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 **PATHWAYS to
ADULT SUCCESS**



We Are Manzano High School

- **Manzano High School is a public high school located in northeast Albuquerque, New Mexico. It is part of the Albuquerque Public Schools system. It serves both the East Mountains rural areas and the lower economic populations of the NE heights in the city of Albuquerque.**
- **According to NICHE Manzano was classified as one of the most diverse comprehensive High School in APS and ranked #18 out of 216 High Schools in New Mexico in 2023..**



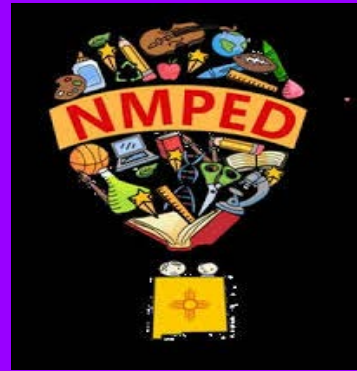
MANZANO HIGH SCHOOL

Home of the Monarchs

Problem of Practice: How can Manzano and its feeder middle schools work together to engage students in various activities to improve their mathematical understanding while onboarding new high school graduation requirements?



**SHIFTING
GEARS**



What NEW GRAD Requirements?

Mathematics

4 Units

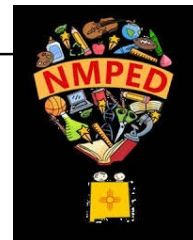
Of which one shall be the equivalent to or higher than the level of algebra 2, unless the parent submitted written, signed permission for the student to complete a lesser mathematics unit; and provided that a financial literacy course or department-approved work-based training or career and technical education course that meets state mathematics academic content and performance standards shall qualify as one of the four required mathematics units; one unit may comprise a computer science course.

4 Units

Two of which shall include a sequence of algebra 1 and geometry or another integrated pathway of mathematics equivalent to algebra 1 and geometry; provided that algebra 2 be offered as a mathematics course and department-approved work-based learning or career technical education courses that meet state mathematics academic and performance standards may qualify as required mathematics units; and provided further that algebra 2 shall be offered as a mathematics course.

Key Differences. HB171 would:

- Remove parent permission for student to complete a lesser math unit;
- Require an algebra 1 and geometry pathway, or equivalent; and
- Require Algebra 2 to be offered, not required.



HOW TO BUILD A



STRONG

MATH

FOUNDATION

Five Strands of Mathematical Proficiency

Strategic competence:
ability to formulate,
represent, and solve
mathematics problems.

Conceptual understanding:
comprehension of mathematical
concepts, operations, and
relations.

Procedural fluency:
skill in carrying out
procedures flexibly,
accurately, efficiently,
and appropriately.

Adaptive reasoning:
capacity for logical
thought, reflection,
explanation, and
justification.

Productive disposition:
habitual inclination to
see mathematics as
sensible, useful, and
worthwhile, coupled
with a belief in diligence
and one's own efficacy.

Intertwined strands of proficiency

Focused Instruction to Address the Key Components of Mathematical Proficiency

- *The new graduation requirements at the middle and high school levels require alignment for student success.*
- *What skills does a proficient math student need to acquire?*
- *How do we access skills to determine proficiency?*

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Intertwined strands of proficiency

Focused Instruction

Eight mathematical practices that all students should master in order to be considered proficient.

- *Make sense of problems and persevere in solving them.*
- *Reason abstractly and quantitatively.*
- *Construct viable arguments and critique the reasoning of others.*
- *Model with mathematics.*
- *Use appropriate tools strategically.*
- *Attend to precision.*
- *Look for and make use of structure.*
- *Look for and express regularity in repeated reasoning.*

WHAT DO WE NEED TO DO?

One key factor in improving student achievement starts with classroom educators beliefs and their willingness to share the learning responsibility with students.

Unproductive Beliefs

The purpose of assessments is to hold teachers accountable for student learning

Classroom assessments interrupt the instructional flow

A single assessment can be used to make important decisions about students and teachers

Assessment is something done to students

Stopping instruction to review and take practice tests leads to improving student performance on high-stakes tests

Productive Beliefs

Assessments provides information and improves the teaching and learning of mathematics

Assessments are embedded, planned, and part of the ongoing process to support student learning and make adjustments in instruction

Multiple data sources are needed to provide an accurate picture of teacher and student performance

Assessment is a process that should help students reflect on their own learning and take charge of that learning, assists in recognizing when they produce high quality work and provide evidence to advance their own learning

Ongoing review and distributing practice within effective instruction is productive

Formative Assessments *cross traditional boundaries, involving both the teacher and the student, and evidence from the assessment has a direct impact on what comes next in the learning process.*

Features to Include

- Clear lesson-learning goals and success criteria, so students understand what they're aiming for
- Evidence of learning gathered during lessons
- A response to evidence
- Peer- and self-assessment to strengthen students' learning, efficacy, confidence, and autonomy
- A collaborative classroom culture where students and teachers are partners in learning.

BUILDING THINKING CLASSROOMS

RESEARCH: @pglljedahl
 SKETCHNOTE: @wheeler_laura

① Begin w/ a Problem

Give a problem-solving task.


To start:

- Problems should be engaging
- non-curricular
- collaborative
- ↳ promote talking

Later:

- Problems can be curricular
- eg textbook problems

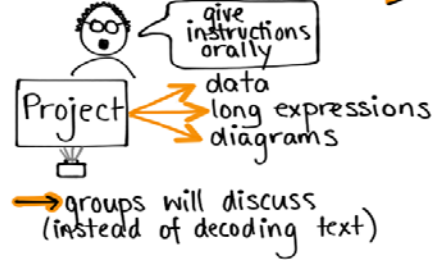
② Visibly Random Groups

- Randomly assigned eg playing cards
- Daily & in front of students
- 2 or 3 students / group
- 
- Sit & stand together

③ Vertical NonPermanent Surfaces

- Vertical
- Erasable
-  WHITEBOARD
-  CHALKBOARD
-  WINDOW
- 1 marker or chalk per group
- ↳ promotes discussion

④ Oral Instructions



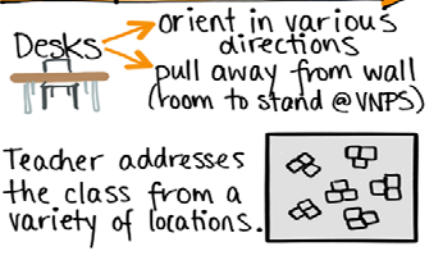
give instructions orally

Project

- data
- long expressions
- diagrams

→ groups will discuss (instead of decoding text)

⑤ Defront the room



Desks

- orient in various directions
- pull away from wall (room to stand @ VNPS)

Teacher addresses the class from a variety of locations.

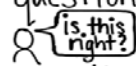
⑥ Answering Questions

Acknowledge, but don't answer:

- ✗ Proximity questions (b/c teacher is close by)
- ✗ Stop thinking questions


Answer:

- ✓ Keep thinking questions
- ↳ give HINTS not answers

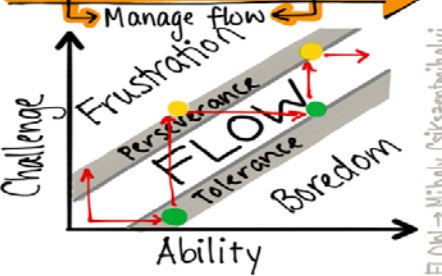


⑦ Build Autonomy

- Model how groups can visit other groups when they are stuck or done.
- Hints & extensions come from peers (not just the teacher).

→ Helps manage flow 

⑧ Hints & Extensions



⑨ Level to the Bottom

- debrief
- class discussion
- direct teaching the "lesson"

Once all groups pass a minimum threshold.

Debrief 1 or more groups' solutions

Work through a new problem w/ whole group

FLOW → Mihaly Csikszentmihalyi


⑩ Student Notes

Student created:

- select
- synthesize
- reorganize

ideas

Provide time for this after levelling.




⑪ Assessment

Process > Product

Group work + Individual work

Student learning

- Where are they?
- Where are they going?



Manzano's Vertical Articulation Journey

Continuing the Work



- **Continuing the Work**

- **DIVING DEEPER INTO GRADUATION REQUIREMENTS**

- **Developing the characteristics of a Math Graduate at the middle and high school level**

- **Conversations with the District to Support Vertical Articulation PD Days**

- **Continued Review, Reflection, Rethinking and Revising the MHS MS/HS Vertical Articulation Format**



Manzano's Vertical Articulation Journey

Final Thoughts & Contact Info



MANZANO
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To increase student engagement and ownership of learning, we should give students opportunities to do meaningful work - work that makes a difference locally, nationally, and globally.

— Eric Williams —

AZ QUOTES



We have a powerful potential in our youth, and we must have the courage to change old ideas and practices so that we may direct their power toward good ends.

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