



# Early Steps Count: Connecting Arithmetic to Algebra

Early Steps Count: Teaching Arithmetic to Prepare Students for Algebra  
Linda Plattner

Difficult example: 4) 6 3 7 5

Student Asks:

How many 4's in 6? (1)

$$\begin{array}{r} 1 \\ 4 \overline{) 6375} \end{array}$$

How many left over? (2)

$$\begin{array}{r} 1 \\ 4 \overline{) 6375} \\ 2 \end{array}$$

How many 4's in 23? (5)

$$\begin{array}{r} 15 \\ 4 \overline{) 6375} \\ 23 \end{array}$$

How many left over? (3)

How many 4's in 37? (9)

$$\begin{array}{r} 159 \\ 4 \overline{) 6375} \\ 231 \end{array}$$

How many left over? (1)

How many 4's in 15? (3)

$$\begin{array}{r} 1593r3 \\ 4 \overline{) 6375} \\ 231 \end{array}$$

How many left over? (3)

The problem is now complete.

To check:  $4 \times 1593 + 3 = 6375$

The workshop presentations and materials from the U.S. Department of Education Teacher-to-Teacher Workshops were developed by various individuals and are being provided as illustrative examples of what might be useful to teachers. The Department is not requiring or encouraging the use of any particular methods or materials in the classroom, and the use of the methods and materials in these sessions does not constitute an endorsement by the U.S. Department of Education.

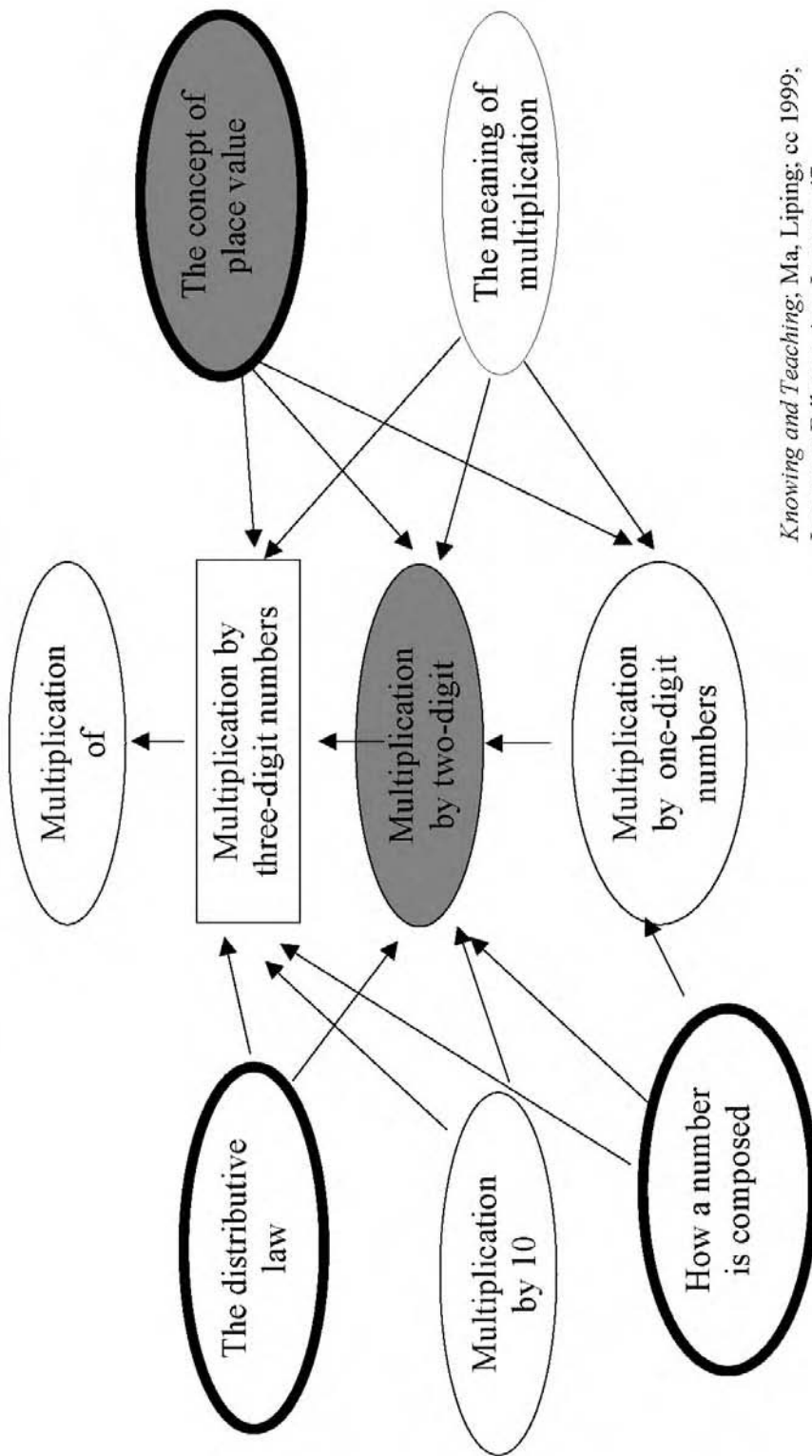
## Algebraic Concepts

- **Concept of place value**
- **Composing and decomposing numbers**
- **Meaning of addition**
- **Meaning of multiplication**
- **Concept of inverse operations**
- **Concept of units**
- **Concept of fraction**
- **Concept of rate**
- **Properties of numbers**
  - **Commutative, associative, distributive, zero property of addition, zero property of multiplication, Multiplicative identify, order of operations**

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*Knowing and Teaching*; Ma, Liping; cc 1999;  
Lawrence Erlbaum Ass. Inc.; pg. 47

## Knowledge Packet for Multiplication

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