



## The Research

Representing ideas and connecting the representations to mathematics lies at the heart of understanding mathematics. NCTM *Principles and Standards for School Mathematics*

At the K-2 level teachers should encourage students to represent their thoughts about, and understanding of, mathematical ideas through multiple representations. Teachers should assess the level of students' mathematical understanding conveyed by their representations. NCTM *Principles and Standards for School Mathematics*

Being able to compute answers without also understanding the underlying mathematics is an insufficient and shallow goal for students' mathematics education. All instruction must foster students' ability to think, reason, and solve problems. Marilyn Burns *About Teaching Mathematics: A K-8 Resource*

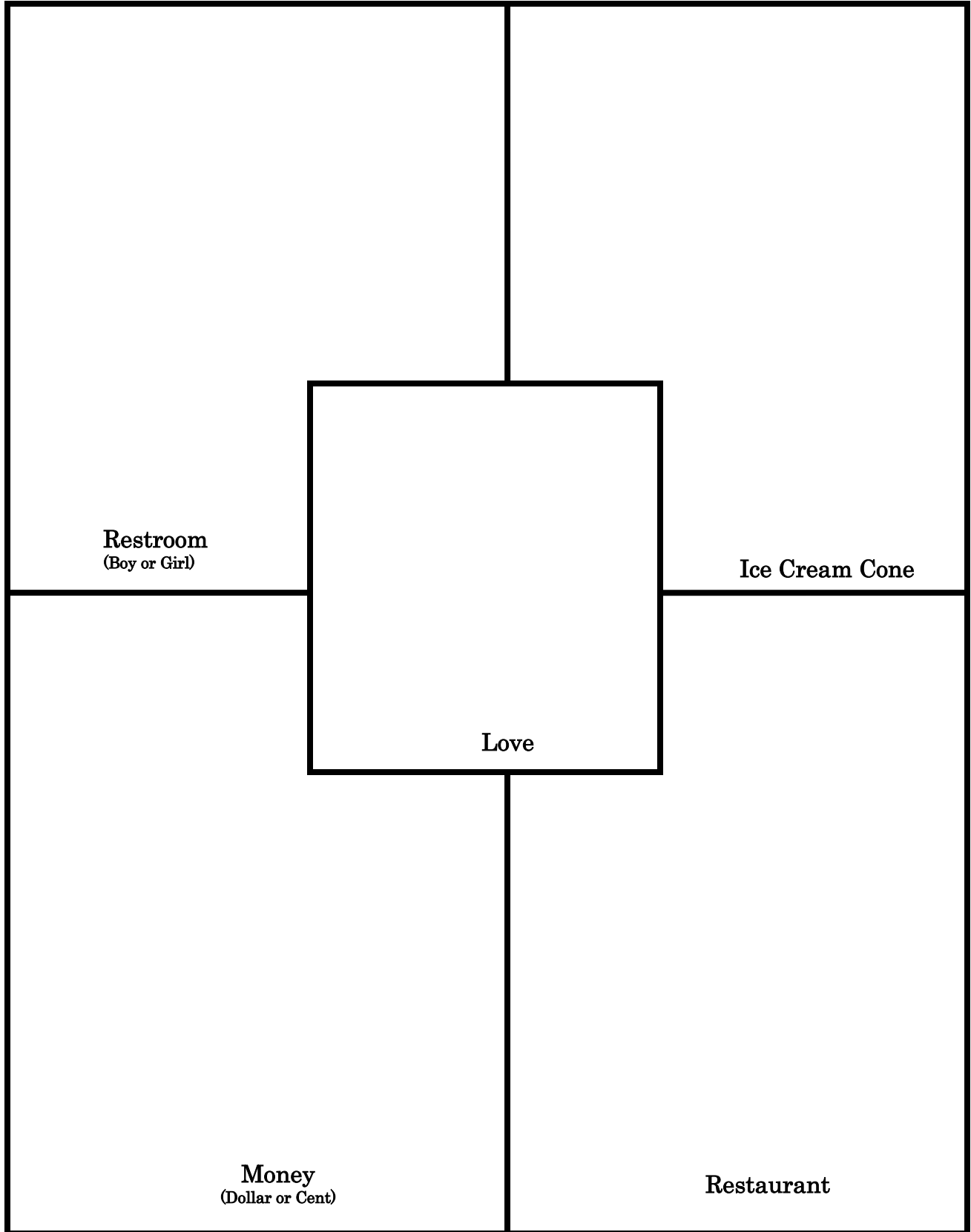
Representations supply teachers with development of students' mathematical thinking, serve as tools for thinking, connect ideas and ways to express mathematical thinking, allow student to make their mathematical understanding available to others, make mathematical ideas more concrete and available for reflection, help students recognize the common mathematical nature of different situations, offer an opportunity for students to organize their thinking, carry some of the burden of remembering, and serve as a place-holder for thoughts that are not yet internalized. NCTM *Principles and Standards for School Mathematics*

### Teacher's Role:

Model conventional ways of representing mathematical situations, use representations to transition to conventional notations that connect to the thinking, teach students that representations are subject to multiple interpretations, encourage mathematical discussion and justification, teach students to understand and explain the mathematical meaning of each part of their symbolic, graphic, or language-based representation, and show that representations are a tool for mathematical thinking. NCTM *Principles and Standards for School Mathematics*

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# Drawing Environmental Print





# Draw the Word That Appears




# The Amusement Park Problem



# “What Is Ten?”

## My Representation of Ten (10)

# Reflections

## Drawing For Mathematical Understanding (DFMU)

In what way(s) will DFMU impact your instructional practices?

How do you now see representations as important for impacting student understanding?

What will be the evidence of attending DFMU in your classroom?

How will you share this information with colleagues?