Effective Mathematics Teaching Practice #3

Use and Connect Mathematical Representations

Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

**Physical**: Use concrete objects or gestures to show, study, act upon, or manipulate mathematical ideas (e.g., counters, tiles, cubes, paper strips, arms).

**Visual**: Illustrate, show, or work with mathematical ideas using diagrams, pictures, number lines, graphs, and other math drawings.

**Symbolic**: Record or work with mathematical ideas using numerals, variables, equations, tables, and other symbols.

**Contextual**: Situate mathematical ideas in everyday, real-world, imaginary, or geometric situations and contexts.

**Verbal**: Use language (words and phrases) to interpret, discuss, define, or describe mathematical ideas, bridging concept-based (informal) and formal mathematical language.


http://www.nctm.org/principles_to_actions

Handout developed by Dr. DeAnn Huinker, University of Wisconsin-Milwaukee (version 04-29-2019).