



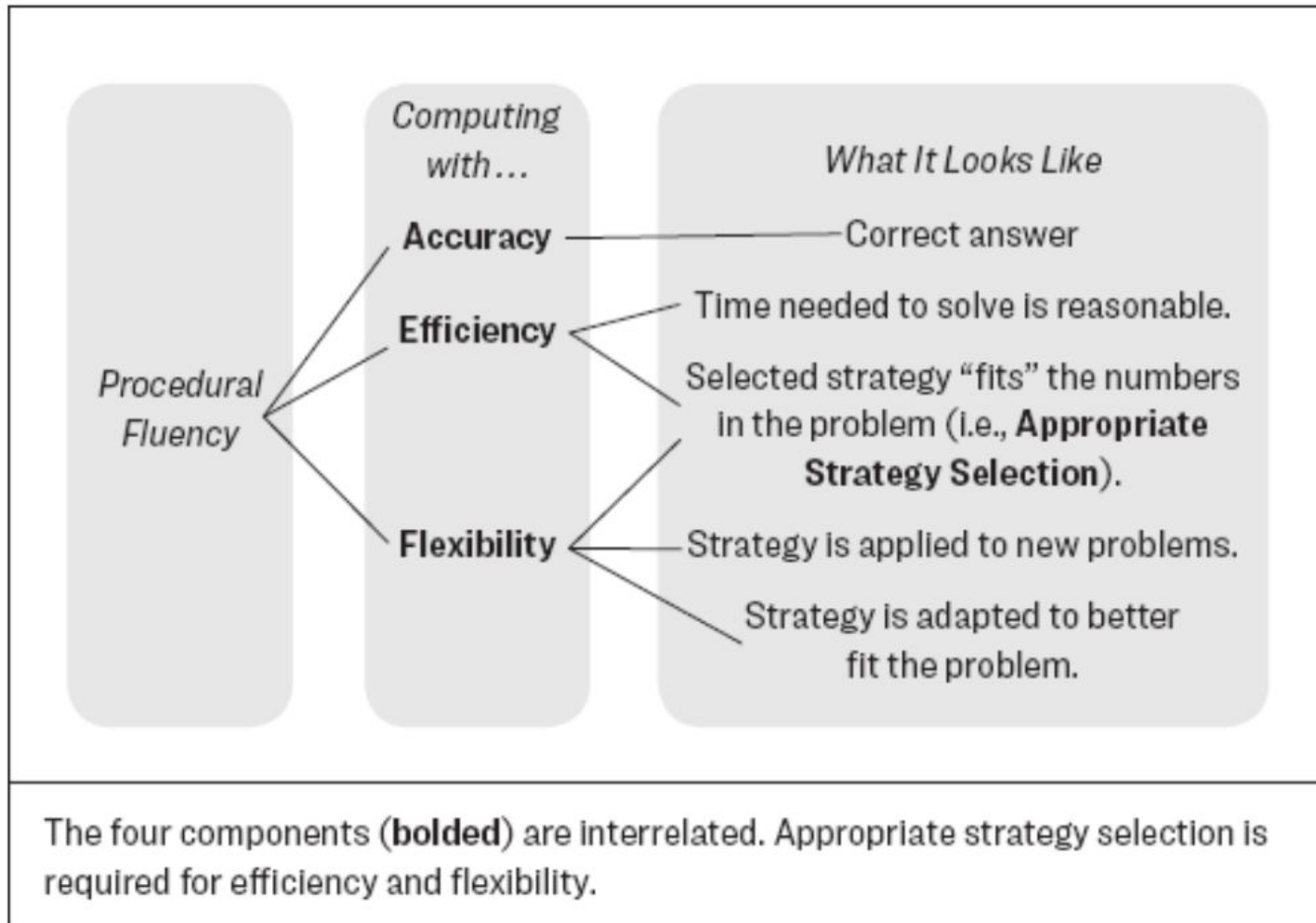
KENTUCKY CENTER  
FOR MATHEMATICS

# **Math Fact Fluency: Addition & Subtraction**

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# What is Fluency?

Figure 1.1. What Procedural Fluency Is and What It Looks Like



# Our Standards

## Addition & Subtraction Fluency Standards

KY.K.OA.5	Within 5	Represent add. & sub. with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations. (KY.K.OA.1)
KY.1.OA.6	Within 10	Relate counting to addition & subtraction (KY.1.OA.5) Use a range of strategies including <ul style="list-style-type: none"><li>• Counting on</li><li>• Referencing a 10</li><li>• Relating to known or easier facts</li><li>• Using the relationship between add. &amp; sub.</li></ul>
KY.2.OA.2	Within 20	Mental Strategies (see above)
KY.2.NBT.5	Within 100	Strategies based upon: <ul style="list-style-type: none"><li>• Place Value</li><li>• Add/subtract chunks of 10 (1.NBT.5)</li><li>• Properties of Operations</li><li>• Relationships between add. &amp; sub.</li></ul>
KY.3.NBT.2	Within 1000	Strategies (see above) & algorithms A range of algorithms may be used

**Build procedural fluency from conceptual understanding.**

Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.

# Fluency Develops in Three Phases

## Phase 1: Counting

Student counts with objects or mentally.

## Phase 2: Deriving

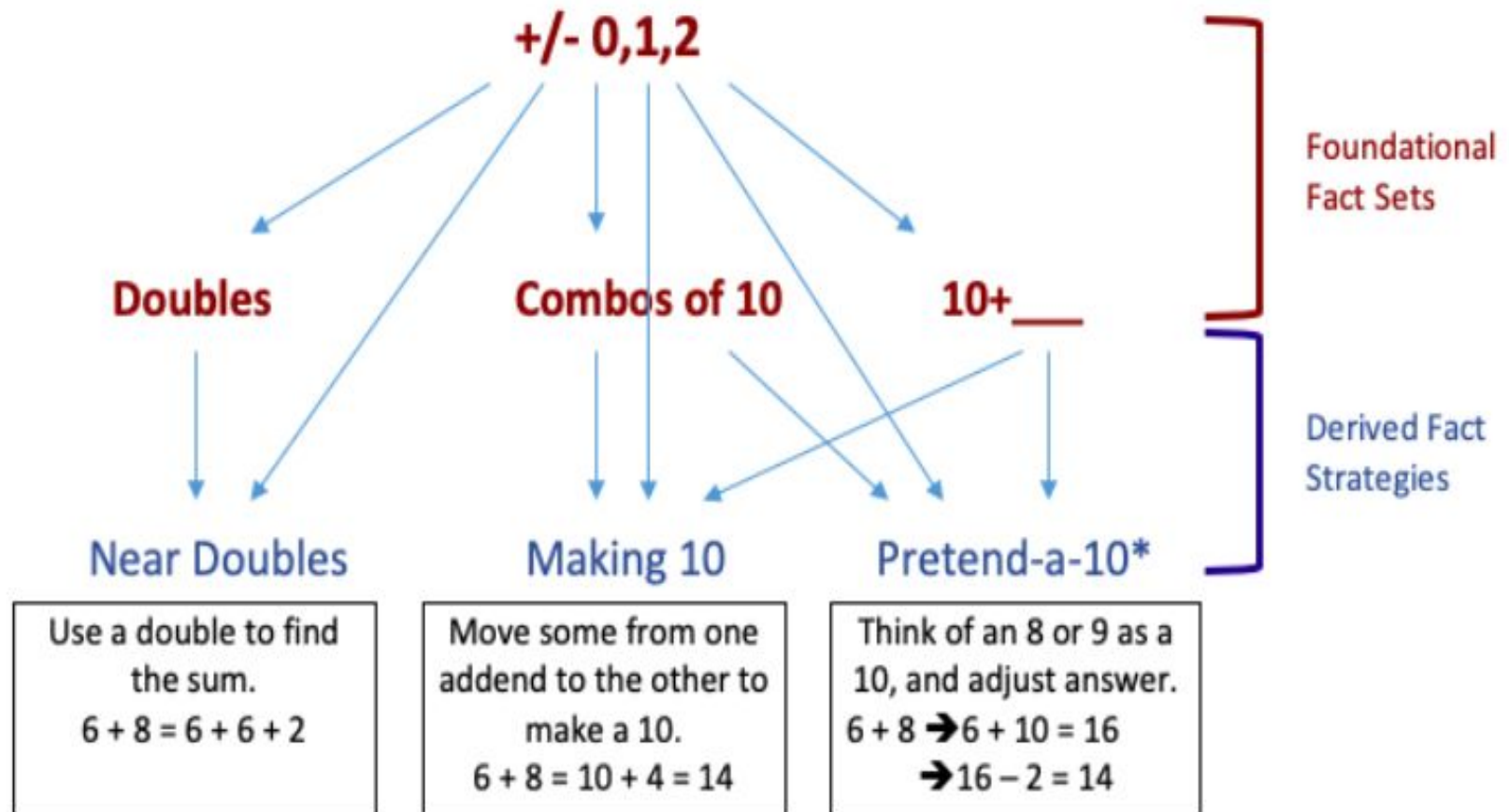
Uses reasoning strategies based on known facts.

## Phase 3: Mastery

Efficiently produces answers

# Foundational Facts Must Precede Derived Facts

## Addition Fact Fluency Flexible Learning Progression



\*Also called Compensation and Use 10; we have found that young learners remember the strategy and distinguish it from Making 10 when we use this name. Research indicates that this strategy is more accessible than Making 10, and therefore should be explicitly taught (Baroody, Eiland, Reid, & Paliwal, 2016).|

# Students Need Substantial and Enjoyable Practice

## Stories



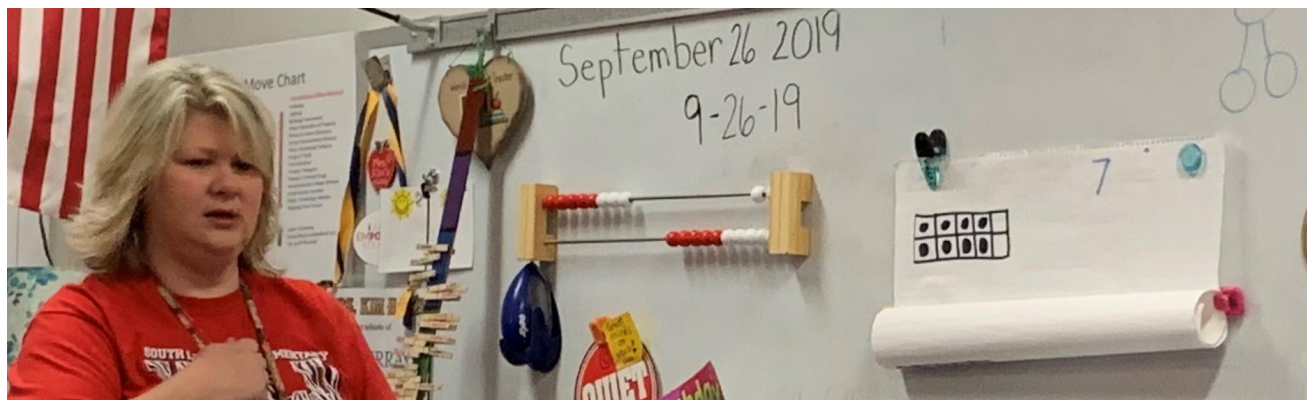
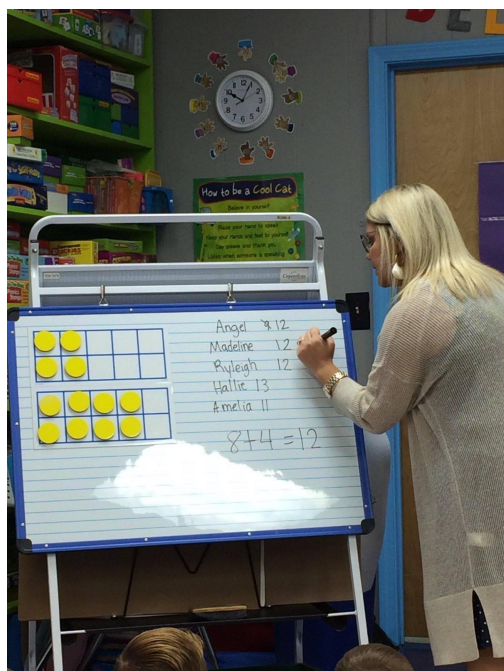
Three bears were in the cave. Some more bears went in. Then there were five bears in the cave altogether. How many bears walked in and joined the other three bears?





# Students Need Substantial and Enjoyable Practice

## Quick Looks and Visuals



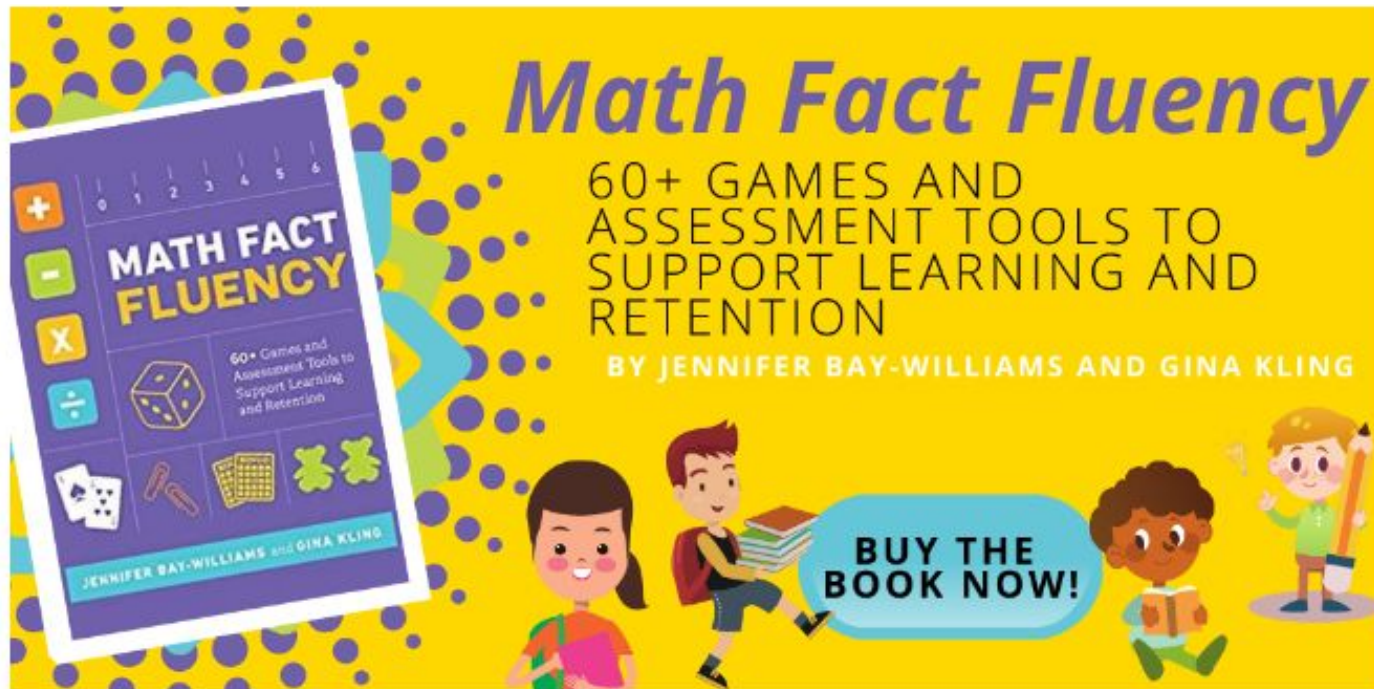
# Students Need Substantial and Enjoyable Practice

## Games





# *Math Fact Fluency Companion Website*



<http://kcm.nku.edu/mathfactfluency/index.php>

# KCM is here to support you!



Contact me

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