



THE MATH, SCIENCE, AND TECHNOLOGY CENTER
at Paul Laurence Dunbar High School

**The Math Science and
Technology Center**

**at Paul Laurence
Dunbar High School**

What is MSTC?

- **MSTC is Fayette County's Gifted and Talented High School STEM Program**
- **Over 4 years, MSTC develops students who are **internationally competitive** in STEM (Science, Technology, Engineering, and Math) disciplines**
- **Students demonstrate success with a significant Capstone Research Project, an accelerated curriculum, and acceptance into the nation's top colleges and universities**

MSTC Results

- **Last year's MSTC seniors:**
 - were offered over **\$12.9 million** in college scholarships
 - had an average weighted GPA of **4.67**
 - had an average ACT score of **34**
 - completed an average of **12 AP courses**

MSTC Results

- **Last year's MSTC seniors:**
 - had **24** National Merit Finalists
 - had **9** Presidential Scholars Candidates
 - **10** perfect ACT scores

MSTC Results

- **Last year's MSTC seniors:**
 - had **4** International Science and Engineering Fair Finalists
 - **presented research** at regional and national conferences
 - had their research **published** in professional journals

MSTC Results

- Last year's MSTC seniors were accepted into the **most prestigious schools** in the country, including:
 - MIT
 - Cornell
 - Princeton
 - Yale
 - University of Chicago
 - Washington University in St. Louis
 - Case Western Reserve

MSTC Curriculum

- **In addition to the state and district requirements:**
 - **MSTC students are required to complete 15 full year MSTC courses** including one MSTC math course each year
 - **through level 3** of a foreign language
 - **a Capstone Research Project**

MSTC Curriculum

- **MSTC students take their MSTC Classes with their fellow MSTC peers**
 - This allows the material to be **accelerated**
- **Non-MSTC classes are taken as part of Dunbar course offerings**
 - This provides students with the opportunity to take classes **at their level** and that **meet their interests**
 - This allows students to have access to a **wide range of classes and electives**

MSTC Course Sequence

- **9th grade**

- **MSTC Chemistry 1**
- **MSTC AP Computer Principles/Digital Literacy OR
MSTC AP Computer Science A**
- **MSTC Advanced English 1**
- **Appropriate MSTC Math Course**
 - **Typically MSTC Algebra 2 or MSTC Pre-Calculus**
- **Foreign Language (Spanish, French, or German)**

MSTC Course Sequence

- **10th grade**
 - **MSTC AP Physics 1**
 - **MSTC Biology 1**
 - **AP Statistics**
 - **Appropriate MSTC Math Course**
 - **Typically MSTC Pre-Calculus or MSTC AP Calculus BC**
 - **Foreign Language (Spanish, French, or German)**

MSTC Course Sequence

- **11th grade**
 - **MSTC Earth/Space Science**
 - **MSTC Junior Research**
 - **MSTC Elective(s)**
- **Appropriate MSTC Math Course**
 - **Typically MSTC AP Calculus BC or MSTC Differential Equations/Multivariable Calculus**

MSTC Course Sequence

- **12th grade**
 - **MSTC Senior Seminar**
 - **MSTC Senior Research**
 - **MSTC Electives**
- **Appropriate MSTC Math Course**
 - **Typically MSTC Differential Equations/Multivariable Calculus or MSTC Linear Algebra/Discrete Mathematics**

MSTC Course Sequence

- **Electives offered:**
 - **MSTC AP Physics 2**
 - **MSTC AP Physics C: Mechanics**
 - **MSTC AP Physics C: Electricity and Magnetism**
 - **MSTC Java Programming 2**
 - **MSTC Computer Science 3 (project based programming)**
 - **MSTC AP Chemistry**
 - **MSTC Organic Chemistry**
 - **MSTC AP Biology**
 - **MSTC Biology 3**
 - **Special Topics in Engineering**

MSTC Schedule

- Dunbar is on a **rotating block schedule**
- **4** 90 minute classes are offered on **A day**
- **4** different 90 minute classes are offered on **B day**
- MSTC students **also take a zero hour class** each day

MSTC Schedule

- **The zero hour class meets every morning**
 - Will be either MSTC math or chemistry class as a freshman
- **MSTC students take 9 classes a semester**
- **School day is 7:25 – 3:15**

MSTC Transportation

- District **provides transportation** for all MSTC students, even if they live outside Dunbar's attendance area
- Students are picked up from/dropped off at **a designated location**
 - Usually a nearby elementary or middle school
 - Similar to how an airport shuttle picks up and delivers passengers to the terminal

MSTC misconceptions

- *MSTC students don't have time to do anything but study.*
 - **False!** MSTC students are very involved in lots of extracurricular activities (including sports) and are often in leadership positions.
- *MSTC students can't participate in sports or marching band.*
 - **False!** We have MSTC representation in just about every MSTC sport and a significant number involved in Dunbar's marching band each year.

MSTC misconceptions

- ***MSTC students only have room in their schedule to take STEM classes.***
 - **False!** With 9 classes a semester (and only 4 or 5 MSTC classes required most years) MSTC students have ample opportunity to take classes in other areas like art, music, creative writing, drama, business, technology..... over their 4 years at Dunbar.
- ***MSTC students have to study until midnight or later every night.***
 - **False!** Students have to develop time management skills, and set priorities, but can keep a reasonable schedule. Most students report no more than 2-3 hours of homework a night MAX.

Should you apply to MSTC?

- **Yes**, if you agree with the following statements:
 - I really like math/science classes and content.
 - I am looking for classes where I can be surrounded by other students who share my interests in math and/or science.
 - I am looking for classes where I will be challenged academically (but supported by great teachers and students).
 - I am willing to work hard and ask questions when they arise.
 - I am willing to develop good study habits and organizational skills.

Application Details

Disclaimer! The details outlined are subject to change based on COVID-19 restrictions. Please continue to check the MSTC website for updates.

<https://pldmstc.weebly.com/>

Application Details

- **Any 8th or 9th grade student who is a resident of Fayette County and will complete Algebra 1 by the end of the 8th grade is welcome to apply.**
- **The application window is typically open from August 15 – October 7th at www.fcps.net/gifted**

Application Details

- Applicants will be initially screened using their initial 8th grade MAP math score (7th grade score may be used if 8th grade isn't available). A score **at or above the 89th percentile** is required to be considered.
 - Students from outside FCPS will need to provide an equivalent norm-referenced test score.

Application Details

- **Qualified students** will be asked to report to Dunbar on a Saturday morning near the end of October/early November to complete the MSTC application tests.
- **3 tests** are given:
 - IOWA math
 - IOWA science
 - MSTC Admissions Exam
 - A list of topics is shared upon application to the program but focuses on Algebra topics.

Application Details

- To be considered for the MSTC Program, students must score **at or above the 96th percentile** on the IOWA math **OR** IOWA science exam.
- All 3 scores (IOWA math, IOWA science, MSTC Admissions Exam) are used to **rank applicants** for admission.
- Close to 200 students apply for **approximately 55 spots each year.**
- Announcements are typically made by mid-January.

In Conclusion

- **Please visit the MSTC website at <https://pldmstc.weebly.com/> to learn more about the program and learn about updates to the application process due to COVID-19 restrictions.**
- **If you have questions, please email :**
Karen Young
MSTC Facilitator
Karen.young@fayette.kyschools.us
- **When school buildings reopen for students, you can also call (859) 381-3558**