

Research-Based Practice: Concrete-Representational-Abstract (CRA)

References:

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Description: A three phase instructional framework for teaching mathematical concepts. The three phases are described below:

1. **Concrete:** The use of hands-on activities with manipulatives to teach the mathematical concept. Examples of manipulatives include base ten blocks, counters, algebra tiles, geoboards, fraction bars, Cuisenaire rods, etc. The abstract notation is presented along with the concrete models to support the ultimate goal of students demonstrating mathematical concepts at the abstract level.
2. **Representational (aka semi-concrete):** Moving to the use of visual representations to teach the mathematical concept. This phase bridges the gap between the use of manipulatives to the use of abstract mathematical notations. Visual representations may include pictures of the manipulatives, virtual manipulatives, tally marks, 100s charts, number lines, graphic organizers, etc.
3. **Abstract:** Demonstrating mathematical concepts without the use of manipulatives or visual representations.