Awareness and Discovery: Year One of a STEM Elementary School

Video

See our website for this video
Introductions

TOSA - Tammy Koeppen

TOSA - Melissa Grabarkewitz

TOSA - Greg Nicholas

Principal - Pam Roden
How do we build awareness and understanding of STEM at E. Hale Curran?

• MVUSD Board of Education Meeting
• STEM Leadership Team
• Parent Information Meeting
• Cue Conference
• STEM School Visits
• Invention Convention Showcase
• STEM Implementation Plan
Infrastructure: Is a structure and process in place to support the program’s mission, vision and goals?

- Leadership team and/or teachers work on school vision and mission
- Classrooms are designed or oriented organized for collaborative work
- Classroom locations facilitate teacher collaboration
- Teachers and students have increased access to technology
- Teachers use media tools to communicate STEM activities
- Student work is showcased in the community
- Community members are invited to participate in some classroom activities
- Develop STEM partnerships – Business and Community
- Parent/Community STEM Meetings
Instruction: Does the instructional environment provide time and professional development for educators to develop and improve their craft of pedagogy and content?

- Mindset: The New Psychology of Success – Year-long Theme
- Professional Learning Communities (PLC) Revisited
- Grade level Collaboration Meeting used for data analysis
- STEM School Visits and Observations
- STEM Teacher Focused Walk-Throughs
- CUE Conference
- California STEM Conference
- California Science Teachers’ Conference (Long Beach)
- Riverside County STEM Network Meetings
Curriculum: Is our STEM curriculum aligned to the California Common Core State Standards and Next Generation Science Standards?

- Next Generation Science Standards Professional Development Sessions
- Science A – Z Curriculum
- STEM Lab (Exploratorium)
- Grade level teams collaboratively plan and teach one integrated (cross curricular) STEM Unit
- Grade Level STEM Project
- MVUSD Common Core Curriculum Team Meetings
- E. Hale Curran Tech Plan
Extended Learning: Does our STEM program offer opportunities outside of the school day?

- Computer Labs opened before and after school
- STEM Lab extended hours
- STEM Expo
- Odyssey of the Mind
- STEM Discovery Classes
- Family Math Night
- Family Engineering Night
Curriculum

- EIE
  - http://www.eie.org/eie-curriculum
- EEI
  - http://www.californiaeei.org
- Science A – Z
  - https://www.sciencea-z.com
- Coding
  - https://code.org
- Discovery Ed
  - http://www.discoveryeducation.com
- Better Lesson
  - http://betterlesson.com
- Defined Stem
  - http://www.definedstem.com
- National Geographic
  - http://ngl.cengage.com/
Co Teaching

- The definition of co teaching is two equally qualified individuals who may not have the same area of expertise jointly delivering instruction to a group of students.

Video

See our website for this video
Benefits of Co Teaching

- Enhances instructional support for children in the classroom
- Plan, prep and prepare lessons
- Work with PLCs
- Lead and/or assist with lessons
- Different models of co teaching implemented
- Exploratorium set-up
Coaching

• **STEM Coach:**
  • Research STEM units and lessons
  • Develop STEM units and lessons within PLCs
  • Knowledge and application of the Next Generation Science Standards (NGSS) at all grades K-5.
  • Provide workshops and trainings as the need arises
  • Technology in the classroom
Robotics

- **BeeBots (K-1st Grades)**
  - Teach directionality, beginning coding skills
- **Lego WeDos (2nd-3rd Grades)**
  - Kits used to build and program robots
  - Students work with partners or small groups to problem solve, design, and redesign
- **HummingBird Robotics (4th-5th Grades)**
  - Circuit boards, motors, servos, and wire connectors
  - Build their own robot from various materials
BeeBots

Video

See our website for this video
Lego WeDo Video

See our website for this video
HummingBird Robotics

Video

See our website for this video
Discovery Classes

- Discovery Classes:
  - After school, teacher volunteers
  - Science themed
  - Robotics, Science Fun, Engineering, iMovie
  - Two 4 week periods
  - Odyssey of the Mind
Discovery Classes Video

Video

See our website for this video
Family Involvement

- STEM Parent Information Night
- Family Math Night
- Family Engineering Night
- STEM Expo
- Facebook page:
  - https://www.facebook.com/curranSTEM
STEM Expo

Video

See our website for this video
Project Based Learning

- Project Based Learning is a systematic teaching method that engages students in learning essential knowledge and life enhancing skills through an extended student influenced inquiry process structured around complex authentic questions and carefully designed products.
Trout in the Classroom

- 5th Grade Project
- Goal: To re-establish suitable conditions for Steelhead runs in the Santa Margarita River
- Students are raising Rainbow Trout eggs to observe lifecycle and needs of a closely related fish
- Sponsored by Deep Creek Flyfishers
- Program content provided by Trout Unlimited (National Organization)
- Eggs are provided free through California Fish and Wildlife to trained teachers
- Santa Rosa Plateau Nature Education Foundation funded the equipment and buses
Trout

Picture

See our website for this picture
Santa Rosa Plateau Seed Project

- 5th Grade
- Students to identify native and non-native plants
- Grow various samples to determine the invader species
- Data is collected and reported to the Santa Rosa Plateau Nature Education Foundation for study. Data is used to determine the invader species
- Real World Application
Santa Rosa Plateau Video

- [https://animoto.com/play/jBTtDjmPtNgF9EATjEXXvA](https://animoto.com/play/jBTtDjmPtNgF9EATjEXXvA)
District Perspectives

- MVUSD STEM Pathway
- Harnessing District Support
- Networking – RCOE, NSTA, CSTA, Science Steering Committee
- Resources
District Perspectives

- MVUSD STEM Pathway
- Harnessing District Support
- Support – RCOE, NSTA, CSTA, Science Steering Committee
- Resources
Scientific Literacy Vision

Video

See our website for this video
MVUSD STEM Pathway

• Develop a STEM emphasis elementary school
• Provide a pathway from the feeder elementary school to the middle school
  • Designate the middle school as a STEM school
• STEM Middle School feeds into a high school that has established pathway courses
  • Engineering
  • Medical
  • Culinary Arts
Harnessing District Support

• Board of Education presentation
  • Ideals of STEM

• Communication
  • Monthly meetings with Assistant Superintendent of Ed Services
  • Monthly meetings with Director of Ed Services
  • Attend department meetings

• Implementation
  • Science Steering Committee
Teacher Support

- County Office
- Science Literacy PD for elementary
- Science Steering Committee
- NSTA
- CSTA
Resources

- NSTA
- CSTA
- NGSS Defined STEM
- Edutopia
- Wonderopolis
- PBL (Buck Inst)
- Better Lesson
- Graphite
- NBC Learn
- Ted Periodic Videos
- Microsoft Tools
- STEM School Study
- Star Talk
- NASA Educators
- JPL
- Bozeman Science
- Teach Pi
Year Two: Interdisciplinary/Crosscurricular

Watch us grow on our E. Hale Curran STEM Website!