
MALESUS
STEM Innovation Center
Infinite Potential to Inspire, Imagine, and Innovate

Malesus STEM Innovation Center

The Malesus STEM Innovation Center is a school-within-a-school model that offers an instructional curriculum integrating science, technology, and math standards through design thinking and problem solving in an authentic learning environment. This model is unique in offering middle school students options for Career Technical Education (CTE) courses that include direct instruction for science, technology, and math with a cross-curricular platform that focuses on inquiry-based teaching strategies.

- **Students remain enrolled at their middle school where they will take classes in English Language Arts, Social Studies, and Physical Education. Students will spend approximately half of their school day at the Malesus STEM Innovation Center where they will take their Math, Science, and Career Technical Education (CTE) Elective classes. Breakfast and lunch will be served at the enrolled middle school. Transportation will be provided to and from the middle school only to the Malesus STEM Innovation Center. For more information about transportation, email Kim Jones at kgjones@jmcss.org.**

MALESUS
STEM Innovation Center

Back To School

Malesus Students & Families Invited

Meet Your Teacher And New Friends

Open House

Date/Time:

Tuesday, July 30, 2024

Time: 3:00-6:00

Location:

610 Bolivar Hwy

8th Grade Team

- The Malesus STEM Innovation Center announces the 8th Grade Design MakerSpace Institute Team. Mrs. Tammie Van Neste and Mr. Randy Pearson will introduce a collaborative teaching model for math, science, and Career Tech Education instruction. Mrs. Van Neste will specialize in the math and science curriculum. Mr. Randy Pearson brings his knowledge and experience as a former Advanced Manufacturing teacher at Liberty Tech High School and the founder and former director of the JMCSS L.O.O.P work-based learning program. This combination of experience in traditional classroom instruction and innovative Career Tech Education programming will provide outstanding opportunities for authentic learning experiences.

7th Grade Team

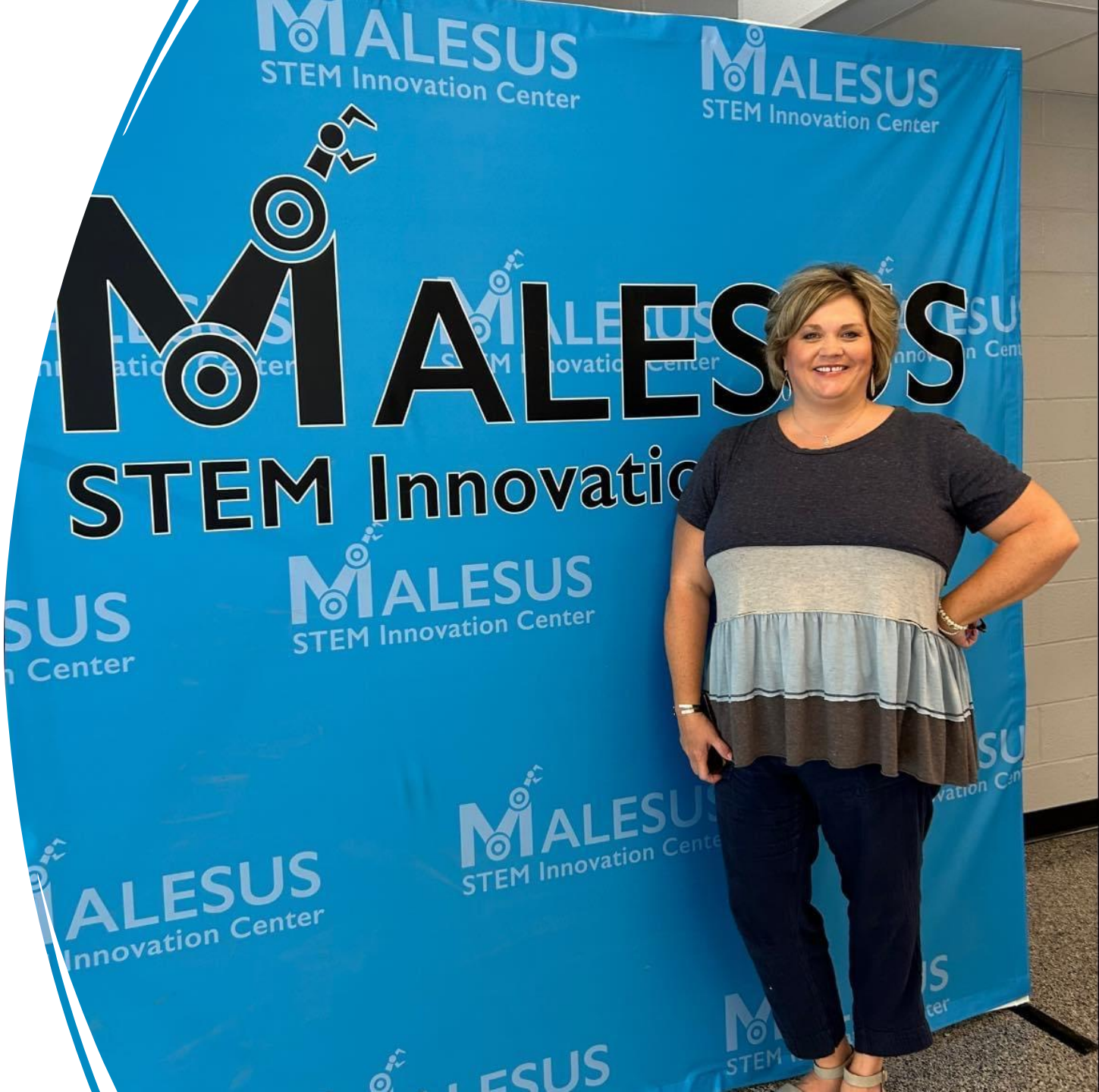
- The Malesus STEM Innovation Center named the 7th Grade teachers. Dubbed the "Thinking Coaches," Malesus teachers will introduce an innovative, interdisciplinary structure where students study math and science combined and in the context of their Innovation Institute.
- Ms. Amrael Brown joins Malesus from Jackson Central Merry High School as the Thinking Coach (teacher) for our Cyber Command Center. A native Jackson, Tennessee, Ms. Brown is certified in both Chemistry and Biology. Ms Brown plans to embrace the Japanese concept of "Kaizen," which means "change for the better."
- Mrs. Elizabeth Pickens joins us as the Thinking Coach (teacher) for the Robotics Institute from Denmark Elementary where she served as the competitive Robotics Coach. Mrs. Pickens has taught school for 30 years, with 16 years at Denmark Elementary. Mrs. Pickens has been married for 30 years, has 2 children, and 2 grandchildren.
- Mrs. Jennifer White joins will serve as the Thinking Coach (teacher) for our Toyota EM2 Institute. Mrs. White began her career at the former Malesus Elementary School and looks forward to "coming home." Mrs. White will also serve as the Instructional Lead Teacher, bringing her experience and expertise as a former Instructional Coach to the Malesus STEM Innovation Center.

Malesus STEM Innovation Secretary

- Welcome Kim Jones to the Malesus STEM Innovation Center.

- Mrs. Jones is a long-standing member of the Malesus community and is excited to join the staff at the Malesus STEM Innovation Center in the building where her children , South Side High School graduates, attended elementary school.

- Mrs. Jones will take on the responsibility of ensuring accurate attendance records for students, coordinating facility operations, handling fundraising opportunities, and welcoming all guests.



IMPORTANT: Students who attend the Malesus STEM Innovation Center may not be able to participate in activities at their enrolled school. These activities may include but are not limited to assemblies, pep sessions, band, chorus, athletics, other elective classes, etc. The enrolled school principal will determine if the Malesus schedule interferes with a student participating in school-based activities.

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Parents are welcome to bring supplies to Open House on J

7th Grade Supplies

1. Backpack
2. 1 ½ Inch Binder
3. Pencils (Mechanical are accepted)
4. 1 Pack of Notebook Paper
5. 2 Black Dry Erase Markers
6. 1 Pack of Dividers
7. 2 Plastic Pocket Folders
8. 2 Highlighters
9. 2 Composition Books

8th Grade Supplies

1. Backpack
2. ½ Inch Binder
3. Pencils (Mechanical are accepted)
4. 1 Pack of College Ruled Paper
5. 2 Black Dry Erase Markers
6. 1 Pack of Dividers
7. 2 Plastic Pocket Folders
8. 2 Highlighters
9. 2 Spiral Notebooks

Supply List

Schedule

Malesus STEM Innovation Schedule

Morning Session: 8:15am-10:35 am
Schools: Rose Hill, JCT, JASA, Community Montessori
Buses depart at 7:55, Arrive back at school at 10:50

Afternoon Session: 11:35am-1:45pm
Schools: NPMS, JCM-M, NEMS, WBMS

Buses depart at 11:05. Arrive back at school at 2:05

Toyota EM^2 Institute

Thinking Coach-Mrs. Jennifer White

- The Toyota EM^2 Innovation Institute will include middle school programming that prepares students for high school coursework in each of these specific areas. In addition, the district will pursue opportunities for high school students to earn dual enrollment credit on site to maximize the investment of the training equipment.
- **Toyota EM^2 Innovation Institute**
  - **E**-Engineering-broader concepts within the context of manufacturing
  - **M**-Manufacturing-foundational concepts of production
  - **M**-Mechatronics-the area of manufacturing that focuses specifically on automation and robotics
- The EM2 course will introduce students to engineering concepts in the context of manufacturing and the processes and equipment needed to produce products. Students will design and model a variety of projects using equipment such as a mechanical arm, laser cut clock, student designed 3D printer project, and simulation trainers.

Toyota EM^2 Institute

- The engineering manufacturing coursework will include a deep dive into mechatronics which focuses on robotics and automation in manufacturing. Topics include but not limited to:
  - Using technical terms correctly
  - Planning, developing, and setting up technical systems
  - Understanding and using technical documentation; creating and using schematic diagrams, circuit diagrams, parts lists, and technical drawings
  - Building models and creating simulations
  - Understanding and applying open- and closed-control loop systems
  - System thinking and understanding the interactions of subsystems
  - Developing and constructing electric, electronic, and pneumatic circuits
  - Understanding and using pneumatic and electrical actuators, sensors, and controllers
  - Using computers as tools for programming and simulation
- With the Malesus STEM Innovation Center serving as a model, JMCSS would incorporate a Future Inventor's Challenge for middle school students, potentially sponsored by Toyota. JMCSS values the experience and expertise of the Toyota team and envisions a partnership with Toyota in creating the Toyota EM^2 Innovation Institute.

Robotics Institute
Thinking Coach-Mrs. Elizabeth Pickens

The Robotics Institute combines science and math curriculum in the context of the industry of robotics. Students learn about the principles of robotics, including mechanical design, programming, and problem-solving. They work in teams to design, build, and program robots to complete specific tasks or challenges. Students will learn about programming languages and techniques used to control robots. Hands-on activities and projects are a central part of the middle school robotics program. Students are given various challenges or tasks that they must solve using their robots.

These challenges may involve navigating a maze, collecting objects, or participating in robot competitions with other schools. Through these projects, students develop critical thinking skills, teamwork, and problem-solving abilities.

The Robotics Institute provides engaging learning experiences that help students develop curiosity, perseverance, and collaboration to prepare students for future skills in a variety of STEM fields.

Robotics Institute

- This Innovation Institute features a competitive robotics program from VEX Robotics. Beyond science and engineering principles, VEX encourages creativity, teamwork, leadership, and problem solving among groups.

- https://youtu.be/7KdbWKSlQxo?si=3SWQEYhHKB6uxUcS

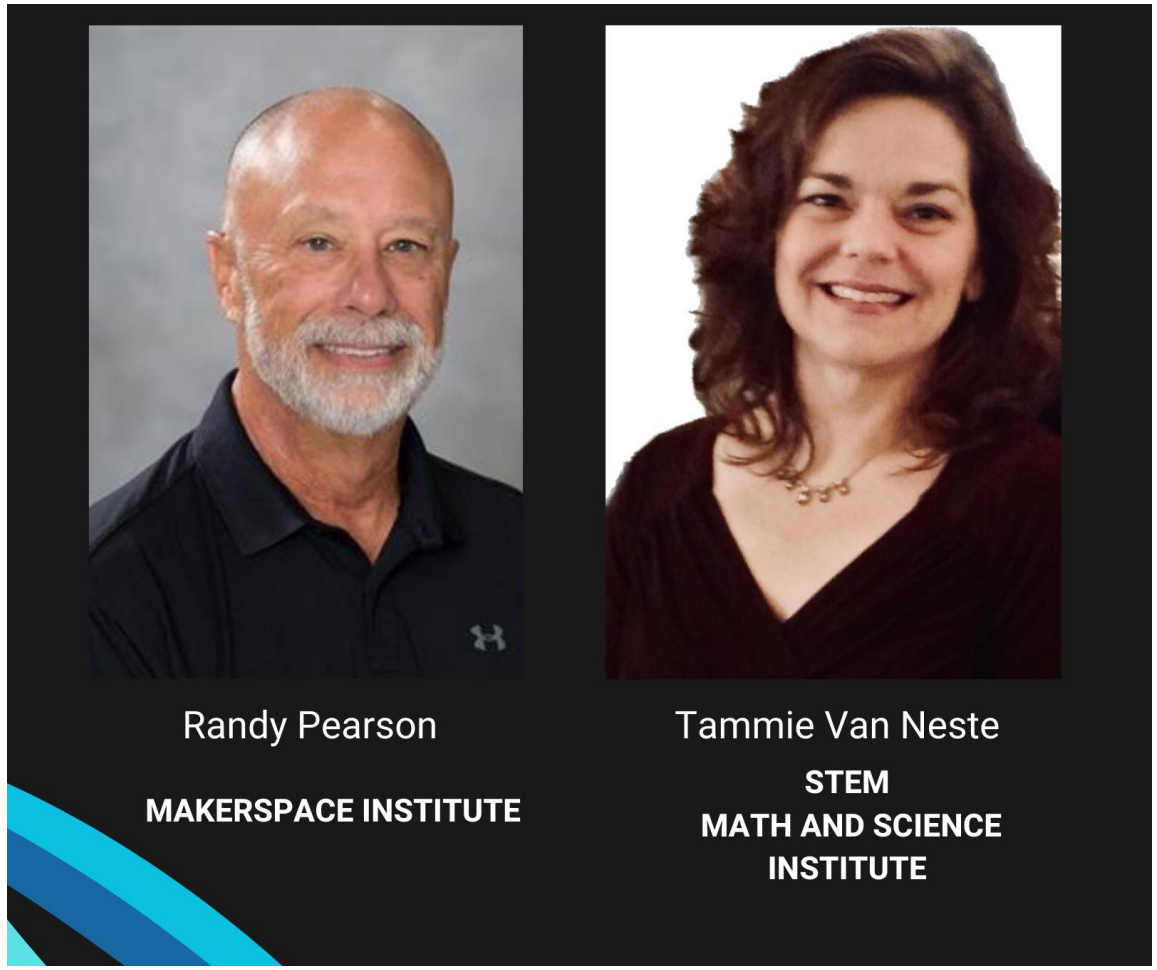
VEX ROBOTICS

Cyber Command Institute

- The Cyber Command Institute is a comprehensive and innovative program that teaches science and math in the context of digital technology. The Cyber Command Institute instructional program introduces students to the world of cybersecurity, data analytics, and esports. The program is designed to empower students with the knowledge and skills necessary to navigate the digital landscape safely and responsibly.

Cyber Command Institute

- The Cyber Command Institute includes and exploration and introduction to four specific focus areas related to Cyber Command:
- (1) Cyber Security
  - Students learn concepts related to protecting digital information, online privacy, and malware through hands-on activities that help students develop critical thinking skills to identify and mitigate potential cyber threats.
  - (2) Esports
  - Esports, which stands for electronic sports, is an exciting and rapidly growing field that combines competitive gaming and teamwork and strategic thinking. Students will explore the world of esports and develop their gaming skills in a structured environment that focuses on game mechanics, strategy development, and effective teamwork.
- (3) Data Analytics
  - Teaches students how to analyze and interpret data. Students will gain an understanding of how data can be used to make informed decisions, solve problems, and identify patterns and trends.
- (4) Artificial Intelligence
  - Students are introduced to the basics of AI and its applications. They learn about machine learning algorithms, natural language processing, and computer vision exploring how AI can be used to solve real-world problems while addressing ethical implications related to the implementation of generative AI and other forms of artificial intelligence.



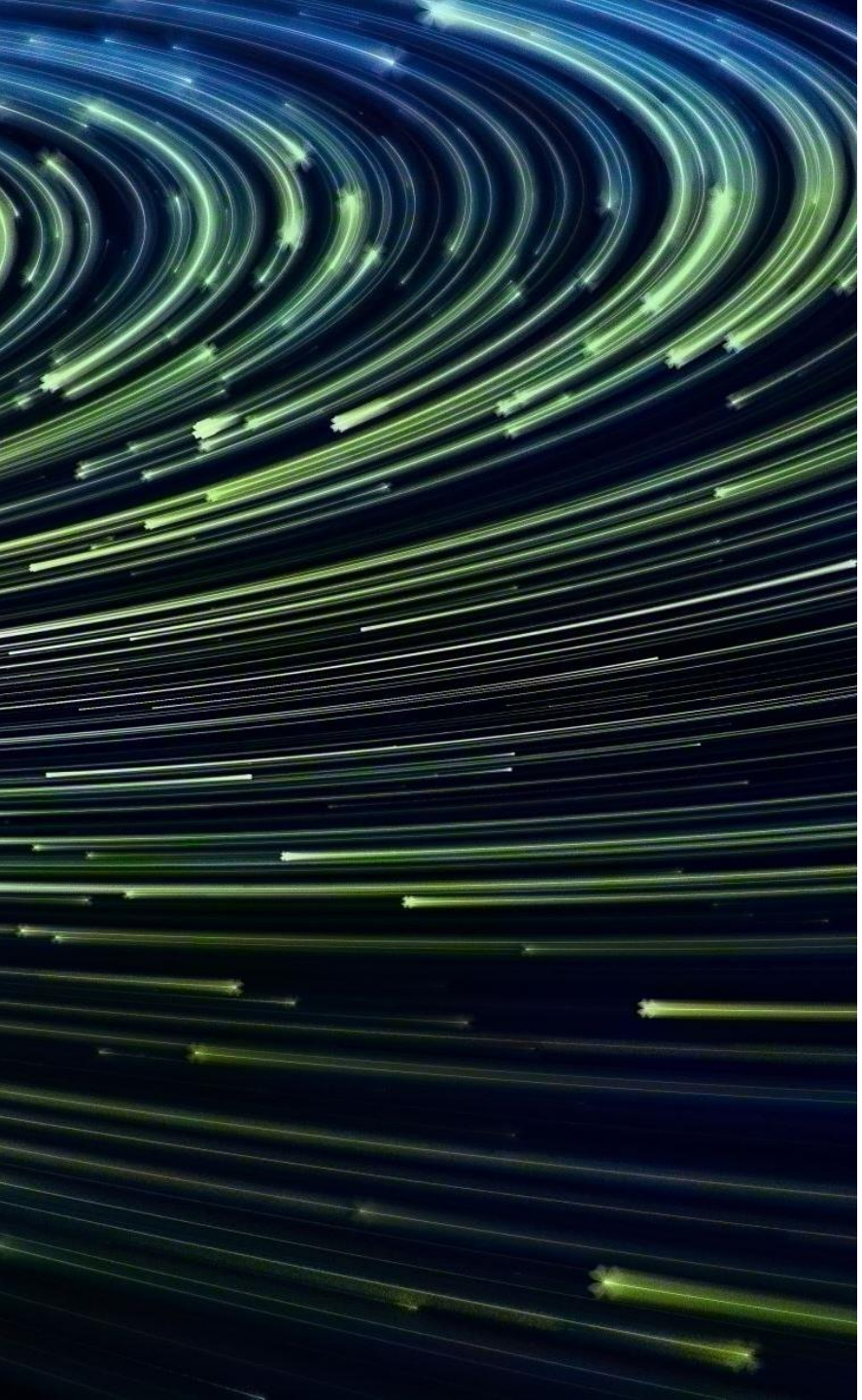
Design MakerSpace (SEMS) Institute

- The Design MakerSpace Institute is a dynamic, hands-on initiative designed to inspire and empower students to become creative problem solvers, innovators, and entrepreneurs. The Design MakerSpace Institute features a Collaborative Teaching Model drawing from the educational and industry expertise of two dynamic teachers.
- The MakerSpace offers students a dedicated space equipped with various tools, materials, and technology, where they can bring their ideas to life. Students have access to tools such as 3D printers, laser cutters, electronics, woodworking equipment, and more. Students are encouraged to think critically, collaborate with their peers, and design and create prototypes of their innovative products or solutions.

Design MakerSpace Institute

- The Massachusetts Institute of Technology (MIT) founded the FabLab Foundation to bring fabrication equipement and teach fabrication skills through FabLabs. The SEMS Institute includes many of the components required to become an MIT certified FabLab which provide students opportunities to design and produce from their imaginations.
- Students learn about the fabrication process and explore topics in market research, product development, and identifying problems to develop innovative product solutions. Students have the freedom to experiment, take risks, and learn from their failures, receiving guidance and mentorship from teachers, industry professionals, and local entrepreneurs. The SEMS Institute nurtures creativity and innovation through problem-solving, critical thinking, collaboration, and resilience.
- How MIT's fab labs scaled around the world | MIT News | Massachusetts Institute of Technology

FAB LAB



8th Grade Class Breakdown

- 100 minutes of math x 3 = 300 minutes of math instruction
- 45 mins practice x 2 = 90 mins
- Total Math = 390 mins per week
- 40 x 3 = 120 of science instruction
- 30 min x 2 = 60
- Total Science - 180 mins per week
- Elective = 150 minutes per week

Testing and Grades

Benchmark Testing

Students will take Benchmark tests with their Malesus teachers at Malesus

Grades

Powerschool will look the same for students and parents. Malesus teachers will assign grades for Malesus classes.

The Career Tech Education (CTE) class is similar to a high school elective class and will receive a grade.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