

# Barker Middle School

## STEM Course of Studies

2023 - 2024

### STEM COURSES

**GATEWAY** Prepares students for the ever-changing world of computers through the Project Lead the Way curriculum. 7<sup>th</sup> graders study Computer Science for Innovators and Makers. Students will learn about programming for the physical world by blending hardware design and software development. 8<sup>th</sup> graders study App Creators. Students will be exposed to computer science by computationally analyzing and developing solutions to authentic problems through mobile app development.

**DIGITAL ART II (8<sup>TH</sup> GRADE)** This course allows students to review and show off their digital design skills by independently creating a digital portfolio using different programs. Students will be exposed to the many career choices in digital art and graphic design. They will also employ skills and techniques digital media programs offer for advanced users.

**DIGITAL ART I (7<sup>TH</sup> GRADE)** Students will explore digital art methods through designing logos, digitally manipulating and enhancing photographs, and creating photo collages, flyers, and posters as a means of communicating their message effectively through effective graphic layouts and designs.

**STEM CAREER DEVELOPMENT** This course utilizes design, modeling & manufacturing concepts and allows students to discover the design process and develop an understanding of the influence of creativity and innovation in their lives. Throughout the unit, they explore the concepts of design and modeling through a multitude of perspectives, such as conceptual modeling, mathematical modeling, and solid modeling. The course also provides a real-world connection to careers and reflects what is happening in STEM Related fields, resulting in a more engaging and meaningful learning experience for students as they can more clearly see the opportunities of their future.

### HIGH ABILITY COURSES

**HA PRE-ALGEBRA (7<sup>TH</sup> GRADE)** This course is designed for students who are on track to take Algebra I in eighth grade. Instruction will include application of skills to prepare students for Algebra I. The curriculum will include computation with rational numbers; conversions among fractions, decimals, and relations and functions; surface area and volume; linear equations and inequalities; data collection and display including box plots and scatter plots; probability for simple events; probability of independent and dependent events; and theoretical probabilities and experimental results.

**HA ELA (7<sup>TH</sup> & 8<sup>TH</sup> GRADE)** The High Ability classes follow the same curriculum pace as the general reading and language arts class, however, additional components are added to challenge this group of high achievers. Along with higher-level text and discussions, more advanced writing standards are required from the students while they learn rigorous writing skills and strategies. Additional reading requirements must be met throughout each quarter to meet the demands of this challenging class.

**HA ALGEBRA (8<sup>TH</sup> GRADE)** Algebra I continues the study of algebraic concepts including operations with real numbers and polynomials, relations and functions, creation and application of linear functions and relations, and an introduction to nonlinear functions. Appropriate technology, from manipulative to computers, will be used regularly for instruction and assessment. In order to receive high school credit, students must earn a grade of "C" or higher, receive their teacher's recommendation, and must earn either 2 math credits or 2 credits in physics during the student's last two years in high school.

