7th and 8th Class Options:

**3D Printing (1,2,3,4)**
Create 3D objects using modeling software, downloading pre-created 3D objects, scanning in real objects using a scanning device. Modify & combine all of these into new and printable 3D objects.

**Adaptation (1,2,3,4)**
This class is about the adaptation of different species to explore how any why different animals and climates are changing to match their environment. We will explore different adaptation and end the unit with the students doing a project and adapting something. As well with this project, I would incorporate coding and how we make small changes to adapt to different programs and how they differ from one another.

**Agent AI (1,2,3,4)**
Technology continues to grow, enabling more and more devices and programs to learn and think all on their own. Come learn about Artificial Intelligence (AI) and how it plays a role in current and future technology. You will get hands-on experience in programming and creating your own AI for software or games!

**Digital Media and Journalism (1,2,3,4)**
This class is an introduction to the Digital Media pathway classes at MHS. This pathway includes training in journalism and media technology. We will cover activities like presentation skills, digital storytelling and content development, and publishing. Activities can include digital photography, audio and video editing, podcasting and print design for presentations.

**Engineering Design Challenge (3,4)**
Ideas for design challenges would be familiar challenges, but with a twist. One example would be an egg-drop challenge day where the height is much greater than one could handle by simply wrapping an egg securely in a soft material. To make it even more challenging, a parachute type design would not be allowed. All of these challenges (four different ones) would require scientific reasoning (S), computational skills (M), and the engineering is handled with designing solutions (E). For Technology, I would have campers document their designs and tests with iPads using a video recording app. These videos could be made available to parents and could also be used for the showcase at the end of week four (T).

**Exploring the Beauty of Mathematical Art (1,2,3)**
In the session students will have the opportunity to create several 2D and 3D art projects to demonstrate mathematical concepts from several different mathematical strands. Possible activities include: 2D & 3D Geometric Origami, 2D Tessellations, 3D Multiplication String Art, 2D
Geometric Construction Islamic Art Tiles, 3D Orderly Tangle of Triangles, 2D Graphing/Pi City Skyline, 2D Compass Painting, 2D Symmetry Self-Portraits, 2D Pythagorean Snail, 3D Mobius Strips, 3D Problem Solving Polyhedrons, 2D Kaleidoscope Blocks & 2D Seamless Patterns. Students will be guided through several art exploration projects that allow them to see the beauty that is mathematics.

*Fill your head with Tech Ed (3,4)*
Students will explore and take part in activities that highlight science and technical education programs. Events will be held at the Manhattan Area Technical College campus.

*Get Energized (2,3)*
Energy is a part of everything you do – from turning on light bulbs to pedaling a bicycle. Using interactive equipment in a hands-on classroom energy audit, you’ll learn how to save energy and conserve our nation’s natural resources.

*Insects and bugs, what? (4)*
From roadkill to cornflakes, come and learn about the important roles insects play in agricultural systems like soybean and corn! Insects and other bugs play an important role in food production and these creatures interact with living and dead things every day. In this session you will explore the many ways these critters move and behave using hands-on activities and guided investigations.

*Movies on Mars (1,2,3,4)*
We will be researching the conditions of one of these and determining what we would need in order to build a city that promotes healthy human life. Students will build one building for our Mars Town and through the 4 weeks, we will finish the entire city.

*MUSIC (1,2,3,4)*
Chladni patterns, cymatics, synesthesia, oh my! Learn how to visually display the movement of sound as well as creating a piece of art to accompany your favorite music!

*Need for Speed (1,2,3,4)*
My class will involve students designing, building, and testing (racing) their own race car. Students will be given a review of the scientific principles that apply to their car and will then experiment with implementing these principles to the greatest effect. We will test several factors as a class to review the scientific method and practice taking accurate measurements and analyzing them. Students will test other factors on their own in order to maximize their car’s performance.

*Digital Photography (1,2,3,4)*
Come and learn the magic that is the science of capturing light. We will explore how to best utilize tools such as aperture, focus, shutter speed, and composition. Using manual mode, you will be able to take amazing photos with different effects in situations such as low light and fast
action. Learn how to use editing software to really bring your photos to life. Even learn how to make the most of the camera in your pocket, your phone!

*Robotics (1,2,3,4)*
Design, build & program a LEGO MINDSTORM EV3 robot with sensors capable of complex thinking. Creativity and teamwork will help you solve several engineering challenges.

*Science of Sport (1,2,3,4)*
This session will integrate science, technology, engineering, and math on a daily basis through sports and activities. We will conduct daily experiments with equipment used in sports or activities and research and identify how equipment in sports has changed with new technology and engineering. We will visit the team who does video productions for K-State football to see how technology is used to help teams improve. Students will also learn how to enter data into a spreadsheet to easily calculate averages when doing an experiment.

*Spheros and Ancient Civilizations! (1,2,3,4)*
Students would use Sphero robots in conjunction with researching Ancient Egypt. They will be designing and building mazes that include barriers and ancient Egyptian artifacts they recreate themselves, while using long exposure apps, draw templates and block coding to program the spheros to: navigate through mazes, write words using Hieroglyphics, speak facts about Ancient Egyptian gods and mummification, dance to songs and more. Students will be collaborating and working in pairs and groups to accomplish up to 8 different tasks in this unit and present their finished work to each other.

*Thinking Through Games (1,2,3,4)*
Continue the development of your understanding of the role of critical thinking and problem solving in non-digital games and how these skills connect to real life and your future.

*Transitioning from Block Coding to Python (1,2,3,4)*
Students are currently learning Block Coding through Tynker and Scratch in elementary school. Block coding is very important and is the best way to teach emerging readers how to program. However, students who wish to program in earnest outside of these block coding apps and websites will need to learn a programming language, or at least the syntax of a programming language. In this class, we will begin with Scratch and remind students how to use block coding, then utilize trinket.io to show the relationship between coding blocks and the Python coding language. By the end of the class students should have a basic grasp of the Python language and the ability to write simple code (think "hello world") using Python. Additional unplugged activities will be used to help students understand basic concepts of computational thinking.

*Wings 2 (3,4)*
Come explore the world of aviation with the Civil Air Patrol! Students will discover a variety of careers in aviation, study the science behind flight and experience flight simulators.