



Science Handbook

For Contest Directors, Coaches and Contestants

2024 • 2025

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2024 | 2025

University Interscholastic League

Science Handbook

The details in this handbook expand upon the information in the UIL Constitution & Contest Rules. In addition to this handbook, coaches, contestants and contest directors should read Sections 900-906 for information pertaining to all contests. See also the Academic Quick Reference Chart found at the end of this handbook and on the UIL website.

From the UIL Constitution & Contest Rules:

Section 952: HIGH SCHOOL SCIENCE CONTEST

(a) **THE CONTEST.**

- (1) Purpose. The Science Contest challenges students in the basic fundamental principles of science, promotes learning in biology, chemistry, and physics, fosters a sense of enthusiasm about advanced topics and courses in the sciences and prepares students for the rigor of college level courses.
- (2) Format. The contest will consist of objective questions designed to test the comprehension of fundamental principles in biology, chemistry and physics. Papers may be turned in 30 minutes after the start of the contest.
- (3) Calculators. Refer to the contest handbook for restrictions on calculators.

(b) **ENTRIES.**

- (1) Individual Competition. Each member high school may enter as many as six individuals in the district meet.
- (2) Team Competition. A team shall have a minimum of three contestants compete in order to participate in the team competition. The four highest scoring members of the winning team will advance to the next higher level of competition.

(c) **QUALIFICATION.** Individuals, teams and wild cards qualify for the next level of competition according to Section 902. Contestants with the top score in each area (biology, chemistry, physics) qualify for the next higher competition and are eligible to compete equally with the overall winners. One alternate is named for each top scorer position. See ties below.

(d) **TIES**

- (1) Individual Competition. In the event of a tie, the formula for percent accuracy shall be used to break the tie. The formula is: percent accuracy equals number of problems correct divided by the number of problems attempted. The contestant with the highest percent accuracy shall be awarded the higher place. If the percent accuracy scores are the same, then a tie exists.
- (2) Top Scorers. In the event of a tie for the top score in biology, chemistry or physics, the formula for percent accuracy within the subject area shall be used to break the tie. The formula is: percent accuracy equals number of problems correct divided by the number of problems attempted. The contestant with the highest percent accuracy shall be awarded the higher place. If the percent accuracy scores are the same, then a tie exists.
- (3) Team Competition. Refer to Section 902 (h)(3)(D).

Science

Contest Rules and Procedures

1. **CONTEST ROSTER.** A contest roster listing contestants will be created from schools' online entries and provided to the contest director.
2. **NUMBERING CONTESTANTS.** Each contestant will be assigned a number. This number should be indicated on the contest roster and included on the contestant's test and answer sheet. Contestants shall not write their name or the name of their school on their answer sheets.
3. **ROLL CALL.** The contest director will call roll from the contest roster and replace any contestant who is not present with a certified substitute at district or the certified alternate or team substitute at regional and state. All persons except participating contestants, the contest director, assistants and monitors will be dismissed from the room before the contest begins.
4. **SUBSTITUTIONS AND ALTERNATES.** Schools may replace individual contestants on the official district meet roster with a substitute so long as the substitute presents the contest director with the appropriate documentation. Alternates may compete at region and state only in the absence of an individual who won first, second or third place in the preceding competition. If a member of a school's team cannot compete at region or state, only one substitution may be made. See the UIL Constitution and Contest Rules Sections 903-905 for clarification.
5. **SEATING.** Contestants will be seated sparsely around the room and away from other contestants from the same school.
6. **LATE ARRIVAL.** Except in emergencies, the UIL does not recommend allowing contestants to enter the room after this contest has begun. The decision to allow late entry rests with the contest director of the meet.
7. **CALCULATORS.** A simple scientific calculator is sufficient for the Science contest. A list of acceptable calculators is provided in this handbook. Only calculators on the approved list shall be allowed for use in the Science contest. Contest directors should verify by brief visual inspection that each contestant is using an approved calculator. Contestants may use up to two approved calculators during the contest, and may bring spare batteries.
8. **TEST DISTRIBUTION.** Testing materials will be distributed and contestants shall not open the test prior to instructions from the contest director. The assigned contestant number should be written in the top right-hand corner of the test and answer sheet.
9. **SCRATCH PAPER.** Contest directors shall provide contestants with scratch paper to be distributed with the test and answer sheet. Contestants are permitted to write on the test and on the scratch paper.
10. **ANNOUNCEMENTS.** Following roll call and prior to the start of the test, contest directors shall read aloud to contestants the section of this handbook titled Announcements Prior to Conducting the Contest.
11. **START AND STOP SIGNALS.** Contest directors should give a clear signal to start. Thirty minutes after the start of the contest, the contest director will give a verbal notification. After exactly two hours, the contest director will give a clear signal to stop. No other

time warnings shall be given. A clock should be provided to indicate the remaining time in the contest at a position easily seen by all contestants. If all contestants agree to its absence, the clock may be omitted. If contestants are in the process of writing down an answer when the stop signal is given, they may finish writing that answer; they may not do additional work on a test question.

12. **TIMING AND ELECTRONIC DEVICES.** Contestants may use timing devices provided they do not emit audible signals during the contest. Cell phones, tablets, smart watches, or any device that can wirelessly connect to the Internet, may not be used during the contest. Music players, headphones, etc. may not be used in the testing room. Prohibited electronic devices should be turned off and should not be accessible during testing.
13. **ANSWER SHEETS.** Answers shall be written on the answer sheet in the space provided. Contestants should not use the answer sheet for calculations or other marks. Graders will not consider answers written on the test or scratch paper.
14. **LEGIBILITY.** If a consensus of graders cannot read an answer, they will mark that answer as incorrect.
15. **TURNING IN PAPERS.** Following the first 30 minutes of the testing period, contestants may turn in papers and exit the contest room as soon as they complete the test. In the event of a medical or other emergency, the student shall request permission to leave the contest room and shall be accompanied by a monitor while outside the contest room. Students who leave and return to the contest room without permission shall be disqualified.
16. **GRADERS.** Coaches are expected to serve as graders and should be selected by the contest director prior to the beginning of the contest. One grader will be designated as the Head Grader.
17. **ANSWER KEY.** Graders may review the test and answer key during the testing period. Prior to the start of grading, the Head Grader should communicate to the contest director any concerns of the reviewers.
18. **ANSWER KEY ERRORS.** In the case of a suspected error on the answer key, the contest director should contact the UIL State Office and/or contact the state contest director to communicate the suspected error and to seek clarification before changing the key. Any error confirmed by the UIL State Office or the state contest director should be corrected on the key used for grading.
19. **GRADING THE CONTEST.** Each paper should be independently scored twice, and papers contending to place should be scored a third or fourth time as needed.
20. **SCORING.** Six points shall be awarded for all questions answered correctly, no points shall be given or subtracted for unanswered questions, and two points shall be deducted for an incorrect answer.
21. **PLACES AND TIES.** Contestants can qualify to the next level of competition as individual first, second and third place winners or members of the winning team or wild card team according to Section 902 of the *UIL Constitution and Contest Rules*.
 - a. Individual Competition. First place is awarded to the contestant making the highest total score, second place to the contestant making the next highest, third place to the next highest and so on. Ties shall be broken according to Section 952 of the *UIL Constitution and Contest Rules*.
 - b. Top Scorers. Each of the three subject areas (biology, chemistry and physics) should be graded independently to determine the top contestants in each subject area.

Contestants with the top score in each area qualify for the next higher competition and are eligible to compete equally with the other advancing contestants. One alternate is named for each top scorer position. Ties shall be broken according to Section 952 of the UIL Constitution and Contest Rules.

- c. **Team Competition.** First place is awarded to the team with the highest team score and second place to the team with the next highest. Team ties shall be broken according to Section 902 (h)(3)(D) of the UIL Constitution and Contest Rules. In district competition, the top four scoring contestants from a school will constitute the school's team. At all levels, the sum of the top three overall scores from each school constitutes the team score for the school. All four members of first place or wild card teams advance to the next level of competition. All team members who qualify to regional or state will also compete for individual honors.
 - d. **Wild Card.** A wild card team will advance according to Section 902 of the UIL Constitution and Contest Rules.
22. **VERIFICATION PERIOD.** Following grading and input of unofficial results into the online entry system, contestants and coaches shall be allowed a time period to review contest materials (see After the Contest, Verification Period). Questions shall be resolved during the Verification Period. Contestants and coaches not present at verification waive their opportunity to ask questions. The purpose of the verification period is to check accuracy in scoring, tabulation and data entry, not to challenge the test or answer key.
 23. **ANNOUNCING OFFICIAL RESULTS.** Following the verification period, the contest director should announce, as official, the names and schools of contestants through sixth place, top scorers in each subject area and the top two teams. Official results, once announced, are final.
 24. **NOTIFYING ALTERNATES.** If an individual qualifier or team cannot compete at the region or state meet, the alternate shall be notified and allowed to compete. It is the responsibility of the school scheduled to attend to notify the meet director and the alternates school in writing as soon as possible prior to the contest. Failure to do so could violate the Academic Contest Ethics Code.
 25. **RETURNING THE PAPERS.** When results are final and all questions resolved, district papers may be returned no sooner than the end of the last contest day of the district week. Regional papers may be returned no sooner than Saturday of region weekend.
 26. **CONFIDENTIALITY.** Coaches, contest directors and contestants shall maintain confidentiality of contest material until the official release date. Transfer of information regarding test content shall be considered a violation of the Academic Contest Ethics Code and subject to penalties as outlined in the UIL Constitution and Contest Rules.
 27. **SWEEPSTAKES POINTS.** Points are awarded through sixth place, to top scorers in each subject area, and to first and second place teams according to Section 902 of the UIL Constitution and Contest Rules.

BEFORE THE CONTEST

ROOM

Choose a room adequate in size and selected with quietness and excellent lighting as prime factors. The UIL recommends classroom armchairs or desks with accompanying armless chairs (no stools).

(DISTRICT) Remember that each school may enter six science contestants.

MATERIALS AND EQUIPMENT

The contest director will provide the following:

- Clean scratch paper for use by the contestants
- Accurate clock for timing and clock which contestants can see during the contest
- Pens for grading
- (DISTRICT) One 8 1/2 x 11 envelope per school entered, for returning materials

CONTEST PACKET

The League office will provide the following:

- A copy of the UIL Science Handbook
- Sufficient copies of the tests and answer keys
- Answer sheets
- Certificates for the top scorers in Biology, Chemistry and Physics

The meet director may schedule a specific time and place for contest directors to pick up the test packet before the contest. Contest officials should inventory the contents before the contest. The packet should be checked to verify the correct materials are enclosed and the number of copies included is sufficient for the number of competitors. The test packet should then be resealed and not opened again until just prior to the beginning of the contest.

PERSONNEL

Coaches of competitors may serve as contest directors, assistants, monitors and graders.

- Contest director.
- Assistant to the contest director.
- Room Monitor.
- Graders. Almost certainly your best graders will be coaches of the contestants, and we encourage you to use their skill and experience to ensure accurate and efficient grading of the test papers. Designate one grader as the Head Grader. Make these selections prior to the beginning of the contest.

TIME

Allot a minimum of 2 1/2 hours for the contest. Plan for 30 minutes for announcements, grader sign up, approval of calculators, roll call, instructions and distribution of materials. Two hours of working time will be allotted for the actual testing period exclusive of time required for instructions. The two hours begin when contestants are instructed to start. It is critical to stay

on schedule, as some students may need to go to other events.

Arrange for and announce during the opening remarks the time and place of the verification period that will take place prior to the announcement of official results.

EVENT ROSTER & RESULTS WORKSHEET

The contest director should obtain a copy of the contest roster from the meet director, which will be generated from the UIL Spring Meet Online Entry System. The roster will list the school, contestant number, contestant name, district or region number and will indicate students who are competitors and alternates. Scores and/or results are also recorded on this form to give to the meet director, who will then enter the results/scores into the online system before verification is held for the event.

ORGANIZING MATERIALS

Each contestant will be assigned a number indicated on the contest roster. As an example, the number will be listed on the roster as 6A-17 or 2A-4, indicating the conference and a number. The UIL recommends numbering the tests and answer sheets before the contest begins. Write the contestant number in the upper right-hand corner of the test and answer sheet. Check all tests to ensure that all pages are printed clearly and completely. Batch together a test booklet, answer sheet and five pieces of scratch paper that can easily be handed out once contestants are seated.

(REGION) If there is more than one conference at the meet, it is important to differentiate contestant numbers by conference.

SORTING ENVELOPES (DISTRICT)

Provide and label a large (8 1/2 x 11) envelope for each school entered in the district meet. Write the name of the school and contest on the top of the envelopes. After the verification period, contestants' tests and keys should be placed in the appropriate envelope for return to each school.



UIL High School Science Contest Approved Calculator List

~ Effective for the 2024-2025 school year ~

A simple scientific calculator is sufficient for the high school Science contest. The use of tablets, cell phones, smart watches or other types of electronic devices is prohibited. The proliferation of calculators with advanced computer-like features has made it necessary to identify an approved list of calculators for UIL Science. The approved calculators are widely available and typically priced at \$10-\$15 or less.

The following calculators are acceptable for use in the Science contest:

- Casio FX-260 (includes all single-line display variants)
- Sharp EL-501X
- TI-30Xa (includes TI-30Xa Solar School Edition)
- TI-30XIIS

Only the models listed above are allowed during the contest.

Notes: Some of the listed models are available in different colors; any color variation of the listed models is acceptable. The UIL website includes links to the company specifications for each of the listed calculators. Compare against these specifications if unsure about a particular calculator.

For each calculator listed, the model number is clearly visible on the body of the device. Do not cover the model number with stickers or other items that would prevent it from being seen easily by the contest director.

Before the contest begins, contest directors should verify by brief visual inspection that each contestant is using an approved calculator. No clearing or other action is necessary.

Contestants may use up to two approved calculators during the contest, and may bring spare batteries. If a contestant does not have one of the approved calculator models, they may use a simple 4-function calculator for the contest. No other models or types of calculators are permitted beyond those on the approved list, or a simple 4-function calculator if a contestant does not have one of the approved models. Contestants may also test without a calculator.

CONDUCTING THE CONTEST

1. Set up the room that will best facilitate the contest, and where contest officials can sit in view of the contestants.
2. Organize contest materials for easy distribution.
3. Call roll from the roster and provide students with their assigned contestant number. Replace any contestant who is not present with a certified substitute at district and the certified substitute or alternate at regional.
4. Seat the contestants sparsely around the room separating contestants from the same school.
5. Solicit the help of coaches to verify that contestants are using only calculators on the UIL Science Contest Approved Calculator List.
6. Dismiss from the contest room all individuals, except the contestants, contest director and assistants. Instruct graders to report to the grading room.
7. Distribute the test, answer sheet and scratch paper. Caution contestants not to open the test until instructed.
8. Read aloud the following:

Announcements Prior to Conducting the Contest

- a. Do not open the test until instructed to do so.
- b. Write the assigned contestant number in the top right-hand corner on the cover page of the test and on the answer sheet. Check for accuracy if the number has already been written.
- c. Contestants have two hours to complete the test. You may turn in papers and exit the contest room as soon as you complete the test, *following the first 30 minutes of the testing period*. All contestants must remain seated and working through at least the first 30 minutes. In the event of a medical or other emergency, you may request permission to leave the contest room and will be accompanied by a monitor while outside the contest room if you intend to return.
- d. After the 30-minute notification, no other oral time warning shall be given. If you desire to see the amount of remaining time in the contest, you may refer to the clock or to your own timing device. Students shall not use a timing device that emits an audible signal. Cell phones, smart watches, tablets, music players, or other similar devices are not to be used as timers and are not to be visible during the contest.
- e. You will be allowed to use calculators on the Approved Calculator List for the UIL Science Contest. Only calculators on the approved list may be used. You may use up to two approved calculators during the contest and may use spare batteries if needed.

- f. You may write on the test paper and on the scratch paper provided. The answer sheet is reserved for answers only. Do not make notations or any other marks on the answer sheet. Write all answers on the answer sheet; answers written on the test or scratch paper will not be considered by graders.
 - g. Write answers clearly and legibly, using only capital letters.
 - h. When the stop signal is given, if you are in the process of writing an answer you may finish writing that answer only. You may not do any additional work on any test question. Contestants shall put their writing implement down and sit back while the tests are collected.
 - i. Verification period will be held in _____ (name room) at _____ (give time). This is the only time for contestants and coaches to verify grading and unofficial results.
 - j. Are there any questions?
 - k. You may begin the contest.
9. Give contestants the signal to start. Thirty minutes after the start of the contest, announce that papers may be turned in, but those desiring additional time up to the full two hours may continue. After two hours, give the verbal notification to stop.
 10. Papers that are turned in before the contest time has elapsed should be delivered to the head grader to begin grading. It is not necessary to wait for all papers to be turned in before beginning grading.
 11. When the time has elapsed, the contest director should collect all test materials, including scratch paper.
 12. Deliver all materials to the grading room.
 13. Submit the substitution forms/letters to the meet director to update the original entry in the online entry system.

GRADING THE CONTEST

GRADERS

Graders should report to the grading room as soon as the contest begins. The Head Grader will provide answer keys and surplus tests when the contest has started. Persons not assigned to grade should not enter the grading room.

Graders should review the test and verify the official answer key. If an error is suspected on the answer key of an objectively-scored contest, refer to instructions on Answer Key Errors in the Contest Rules and Procedures section of the contest handbook. Do not “throw out” a question or make any other alterations without a ruling from the UIL State Office and/or the respective state contest director, as this could affect wild card team selection.

Teams advancing to the Region and State Meet shall provide a qualified grader to score papers, unless excused for a valid reason by the contest director.

GRADING INSTRUCTIONS

Do not sacrifice accuracy for speed. Score each paper independently twice, and score papers contending to place a third or fourth time as needed.

When marking the answer sheets, no mark should be made if the item is correct. If an answer is incorrect, place an X over the question number. Do not mark over the contestant’s answer. Do not write the correct answer if the answer written is incorrect. For answers that are left blank, draw a line through the blank.

SCORING

Score points according to the guidelines in Science Contest Rules and Procedures.

PLACES AND TIES

Refer to Science Contest Rules and Procedures.

IDENTIFYING PAPERS

After papers have been ranked, indicate on the answer sheet the name and school of the student that corresponds with the contestant number. This will expedite the verification process.

AFTER THE CONTEST

REPORT TO MEET DIRECTOR

Individual contest directors shall give the contest roster/results form to the district director immediately after the contest papers are scored. The district meet director is responsible for entering results into the online entry system. All scores must be entered into the online entry system prior to verification and announcement of results. Enter all contestants' scores, not just the top six. All scores are needed to determine team results. Provide the unofficial results from the online entry system during verification.

VERIFICATION PERIOD

Announce that no one present may use writing or erasing instruments during the verification period. If the key was changed during the grading process (with the approval of the UIL state office or the state contest director), the contest director shall announce the changes made. The contest director shall allow the contestants and coaches a time period not to exceed 15 minutes to look at all of the following items:

- Contestant's test and answer sheet
- An answer key, in its original form as supplied by the League office
- Display of scores after entry into the UIL Spring Meet Online Entry System

Do not allow anyone to take papers from the room. During this period, the contestants and/or coaches shall verify they have the correct papers and look for errors in grading, calculation or data entry of scores.

Display each contestant's score (not just the top 6 places) preferably by displaying the printed page from the online scoring system after scores were entered. This will allow data entry of scores to be reviewed by contestants and coaches during the Verification Period.

At State Meet only, the contest director may omit a display of data entry into the UIL Spring Meet Online Entry System if data entry has been carefully reviewed and verified by graders or other assistants during the grading and scoring period.

If errors in grading, scoring or online data entry are found during the verification period, the contest director shall make the corrections. After resolving all questions, or at the end of the 15 minutes, the contest director should announce that the Verification Period has ended. If papers are not being returned on the day of the contest, see Returning Papers below.

ANNOUNCING OFFICIAL WINNERS

The contest director should make any necessary announcements regarding the return of papers if necessary and any instructions regarding the awards ceremony. The contest director will announce official results with the name and the school of each contestant who places individually first through sixth, the top scorer and alternate in each of the three subject areas and announce the schools of the first place and alternate teams. These results, once announced as official, shall be final.

QUALIFICATIONS TO REGIONAL OR STATE

Contestants can qualify to the next level of competition as individual first, second and third place winners, as the top scorer in each of the three subject areas or members of the winning team or wild card team as described in Section 902 (h)(3) of the UIL Constitution and Contest Rules.

RETURNING PAPERS

If papers are not being returned, pick up all tests, answer sheets, scoring charts and keys so that none remain with a contestant or coach. Place the materials in the sorting envelopes by school. At the district meet, papers may be returned no sooner than the end of the meet on the last day of the district week. If the region meet is held on Saturday, the test, answer keys, scoring charts and answer sheets may be returned to the contestants the day of the meet.

SCIENCE QUICK REFERENCE CHART

Note: Grading time varies. For most events, allocate a minimum of two hours.

| Contest | Study Material | Calculator Restriction |
|---|---|---|
| <p>ROOMS 1 – testing 1 – grading</p> <p>PREP TIME — 30 TEST TIME — 2 hours</p> <p>CONTEST MATERIALS UIL Packet: tests & keys, answer blanks, top scorer certificates.</p> <p>Director Provides: contest roster and results form (generated from online entry system), contest rules, clock, scratch paper, calculators/pencils for graders, stapler; and one 8 1/2 x 11-inch envelope per school.</p> <p>PERSONNEL (all may be coaches)</p> <ul style="list-style-type: none">• Director• Monitor• Head grader <p># OF ENTRIES (District) 6 per school (Region) 1st/2nd/3rd individuals per district; 1st place team per district; wild card team; first place top scorer in biology, chemistry, physics.</p> <p>TIES</p> <ul style="list-style-type: none">• Overall individual—Break ties with formula for percent accuracy. See C&CR for details.• Top Scorer— Break ties with formula for percent accuracy. See C&CR for details.• Team — Break tie with fourth team member score. If tie still exists, all teams involved in tie advance. <p>GRADING/JUDGES At least 3. Graders may be coaches.</p> <p>AWARDS Individual medals: 1st through 6th Top Scorers in biology, physics and chemistry</p> <p>Team medals: 1st and 2nd place teams</p> <p>POINTS 1st — 15 2nd — 12 3rd — 10 4th — 8 5th — 6 6th — 4</p> <p>1st team — 10 2nd team — 5</p> <p>Top Scorer Biology - 3; Top Scorer Physics - 3; Top Scorer Chemistry - 3</p> <p>ADVANCE Top 3 individuals, top scorer in each subject area, 1st place team of four highest scoring contestants. One wild card team per regional.</p> | <p>Visit the UIL Study Materials webpage (https://www.uiltexas.org/academics/resources/study-materials) to purchase or download study materials. Some materials are available for free download.</p> <ul style="list-style-type: none">• Study packets include materials from every level of competition of stated year. <p>The Academics homepage of the UIL web site contains a variety of additional forms needed for academic programs, including the Professional Acknowledgment Form for all sponsors, coaches and directors of academic events and the Substitute Eligibility Form needed for contestants not listed on the original entry form for UIL meets.</p> <p>The Science Handbook includes a description of the current UIL contest format, rules and procedures. It is available as a free download: http://www.uiltexas.org/academics/resources/contest-handbooks-manuals.</p> <p>The generic forms needed to host invitational meets, such as grading rubrics, answer sheets and contest results form are posted, as are the Academic Meet Director Manual, the conflict pattern and various checklists for academic coordinators. Check the different web pages for speech and debate, journalism, theatre, and the A+ Program for current information and forms specific to those contests.</p> | <p>Only calculators on the UIL Science Contest Approved Calculator List may be used in the contest. The approved list is available in the UIL Science Handbook and on the UIL website.</p> <p>Prior to the beginning of the contest, contest directors and/or designated assistants, who may be coaches, should verify through brief visual inspection that contestants are using approved calculators. No clearing or other action is necessary.</p> <p>Contestants may have up to two approved calculators, as well as spare batteries, for use during the contest.</p> |



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