

NGL / Cengage Academic Testing Center

1 Event Sponsored by Carolina Biological Supply Company

Genetics Test

Eligible Divisions: Secondary, Postsecondary / Collegiate, and Alumni	Round 1: 50 Q test in 60 minutes	Digital Upload: NO
Solo Event: 1 competitor		



This is a new test for 2026 - ILC ONLY.

Event Summary

The National Geographic Learning Academic Testing Center (NGL ATC)—Carolina Biological Supply Company sponsored Genetics event aims to provide HOSA Members at chartered association conferences and the International Leadership Conference with opportunities to gain the knowledge and skills required for a laboratory setting and to explore genetics-related careers.

The NGL ATC series of events consists of written tests based on items from the identified text/resource specific to each event. Competitors will recognize, identify, define, interpret, and apply knowledge in a 50-item multiple-choice test with a tie-breaker question. The written test will measure knowledge and understanding at the recall, application, and analysis levels. Higher-order thinking skills will be incorporated.

Sponsorship

HOSA-Future Health Professionals appreciates the sponsorship of the Genetics Test by Carolina Biological Supply Company. Carolina Biological Supply Company has developed [a special landing page](#) for HOSA competitors and advisors.



Dress Code

Bonus points are NOT awarded for [proper dress](#) in ATC events, but competitors are still encouraged to dress professionally.

Competitors Must Provide

- [Photo ID](#)
- Two #2 lead pencils (not mechanical) with erasers

HOSA Conference Staff will provide equipment and supplies as listed in [Appendix I](#).

General Rules

1. Competitors must be familiar with and adhere to the [General Rules and Regulations](#).
2. In the event of a tie, the essay/question(s) will be judged to break the tie.

3. All competitors shall report to the event site at the time designated for the test in ILC publications. For test-taking, competitors will bring a [photo ID](#) and two #2 lead pencils (not mechanical).
4. [Test Instructions](#): The written test will consist of 50 multiple-choice items in a maximum of 60 minutes.
5. TIME REMAINING ANNOUNCEMENTS: There will be NO verbal announcements regarding the time remaining during ILC testing. All ILC testing will be completed in the Testing Center, and competitors are responsible for monitoring their own time.

Testing Area and Resources:

6. The following reference is used in the development of the test questions:
 - a. [Carolina@ Genetics: A Guidebook for the HOSA Genetics Written Test Digital Copy](#)
 - b. [Carolina@ Genetics: A Guidebook for the HOSA Genetics Written Test Printed Version](#)
7. The test plan for HOSA ATC-Genetics is:
 - Reproduction, Mitosis and Meiosis - 20%
 - Classical Genetics - 20%
 - Chromosomal Inheritance - 10%
 - Experimental Design and Model Organisms - 15%
 - Molecular Genetics – 15 %
 - Population Genetics - 10%
 - Modern Applications and Careers in Genetics – 10%

Registration Priority and Process

8. **ILC registration** includes the opportunity to take one (1) NGL Academic Testing Center test. Delegates who wish to take additional NGL Academic Testing Center tests may pay \$20 per additional test. There is no maximum limit to the number of NGL ATC tests that can be taken at ILC, as long as the competitor can logistically sit to test in all events for which they are registered.
9. Delegates will pre-register for the NGL Academic Testing Center at ILC in the HOSA Conference Management System. ONLY registered delegates by the published ILC deadline will be allowed to test. NO walk-up NGL ATC registrations are allowed at ILC due to the preparation required to offer these testing opportunities.
10. Competitors should refer to the [General Rules and Regulations](#) for information on how many competitive events they can register for at ILC.

Recognition and Awards

11. For ILC, a Certificate of Participation will be available to delegates who take a test in the NGL Academic Testing Center.
12. The Top Ten HOSA members in this event (not by division) will be recognized at ILC, with 1st, 2nd, and 3rd place receiving special recognition. Check the ILC Program for details.

Sample Test Questions

1. During which phase of the cell cycle is DNA replicated? ([Teaching the Cell Cycle and Mitosis - Carolina Knowledge Center](#))
 - A. G1
 - B. **S**
 - C. G2
 - D. M

A cross between white eyed female drosophila and red eyed male drosophila produced the F1 generation below

F1	Red Eyes	White Eyes
Female	6	0
Male	0	6

From the F1 generation, crossing a red-eyed female with a white eyed male produced

F2	Red Eyes	White Eyes
Female	5	5
Male	5	5

2. Using the charts above which of the following inheritance patterns matches the data of this cross for white eye color? ([Genetics with Drosophila F1 Crosses: Sex-Linkage | Carolina Biological Supply](#))
- Simple dominance
 - Codominance
 - Incomplete dominance
 - X-linked trait**



3. What type of mutation has occurred to the DNA strand shown above? ([Modeling-DNA-to-Protein_NSTA-DENVER-2024.pdf](#))
- Frameshift – addition
 - Frameshift – deletion
 - Translocation
 - Substitution**

Future Opportunities:

Graduating from high school or completing your postsecondary/collegiate program does not mean your HOSA journey has to end. As a HOSA member, you are eligible to become a HOSA Lifetime Alumni Member - a free and valuable opportunity to remain connected, give back, and help to shape the future of the organization. Learn more and sign up at hosa.org/alumni.