Middlesex County Academy Science Bowl

Schedule

Time	Event	Location
8:30 AM - 9:00 AM	Team Check-in	Foyer (EAMS)
9:00 AM - 9:30 AM	Opening Ceremony	Commons (EAMS)
9:45 AM - 10:45 AM	Prelim test	Testing Rooms (EAMS)
11:10 AM - 12:10 PM	Sprint round	West Hall (MC)
12:10 PM - 1:00 PM	Lunch Time	West Hall (MC)
1:20 PM - 3:20 PM	Quiz Bowl Rounds (3)	Testing Rooms (EAMS)
3:30 PM - 4:00 PM	Final Round	Commons (EAMS)
4:00 PM - 4:30 PM	Break	Commons (EAMS)
4:30 PM - 5:00 PM	Closing/Awards Ceremony	Commons (EAMS)

EAMS = Edison Academy Magnet School

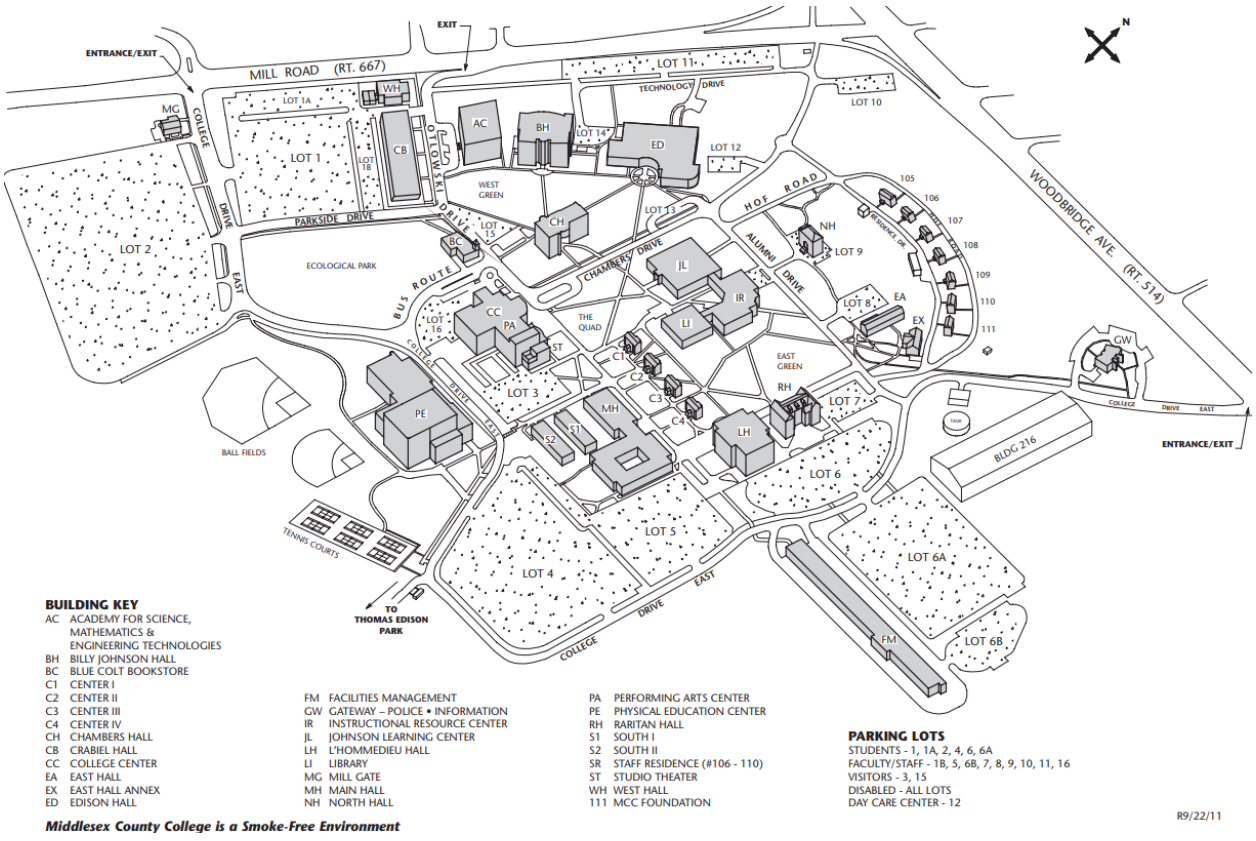
MC = Middlesex College

Welcome

Welcome to the 2023 Middlesex County Academy Science Bowl Competition! The competition will be held on **April 22nd, 2023**. Check in will start at **8:30 AM** and end promptly at **9:00 AM**, with closing ceremonies and results taking place at approximately **4:30 PM**. This document provides some important information regarding logistics, competition format, topics that will be tested, and study resources for all teams. As a preface, all rounds of MCASB are team-based, and do not depend on individual results. If you have any questions or concerns, please feel free to reach out to us at mcasciencebowl@gmail.com.

Campus Map

Please use the following map for your reference and for navigating between the Academy and West Hall buildings.



Checklist

Here is an essential checklist for all participants and advisors. Each of these tasks need to be completed by the indicated due date. If you have any questions, please make sure to contact us as soon as possible.

Team Captains:

- ☐ Fill out the team onboarding form by **04/16/23**
- ☐ Ensure all team members have filled out the competitor release form

All Participants:

- ☐ Fill out the competitor release form by **04/16/23**
- ☐ Review competition information
- ☐ Study tournament topics and review study resources
- ☐ Bring a technology device to the competition

Tournament Day Info

Release Form

All participants are required to fill out a competitor release form by 04/16/23. Please make sure to read through this form carefully and return it signed. If a participant fails to submit this form, they will unfortunately not be permitted to take part in the competition.

Parking

All cars must be parked in Lot 1 as shown on the campus map between the Academy and West Hall buildings.

Room Assignments

During Check-In and the Opening Ceremony, all teams will be informed of the online platform to find their room assignments for each of the competition's rounds. All participants must have access to the room assignments to ensure a smooth and efficient transition between rounds. There will be volunteers stationed across the main venue to direct teams to the correct testing rooms in the Preliminary and Quiz Bowl rounds. More information on Sprint round assignments will be provided on the day of the competition.

Protest/Appeal

In the event that you would like to protest a question on any one of the rounds, or appeal a Quiz Bowl round result, please take the following steps:

1. Immediately inform your round proctor that you intend to protest/appeal a question or result.
2. Finish the round to the best of your ability.
3. Immediately after the round is complete, your team's captain must fill out the protest/appeal form.
4. Once your proctor informs the Head of Competition of the protest/appeal, they will speak to your team regarding the protest/appeal before the next round.

Academic Integrity and Rules

During any and all rounds, external resources, including but not limited to, paper/virtual notes, digital devices with search engines (Google, Bing, Yahoo, DuckDuckGo, Aol, Ecosia, etc.), smartphones, smartwatches, social media platforms (Discord, WhatsApp, iMessage, Google Chat, Facetime, Slack, etc.), other individuals, etc. are NOT allowed. Calculators will be allowed, but must be checked by your proctor before the round starts. Any violations of the rules will result in disqualification.

Competition Format

Preliminary Round

In the Preliminary Round, each team will receive one test packet with one answer sheet. Each test packet is **140 questions** and the round is **60 minutes long**. Your team will work together to answer questions that'll be either multiple choice or short answer. There will be equal amounts of questions of each of our main testing topics (Biology, Earth Science, Physics and Chemistry). All questions have an equal weight, and there is no advantage in answering certain multiple choice questions or short answers. Teams only are awarded a point for getting a question correct, and there is no penalty for getting a question wrong, so make sure you try to answer as many questions.

Sprint Round

The Sprint Round is a **60-minute**, **fast-paced team event** with **50 multiple choice and short answer questions** on our various testing topics, of varying difficulty and point values. The point weights for each of the questions are indicated on the respective test paper. All teams gather in a large lecture hall at West Hall in Middlesex College. At the starting signal, each team sends a runner to an assigned problem station to pick up copies of the first set of problems for each team member. As soon as a team has answers for one problem set, the runner may bring the answers to the problem station and pick up the next set. There will be 8 sets of problems in total. It is not expected that students will finish all the problems. Grading is immediate and scores are posted in real time.

Quiz Bowl Round

The Quiz Bowl Round consists of **three Playoff rounds**, culminating in a Final round. Every team will compete in the three Playoff rounds, which have **20 tossup questions each**, with each tossup question having **3 bonus parts**. The top two teams in the Playoff rounds will compete in the Final round. 2 teams will be pitted against each other. Each member on the team will have a buzzer (we intend on using physical buzzers, however an online method is our alternative so all participants must bring a technology device).

The moderator will begin to read "clues" about a scientific term, location, scientist, or concept. This is called the tossup question. Any competitor on either team can buzz in while the moderator is still speaking and answer. However, please note that only the buzzer can answer the question. If the buzzer answers correctly within the first couple of seconds, their team will get 15 points. If the buzzer answers incorrectly within the first couple of seconds, their team will lose 5 points. If the buzzer answers correctly before the time is up, their team will get 10 points. If the buzzer answers incorrectly or nobody buzzes before the time is up, their team will not lose any points.

If a team gets a question right, they will be entitled to 3 bonus questions. These bonuses can only be answered by the team who got the initial question right, and teams will be able to collaborate (they can speak to each other) to provide an answer to each bonus within 10 seconds of the moderator reading the question. If they get a bonus question correct, they can get 10 extra points. They will have a shot at each of the 3 bonuses. Once the bonus rounds are over (if they even happen), the teams will move on to the next question.

Tested Topics

Four subjects will be covered, including earth science, biology, chemistry, and physics. Most concepts tested will be approximately at the middle school level. However, teams are provided higher level articles, equations, or excerpts that they will have to utilize to solve some challenge questions. These higher level questions will be at a high school level, and the background required to solve those questions will be provided within the question itself. For now, please have a look at some sample topics for each of the four subjects. We strongly encourage all teams to look at these topics, especially those teams which may be in 5th, 6th, or 7th grade, and haven't been introduced to them yet in school.

Earth Science

Earth: ● General Info ● Carbon Dating ● Fossilization	**Water Cycle:** ● Steps of the water ● Clouds	**Geology:** ● Types of Rocks ● Effect of Volcanic Eruptions ● Crystal Formations ● Erosion, Weathering
Atmospheric Layers: ● Space Exploration ● Types of waves in the air ● Gases at different layers	**Astronomy:** ● Constellations/Stars ● Planetary Bodies ● Navigation ● Lunar Phases	**Plate Tectonics:** ● Fault Lines ● Pangaea ● Continental Drift ● Boundaries

Biology

Basic Cell Biology: ● All Major Organelles	**Genetics:** ● DNA & Chromosomes ● Punnett Squares ● Mitosis/Meiosis	**Basic Anatomy:** ● Organs ● Body Systems ● Body Structures
Ecology: ● Relationships ● Taxonomy	**Well Known Scientists** ● Creators of important theories/concepts	**Cycles** ● Water, Carbon, Nitrogen Cycles

• Biomes and Ecosystems • Botany		

Chemistry

Atomic Structure: • Bohr model • History of the atom • Parts of the atom • Periodic table/trends	**Thermodynamics:** • Heat and temperature • Enthalpy/entropy • Gibbs free energy	**Chemical Reactions:** • Mole concept • Balancing equations • Different types • Reaction rates
Matter: • Molecular structure • Common materials • Changes of state	**Acids & Bases:** • Everyday applications • Strong/weak acids/bases • Dilution	**Laboratory Skills:** • Common tools • Popular applications • Vocabulary

Physics

Motion: • Associated units • Forces, including friction • Motion on inclined plane • Motion of projectiles • Circular motion Equation • Simple harmonic motion • Pythagorean Theorem	**Electricity:** • Direct current (DC) circuits (series only) • Associated units • Series configurations of resistors