Exam 1

1.1 Counting
- set and measurement models
- numerals: the first abstraction

1.2 Place value
- expanded form
- number bonds (tens combinations)
- bundling, unbundling
- chip models
- base 5

1.3 Addition
- properties of +
- thinking strategies
- misuse of =
- set/measurement model

1.4 Subtraction
- 3 interpretations
- thinking strategies

1.5 Multiplication
- x as repeated + and as its own operation
- set/measurement/array model
- properties
- thinking strategies

1.6 Division
- 2 interpretations
- quotient-remainder theorem
- dividing by 0

2.1 Mental Math
- practice to get good!
- strategies
- writing mental math

2.2-2.3 Word problems
- solving WPs:

WP ⇒ diagram ⇒ arithmetic

- writing good WPs
- teacher's solutions

3.1 Algorithm for +
- prerequisites
- teaching sequence

3.2 Algorithm for −
- prerequisites
- teaching sequence

3.3 Algorithm for x
- prerequisites
- teaching sequence
- partial products or rectangular array (example 3.3)

3.4 Algorithm for ÷ by 1-d.
- prerequisites
- partitive vs measurement approach

3.5 Estimation
- Rounding
- overestimating, underestimating

3.6 Algorithm for ÷
- more prerequisites
- scaffold algorithm

Also:
- +, −, x, ÷ in base 5
- correct wrong algorithms
- bundling and unbundling chips in different bases (ex: base 5, 10, 7, ...)