CONTENT STANDARDS

NUMBER number sense (efficient, accurate, general)

Use these sensibly
- combinations and relationships
- base-10
- estimation
- relative and absolute

Important ideas
- big numbers are sensible only if they mean something
- the structure of number is called algebra
- explain, understand, show alternatives
- use calculators for everything but mental arithmetic
- use physical objects are representations
- balance manipulation with understanding

ALGEBRA the principles of structure (rules, manipulation)

Important ideas
- mappings (functions)
- equals (equivalence, balance)

GEOMETRY visualization and spatial transformation

Important ideas
- reasoning (historical!)
- observe, describe, manipulate
- relative position
- visual representations

MEASUREMENT concrete attributes and units

Important ideas
- compare and order
- non-standard units
- estimating
- use of measurement tools

DATA collect, organize, analyze

Important ideas
- pictures of information
- prediction
- probability, likelihood

PROCESS STANDARDS

PROBLEM SOLVING finding solutions not already known

Important ideas
- allow time to grapple and reflect
- rely on self-awareness, self-assessment
- all about disposition
  - explore and take risks
  - share failure and success
  - question self and others

REASONING noticing patterns , using rules

Important ideas
- pay attention to regularities, structure, patterns
- assertions have reasons (not beliefs)
- reasons are based on structural rules
- make conjectures, describe, physically manipulate
- present to others
- why do you know?

COMMUNICATION listen, talk, question

Important ideas
- say back, question, share
- organize and consolidate
- explain and describe approach
- draw and sketch
- no formal language until older

CONNECTIONS deep connection between maths

Important ideas
- all math is interconnected
- all math is connected to reality
- data is a measure of reality

REPRESENTATION abstract model of thinking

Important ideas
- representations come in many varieties
- fundamental to understanding
- a picture of thinking
- the steps toward abstraction, from specific to general
- the way math models reality