

Inservice - Applying the Reading Skills in Math  
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Major source: Be a Better Reader, Annotated Teacher's Edition, 5th edition,  
Level A, Nila Banton Smith, Prentice-Hall, 1984

4 basic reading skills enumerated (visual 1)

Word recognition, comprehension, reading rate, study skills

Word recognition enumerated (v. 2)

Phonetic analysis, structural analysis, context clues, other word helps

Phonetic analysis mentioned

sounding out words using phonics skills

phonics last studied about 2nd grade

Structural analysis discussed (v. 3)

examples of math compound words

prefixes, suffixes, root words

examples from the metric system (v. 4)

examples from numeration and geometry (v. 4)

Context clues discussed (v. 5)

impaired by compactness

other non-mathematical meanings (v. 5, dictionary)

Other word helps mentioned

glossary, dictionary

Reading rate discussed (v. 6)

abbreviations (v. 6)

compactness

change in eye movement (v. 6)

examples: fractions (v. 7), graph (v. 10)

Comprehension (v. 8)

Main idea, details, inference

examples: formula (v. 9), graph (v. 10), fractions (v. 7)

Study Skills (v. 11)

Selecting and Evaluating information

select from context and evaluate in terms of conditions

example: from graph

Organizing information

organize similar ideas

example: triangle, trinomial

Locating information

find information in reference works

Reading visuals

reading diagrams and graphs

Following directions

specific sequence of steps

examples: area of trapezoid, subtracting mixed numbers

Previewing

headings, boldface

example: subtracting mixed numbers

Reading special materials

materials other than classroom texts.

# BASIC READING SKILLS

- "Be a Better Reader",

Nila Banton Smith

- (BSAP skills in parentheses)

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## 1. Word Recognition

(Decoding & Word Meaning)  
(Reference Usage)

## 2. Reading Rate

## 3. Comprehension

(Main Idea)  
(Details)  
(Inference)

## 4. Study Skills

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# WORD RECOGNITION SKILLS

1. **Phonetic Analysis**  
(Phonetic Decoding)

2. **Structural Analysis**  
(Structural Word Meaning)

3. **Context Clues**  
(Contextual Word Meaning)

4. **Other word helps**  
(Reference Usage)

# STRUCTURAL ANALYSIS

HEXAGON

ICOSAHEDRON

TRINOMIAL

HORIZONTAL

DECREASING

KILOGRAM

HEXADECIMAL

1. PREFIXES & SUFFIXES

2. ROOT WORDS

# METRIC SYSTEM

4

|         |          |
|---------|----------|
| MEGA -  | - METER  |
| KILO -  | - LITER  |
| HECTO - | - GRAM   |
| DEKA -  | - WATT   |
| DECI -  | - SECOND |
| CENTI - | - AMP    |
| MILLI - | - BYTE   |
| MICRO - |          |

# GEOMETRY, NUMBERS

|          |          |
|----------|----------|
| MONO -   | - GON    |
| BI -     | - HEDRON |
| TRI -    | - SECT   |
| QUAD -   | TETRA -  |
| QUINT -  | PENT -   |
| HEX -    | SEX -    |
| HEPT -   | SEPT -   |
| OCT -    | - NOMIAL |
| NON -    | - METER  |
| DEC -    | - ANE    |
| DODECA - | - TET    |
| ICOSA -  | - ILLION |
| POLY -   |          |

# CONTEXT CLUES

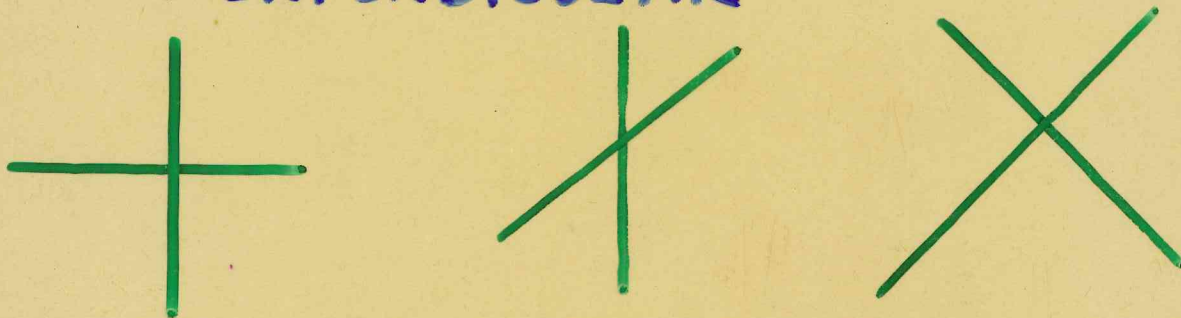
5

## 1. IMPAIRED BY COMPACTNESS.

every word counts  
no extra verbiage

## 2. OTHER NON-MATH MEANINGS

### PERPENDICULAR

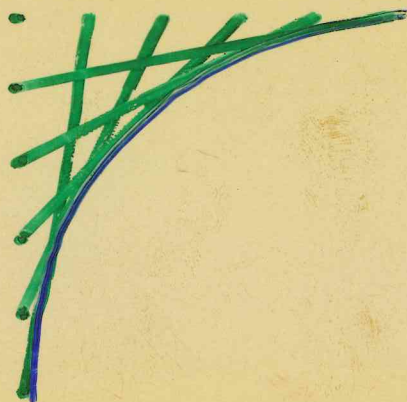


EVEN, ODD, POSITIVE,

RATIONAL, REAL, IMAGINARY, COMPLEX

SET, GROUP, FIELD, RING

PLANE, ANGLE, RAY, ENVELOPE



# READING RATE

6

MATH MUST BE READ SLOWER DUE TO:

## 1. ABBREVIATIONS

$$\frac{5}{7} < \frac{7}{8}$$

$$\triangle ABC \cong \triangle DEF \quad SAS$$

$$A = \frac{1}{2} ab \sin \theta$$

$$\forall x \in \mathbb{R} \exists y \in \mathbb{R} \ni y = x^2$$

## 2. COMPACTNESS

## 3. CHANGE IN EYE MOVEMENT.

$$\frac{1}{2} + \frac{3}{5} = 1\frac{1}{10}$$

# 9-6 Subtraction: Mixed Numbers

See the Teacher's Manual for the objectives.

When subtracting with mixed numbers, it is sometimes necessary to "borrow" from the whole number.

**PROCEDURE** To subtract with mixed numbers:

- 1 Find the LCD.
- 2 Use the LCD to write like fractions. "Borrow" from the whole number when necessary.
- 3 Subtract.
- 4 Write the answer in lowest terms.

**EXAMPLE 1**  $7\frac{1}{6} - 4\frac{2}{3} = \underline{\quad?}$

**Solution:** LCD: 6

$$\begin{array}{r}
 7\frac{1}{6} = 7\frac{1}{6} \\
 -4\frac{2}{3} = -4\frac{4}{6} \\
 \hline
 \end{array}$$

Since  $\frac{1}{6}$  is less than  $\frac{4}{6}$ , borrow 1, or  $\frac{6}{6}$ , from 7.

$$\begin{array}{r}
 7\frac{1}{6} = 6\frac{7}{6} \left( \frac{1}{6} + \frac{6}{6} = \frac{7}{6} \right) \\
 -4\frac{4}{6} = -4\frac{4}{6} \\
 \hline
 2\frac{3}{6} = 2\frac{1}{2}
 \end{array}$$

Here is another Example that shows how to "borrow."

**EXAMPLE 2**  $5\frac{2}{3} - 2\frac{6}{7} = \underline{\quad?}$

LCD: 21

$$\begin{array}{r}
 5\frac{2}{3} = 5\frac{14}{21} \\
 -2\frac{6}{7} = -2\frac{18}{21} \\
 \hline
 \end{array}$$

Since  $\frac{14}{21}$  is less than  $\frac{18}{21}$ , borrow 1, or  $\frac{21}{21}$ , from 5.

$$\begin{array}{r}
 5\frac{2}{3} = 4\frac{35}{21} \left( \frac{14}{21} + \frac{21}{21} = \frac{35}{21} \right) \\
 -2\frac{18}{21} = -2\frac{18}{21} \\
 \hline
 2\frac{17}{21}
 \end{array}$$

## EXERCISES

You may wish to use these exercises before teaching the lesson.

**Complete.** (Pages 178-179)

1.  $\frac{2}{4} = 1$  4      2.  $\frac{2}{3} = 1$  3      3.  $\frac{2}{3} = 1$  5      4.  $\frac{2}{10} = 1$  10      5.  $\frac{2}{400} = 1$  400

**Write in lowest terms.** (Pages 182-183)

6.  $\frac{4}{10} \frac{2}{5}$       7.  $\frac{3}{27} \frac{1}{9}$       8.  $\frac{21}{36} \frac{7}{12}$       9.  $\frac{18}{45} \frac{2}{5}$       10.  $\frac{9}{12} \frac{3}{4}$       11.  $\frac{8}{4} \frac{8}{15}$

**Find the LCD for each pair of fractions.** (Pages 188-189)

12.  $\frac{1}{6}$  and  $\frac{3}{4}$  12      13.  $\frac{2}{5}$  and  $\frac{1}{4}$  20      14.  $\frac{1}{3}$  and  $\frac{4}{5}$  15      15.  $\frac{5}{6}$  and  $\frac{4}{9}$  18      16.  $\frac{3}{5}$  and  $\frac{7}{8}$  40



# COMPREHENSION

## 1. MAIN IDEA

- a) CONCEPT (PRINCIPLE)
- b) OPERATION (PROCESS)

## 2. DETAILS

- a) COMPONENTS IN A CONCEPT
- b) STEPS IN A PROCESS

## 3. INFERENCE

- a) MAKING COMPARISONS
- b) DRAWING CONCLUSIONS
- c) PREDICTING OUTCOMES

$$A = \frac{1}{2} h (a + b)$$

## CONCEPT

MAIN IDEA:

DETAILS:

RELATIONSHIP

VARIABLES

CONSTANTS

OPERATIONS

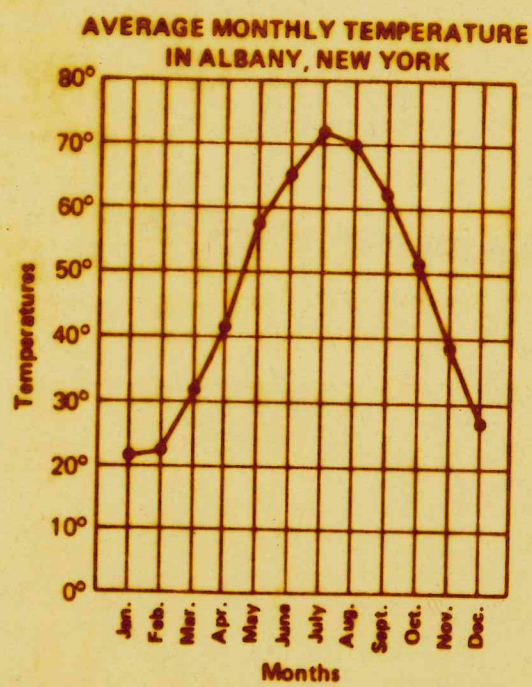
## OPERATION

MAIN IDEA:

DETAILS:

SET OF DIRECTIONS

SPECIFIC STEPS



1. TITLE
2. LABELS
3. GRAPH
4. SIGNIFICANCE OF THE WHOLE

**CONCEPT MAIN IDEA :**  
**DETAILS :**

**TEMP. RISE & FALL**  
**SPECIFIC TEMPS.**

**(OPERATION MAIN IDEA:**  
**DETAILS:**

**CREATE A LINE GRAPH**  
**PLOTTING POINTS**)

**INFERENCE - COMPARISONS:**  
**CONCLUSIONS:**  
**PREDICTIONS:**

**APRIL VS. MAY?**  
**CAN WE GO SWIMMING?**  
**NEXT JAN.?**

# STUDY SKILLS

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1. SELECTING & EVALUATING INFORMATION
2. ORGANIZING INFORMATION
3. LOCATING INFORMATION
4. READING VISUALS
5. FOLLOWING DIRECTIONS
6. PREVIEWING
7. READING SPECIAL MATERIALS