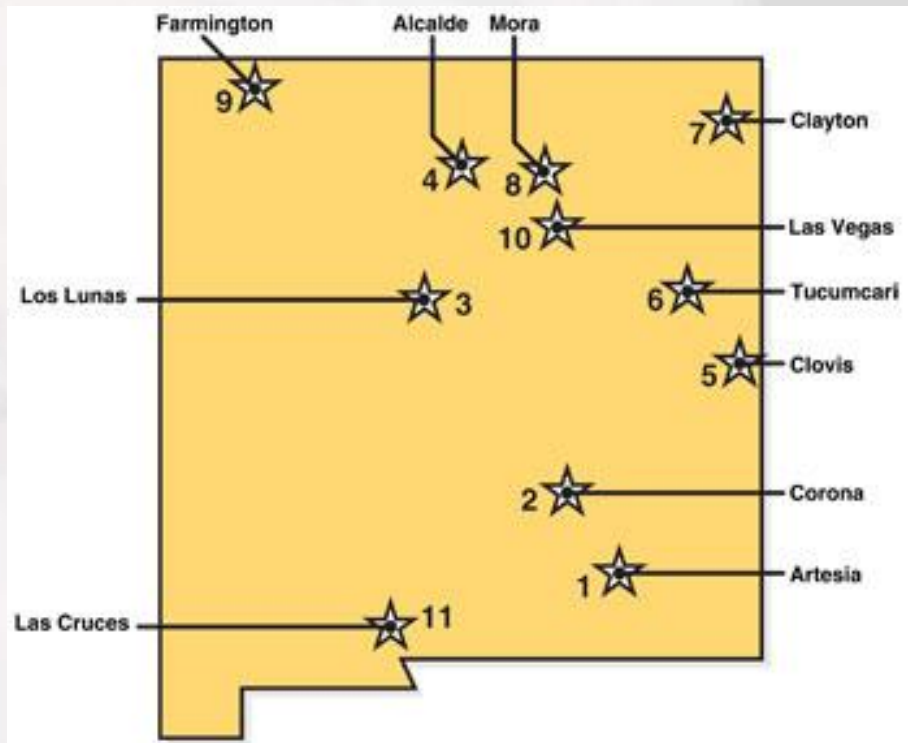


# Memorial Middle School Agricultural Science Center

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NMSU CES  
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# Agricultural Experiment Stations & Cooperative Extension



- The MMSASC is a unique facility within New Mexico State University, as well as the State of New Mexico, and has been operational for less than three years.
- The MMSASC is modeled after the numerous outstate NMSU Agricultural Experiment Stations.
- Serves Cooperative Extension Service mission.

# What is the Memorial Middle School Agricultural Science Center?

- Established in 2005 through a State of New Mexico legislative appropriation.
- A partnership between NMSU and the Las Vegas City Schools.
- Youth agricultural and natural resource science center.

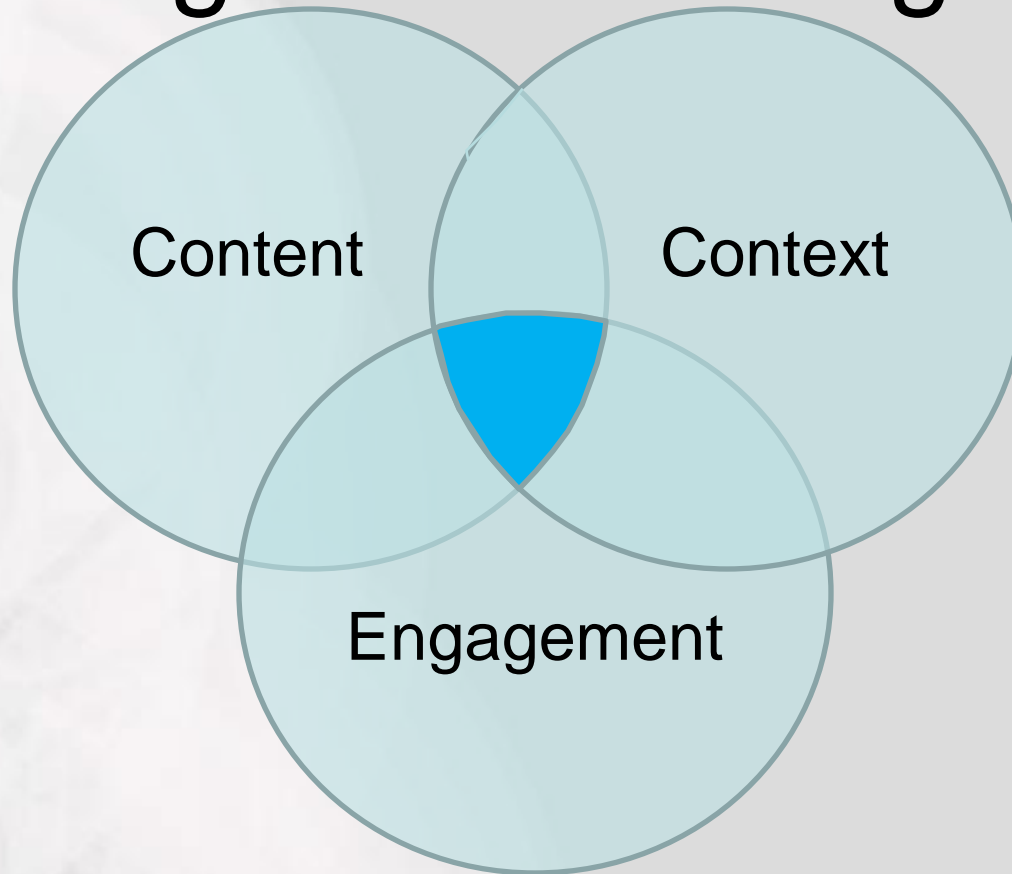


# Center Role in Education

- Improve understanding of the scientific method, improve general knowledge of agriculture and natural resources, and provide investigative opportunities and thought.
- Integrate experiential learning as an important educational component as part of the delivery model.
- Develop programming efforts unique to each grade level that complement grade level instruction required by the New Mexico Public Education Department.



# Teaching and Learning Model



## Content

STEM  
4H SET  
Core disciplines

## Context

Agroecology  
Natural resource  
management

## Engagement

Greenhouse experiments  
Landscape interactions  
Area field trips

# The Acequia Provides More than Water

- Acequia as a teaching tool
  - New Mexico history
    - Links cultural heritage, irrigation systems, and food production systems
  - Riparian ecosystems
    - Function and habitat
  - Principles of agriculture
    - Water use in a low water environment
  - Mathematics
    - Measurement of water use



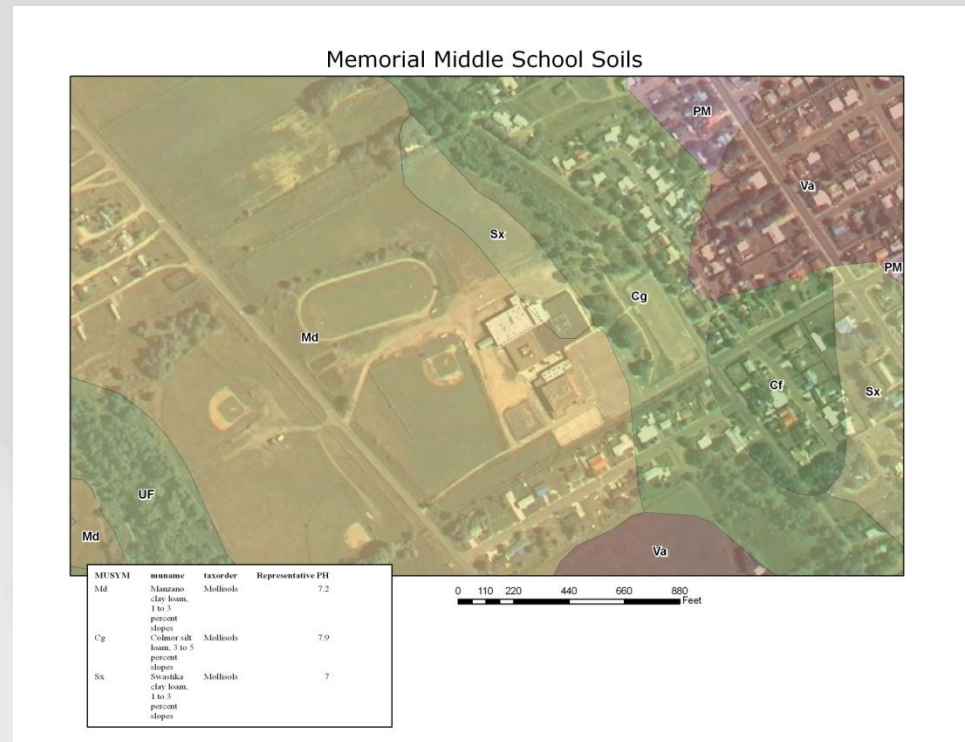
# Water Use Efficiency

- Monitoring water use
  - Frequency of irrigation
    - Monitoring soil moisture in the root zone
    - Visually monitoring crop appearance
  - Application amount and timing
  - System efficiency
    - Gated pipe with furrow (25-60%)
    - Drip (80-95%)
- Water harvesting
  - Capturing, storing, and reusing



# Strategies to Improve Water Use

- Understanding soil types
  - Clay loam (Swastika and Manzano)
- Soil characteristics
  - water intake rate, available water holding capacity, and soil erosivity.
- Improving water holding capacity
  - Composting campus greenwaste to increase soil organic matter
- Crop characteristics
  - Row placement and rotations



<http://websoilsurvey.nrcs.usda.gov>

# Other Water Use Considerations

- Irrigation goal is to get water to end of the furrow, but also want to understand how much water is applied and how it is distributed in the field.
  - Mathematical methods  
 $AD = QT$
- Length of irrigation run.
- Alternating furrow irrigation.
  - Affects nutrient availability (decreased leaching)
  - Precipitation storage
  - Decreased erosion



Questions?

