

Rationale for FES Step 1: Computational Skills (Math Review and Mental Math)

<u>Key Components</u>	<u>Rationale</u>
Classroom Environment	Students need to understand that <ul style="list-style-type: none"> • Mistakes are okay and so is asking for help. • <u>Talking</u> about math helps the brain to remember at a deeper level, therefore students should discuss how to solve problems and be comfortable with math vocabulary. • Talking through solutions and sharing strategies in both small and large group settings is expected.
Category Selection	Based on current student needs, not a sequence in the textbook. <ul style="list-style-type: none"> • Concepts students should know but they don't know. • Answer the question, "What prerequisite skills do my students need to be successful on the concept I am currently teaching?" • Concepts that are pre-requisites to front load for the next topic. • Establishes a deliberate progression of mathematical concepts and computational skills that increase in difficulty throughout the school year. Example: $5/10 + 7/10$, $3/5 + 5/12$, $1 \frac{1}{3} + 3/8$
Error Analysis	Repeated reasoning: It takes 24 exposures with effective feedback to reach 80% accuracy according to Marzano in "What works in the Classroom" Effective Feedback: Timely, specific, and <u>personal</u> .
Starring and Misconceptions	<ul style="list-style-type: none"> • Key to processing Math Review effectively is to emphasize number sense and reasonableness of an answer and to do this on a regular (daily) basis. • Processing is essential to helping students identify their own errors and misconceptions. • Stars point out the understanding that you expect them to have. • Circles show where the mistakes were made and what the student needs to reflect on.
Key Ideas	<ul style="list-style-type: none"> • Reflects content and the key part of a problem where students make mistakes • Clearly state what students need to focus on - where is the misconception. • Not steps to the procedure or acronyms that <u>haven't</u> worked for them yet. "PEMDAS" or "<u>K</u>ee<u>P</u>, <u>F</u>lip, <u>C</u>hange"
Personal Reflections	<ul style="list-style-type: none"> • Daily opportunity for students to reflect on progress increases individual accountability for learning. • Awareness of individual mistakes or misunderstandings increases success in math.
Math Review Quiz	<ul style="list-style-type: none"> • Opportunity to collect data on skills and concepts that require further review as well as to celebrate collective growth. • Results drive the plan for students who do not understand the topics after two weeks of practice.
Mental Math	<ul style="list-style-type: none"> • Builds number sense and fluency with mental calculations • Opportunity for students to share and acquire effective strategies to calculate mentally. • Provides students with <u>mental</u> practice in computing basic number facts and manipulating mathematical operations