

Just for fun...

A	E	C	D	J
<u>xF</u>	<u>xF</u>	<u>xF</u>	<u>xF</u>	<u>xF</u>
GJ	DH	GC	AB	HJ

G	GB	F	H	K
<u>xF</u>	<u>xF</u>	<u>xF</u>	<u>xF</u>	<u>xF</u>
F	FB	AF	CH	HC

# Math Strategies

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Special School District

# Agenda

- Our journey to High-Yield Strategies
- Applicable activities
- Games and centers



# Common Core State Standards

- [CCSS.Math.Content.3.NBT.A.2](#)

Fluently add and subtract within 1000 using **strategies** and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.



# Marzano's High-Yield Strategies

- Identifying similarities and differences
- Summarizing and note-taking
- Reinforcing effort and providing recognition
- Homework and practice
- Cooperative learning
- Setting objectives and providing feedback
- Generating and testing hypothesis
- Questions, cues and advance organizers
- Development of academic vocabulary
- Nonlinguistic representation

# Activities



# Identifying similarities and differences

- Compare, classify and create metaphors, analogies and graphic representations
- T-charts
- Venn Diagrams
- QAR
  - <http://www.interventioncentral.org/academic-interventions/math/math-problem-solving>

# Classification Activity





# Summarizing and note-taking

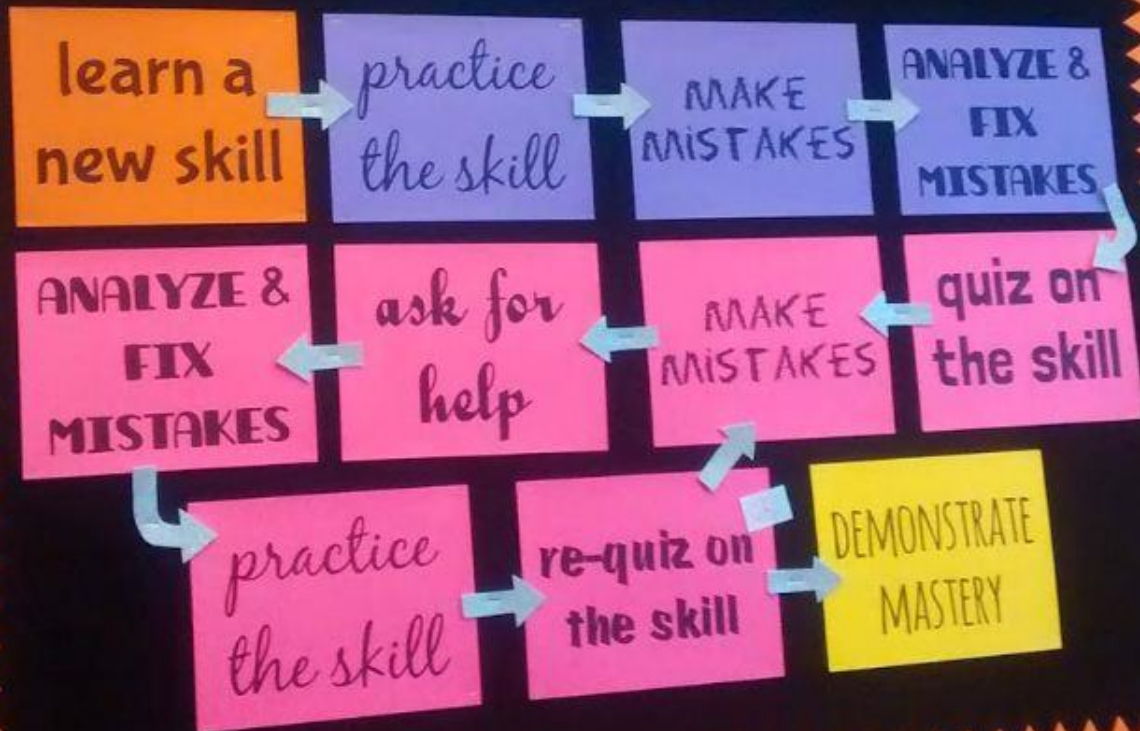
- Interactive Math Journal

# Reinforcing effort and providing recognition

- Hold high expectations
- Display finished products
- Praise students' effort
- Encourage students to share ideas and express their thoughts
- Honor individual learning styles
- Conference individually with students
- Authentic portfolios
- Stress-free environment
- *Make sense of problems and persevere in solving them*

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# HOW TO LEARN MATH



# Homework and practice

- Games
- Centers
- Online practice
- Basic facts practice
- Foldables
- Pearson accounts
- Practice

# Cooperative learning

- “Circle the Sage”
- Games
- Centers

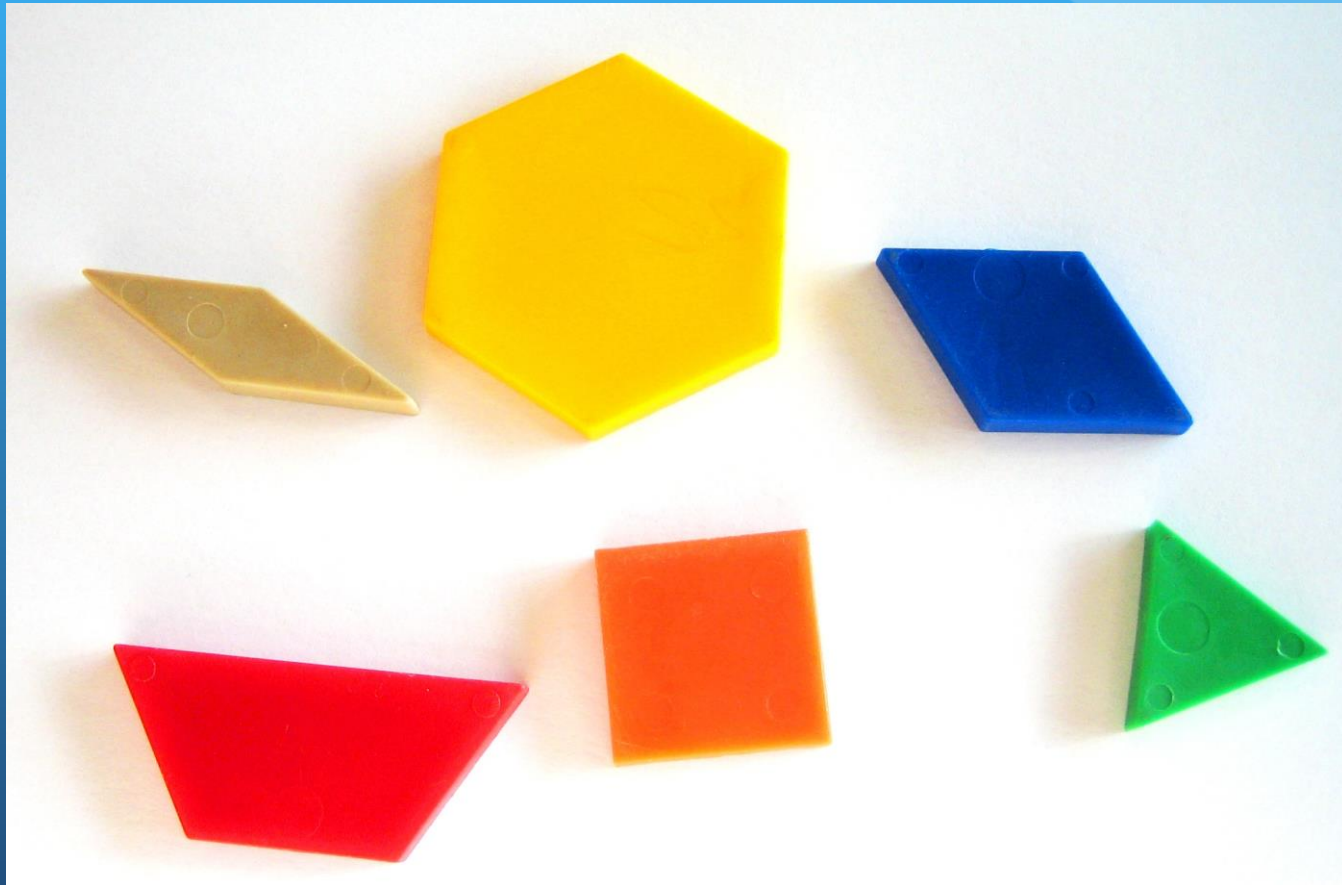
# Setting objectives and providing feedback

- Articulating and displaying learning goals
- KWL
- Allow for some student choice
- PDSA
- Timely feedback

# Generating and testing hypothesis

- “I wonder if this formula always works?”
- “Can you think of a time when this isn’t true?”
- Trying multiple ways to find the same answer to test validity of approach
- *Questioning the reasonableness of others*
- Constructivist practices
- Investigations
- Exploring
- Inductive and deductive reasoning

What are the interior angles of the following polygons?



Triangle =  $180^\circ$



# Questions, cues and advance organizers

- Advance organizers
  - Agenda
  - Objective
  - Rationale
  - Behavioral expectations
- Graphic organizers
- Think alouds
- Inferencing
- Predicting
- Identifying key vocabulary



# Development of academic vocabulary

- CUBE
- Operational Vocabulary FRAME
- <http://www.mcckc.edu/services/tutoring/tutoringbtc/files/word/Language%20of%20Mathematics.pdf>

# Nonlinguistic representation

- Visual tools
- MANIPULATIVES
- Problem-solving organizers
- Diagrams
- Drawings
- Representations
- Mental models

# References

- *High-Yield Instructional Strategies and PDSA* by Jim Shipley and Associates