



McPherson Magnet School



MATH, SCIENCE, & TECHNOLOGY

McPherson Magnet

- K -8 School
- Lottery School for all students in OUSD (and those on Allen Bill)
- Approximately 860 Students
- Standards-Based Teaching
- Project Based/Hands-On Learning
- We currently have three STEM Lab spaces which are used by students kinder through 8th for computer science, biomedical and engineering classes utilizing the PLTW curriculum (with a 4th opening next year).
- High Parent Involvement: Our expectation is that parents will volunteer for a minimum of 10 hours/year.
- Uniform School



Our Vision

- * Nurturing an academic community by honoring **individual strengths**, talents, and styles
- * Inquiry-based **active learning** through **critical thinking**, questioning, problem solving, risk-taking, and communication
- * Integrating all curricular areas through the **magnet focus** of math, science, and technology
- * Research / **data-based** instruction and decision making
- * Creating **relevant** high-quality work which extend beyond the walls of the classroom
- * Mastery of identified **essential concepts and skills** for every child
- * Meeting the needs of each and every child with **systematic and timely intervention**
- * **Global citizenship** through compassion, respect, integrity, collaboration, and personal responsibility for self, school, community, and environment

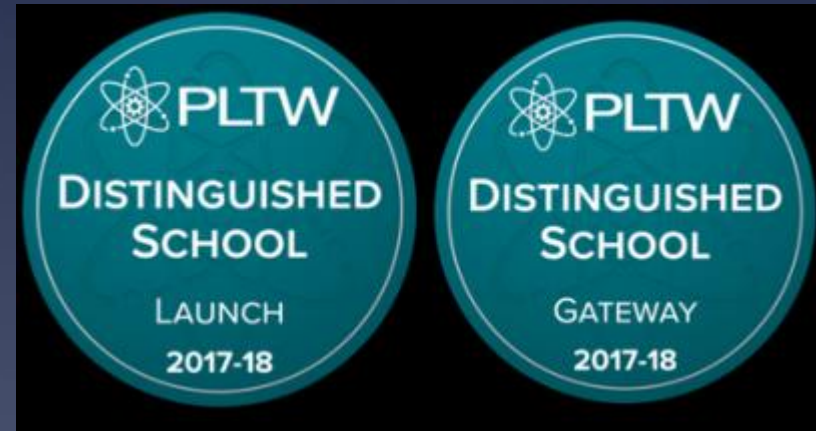


McPherson Magnet is a PLTW (Project Lead the Way) School

- * McPherson Magnet has met the criteria to be the first public school in Orange County to be named a PLTW Distinguished School: We will be applying in December for 2018-19

- * Launch Requirements

- * Offer at least two modules per grade level
- * 75% or more of students participate Launch in modules



- * Gateway Requirements

- * Offer a minimum of one Gateway module at each grade level
- * Have 50% or more of students complete one module per grade level. 25% of students advancing to high school are required to complete two or more modules

PLTW (Launch) STEM LAB

Kinder students are considering why different parts of our bodies have different structures and functions. They make observations as they interact with models and describe the structure of each part. Communication helps students connect with how each structure is related to the overall function of the organ.



3rd grade students are learning about the forces involved in flight as well as Newton's Laws of Motion. In this activity they had the opportunity to add forces to a teeter-totter system to explore the causes of motion and stability. Then students had hands-on practice while learning about four important forces of flight.



1st grade students are exploring five different environments: the Arctic, the African Savanna, the Sahara Desert, the Pacific Ocean, and the Amazon Rainforest. They are investigating two organisms that live in each of these environments and are explaining the variety of adaptations that each of these organisms have to help them survive in each environment.

2nd grade students are investigating and classifying different kinds of materials by their observable properties, including color, texture, and heat conduction. We know that engineers and designers create new products or improve existing products and technology to meet human needs and wants.



This module has 5th grade students discovering how modeling and simulation provide powerful insight into complex systems. Students will build their own simple computer models, and learn that computers are essential tools because they can calculate and display information about a system.



PLTW (Gateway) STEM Labs

All Middle school students take 1 STEM-based elective each year while at McPherson (as part of their 7 period day). This is on top of their state required science course:

- * 6th grade Engineering: *Design and Modeling; Automation and Robotics.*
- * 7th grade Computer Science: *App Builders and Computer Science Innovators and Creators.*
<https://drive.google.com/file/d/1oMgizZZMwHo968Q5d/view?ts=5ada60ab>
- * 8th grade Biomedical: *Medical Detectives, Green Architecture and Flight and Space*

Our courses lead into pathways at some of our local High Schools: VPHS and El Modena both have the PLTW Biomedical Engineers courses. We also have strong pathways at the 4 high schools in computer science and engineering/robotics.



Other Distinctions-McPherson



California Distinguished School 1990, 2000, and 2006



Gold Ribbon Award Winner (based on our STEM programming) 2016



WASC accreditation cycle started with our initial visit being next year 2018

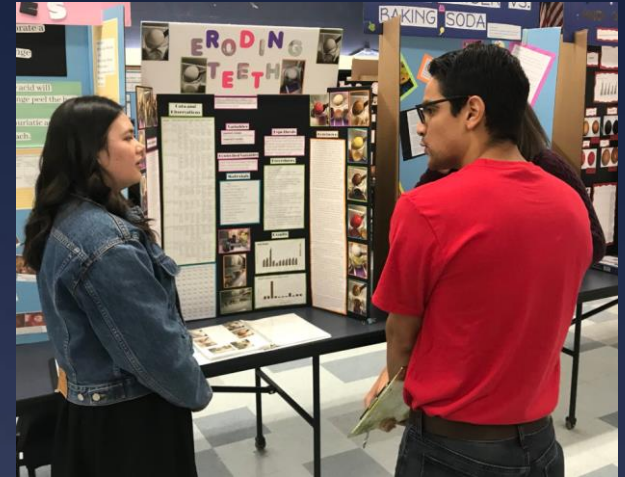
Middle School Curriculum/Instructional Program

- * McPherson 6th through 8th graders rotate through 7 classes daily. In addition to required courses: math (Math 6, Math 7, Math 7 Accelerated, Math 8, Math I Honors, and Math II Honors), science, ELA, history, PE, PLTW STEM Elective, and one elective choice.
- * **McPherson Electives:**
 - * CTE Courses
 - * CSTEM Robotics-Program out of UC Davis (coding and Algebra)
 - * Mouse Squad-IT experience. Students have received many national awards
 - * Dramatic Arts
 - * Digital Broadcast and Journalism (they have also created their own McPherson radio station)
 - * AVID 6th grade (will be expanding to 7th and 8th)
 - * Spanish 1A and 1B
 - * Yearbook
 - * Leadership (ASB)
 - * Bootcamp (PE Elective)



Annual McPherson Science Fair

- * Each year McPherson Magnet participates in the OCSEF (OC Engineering and Science Fair). All 6th-8th grade students design projects which they present to scientists and industry professionals at McPherson Magnet.
- * Additionally, K-5th grade students complete science fair projects (with family assistance) and they present their projects to our middle school students.
- * This year we have five students that placed at county and have presented their projects at the state level.



MIND Institute – Music and Math



Outdoor Learning Lab (Earth Lab)



Technology

- * Bring your own Laptop (5-8); 1:1 devices K-4 (within the classroom)
- * Document cameras, digital projectors, video streaming
- * Events – Showcases, Competitions, technology integrated projects
- * Google
- * A tool that is integrated into all subject areas
- * 3D Printers (4th and 6th-8th grades)

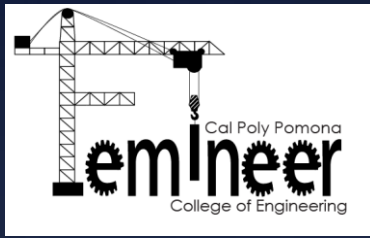


Innovation in the Classroom

<https://youtu.be/9Tjq0xbWduo>

3D Printers

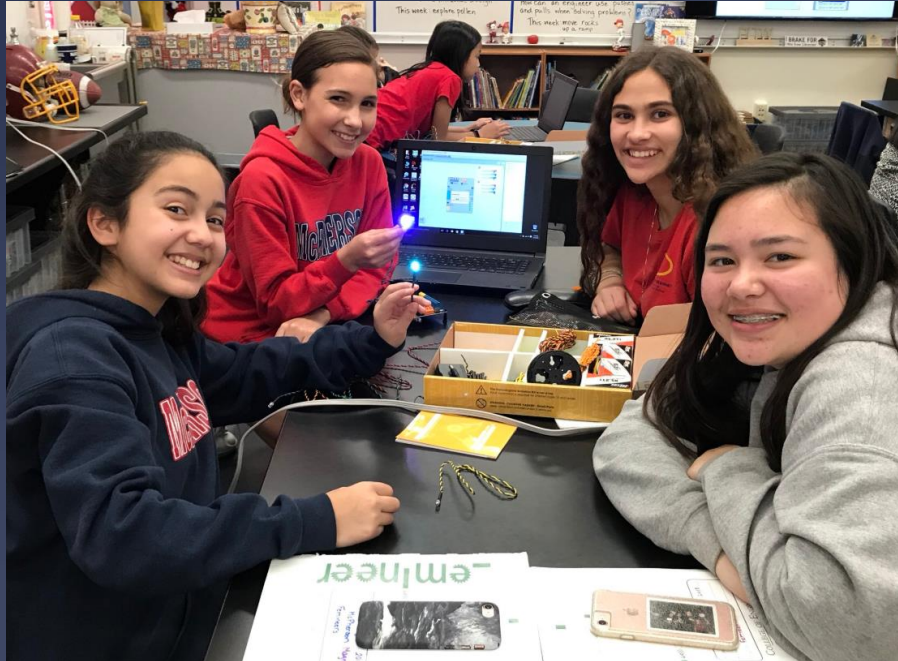




Femineers



- * McPherson has the first chapter of Femineers (through Cal Poly Pomona) within the Orange Unified School District. These girls meet weekly and create projects focused on technology and engineering. They will be presenting their projects at the state colloquium later this month.



Response to Intervention

- * All students are challenged and supported through whole and small group instruction
- * English Language Learners receive support daily with small group intervention at McPherson
- * Individualized help to maintain progress is provided by the school for children who need extra support
- * McPherson has an extensive pre-SST process to identify students who have additional needs. We then support students by providing proven and timely intervention programs: Sonday, Math 180, MyPerspective Core Support, social skills small groups, Lexia, etc.



This year McPherson Magnet has redesignated 23 of our 40 EL students in 3rd through 8th grade. This is a 58% redesignation rate (our goal is 15%)

Parent Involvement

- * McPherson Magnet asks that every parent volunteer a minimum of 10 hours per year (there are many studies that tie family involvement to high student achievement).
- * We have 2 parent groups which organize opportunities for involvement:

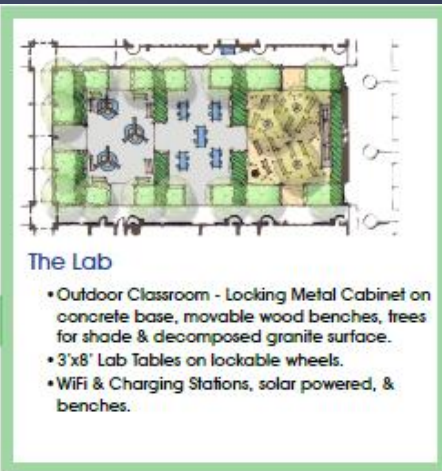
PTSA

- * Helps with programming and school-wide improvements.
- * Large projects include installation of faux turf in kinder yard, funding our music coach (K-4th) and giving money to support Meet the Masters (art education K-8th)



Education Foundation

- * Supports our magnet school-wide focus by providing funding for science, technology, engineering and mathematics.
- * Looks for large scale grants to aide with McPherson's vision:
 - * Gimbel-\$75,000 over 3 years (technology)
 - * Hearst Foundation-\$15,000 for PLTW Medical Detectives
 - * Sunburst-\$10,000 for PLTW Launch (elementary)



A View of McPherson Magnet





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- * Quick Tour of McPherson's PLTW STEM Labs:
 - * Room 300 - 8th Grade Green Architecture, Medical Detectives, and Flight and Space
 - * Room 403 - 7th App Builders and Computer Science for Innovators and Makers
 - * Room 302 – Elementary PLTW Launch
 - * Earth Lab