within ½ of your call-in time. You should plan 45 minutes to 1 hour for the entire cuing and test.

Thanks for your support of Science Olympiad!!