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ABSTRACT

Described is a program designed to help elementary teachers of grades three through seven diagnose their students' mathematical competencies. This document is a package containing guides for a 14-day review of previous material for each grade level. Objectives and teaching strategies for daily lessons are detailed. Following the review, a diagnostic test is provided. An item analysis of the test is prepared by child, classroom, school and district and returned to the teachers in the school system where this program was developed and implemented. Standardized subtests in computation showed a marked increase in grades where the system was operating, while other areas of the curriculum were experiencing falling scores. This work was prepared under an ESEA Title III contract. (JP)

Diagnostic Feedback System
Mathematics

Report -- Title III

History

In 1968, when John Aceto became consultant in mathematics for the Unified School District, results of standardized testing in the computation subtests showed a marked negative differential between the national norms and the Unified School District's achievement levels. It was established that the standardized test was a valid measure for the mathematics program, so steps were taken to introduce classroom intervention procedures which included review of computational objectives and diagnostic tests to pinpoint remedial needs of pupils. The feedback system consisted of analysis of teacher reports of the results of the diagnostic tests. The analysis was done by "hand" in the first year and then utilizing a time-sharing computer terminal in subsequent years. All reports, including an item analysis by classroom, by school, and by district, were completed in the mathematics department. In 1969 achievement levels on the standardized subtests in computation showed a marked increase in grades where the system was operating. Other areas of the curriculum were experiencing falling scores. The system established by the mathematics department was instituted in the Language Arts and Reading areas. With Mathematics, Language Arts, and Reading using the system the Research department of the Unified School District assumed the responsibility for collection, analysis and distribution of all reports.

The Title III grant enabled the Mathematics department to refine the established system and utilize the computer printout to give specific data to teachers by child, by item specification, by class, by school, by district.

The System

The basic components of the system are:

The Objectives

The well established objectives of the mathematics program were communicated to teachers in a more usable form. Among the forms the objectives take are specifications for the computational component of the mathematics program.

The Review

At the beginning of each year a review of the previous grade level's objectives is conducted in grades 3 through 7 for fourteen consecutive days. The Reviews take the form of day-by-day teaching suggestions and pupil exercises.

The Testing

Diagnostic tests are prepared to specifically correspond with grade level expectations and the on-going curriculum.

The Feedback

Computer printout is prepared by child, classroom school and district and returned to the teacher within a week of delivery to the Data Processing department.

To accompany the printout the mathematics department prepares Intem set descriptions, specification of each item and a remedial prescription by item.

The Package

On the succeeding pages are samples of all of the components of the operating system.

If this system has succeeded in increasing learning in children, the greatest amount of credit should go to the hard-working, dedicated teachers of the district that "make things work."

Respectfully submitted,

John D. Aceto
Consultant in Mathematics

KEEPING UP

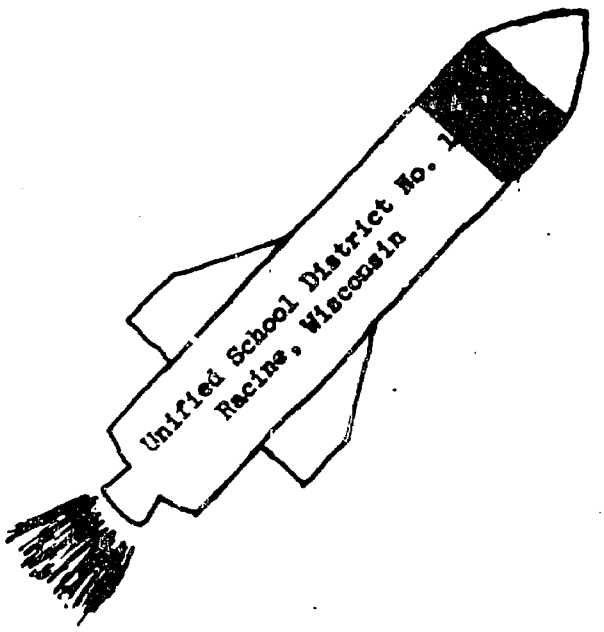
Parents:

This Mathematics Study Guide is intended to help you to assist your child in maintaining the Arithmetic skills he has developed. Over the summer vacation we are well aware that our children do forget. Reading lists for use during the summer have been available; this Guide can serve the same purpose to suggest typical problems that you can make up.

This Guide represents the total Kindergarten through Sixth grade Arithmetic component of the Unified School District's mathematics program. It is divided into expectancy levels for each of the arithmetic operations including Place Value, Fractions, and Problem Solving. You should seek the level at which your child is most comfortable and periodically, during the summer, challenge him with problems he should be able to do. It would be hoped that you would include interesting verbal problems to develop his problem solving abilities.

It is hoped that this Guide is informative and can serve its intended purpose for the Elementary School children in your family.

John D. Aceto
Consultant in Mathematics



Mathematics Study Guide

KINDERGARTEN Counting	a) From 1 to 10, 25, 50, 100 b) To a number c) From a number to a number d) The next number; The number before e) Skip counting by 2's to 20, by 5's to 25, by 10's to 100
Sets	a) Match two sets, one-to-one b) Recognize two sets as having "Fewer Than", "More Than", or the same number of objects c) Relates numerals 0-10 to sets. d) Divides a set in half and identifies "$\frac{1}{2}$". e) Joins two sets to form one or separates one set into two and relates numerals to operation.
Numerals and Operations	a) Recognizes and writes numerals 0-10. b) Relates numerals 0-10 to sets of objects. c) Puts numerals 1-10 in order. d) Understand ordinal numbers first, second, ..., tenth. e) Recognizes number words one through five. f) Joins or separates sets and relates numbers to new sets formed. g) Tells a story about joining and separating sets.
Comparisons	Understands a) "is same as" or "is equal to" b) "one more" and "one less" c) larger and smaller d) longer and shorter e) higher and lower f) heavier and lighter
Geometric Figures	a) Recognizes and draws a curved line, straight line, closed curve, circle, triangle, square, rectangle. b) Matches figures of same size and shape. c) Recognizes differences between geometric figures1 d) Recognizes and extends a pattern of geometric figures.
Measurement	a) Number of days in week b) Number of months in year c) Knows birth date, age, address, etc.
Money	a) Identifies penny, nickel, dime, quarter, one dollar bill, five dollar bill.

In the examples below "d" stands for digit.

Level 1

Examples:

Addition

Basic facts to 6 ◯
Basic facts to 10 ◯
2d + 2d (No Renaming) ◯
1d column ◯
Applies commutative property ◯

Basic Facts to 6

$\begin{array}{ccc} 3 & 1 & 4 \\ +2 & +4 & +2 \end{array}$

Basic Facts to 10

$\begin{array}{ccc} 5 & 8 & 6 \\ +4 & +2 & +3 \end{array}$

2d + 2d (No renaming, no "carrying")

$\begin{array}{cc} 21 & 46 \\ +33 & +31 \end{array}$

1d column

$\begin{array}{cc} 5 & 3 \\ 2 & 4 \\ +2 & +1 \end{array}$

Applies commutative property

The child recognizes and uses the fact that 2 + 3 = 3 + 2

Subtraction

Basic Facts to 6 ◯
Basic facts to 10 ◯
2d - 2d (No Renaming) ◯

Basic Facts to 6

$\begin{array}{ccc} 6 & 5 & 4 \\ -4 & -2 & -1 \end{array}$

Basic Facts to 10

$\begin{array}{ccc} 9 & 8 & 10 \\ -5 & -2 & -7 \end{array}$

2d - 2d (No renaming, no "borrowing")

$\begin{array}{cc} 59 & 83 \\ -25 & -42 \end{array}$

Place Value

Writes numerals ___ tens and ___ ones ◯
Identifies digits in 100's 10's or 1's place ◯
Write numerals to 150 ◯

Writes Numerals

34 is ___tens and _____ones

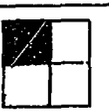
Identifies digits in 100's, 10's or 1's place

What digit is in the 10's place in 743?

Fractions

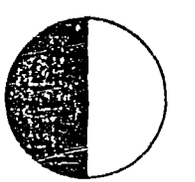
Identify $\frac{1}{2}$, $\frac{1}{4}$ ◯

Identify $\frac{1}{2}$, $\frac{1}{4}$



What fraction is represented by the shaded portion of this diagram?

What fraction is represented by the shaded portion of this diagram?

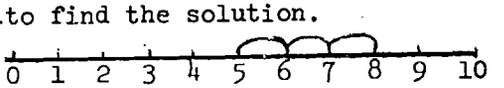


Others

Number line +, - ◯
Measurement ◯
Time ◯

Number Line +,-

Given a number line and an addition or subtraction problem the child will be able to use the number line to find the solution.



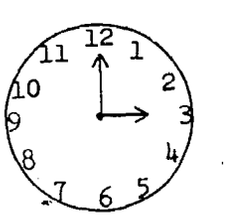
5+3 = 8

Measurement

Given a line segment and a ruler the child will be able to write the numeral which tells how long the line segment is in inches.

Time

The child will be able to tell time to the hour and to the half hour.



Addition

Level 2

- Basic facts to 18 ○
- 2d + 2d (No Renaming) ○
- 2d + 2d (Renaming in 10's column) ○
- 1d column $\begin{array}{r} 4 \\ +5 \end{array}$ ○

Basic Facts to 18

$\begin{array}{rrr} 4 & 3 & 9 \\ +6 & +9 & +8 \end{array}$

2d + 2d (No Renaming, i.e., "No borrowing" and "No carrying")

$\begin{array}{rrr} 43 & 23 & 19 \\ +26 & +55 & +40 \end{array}$

2d + 2d (Renaming in 10's column)

$\begin{array}{rrr} 43 & 83 & 52 \\ +65 & +76 & +63 \end{array}$

1d column

$\begin{array}{rrr} 3 & 4 & 6 \\ 2 & 7 & 3 \\ +6 & +5 & +1 \end{array}$

Subtraction

- Basic facts to 18 ○
- 2d - 2d (No Renaming) ○
- 3d - 2d (No Renaming) ○

Basic Facts to 18

$\begin{array}{rrr} 16 & 14 & 18 \\ -4 & -7 & -9 \end{array}$

2d - 2d (No Renaming)

$\begin{array}{rrr} 47 & 56 & 79 \\ -23 & -35 & -72 \end{array}$

3d - 2d (No Renaming)

$\begin{array}{rrr} 465 & 976 & 345 \\ -52 & -73 & -25 \end{array}$

Multiplication

- Basic facts to 18 as Four 4's = ○
- Relationship between +, x ○
  5 + 5 is two 5's

Basic Facts to 18

Five 3's =
Six 2's =
Two 5's =

Relationship Between +, x

6+6+6 is three 6's.

4+4+4+4 is four 4's.

Division

- Basic facts to 18 as: How many 5's in 15? ○

How many 2's in 12?

How many 3's in 18?

Place Value

- Identifies $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ as one of ___ equal parts ○

Concept of > or <

Fill in >, <, or =.

4 + 8 ___ 10, 6 ___ 5

14 ___ 7+8

Expanded Notation

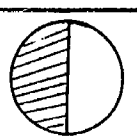
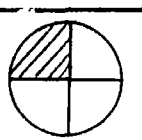
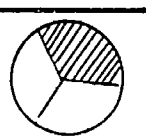
105 means ___100's___10's___1's.

Identifies Digits in 100's, 10's, 1's place

In 175 what digit is in 10's place

Fractions

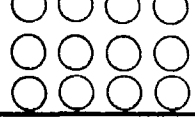
- Concept of > or < ○
- Expanded notation ○
- Identifies digits in 100's, 10's, 1's place ○

I  II  III 

$\frac{1}{2}$ is shown in ____

$\frac{1}{4}$ is shown in ____

$\frac{1}{3}$ is shown in ____



one half of 12 is____

one third of 12 is____

one fourth of 12 is____

Others

- Write number sentences +, - ○
- Understand relationship between +, - ○
- Problem Solving:
  - One step addition and subtraction problems ○
  - Money ○

Writes number sentences +, -

3 + 4 = 7

MONEY: Converts pennies, nickels, dimes, quarters, half dollars, dollars

Understands Relationship Between +, -

Given the numbers 5, 7, 12 the child will write the + and - facts relating them

5+7 = 12 12-5 = 7

7+5 = 12 12-7 = 5

Problem Solving: One Step +, -

A man had 96 cupcakes.
A boy bought 12 of them.
How many cupcakes did the man have left?

Addition

Level 3

- Time testing Basic Facts ◯
- 5 sec ◯ 4 sec ◯ 3 sec ◯
- 3d + 3d ◯
- 2d column ◯
- Finds missing addends 5 + □ = 9 ◯
- 2d + 2d (Renaming) ◯

Time Testing Basic Facts
The child should do basic facts problems as below at a rate of 1 in 5 seconds, 4 seconds or 3 seconds.

5	9	6
+3	+7	+4

3d + 3d

211	645
+326	+287

2d column

23	32
46	43
+27	+78

Finds Missing, add ends

3 + □ = 7

△ + 2 = 8

2d + 2d (renaming)

37	96
+85	+27

Subtraction

- Time testing Basic Facts
- 5 sec ◯ 4 sec ◯ 3 sec ◯
- 3d − 3d (No Renaming) ◯
- 3d − 2d (Renaming) ◯
- Finds missing numeral 9 − □ = 6 ◯

Time Testing Basic Facts
The child should do basic facts problems as below at a rate of 1 in 5 seconds, 4 seconds or 3 seconds.

9	7	8
−5	−2	−6

3d−3d (No renaming)

578	872
−326	−461

3d−2d (Renaming)

463	133
− 88	− 75

Finds missing numeral

6 − □ = 3

□ − 2 = 5

Multiplication

- Basic facts to 30 ◯
- Fill in missing factor 5 x □ = 30 ◯ ◯
- 2d x 1d ◯
- 3d x 1d ◯

Basic Facts to 30

4	4	5
x3	x7	x6

Fill in missing factor

5 x □ = 20

△ x 3 = 18

2d x 1d

23	32	36
x 2	x 4	x 4

3d x 1d

321	246
x 4	x 3

Division

- Basic facts to 18 ◯
- to 30 ◯
- 1d)2d ◯ 1d)3d ◯
- Fill in missing numeral 30 ÷ □ = 5 ◯

Basic Facts to 18

$3\overline{)15}$ $4\overline{)12}$ $6\overline{)18}$

Basic Facts to 30

$6\overline{)24}$ $9\overline{)27}$

1d)2d

$2\overline{)24}$

$6\overline{)30}$

1d)3d

$8\overline{)168}$

$6\overline{)120}$

Fill in Missing Numeral

28 ÷ □ = 7

△ ÷ 4 = 6

Place Value

- Identifies digits to 1000's place ◯
- Expanded notation to 1000 ◯
- Regroups, renames numbers ◯

Identifies digits to 1000's place
What digit is in the 1000's place in 3284?

Expanded notation to 1000

315 means _____ hundreds
1 ten and 5 ones

Regroups, Renames Numbers

46 is ____ tens and 6 ones
or 3 tens and _____ ones

Fractions

- Identifies $\frac{1}{6}, \frac{1}{8}, \frac{2}{3}, \frac{3}{4}$ ◯
- Equivalent fractions on number line ◯
- Uses >, < with fractions ◯

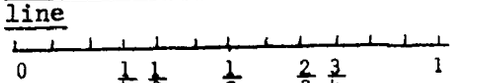
Identifies $\frac{1}{6}, \frac{1}{8}, \frac{2}{3}, \frac{3}{4}$

$\frac{1}{6}$ is shown in diagram _____

$\frac{1}{8}$ is shown in diagram _____

I. II. III.

Equivalent fractions on number line



Others

- Applies commutative principle to addition and multiplication ◯

Applies commutative principle to addition and multiplication

23 + 42 = 42 + 23 and 6 x 4 = 4 x 6

$\frac{1}{2} = \frac{\square}{12}$

Uses >, < with fractions

$\frac{3}{6}$ > or < $\frac{2}{6}$

Addition

Level 4

Time testing Basic Facts ◯
3d + 3d ◯
3d column ◯
"like" fractions ◯
Mixed Numbers ◯

Time Testing Basic Facts
Child should do basic facts at rate of 1 per 3 seconds

9	6	9	7
+2	+8	+9	+8

3d + 3d

324	675
+493	+125

3d Column

168	260
34	521
+497	+457

"Like" Fractions

$\frac{3}{16} + \frac{7}{16} =$

$\frac{1}{5} + \frac{4}{5} =$

Mixed Numbers

$1\frac{1}{8}$	$1\frac{1}{12}$	$\frac{7}{8}$
$+\frac{3}{8}$	$+\frac{7}{12}$	$+\frac{5}{8}$

Subtraction

Time testing Basic Facts ◯
4d - 3d ◯
"like" fractions ◯
Mixed Numbers ◯
3d - 3d (Renaming) ◯

Time Testing Basic Facts
Child should do basic facts at rate of 1 per 3 seconds.

18	15	14	12
- 7	- 6	- 7	- 5

4d - 3d

6432
- 319

"Like" Fractions

$\frac{7}{10} - \frac{3}{10} =$

$\frac{11}{12} - \frac{5}{12} =$

Mixed Numbers

$1\frac{7}{10}$	$1\frac{5}{8}$
$-\frac{9}{10}$	$-\frac{7}{8}$

3d - 3d (renaming)

412	800	653
-147	-167	-544

Multiplication

Time testing Basic Facts
5 sec ◯ 4 sec ◯ 3 sec ◯
Basic facts to 81 ◯
Multiplies by 10's (5 x 30) ◯
Multiplies by 100's ◯
2 & 3d x 1d ◯
2d x 2d ◯
Estimate Products: 21 x 88 ≈ 20 x 90 = 1800 ◯

Time Testing Basic Facts
Child should do basic facts at rates of 1 per 5, 4 and 3 seconds.

Basic Facts to 81

4	6	9
x7	x9	x9

Multiplies by 10's

40	70
x 6	x 8

Multiplies by 100's

300	800
x 9	x 5

2dx1d

75
x 6
68
x 7

3dx1d

437
x 4
923
x 8

2dx2d

73
x27
66
x75

Estimate Products
51 x 48 is about 50x50 or 2500

Division

Time testing Basic Facts
5 sec ◯ 4 sec ◯ 3 sec ◯
1d)2d ◯ 1d)3d ◯
2d)3d ◯
2d)3d with R ◯
Estimate quotients 795 ÷ 23 ≈ 800 ÷ 20 = 40 ◯

Time Testing Basic Facts
Child should do basic facts at rates of 1 per 5, 4, and 3 seconds.

45 ÷ 9 = 5

56 ÷ 7 = 8

1d)2d

4)80
4)84
4)85

1d)3d

8)160
8)168
8)171

2d)3d

40)960
42)966

2d)3d with R

50)110
43)140
34)239

Estimate Quotients
810 ÷ 42 is about 800 ÷ 40 or 20

Place Value

Reads numbers
to 1000 ◯
to 1000000 ◯

Use digits to write two million, six hundred ten thousand, four hundred three.
Is 67,270,000 greater or less than fifty million?

Fractions

Equivalent fractions
$\frac{1}{4} = \frac{\square}{8}$ ◯
Reduce to lowest terms ◯

$2 = \frac{\square}{8}$ $\quad 1\frac{3}{4} = \frac{\square}{4}$ $\quad \frac{5}{2} = 2\frac{\square}{2}$

Reduce $\frac{8}{12}$, $\frac{3}{6}$, & $\frac{12}{15}$ to lowest terms.

Others

Applies associative principle
+, x ◯
Uses distributive principle for multiplication ◯
Perform basic operations with money values ($.33 x 4) ◯
Two step addition and subtraction problems ◯
One Step multiplication problems ◯

Applies Associative Principle to +, x

(17+99) + 1 = 17 + (99+1)
= 17 + 100
= 117

(94x83) x 0 = 94 x (83x0)
= 94 x 0
= 0

Uses Distributive Principle for Multiplication

3 x (70+4) = (3x70) + (3x4)
= 210 + 12
= 222

Perform Basic Operations With Money Values

$2.47 x 5 =

Two step + and - Problems
John had $1.12 and then earned $.75 more. He then bought a model car for $.94. How much did he have left?

One Step Multiplication Problems
A hall has 25 rows. If there are 23 seats per row, what is the total number of seats?

Addition

Level 5

Time testing Basic Facts ◯
4d column ◯
All fractions ◯
All decimals ◯

Time Testing Basic Facts
The child should do basic facts as below at the rate of 1 every 3 seconds.

9	4	8	6
+5	+7	+8	+7

4d Column

3427	2473
3162	8219
248	4444
+5491	+5277

All Fractions

$\frac{6}{7} + \frac{2}{5} =$

$5\frac{1}{8} + 7\frac{2}{9} =$

All decimals

31.402 + 9.21

81.2 + 94.713 =

Subtraction

Time testing Basic Facts ◯
5d - 4d ◯
All fractions ◯
All decimals ◯

Time Testing Basic Facts
The child should do basic facts as below at the rate of 1 every 3 seconds.

9	10	8
- 5	- 7	-3

5d - 4d

47325	65431
- 8129	- 6543

All Fractions

$\frac{7}{9} - \frac{1}{2} =$

$2\frac{3}{8} - 1\frac{5}{7} =$

All decimals

84.327 - 65.42

81.4 - 6.472 =

Multiplication

Time testing Basic Facts ◯
3d x 3d ◯
Fractions ◯
Mixed Numbers ◯

Time Testing Basic Facts
The child should do basic facts as below at the rate of 1 every 3 seconds.

5	8	9	6
x6	x4	x7	x8

3d x 3d

462	834
x971	x647

Fractions

$\frac{7}{9} \times \frac{3}{4} =$

$\frac{9}{11} \times \frac{4}{15} =$

Mixed Numbers

$1\frac{5}{6} \times 4\frac{3}{4} =$

$2\frac{5}{8} \times 2\frac{3}{8} =$

Division

Time testing Basic Facts ◯
2d)4d ◯ 2d)4d with R ◯
2d)5d with R ◯
Division by Algorithm ◯
Quotients as mixed numerals
$24 \div 5 = 4\frac{4}{5}$ ◯

Time Testing Basic Facts
The child should do basic facts as below at the rate of 1 every 3 seconds.

5)35 6)36 8)24 48÷6 =

2d)4d 72)1,008
2d)4d with R 33)2473
2d)5d with R 63)43751

Division by Algorithm

$$23\overline{)450}\quad 19;\ 230;\ 220;\ 207;\ 13$$

Quotients as Mixed Numerals

$23 \div 7 = 3\frac{2}{7}$

$48 \div 5 = 9\frac{3}{5}$

Place Value

Writes numbers in powers of 10. ◯
Reads and charts decimal numbers. ◯

Writes numbers in powers of 10

3465 = 3 x 1000 + 4 x 100 + 6 x 10 + 5

Reads and charts decimal numbers

3.56 is 3 and 56 hundredths

tens	ones	tenths
3	5	6

is (35 and 6 tenths)

Fractions

Equivalent fractions in lowest terms ◯
Converts fractions to decimals ◯

Equivalent fractions in lowest terms.
Reduce $\frac{6}{15}$ to an equivalent fraction in lowest terms.

$\frac{8}{12} = \frac{\triangle}{3}$ $\frac{12}{20} = \frac{\square}{5}$

Converts fractions o decimals
Write a decimal for each of the following fractions:

a) $\frac{55}{11}$ b) $\frac{23}{10}$ c) $\frac{2}{4}$ d) $\frac{3}{8}$

Others

One step division problems ◯
Two step problems mixed operations ◯

One Step Division Problems
Bob bought 6 apples for 72 cents. How much would it cost for one apple?

Two Step Problems Mixed Operations
Tony bought 4 hot dogs at 30 cents apiece and 2 sodas at 12 cents each, how much did Tony spend?

Addition

Level 6
- Time terting Basic Facts ◯
- 5d column ◯
- All fractions ◯
- All decimals ◯

Time Testing Basic Facts
The child should do basic facts problems as below at the rate of 1 every 3 seconds.

9	6	8
+7	+5	+4

5d Column

43725	98765
3842	86421
12489	97532
342	

All Fractions

$\frac{7}{9} + \frac{5}{6} =$

$\frac{15}{16} + 1\frac{4}{9} =$

All Decimals

341.213	28.1
+271.428	+ 4.002

Multiplication Subtraction

- Time testing Basic Facts ◯
- 5d - 5d ◯
- All fractions ◯
- All decimals ◯

Time Testing Basic Facts
The child should do basic facts problems as below at the rate of 1 every 3 seconds.

12	16	13
- 4	- 9	- 8

5d - 5d

24348	84715
-17239	-69238

All Fractions

$2\frac{1}{3} - 1\frac{1}{7} =$

$\frac{5}{9} - \frac{5}{12} =$

All Decimals

18.2 - 4.713 =

82.71
-76.403

Multiplication

- Time testing Basic Facts ◯
- 3d x 3d ◯
- Fractions ◯
- Decimals ◯

Time Testing Basic Facts
The child should do basic facts problems as below at the rate of 1 every 3 seconds.

5	8	7
x5	x9	x6

3d x 3d

271	479
x184	x635

Fractions

$\frac{4}{9} \times \frac{15}{28} =$

$1\frac{3}{7} \times 2\frac{1}{5} +$

Decimals

5.42 2.08 x 1.47 =
x1.03

Division

- Time testing Basic Facts ◯
- 3d)6d with R ◯
- as fractions in lowest terms ◯
- Division by Algorithm ◯
- All fractions ◯
- All decimals ◯
- Divide to nearest hundredths ◯

Time Testing Basic Facts
The child should do basic facts problems as below at the rate of 1 every 3 seconds.

$5\overline{)20}$ $7\overline{)63}$ $8\overline{)72}$

3d)6d with R(remainder)

$144\overline{)9764}$ $452\overline{)1253}$

As Fractions in lowest Terms

$24 \div 5 = 4\frac{4}{5}$ $100 \div 7 = 14\frac{2}{7}$

All Fractions

$\frac{4}{5} + \frac{2}{3} =$, $1\frac{2}{5} + \frac{5}{8} =$

All Decimals

$.8\overline{)2.4}$ $3.1\overline{)24.11}$

Divide to nearest hundredths

$7\overline{)57.000}$ 8.142 rounded off = 8.14

Place Value

- Uses expanded notation $\frac{1}{10}, \frac{1}{10^2}, \cdots$ ◯

Uses expanded notation

$36.42 = (3 \times 10) + 6 + (4 \times \frac{1}{10}) + (2 \times \frac{1}{10^2})$

Fractions

- Converts fractions to decimals, vice-versa ◯

Converts fractions to decimals, vice-versa

Express each of the following as a decimal.

a) $\frac{9}{100}$ b) $\frac{2}{5}$ c) $9\frac{3}{10}$

Express each of the following as a fraction in lowest terms

a) .3 b) .45 c) 3.27

Others

- Ratio ◯
- Proportion ◯
- Percent ◯

Ratio
Using the smallest whole numbers possible, write the ratios for the following:

a) $1\frac{1}{2}$ to 3 b) 9 to $2\frac{1}{4}$

c) $\frac{3}{4}$ to $\frac{1}{2}$

Proportion
Which of the following proportions are true?

a) 45:15 = 1:$\frac{1}{3}$ (T)

b) 9:3 = 7:$2\frac{1}{4}$ (F)

Percent
Express 25% as a common fraction in lowest terms and as a decimal.
Express $\frac{3}{10}$ as a percent.

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

To: All Third Grade Teachers
Elementary School Principals

From: John D. Aceto, Consultant in Mathematics

Subject: Review Program for Computational Skills
(In two parts: 1) This large folded sheet
2) Review Exercises)

3rd Grade Review Part 1

This Review Package will suggest Warm up activities, short written reviews, and pages in the book for developmental activities.

Warm up Activities

Warm up activities have, as their main purpose, to develop and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other game type activities. Warm ups can help motivate and stimulate interest in mathematics, as well as keeping children skillful in Basic Facts.

The objective of the warm up activities in this package is to review all of the addition and subtraction facts. Day by day, the number of facts will be increased tying on to the child's previous knowledge and facts learned in the days before. An example is to use the child's previous knowledge and facts learned in the days before. An example is to use the child's skill of counting and knowing the number before and after a given number with knowing adding one, subtracting one, adding two. (As the children review the facts, you may want them to make their own flash cards.)

Review Activities (in accompanying material)

The written review activity could be used at any appropriate time during the math period, but should probably be used after some developmental oral and/or written activity that reviews the concepts and skills that are represented in the activity. The review activities could give you some feedback as to how well your pupils understand the material presented and what needs they have for reteaching and reinforcement.

Hard-cover Book

Your pupils, for the first time, will be using a hard-cover book for math in which they will not be able to write. Great care has to be taken to teach the pupils where to write their names, where to write the problems on the paper, and the format of the problems, 1a, b, c, (do you want them to learn to write exercises in columns, etc.?)

Lesson Sequence

The center section of this package represents a suggested lesson sequence to help establish an instructional strategy to accomplish the objectives of Learning Stages 1 and 2.

Warm Up Activities -- Some suggestions are on the back page.

1st Day

Warm up:

Counting Activities: "I'm thinking of a number, 6, -- tell me the number after, the number before, and two after."
Basic facts: "Can we add zero? 4+0, 3+0, ..."

Review Activity: Place Value

Objectives: The pupil will be able to:

1) use expanded notation to hundreds
2) identify digits in 100's, 10's, and 1's place
3) order numbers to 1000

Pages 1-7

Comments: Review the ideas of grouping by ten's and the meaning of 2 tens and 4 ones, etc. Orally extend the ideas that are presented on the pages in the book. Use the Review Exercises I as a culminating activity to the oral lesson.

2nd Day

Warm up:

"Is adding 1 like the next number? Subtracting 1 like the number before, adding 2 like two after?"
(+1, -1, +2 facts)

Review Activity: Place Value

Objectives: The pupil be able to:

1) tell how many places in a numeral
2) write numerals from written number names
3) write numerals in expanded form

Pages 40-41

Comments: This may be a good opportunity to teach how to place problems on a page for written work by completing exercises 6 and 7 and page 41. This is the first year your pupils have used a hard cover book in math; use a separate piece of paper to record their work. Use Review Exercises II as a culminating activity.

3rd Day

Warm up:

"Do we know our doubles
Review previous facts a

Review Activity:

Objectives: The pupil

1) use the commutat
2) use the number l
aids to verify a
3) identify even ar
4) respond to basic

Pages 11-14

Comments: This is an opp
concept of addition usi
counters. Constantly h
they respond to facts t
(doubles, one more, etc

6th Day

Warm up:

"Let's review all the addition facts we really know and also really learn the subtraction facts."

Review Activity:

Objectives: The pupil will be able to:

1) write basic subtraction facts corresponding to the addition facts he has learned
2) write and solve number sentences based on story problems using addition and subtraction

Pages 18-21, 26, 22, 15, 23

Comments: Explore Extra Practice pages 294 and 295 as oral and written activities. The solving of story problems should be begun. Use time to analyze word problems and writing appropriate number sentences. Work with story problems should be ongoing almost daily throughout the year -- two or three problems. Use VI.

7th Day

Warm up:

"All the combinations adding to 10 are very important, 3+7, 4+6, ... If we know these then we know 8+3 because it's one more than 8+2. Are there others?"

Review Activity:

Objectives: The pupil will be able to:

1) write and solve number sentences based on story problems using addition and subtraction
2) recognize $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ as one of 2, 3, or 4 equal parts.

Pages 25, 27, 45, 54, 55, 56

Comments: Continue work on problem solving. Ask pupils to tell a story about a number sentence, then solve. You could have "problems of the day" by asking pupils to make up problems for the class to solve. Pupils may not have had fractional notation. They should be able to find "one-half" but not $\frac{1}{2}$. The notation is introduced on page 56. Use VII.

8th Day

Warm up:

"Is adding 9 almost li
counting by 10's?" (F
starting with any numb
add 9.)

Review Activity:

Objectives: The pupil

1) add and subtrac
2d-2d to 3d-2d
renaming in 10'
2) add 1d column

Pages 31, 34-35, 46-49

Comments: 2 days (8th-9
Stress adding (subtrac
tens to tens, etc. .T
basic facts. Use VIII

11th Day

Warm up:

"If we know 2+3 and 8-2, then we could know 20+30 and 800-200, because we can add and subtract 10's and 100's."

Review Activity:

Objectives: The pupils will be able to:

1) convert coins into different combinations
2) tell time to the five minutes

Pages 57-59

Comments: After doing some oral developmental work on time and money, Extra Practice page 298 has some good review. Continue verbal problems and keeping pupils skillful in the material covered. Use XI.

12th Day

Warm up:

"Could you add 3 numbers in your head? Raise your hand if you can tell me what 5+3+2 is?"

Review Activity:

Objectives: The pupil is able to solve a mixed set of problems.

Comments: Discovering More About Numbers, pages 324-325 is a good representation of mixed practice that can be discussed for board work and seat work. Use XII.

13th Day

Warm up:

"Are we keeping skillf
about the harder addit

Review Activity:

Objectives: The pupil

1) solve mixed pro
2) respond to time

Comments: Experiences i
Paul Trafton, which yc
excellent material on
could be presented ora

3rd Grade Lesson Sequence

3+3, ..., 9+9?"
es.

able to:
ici.. of addition
ther manipulative
facts
mbers
n facts

to dramatize the
r lines and/or
ils' confidence when
"really" know.
Review Exercises III.

4th Day

Warm up:

"If 4+4 is 8, then what is 4+5? Oh, it's just one more!" Review doubles and their "one more."

Review Activity:

Objectives: The pupil will be able to:

1) write basic facts by completing frames in various positions
2) tell how he knows (verifies) the answers to basic facts
3) use vocabulary properly

Pages 11-14

Comments: Explore the use of the Extra Practice page 294 orally and as written work.

Use Review Exercises IV.

5th Day

Warm up:

"Did you know we now have reviewed 47 addition facts?" (+0, +1, +2, doubles, 1 more than doubles)

Review Activity:

Objectives: The pupil will be able to:

1) write a related addition sentence from an addition sentence
2) write a related subtraction sentence from an addition sentence
3) write a related addition sentence from a subtraction sentence

Pages 18-21, 26

Comments: For the pupil who has difficulty learning subtraction facts but is more confident with addition facts - the use of "families" of facts can be helpful. The child can be more successful if he "ties" on to the addition facts he knows when he subtracts.
Discovering More About Numbers, pages 321-322 can add to extending some ideas the pupils had covered in 2nd grade. Use V.

g 10, which is like
counting by 10's,
16, 26, ...; add 10;

e able to:
d to 3d+3d;
renaming and
n

eview place value.
nes to ones first,
good practice for

9th Day

Warm up:

"The only facts that we really haven't studied are 5+7, 5+8, 4+8, 6+3, 8+6, but you know those already, don't you?"

Review Activity:

Objectives: The pupils will be able to:

1) add and subtract: 2d+2d to 3d+3d; 2d-2d to 3d-2d without renaming and renaming in 10's column
2) add 1d column

Pages 31, 34-35, 46-49

Comments: Extra Practice pages 296-297. Some could be used for board work and some could be used for seatwork. Use IX.

10th Day

Warm up:

"Let's continue the review of the addition and subtraction facts we know."

Review Activity:

Objectives: The pupils will be able to:

1) use >, <, = to order whole numbers
2) use his knowledge of place value
3) demonstrate a mastery of basic addition and subtraction facts in timed tests
4) write and solve verbal problems

Pages: 1-7, 40-41 Basic Facts Sheets

Comments: This would be a good time to review the use of >, <, = and the idea of place value that have already been used. Continue work on verbal problems. The pupils should be gaining in speed and accuracy with Basic Facts. Periodic use of the District's Basic Facts sheets could keep pupils skillful. Before using any of the Basic Facts sheets, you could review those facts to be tested with the appropriate "flash cards." Use X.

our basic facts? How
cts?"

e able to:

of basic facts

very, level C by
available, has some
-9, parts of which
the class. Use XIII.

14th Day

Warm up:

"Do we really know the subtraction facts?"

Review Activity:

Objective:

Review.

Comments: Review and enrich. Continue work on verbal problems and keeping pupils skillful in computation. You could challenge your pupils on how much they remember about multiplication and division as they learned it in 2nd grade. Pages 168-174 is a good guide to the material they might have covered. Use XIV.

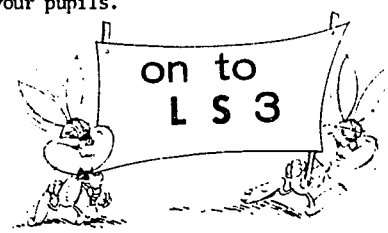
15th Day

District Test:

During the 5th week of school you will be asked to administer a District test which will be in standardized test format. The results will be analyzed on a district-wide basis giving us diagnostic capabilities to better provide for individual needs of our pupils.

For all intents and purposes your pupils should be ready to start Learning Stage 3. You may wish to use all or parts of the Learning Stage Test 2 and the book exams to learn specific need of pupils for review purposes.

Please begin Learning Stage 3. After the District test you may wish to review the items most missed by your pupils.



WARM-UP ACTIVITIES

The following is a list of activities that could be used for the Warm Up at the beginning of the math period.

Flash Card Use

Only the flash cards with the "facts of the day" and the previously learned facts should be used in order to reinforce the Basic Facts learned. If you wish to have all children respond to a given card, say, "Everybody think of the answer, when I raise my left hand, everybody answers quietly." (or all could write answers)

Around the World

Two children compete with each other. The pupil who responds to the flash card first challenges the next child. Object is to get around the classroom.

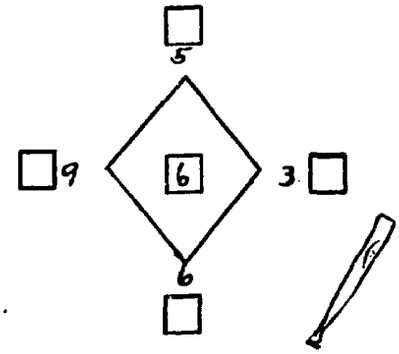
Variation: "Get to the back": A child in each row challenges each child in his row. "Flash" a card to row 1, another card to row 2, etc. Then back to row 1, 2, ... in rapid succession.

I'm Thinking of a Number

Each row could be a team. Row 1 vs Row 2; Row 3 vs Row 4, etc. One from each team goes to the board and writes the answer to "I'm thinking that n+5=10, what is n?" Award points to team of winner. Then, next players to the board.

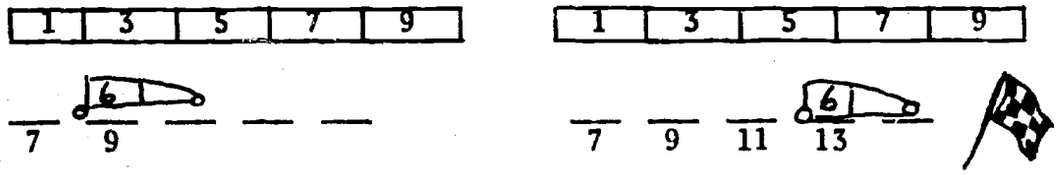
Baseball

Each row a team. Add (subtract) to numbers on bases. Add 6 to each number. Each "batter" of each team says or writes answers. Award points.



Dragstrip

Each row a team. Two "strips"
A member from each team writes answers. First one done gets point.



Team vs Teacher

Continuous problems

Quizmo

Other favorite games and activities

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

3rd Grade Review Part 2

To: All Third Grade Teachers
Elementary School Principals

From: John D. Aceto, Consultant in Mathematics

Subject: Review Program for Computational Skills

The Mathematics Curriculum Guide for level 3 suggests that approximately 17 days be devoted to learning stages I and II. Since these two chapters encompass 61 pages, it would appear at first glance that this schedule is unrealistic, until one recognizes that these two learning stages are simply a review of level two material.

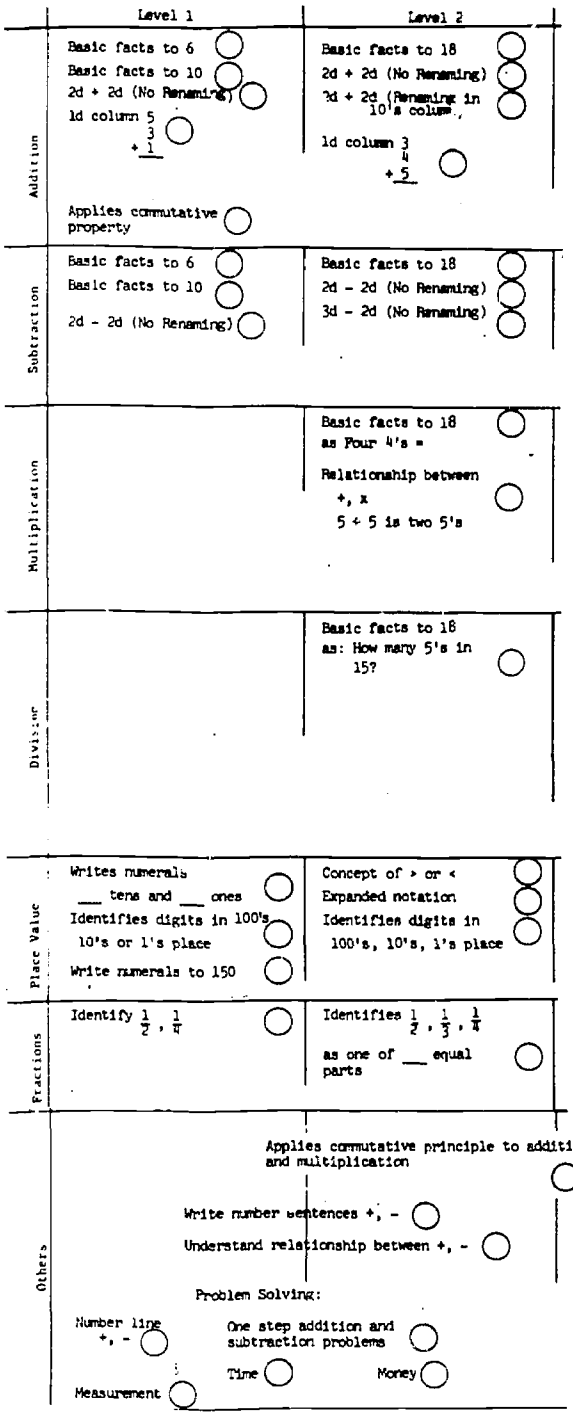
In order to complete this material in the recommended number of days, it is important to identify the particular mathematicsl objectives in these pages and to concentrate on them rather than a linear page-by-page progression through the book. This package consists of two parts: 1) a listing of specific second level objectives which should be reviewed during the first three weeks of the third grade, and 2) a set of exercises which test these objectives. It is suggested that this list of objectives be used to plan your arithmetic lessons during these first three weeks of school. At the end of this review of second grade objectives, a review test covering these objectives will be administered.

This material should be used during school weeks 2, 3, and 4. One review exercise should be given each day during this time. Either copy the exercises on the chalkboard or supply ditto sheets from a thermofax master made from the contents of this package. Have the pupils correct their solutions during class, discussing exercises causing trouble. Continue with your usual mathematics lesson using the suggested pages in the text as a guide to review these objectives. Try to identify deficiencies and clear them up.

During the fifth week you will be asked to give a test which will be in the standardized test format. The results will be analyzed on a district-wide basis giving us diagnostic capabilities to better provide for individual needs of our pupils.

After you have finished this review, you may wish to spend a day or two finishing up learning stages I and II. However, your students should be well prepared to plunge into learning stage III except for additional work with reading story problems, writing and solving number sentences for them. This skill should be covered throughout the year on an ongoing basis.

If I can render any assistance, please do not hesitate to call.



The chart at the left represents the exposure of the Computation component of our District's mathematics program for grades 1 and 2.

On the basis of the standardized mathematics test results and the second grade end-of-the-year test results your children are coming to you better prepared than were children a few years ago.

Last year's extremely good test scores at the 3rd grade level is a testimony to the outstanding job being done in math in the District. It does take constant effort and inspired teaching: you are to be commended.

Time Division

Many teachers have found the time division at the right to be very effective.

Warm up is intended to stimulate pupils and maintain their skills in Basic Facts.

Development of Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering, and exploring mathematics; practicing and refining understanding.

Review serves as instructional closure, maintaining problem solving skill, remediating, and enriching.

Math Class
Time Division

WARM UP
Developmental Activities and Practice
Review
Review Exercises

Basic Facts

To analyze facts needing practice, pupils could check (√) those they know on an addition and subtraction table.

They could also make their own set of flash cards as they 'really' learn each fact.

Addition

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Subtraction

-	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

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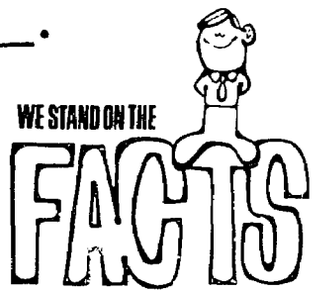
I. Review Exercises

1) 8, 9, ___, 11, ___, ___. 2) ___, 15, ___, ___.

3)
5	7	4 + 0 = ___	2	17	0
+0	+0		+0	+ 0	+6



4) Using digits only, write numerals that mean:
a. 3 tens, 5 ones ☐ b. 8 tens, 3 ones ☐

5) 87 means ☐ tens ☐ ones

6) Which digit is in the tens' place in 963? ☐

7) Circle the smaller number in each pair:

a. 56, 46 b. 16, 61 c. 49, 47

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II. Review Exercises

1)
6	8	9	7	8	1
+1	+1	+2	+1	-1	-1

2) 347 means ☐ hundreds ☐ tens ☐ ones

3) a. 720 means ☐ hundreds ☐ tens ☐ ones

b. 720 means → ☐ tens ☐ ones

4) 146 = 100 + ☐ + 6

5) five hundred seventy-two ☐

6) 273 = 200 + ☐ + 3

7) How many places are in the numeral 463? ☐

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III. Review Exercises

1)

4	6	3	7	9	5
+4	+6	+3	+1	+9	+5

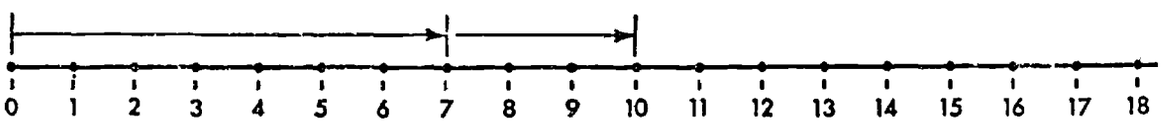
2) 9 + 4 = ☐ + 9

3) 9 + 2 = ☐

4) 7 + 0 = ☐

5) 6 + 2 = ☐

6) Circle the even numbers: 3, 4, 21, 5, 32, 16



7) Write the addition sentence that tells about these two moves along the number line.

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IV. Review Exercises

1)

4	6	8	7	5	3
+5	+7	+9	+8	+6	+4

2) 5 + ☐ = 10

3) ☐ + 9 = 11

4) ☐ + 8 = 8

5) 3 + ☐ = 5 + 3

6) 5 + ☐ = 9

7) 8 + ☐ = 17

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V. Review Exercises

1)

6	8	5	8	5	6
+0	+1	-1	+8	+6	+2

2) 6 + 7 = ☐ 7 + 6 = ☐ 13 - 6 = ☐ 13 - 7 = ☐

3) 7 + 8 = ☐ 8 + 7 = ☐ 15 - 8 = ☐ 15 - 7 = ☐

4) 9 + ☐ = 11 ☐ + 9 = 11 11 - 9 = ☐ 11 - ☐ = 9

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VI. Review Exercises

1)

6	8	6	7	8	5
+1	+2	+6	+8	+1	+6

2) 10 - 5 = ☐ 3) 9 - 4 = ☐ 4) 8 - 6 = ☐

5) 7 - 7 = ☐ 6) 16 - 8 = ☐ 7) 12 - 6 = ☐

8) Joe caught 9 fish. He threw 5 of them back because they were too small. How many fish did he have then?

_____

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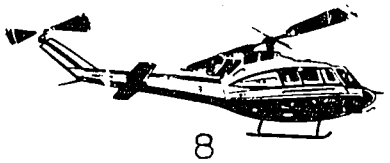


VII. Review Exercises

1)						
	2	6	3	8	7	9
	+8	+4	+7	+3	+4	+1

2) Six boys were playing ball. Four more boys came to play. Then how many boys were playing ball?

_____

Put a ring around the fraction which shows how much of the figure is shaded.

3) 

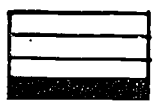
$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$

4) 

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$

5) 

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$

6) 

$\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$

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Racine, Wisconsin

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VIII. Review Exercises

1)						
	7	7	3	3	10	9
	+10	+9	+10	+9	+ 6	+6

2) 42	3) 63	4) 147	5) 67
+37	+26	+352	+41
6) 79	7) 98	8) 87	9) 968
-65	-47	-44	-534

10) 6 + 6 + 3 = ☐

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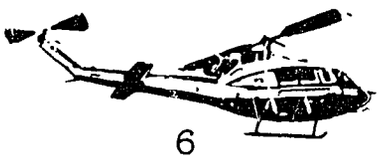
NAME_____ SCORE_____

IX. Review Exercises



1) $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$ $\begin{array}{r} 7 \\ +5 \\ \hline \end{array}$ $\begin{array}{r} 6 \\ +3 \\ \hline \end{array}$ $\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$ $\begin{array}{r} 13 \\ -\ 5 \\ \hline \end{array}$ $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$

2) $\begin{array}{r} 92 \\ +93 \\ \hline \end{array}$

3) $\begin{array}{r} 400 \\ +506 \\ \hline \end{array}$

4) $\begin{array}{r} 503 \\ +562 \\ \hline \end{array}$

5) $\begin{array}{r} 988 \\ -408 \\ \hline \end{array}$

6) $\begin{array}{r} 676 \\ -216 \\ \hline \end{array}$

7) $\begin{array}{r} 82 \\ +65 \\ \hline \end{array}$

8) $\begin{array}{r} 952 \\ - \\ \hline 850 \end{array}$

9) $\begin{array}{r} 118 \\ -\ 56 \\ \hline \end{array}$

NAME_____ SCORE_____

X. Review Exercises

1) $\begin{array}{r} 7 \\ +5 \\ \hline \end{array}$ $\begin{array}{r} 12 \\ -\ 5 \\ \hline \end{array}$ $\begin{array}{r} 18 \\ -\ 9 \\ \hline \end{array}$ $\begin{array}{r} 13 \\ -\ 8 \\ \hline \end{array}$ $\begin{array}{r} 10 \\ -\ 8 \\ \hline \end{array}$ $\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$

Use $>$, $<$ or = to make the sentence true.

2) $3 \square 5$

3) $18 \square 11$

4) $4 + 6 \square 6 + 4$

5) $20 + 30 \square 60$

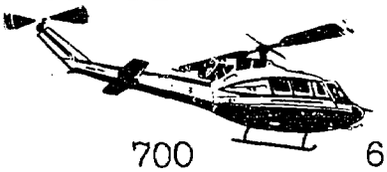
6) $19 + 0 \square 19$

7) $221 \square 22$

8) $4 + 7 \square 4 + 8$

9) $9 \square 4 + 3 + 2$

NAME _____ SCORE _____



XI. Review Exercises

1)

50	800	40	700	60	80
+50	-200	+40	+100	-50	-70

2) A dime and a penny is the same as _____ pennies.

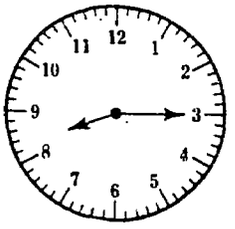
3) A quarter and a dime is the same as _____ nickels.

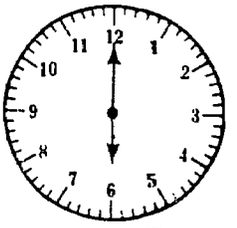
4) 4 nickels are the same as _____ dimes.

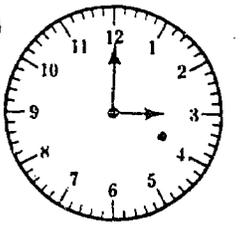
5) 2 pennies and 3 dimes are the same as _____ pennies.

What times are shown?

6)  _____

7)  _____

8)  _____

9)  _____

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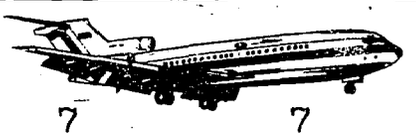
NAME _____ SCORE _____



XII. Review Exercises

1)

2	8	3	7	7	20
4	2	2	3	4	30
+6	+1	+6	+6	+5	+50

2) $\begin{array}{r} 96 \\ +33 \\ \hline \end{array}$

3) $\begin{array}{r} 157 \\ -\ 97 \\ \hline \end{array}$

4) $\begin{array}{r} 90 \\ +83 \\ \hline \end{array}$

5) $8 + \square = 12$

6) $16 - \square = 9$

7) $8 + 1 + 7 = \square$

8) Circle the largest number.

$\frac{1}{2}$, 2, 20

9) Joe has 110 pebbles. How many piles of ten can he make?

$\square$

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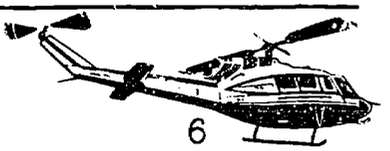
XIII. Review Exercises



1)

7	5	8	6	7	8
+4	+8	+9	+8	+5	+7

2) Which is greater 64 or 61? ☐

3) 10 - 3 = ☐

4) 2 + 2 = ☐

5) Mary has 42 sticks. How many bundles of ten sticks can she make? ☐

6) 2 + ☐ = 5 + 2

7) 6 + (2 + 7) = ☐

8) 235 means ___ hundreds, _____ tens, _____ ones.

9) 476 = 400 + ☐ + 6

10)
906
-500

11) Jim bought 12 cupcakes. He gave 4 of them to his friends. How many did he have left? ☐

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XIV. Review Exercises

1)

13	14	16	13	15	12
- 7	- 5	- 9	- 5	- 8	- 5

2) Three 5's = ☐

3) 3 + 3 + 3 + 3 is ☐ 3's

4) How many 5's in 15? ☐

5) Four 3's = ☐

6) How many 2's in 8? ☐

7) Two 9's = ☐

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ANSWERS REVIEW EXERCISES — 3rd Grade

I. 1. 10, 12, 13 2. 14, 16, 17 3. 5, 7, 4, 2, 17, 6
4. a. 35 b. 83 5. 8, 7 6. 6
7. a. 46 b. 16 c. 47

II. 1. 7, 9, 11, 8, 7, 0 2. 3, 4, 7 3. a. 7, 2, 0 b. 72, 0
4. 40 5. 572 6. 70 7. 3

III. 1. 8, 12, 6, 8, 18, 10 2. 4 3. 11 4. 7 5. 8
6. 4, 32, 16 7. 7+3=10

IV. 1. 9, 13, 17, 15, 11, 7 2. 5 3. 2 4. 0
5. 5 6. 4 7. 9

V. 1. 6, 9, 4, 16, 11, 8 2. 13, 13, 7, 6
3. 15, 15, 7, 8 4. 2, 2, 2, 2

VI. 1. 7, 10, 12, 15, 9, 11 2. 5 3. 5 4. 2
5. 0 6. 8 7. 6 8. 4

VII. 1. 10, 10, 10, 11, 11, 10 2. 10 3. $\frac{1}{2}$ 4. $\frac{1}{3}$
5. $\frac{1}{2}$ 6. $\frac{1}{4}$

VIII. 1. 17, 16, 13, 12, 16, 15 2. 79 3. 89 4. 499
5. 108 6. 14 7. 51 8. 43 9. 434 10. 15

IX. 1. 13, 12, 9, 14, 8, 3 2. 185 3. 906 4. 1065
5. 580 6. 460 7. 147 8. 102 9. 62

X. 1. 12, 7, 9, 5, 2, 2 2. < 3. > 4. =
5. < 6. = 7. > 8. < 9. =

XI. 1. 100, 600, 80, 800, 10, 10 2. 11 3. 7
4. 2 5. 32 6. 7:30 7. 8:15 8. 6:00 9. 3:00

XII. 1. 12, 11, 11, 16, 16, 100 2. 129 3. 60 4. 173
5. 4 6. 7 7. 16 8. 20 9. 11

XIII. 1. 11, 13, 17, 14, 12, 15 2. 64 3. 7 4. 4
5. 4 6. 5 7. 15 8. 2,3,5 9. 70
10. 406 11. 8

XIV. 1. 6, 9, 7, 8, 7, 7 2. 15 3. 4 4. 3
5. 12 6. 4 7. 18

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

4th Grade Review

To: All Fourth Grade Teachers
Elementary School Principals

From: John D. Aceto, Consultant in Mathematics

Subject: Review Program for Mathematical Skills

We recognize that our pupils need a reminder of the Arithmetic skills learned in the previous year and practice to maintain those skills that were developed. The contents of this package has the primary objective of suggesting a planned sequential review of the skills that should have been achieved by your pupils last year.

This material should be used during school weeks 2, 3, and 4. One review exercise should be given each day during this time. Either copy the exercises on the chalkboard or supply ditto sheets from a thermofax master made from the contents of this package. Have the pupils correct their solutions during class, discussing exercises causing trouble. Continue with your usual mathematics lessons, but use these reviews as a guide assigning extra practice.

During the fifth week you will be asked to give a test which will be in the standardized test format and will be machine scored. The results will be analyzed on a district-wide basis with feedback for your class and each child giving us diagnostic capabilities to better provide for individual needs of our pupils.

If I can render any assistance, please do not hesitate to call.

ANSWERS REVIEW EXERCISES — 4th Grade

I. 1. 3, 6, 7, 8, 8, 9, 10, 6, 7, 11 2. 2 3. 6 4. 9
5. 84 6. 1198 7. 689

II. 1. 10, 8, 11, 14, 16, 6, 12, 15, 7, 13 2. 6 3. 9
4. 7 5. 988 6. 997 7. 1179

III. 1. 10, 10, 10, 11, 11, 5, 6, 9, 7, 7 2. 447 3. 90
4. 1, 0, 5, 9 5. 6 6. 493

IV. 1. 16, 15, 18, 17, 16, 14, 12, 4, 5, 8 2. 4, 43
3. 7, 75 4. 3, 13 5. 5, 15 6. 40, 11

V. 1. 12, 14, 13, 9, 6, 15, 8, 8, 3, 3 2. 62 3. 87
4. 83 5. 785 6. 855 7. 963

VI. 1. 5, 9, 9, 5, 5, 5, 16, 11, 10, 13 2. 15 3. 38
4. 55 5. 519 6. 233 7. 335

VII. 1. 18, 11, 15, 14, 12, 100, 1300, 90 2. 880 3. 917
4. 707 5. 142 6. 107 7. 262

VIII. 1. 8, 4, 9, 4, 11, 15, 14, 19 2. 66 3. 2220
4. 553 5. 106

IX. 1. 25, 10, 12, 12, 12, 12, 15, 18 2. 20 3. 60
4. 24 5. 1200 6. 240 7. 18

X. 1. 6, 12, 10, 20, 28, 27, 3, 3 2. 7, 7, 7
3. 3 4. 2 5. 5 6. 5 7. 6

XI. 1. 11, 7, 16, 15, 9, 11, 7, 30, 2 2. 6, 200, 5, 205
3. 10, 150, 160 4. 126 5. 1869

XII. 1. 7, 10, 18, 14, 7, 12, 16, 24 2. 30, 1, 31
3. 11 4. 21 5. 22 6. 32

XIII. 1. 12, 17, 12, 11, 15, 13 2. $\frac{1}{6}$ 3. $\frac{3}{8}$
4. $\frac{1}{4}$ 5. $\frac{2}{3}(\frac{4}{6})$ 6. $\frac{1}{8}$ 7. $\frac{2}{6}$ 8. $\frac{3}{6}$
9. < 10. < 11. =

XIV. 1. 8, 7, 9, 5, 8, 5, 9, 9 2. 58 3. 96
4. 209 5. 5 6. 12 7. 2
8. 13 9. 6.94

4th Grade Review

A Drill and Practice Format

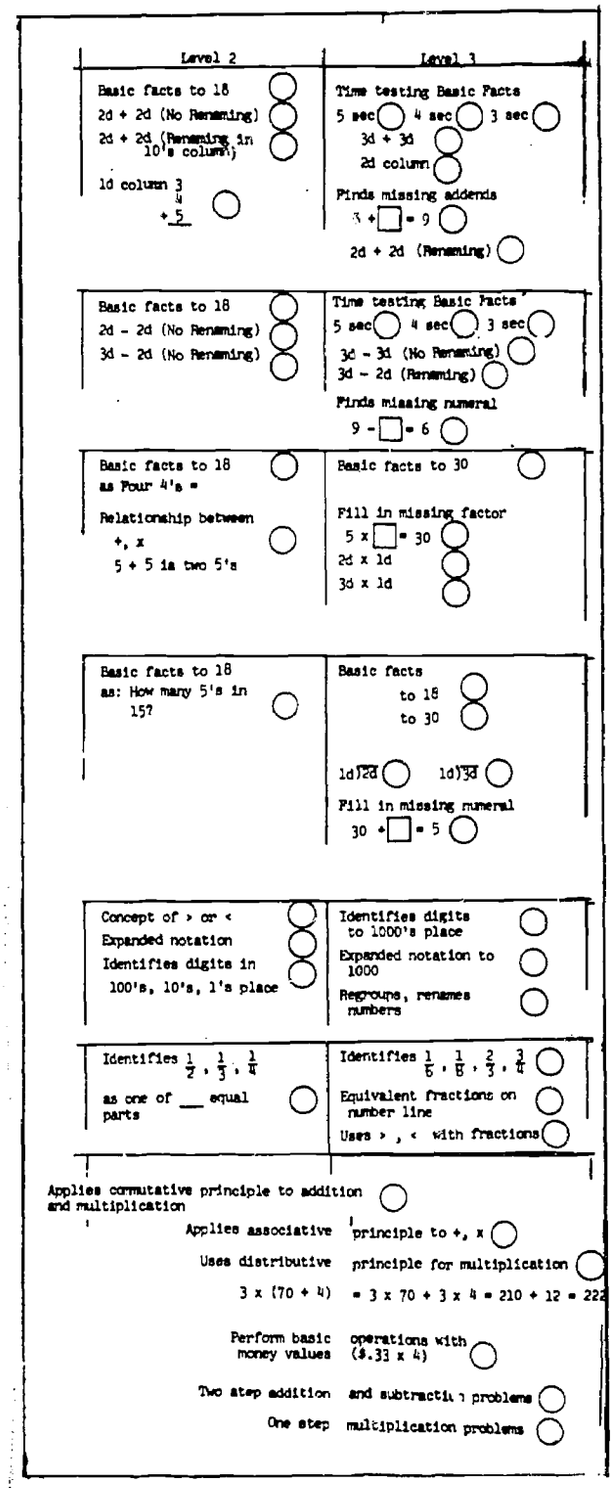
This is a format that could be used as drill and practice for basic facts. The directions to be issued would be to add, or multiply, row one by the specified number.

	3	5	7	6	0	1	2	8	10	4	9	100
+3	6	8	10	9	3	4	5	11	13	7	12	103
+9	12	14	16	15	9	10	11	17	19	13	18	109
X2	6	10	14	12	0	2	4	16	20	8	18	200

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	8	2	10	4	9	100



The chart at the left represents the exposure of the Computation component of our District's mathematics program for grades 2 and 3.

On the basis of the standardized mathematics test results and the District's testing program your pupils are coming to you better prepared than were pupils a few years ago. Many of your pupils will have mastered the content of the first two chapters in the fourth grade book. This could give you an opportunity to insure knowledge of the topics in greater depth, polish skills and provide interesting enrichment.

Last year's fine test scores at the 5th grade level is a testimony to the outstanding job being done in math at the fourth grade level. It does take consistent effort and inspired teaching: you are to be commended.

Time Division

Many teachers have found the time division at the right to be very effective.

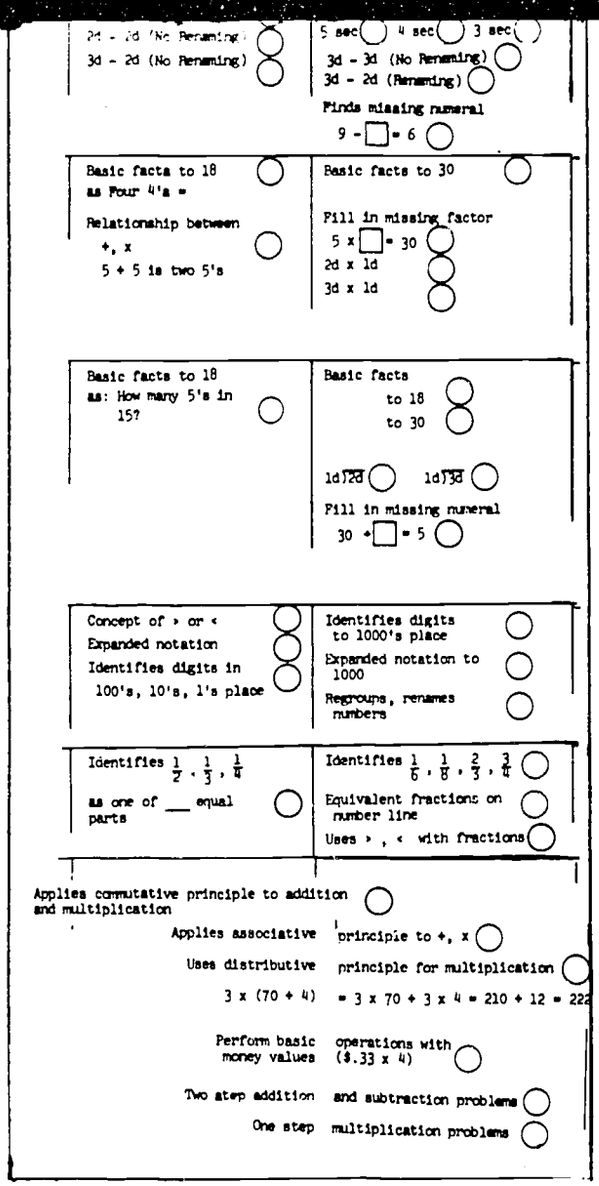
Math Class Time Division

- Warm Up
- Developmental Activities and Practice
- Review
- Review Exercises

Warm Up is intended to stimulate pupils and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other game type activities.

Developmental Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.



grade book. This could give you an opportunity to insure knowledge of the topics in greater depth, polish skills and provide interesting enrichment.

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Developmental Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Addition

Basic Facts

To analyze facts needing practice, pupils could check (✓) those they know on an addition and multiplication table. They could also make their own set of flash cards as they 'really' learn each fact.

×	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Multiplication

1st Day

Warm up:
"Within the next few days we will review the addition and subtraction facts at the beginning of each Math period. Let's see how well you know how to add 0,1,2,3 and subtract 1? (See Warm-Up Activities)
Note: Use +1, +2, +3, -1 facts in Activities.

Review:
Objectives: The pupil will be able to:
1) Add 2d +2d, 3d + 3d, no renaming
2) Write basic facts by completing frames in various positions

Comments: Problem 1 in each Review Exercise (below) will contain basic facts that you will have used in your Warm Up. Urge pupils to complete those quickly, to develop speed and accuracy. Use Review Exercises I as a culminating activity.

2nd Day

Warm up:
"Today we will not only use those easy facts in our warm up, but we will use the doubles and one more than the doubles. I know you know 5+5, then 5+6 is just one more. 7+7, 7+8, etc."

Review:
Objectives: The pupil will be able to:
1) Complete addition fact frames
2) Add 3d + 3d with no renaming

Comments: Review Exercises I and II are problems that extend basic facts. During these first weeks you may consider use of the District's Basic Facts sheets to keep pupils skillful. Before using any sheets, you could review those facts tested with appropriate "flash cards." Use Review Exercises II as a culminating activity.

cut-to make thermofax master

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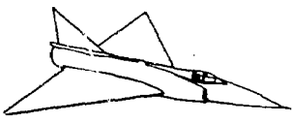

I. Review Exercises

1.

3	5	6	6	5	7	9	4	6	8
+0	+1	+1	+2	+3	+2	+1	+2	+1	+3

2. 5 + ☐ = 7

3. ☐ + 3 = 9

4. ☐ + 2 = 11

5. 63 + 21

6. 985 + 213

7. 318 + 371

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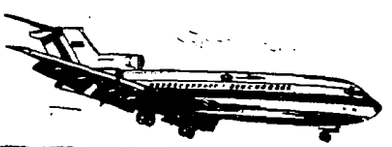

Review Exercises

1) Add 2d + 2d, 3d + 3d, no renaming
2) Write basic facts by completing frames in various positions

Comments: Problem 1 in each Review Exercise (below) will contain basic facts that you will have used in your Warm Up. Urge pupils to complete those quickly, to develop speed and accuracy. Use Review Exercises I as a culminating activity.

1) Complete addition fact frames
2) Add 3d + 3d with no renaming

Comments: Review Exercises I and II are problems that extend basic facts. During these first weeks you may consider use of the District's Basic Facts sheets to keep pupils skillful. Before using any sheets, you could review those facts tested with appropriate "flash cards." Use Review Exercises II as a culminating activity.

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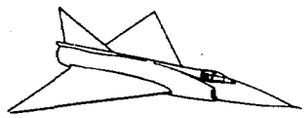

I. Review Exercises

1.

3	5	6	6	5	7	9	4	6	8
+0	+1	+1	+2	+3	+2	+1	+2	+1	+3

2. 5 + ☐ = 7

3. ☐ + 3 = 9

4. ☐ + 2 = 11

5. 63 + 21

6. 985 + 213

7. 318 + 371

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II. Review Exercises

1.

5	4	6	7	8	3	6	7	4	7
+5	+4	+5	+7	+8	+3	+6	+8	+3	+6

2. 5 + ☐ = 11

3. ☐ + 8 = 17

4. ☐ + 6 = 13

5. 325 + 663

6. 732 + 265

7. 534 + 645

School District No. 1
ine, Wisconsin

3rd Day

Warm up:
"The 10s combinations are important: 6+4, 7+3, etc. If we really know those, then 8+3 is just one more than 8+2. As we keep getting better with addition facts, I'm going to be adding subtraction facts to the stack of flash cards of facts we know."

Review:
Objectives: The pupil will be able to:
1) Use expanded notation
2) Identify digits in 1000's, 100's, 10's, 1's place

Comments: A short review of Place Value will give you an indication of how much reinforcement is needed as you conduct the developmental phase of your class lessons in the coming days. Use III.

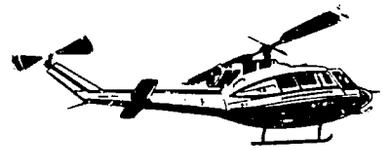
4th Day

Warm up:
"Adding 10 is like counting by 10s, adding 9 is just one less than adding 10. Which subtraction facts should be added to our stack?"

Review:
Objectives: The pupil will be able to:
1) Rename numbers to tens and ones places.

Comments: Review the renaming process as readiness for addition and subtraction with renaming. Explore using Extra Practice pages in the back of the math book. Consider page 296 as a possibility for oral and written work before or after using Review Exercise IV.

Name _____ Score _____



III. Review Exercises

1.

6	8	3	8	5	10	12	18	13	15
+ 4	+ 2	+ 7	+ 3	+ 6	- 5	- 6	- 9	- 6	- 8

2. 400 + 40 + 7 = ☐

3. 492 = 400 + ☐ + 2

4. 1059 means ___ thousand, ___ hundreds, ___ tens, ___ ones.

5. What numeral is in the hundreds place in 9637? ☐

6. 4 hundreds, 9 tens, 3 ones written as a numeral is ☐

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Name _____ Score _____

IV. Review Exercises

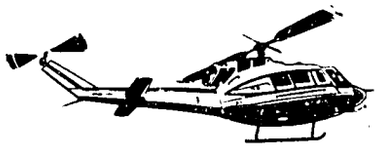
2) Identify digits in 1000's, 100's, 10's, 1's place

Comments: A short review of Place Value will give you an indication of how much reinforcement is needed as you conduct the developmental phase of your class lessons in the coming days. Use III.

1) Rename numbers to tens and ones places.

Comments: Review the renaming process as readiness for addition and subtraction with renaming. Explore using Extra Practice pages in the back of the math book. Consider page 296 as a possibility for oral and written work before or after using Review Exercise IV.

Name _____ Score _____



III. Review Exercises

1.

6	8	3	8	5	10	12	18	13	15
+ 4	+ 2	+ 7	+ 3	+ 6	- 5	- 6	- 9	- 6	- 8

2. 400 + 40 + 7 = ☐

3. 492 = 400 + ☐ + 2

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5. What numeral is in the hundreds place in 9637? ☐

6. 4 hundreds, 9 tens, 3 ones written as a numeral is ☐

Unified School District No. 1
Racine, Wisconsin

Name _____ Score _____

IV. Review Exercises

1.

10	9	8	8	7	5	9	6	9	17
+ 6	+ 6	+10	+ 9	+ 9	+ 9	+ 3	- 2	- 4	- 9

2. 3 tens + 13 ones = ☐ tens + 3 ones or ☐

3. 6 tens + 15 ones = ☐ tens + 5 ones or ☐

4. [43] 4 tens, ☐ ones or 3 tens, ☐ ones

5. [357] 3 hundreds, ☐ tens, 7 ones or 2 hundreds, ☐ tens, 7 ones.

6. [241] 200 + ☐ + 1 or 200 + 30 + ☐

Unified School District No. 1
Racine, Wisconsin

5th Day

Warm up:

"Do you have a way to remember 5+7, 5+8, 6+3, 8+6? How about subtraction facts like 12-9? Do the addition facts you really know help you remember the subtraction facts?"

Review Activity:

Objectives: The pupil will be able to:
1) Add 2d + 2d, 3d + 3d with renaming.

Comments: Addition with renaming is something your pupils have worked on hard and long in 3rd grade. The challenge now is to maintain proficiency and to constantly work on the "why" and develop skill. Use V.

6th Day

Warm up:

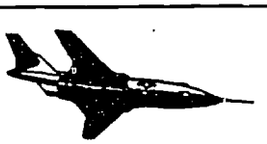
"Which facts are giving us trouble? Should we use only those facts that we have to work on in our Warm Up activity?"

Review Activity:

Objectives: The pupil will be able to:
1) Subtract 2d-2d, 3d-3d with renaming.

Comments: Subtraction with renaming has to constantly be reinforced. Use VI.

Name_____ Score_____



V. Review Exercises

1.										
	5	6	5	6	15	7	15	5	8	12
	+ 7	+ 8	+ 8	+ 3	- 9	+ 8	- 7	+ 3	- 5	- 9

2.	3.	4.
37	18	48
+ 25	+ 69	+ 35

5.	6.	7.
429	547	268
+ 356	+ 308	+ 695

Unified School District No. 1
Racine, Wisconsin

Name_____ Score_____

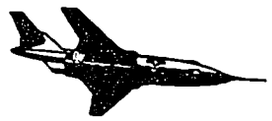
VI. Review Exercises

1.										
	12	12	17	11	14	13	9	8	6	4

your pupils have worked on hard and long in 3rd grade. The challenge now is to maintain proficiency and to constantly work on the "why" and develop skill. Use V.

constantly be reinforced. Use VI.

Name_____ Score_____



V. Review Exercises

1.

5	6	5	6	15	7	15	5	8	12
+ 7	+ 8	+ 8	+ 3	- 9	+ 8	- 7	+ 3	- 5	- 9

2. 37 + 25

3. 18 + 69

4. 48 + 35

5. 429 + 356

6. 547 + 308

7. 268 + 695

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VI. Review Exercises

1.

12	12	17	11	14	13	9	8	6	4
- 7	- 3	- 8	- 6	- 9	- 8	+ 7	+ 3	+ 4	+ 9

2. 39 - 24

3. 55 - 17

4. 90 - 35

5. 886 - 367

6. 731 - 498

7. 603 - 268

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cine, Wisconsin

7th Day

Warm up:

"We will continue to use the tough facts. Remember, if we know 2+3 and 8-2, then we would know 20+30 and 800-200 because we can add and subtract 10s and 100s!"

Review Activity:

Objectives: The pupil will be able to:

1) Add and subtract: 3d+2d to 3d+3d; 3d-3d with renaming

Comments: Extra Practice page 297 has possibilities for oral and board work and some written challenge. Use VII as a culminating activity.

8th Day

Warm up:

"Could you add 3 numbers in your head? Raise your hand if you can tell me what 6 + 3 + 8 is?"

Review Activity:

Objectives: The pupil will be able to:

1) Add 2d, 3d column
2) Write and solve verbal problems

Comments: In the Warm Up it is suggested to utilize "mental" arithmetic. One way to challenge higher ability children is to ask them to solve problems in their "head." Verbal problems appear for the first time in this Review. Verbal problems should be a part of almost every daily lesson. Use VIII.

Name_____ Score_____

VII. Review Exercises

1. $\begin{array}{r} 9 \\ +\ 9 \end{array}$ $\begin{array}{r} 6 \\ +\ 5 \end{array}$ $\begin{array}{r} 9 \\ +\ 6 \end{array}$ $\begin{array}{r} 6 \\ +\ 8 \end{array}$ $\begin{array}{r} 7 \\ +\ 5 \end{array}$ $\begin{array}{r} 30 \\ +\ 70 \end{array}$ $\begin{array}{r} 800 \\ +\ 500 \end{array}$ $\begin{array}{r} 160 \\ -\ 70 \end{array}$

2. $\begin{array}{r} 856 \\ +\ 24 \end{array}$

3. $\begin{array}{r} 131 \\ +\ 786 \end{array}$

4. $\begin{array}{r} 538 \\ +\ 169 \end{array}$

5. $\begin{array}{r} 874 \\ -\ 732 \end{array}$

6. $\begin{array}{r} 364 \\ -\ 257 \end{array}$

7. $\begin{array}{r} 814 \\ -\ 552 \end{array}$

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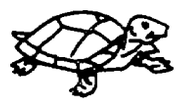
Name_____ Score_____

VIII. Review Exercises



1. 11 12 16 13 $\begin{array}{r} 6 \\ 3 \end{array}$ $\begin{array}{r} 3 \\ 7 \end{array}$ $\begin{array}{r} 5 \\ 4 \end{array}$ $\begin{array}{r} 6 \\ 9 \end{array}$

Comments: Extra Practice page 297 has possibilities for oral and board work and some written challenge. Use VII as a culminating activity.

Comments: In the Warm Up it is suggested to utilize "mental" arithmetic. One way to challenge higher ability children is to ask them to solve problems in their "head." Verbal problems appear for the first time in this Review. Verbal problems should be a part of almost every daily lesson. Use VIII.

Name _____ Score _____

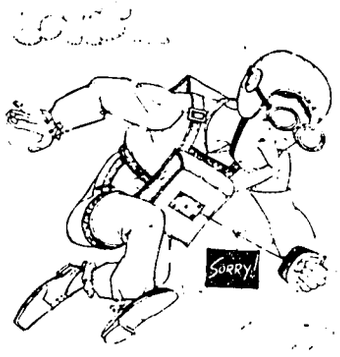
VII. Review Exercises

1.

9	6	9	6	7	30	800	160
+ 9	+ 5	+ 6	+ 8	+ 5	+ 70	+ 500	- 70

2. 856 + 24

3. 131 + 786



4. 538 + 169

5. 874 - 732

6. 364 - 257

7. 814 - 552

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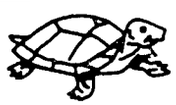
Name _____ Score _____

VIII. Review Exercises



1.

11	12	16	13	6	3	5	6
				3	7	4	9
- 3	- 8	- 7	- 9	+ 2	+5	+5	+4

2. 6 + 17 + 43

3. 973 + 564 + 683

4. James rode 432 miles by bus and 121 miles by train. How far did he go? ☐

5. In a dart game, John scored 43 points on the first try, 27 points on the second try and 36 points on the third try. What was his total score? ☐

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9th Day

Warm up:
"I don't want you to forget what you learned about multiplication in 3rd grade. Who can tell me what 3x4 means? How is multiplication like counting? like adding?" (products to 18)

Review Activity:
Objectives: The pupil will be able to:
1) Use the concept of multiplication to write basic multiplication facts.
2) Solve verbal problems using multiplication.

Comments: Some children already have a good grasp of multiplication facts. All children could be urged to use the repeated addition model or array-counting model to "figure" out multiplication. Use IX.

10th Day

Warm up:
"Are there more multiplication facts you remember or can figure out? Division facts?" (products to 30 only)

Review Activity:
Objectives: The pupil will be able to:
1) Use the concept of division to respond to division problems.
2) Solve verbal problems using division.

Comments: Review the "meaning" of division. Use X.

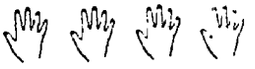
Note: Experiences in Discovery, Level C by Paul Trafton, which you have available and "Discovering More About Numbers" in the back of the book is a good source for enrichment for some or all pupils in your class.

Name_____  Score_____

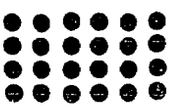
IX. Review Exercises

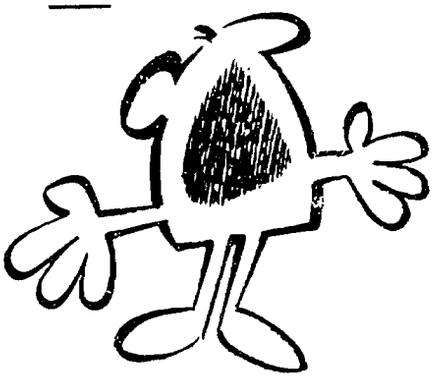
1.

5	5	6	6	4	4	5	6
x 5	x 2	+ 6	x 2	+ 4	x 3	x 3	x 3

2. 4 x 5 means 4 fives  or ☐

3. 3 x 20 means 20 + 20 + 20 or ☐

4. 4 x 6 means 4 sixes  or ☐



5. 4 x 3 = 12
   4 x 30 = 120
   4 x 300 = ☐

6. 3 x 8 = 24
   3 x 80 = ☐

7. There are 6 hot dogs in a package. How many are in 3 packages? ☐

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Name_____  Score_____

X. Review Exercises

3	3	5	5	7	9	12 ÷ 4 = ☐		15 ÷ 5 = ☐
x 2	x 4	x 2	x 4	x 4	x 3			

to write basic multiplication facts.
2) Solve verbal problems using multiplication.

Comments: Some children already have a good grasp of multiplication facts. All children could be urged to use the repeated addition model or array-counting model to "figure" out multiplication. Use IX.

respond to division problems.
2) Solve verbal problems using division.

Comments: Review the "meaning" of division. Use X.

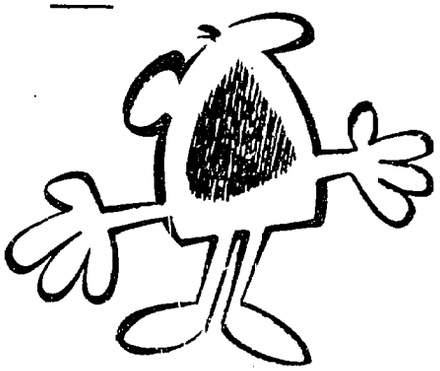
Note: Experiences in Discovery, Level C by Paul Trafton, which you have available and "Discovering More About Numbers" in the back of the book is a good source for enrichment for some or all pupils in your class.

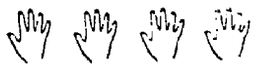
Name _____  Score _____

IX. Review Exercises

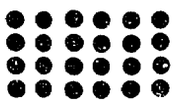
1.

5	5	6	6	4	4	5	6
x 5	x 2	+ 6	x 2	+ 4	x 3	x 3	x 3



2. 4 x 5 means 4 fives  or ☐

3. 3 x 20 means 20 + 20 + 20 or ☐

4. 4 x 6 means 4 sixes  or ☐

5. 4 x 3 = 12
   4 x 30 = 120
   4 x 300 = ☐

6. 3 x 8 = 24
   3 x 80 = ☐

7. There are 6 hot dogs in a package. How many are in 3 packages? ☐

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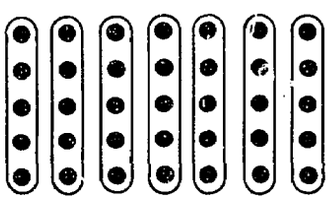
Name _____  Score _____

X. Review Exercises

1.

3	3	5	5	7	9
x 2	x 4	x 2	x 4	x 4	x 3

12 ÷ 4 = ☐ 15 ÷ 5 = ☐

2. 35 ÷ 5 means "how many 5's are in 35  or ☐
   (☐ fives or ☐ x 5 = 35)

3. 60 ÷ 20 = ☐

4. $6\overline{)12}$ 5. $2\overline{)10}$ 6. $5\overline{)25}$

7. Jim had 30 cookies. He gave an equal number to his 5 friends. How many did each get? ☐

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11th Day

Warm up:
"In our Warm Up activities, I'm going to choose basic facts from adding, subtraction, multiplication or division."

Review Activity:
Objectives: The pupil will be able to:
1) Compute 2d x 1d using horizontal and vertical method.

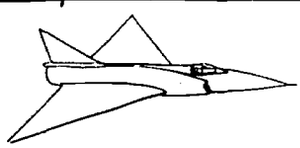
Comments: Multiplication is a nice vehicle to review place value, distributive property and addition. Not many pupils have mastered multiplication or division. Supply them with a model to follow and urge them to check by repeated addition to build confidence. Use XI.

12th Day

Warm up:
"We will continue to keep skillful with basic facts."

Review Activity:
Objectives: The pupil will be able to:
1) Compute 2d ÷ 1d using horizontal and ladder method.

Comments: Have pupils check results by multiplication thru repeated addition to assure the pupils know what division "means."

Name_____  Score_____

XI. Review Exercises

1. $\begin{array}{r} 8 \\ +\,3 \\ \hline \end{array}$ $\begin{array}{r} 16 \\ -\,9 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ \times\,1 \\ \hline \end{array}$ $\begin{array}{r} 9 \\ +\,6 \\ \hline \end{array}$ $\begin{array}{r} 18 \\ -\,9 \\ \hline \end{array}$ $\begin{array}{r} 5 \\ +\,6 \\ \hline \end{array}$ $\begin{array}{r} 12 \\ -\,5 \\ \hline \end{array}$ $\begin{array}{r} 5 \\ \times\,6 \\ \hline \end{array}$ $18 \div 9 = \square$

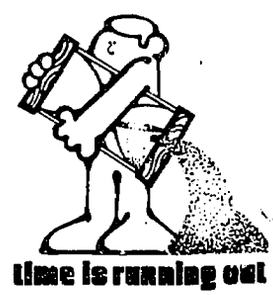
2. $6 \times 51 = (6 \times 50) + (6 \times 1)$
$= \boxed{300} + \square = \boxed{306}$

$5 \times 41 = (5 \times 40) + (5 \times 1)$
$= \square + \square = \square$

3. $\begin{array}{r} 47 \\ \times\,3 \\ \hline 21 \\ 120 \\ \hline 141 \end{array}$ $\begin{array}{r} 32 \\ \times\,5 \\ \hline \square \\ \square \\ \hline \square \end{array}$

4. $\begin{array}{r} 21 \\ \times\,6 \\ \hline \end{array}$

5. $\begin{array}{r} 242 \\ \times\,6 \\ \hline 12 \\ 240 \\ 1200 \\ \hline 1452 \end{array}$ $\begin{array}{r} 623 \\ \times\,3 \\ \hline \end{array}$



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Racine, Wisconsin

Name_____  Score_____

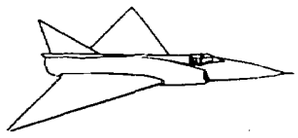
XII. Review Exercises

1. 6 8 9 7 14 6 8 6

Comments: Multiplication is a nice vehicle to review place value, distributive property and addition. Not many pupils have mastered multiplication or division. Supply them with a model to follow and urge them to check by repeated addition to build confidence. Use XI.

Comments: Have pupils check results by multiplication thru repeated addition to assure the pupils know what division "means."

Name_____ Score_____



XI. Review Exercises

1. $\begin{array}{r} 8 \\ +\,3 \end{array}$ $\begin{array}{r} 16 \\ -\,9 \end{array}$ $\begin{array}{r} 4 \\ \times\,4 \end{array}$ $\begin{array}{r} 9 \\ +\,6 \end{array}$ $\begin{array}{r} 18 \\ -\,9 \end{array}$ $\begin{array}{r} 5 \\ +\,6 \end{array}$ $\begin{array}{r} 12 \\ -\,5 \end{array}$ $\begin{array}{r} 5 \\ \times\,6 \end{array}$ $18 \div 9 = \square$

2. $6 \times 51 = (6 \times 50) + (6 \times 1)$

$= \boxed{300} + \square = \boxed{306}$

$5 \times 41 = (5 \times 40) + (5 \times 1)$

$= \square + \square = \square$

3. $\begin{array}{r} 47 \\ \times\,3 \\ \hline 21 \\ 120 \\ \hline 141 \end{array}$ $\begin{array}{r} 32 \\ \times\,5 \\ \hline \square \\ \square \\ \hline \square \end{array}$

4. $\begin{array}{r} 21 \\ \times\,6 \end{array}$

5. $\begin{array}{r} 242 \\ \times\,6 \\ \hline 12 \\ 240 \\ 1200 \\ \hline 1452 \end{array}$ $\begin{array}{r} 623 \\ \times\,3 \end{array}$

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Name_____ Score_____

XII. Review Exercises

1. $\begin{array}{r} 6 \\ +\,1 \end{array}$ $\begin{array}{r} 8 \\ +\,2 \end{array}$ $\begin{array}{r} 9 \\ +\,9 \end{array}$ $\begin{array}{r} 7 \\ +\,7 \end{array}$ $\begin{array}{r} 14 \\ -\,7 \end{array}$ $\begin{array}{r} 6 \\ \times\,2 \end{array}$ $\begin{array}{r} 8 \\ \times\,2 \end{array}$ $\begin{array}{r} 6 \\ \times\,4 \end{array}$

2. $46 \div 2 = (40 \div 2) + (6 \div 2)$

$= 20 + 3 = 23$

$93 \div 3 = (90 \div 3) + (3 \div 3)$

$\square + \square = \square$

3. $44 \div 4 =$

4. $4\overline{)84}$

80	20
4	
4	1
0	21

$3\overline{)63}$

5. $4\overline{)88}$

6. $3\overline{)96}$

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13th Day

Warm up:
"Which facts should we use in our activities today?"

Review Activity:
Objectives: The pupil will be able to:
1) Recognize and write fractional parts.
2) Write equivalent fraction using the number line.
3) Order fractions.

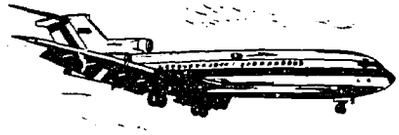
Comments: Page 303 could be used as an oral review. Use XIII.

14th Day

Warm up:
"How about just subtraction facts today?"

Review Activity:
Objectives: The pupil will be able to:
1) Solve a mixed set of problems.

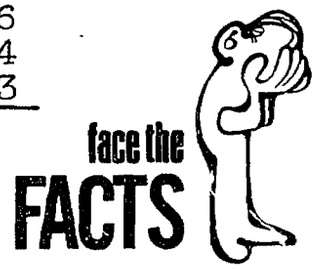
Comments: Review and enrich. Continue work on verbal problems and keep pupils skillful in computation and basic facts. Use XIV.

Name_____  Score_____

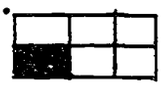
XIII. Review Exercises

1.

4	6	2	7	8	6
2	8	5	2	4	4
+ 6	+ 3	+ 5	+ 2	+ 3	+ 3

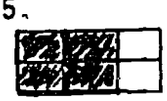


For Problems 2 to 6, choose the fraction that represents the shaded part. Choose your answers from this set. $\{\frac{1}{8}, \frac{1}{6}, \frac{1}{4}, \frac{1}{2}, \frac{3}{8}, \frac{5}{8}, \frac{2}{3}, \frac{3}{4}\}$

2. 

3. 

4. 

5. 

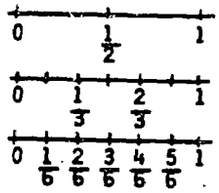
6. 

Use the number line below to write another name for

7. $\frac{1}{3}$ ☐ 8. $\frac{1}{2}$ ☐

Place a <, >, or = in the ☐ to make the sentence true.

9. $\frac{1}{3}$ ☐ $\frac{1}{2}$ 10. $\frac{1}{2}$ ☐ $\frac{2}{3}$ 11. $\frac{2}{3}$ ☐ $\frac{4}{6}$



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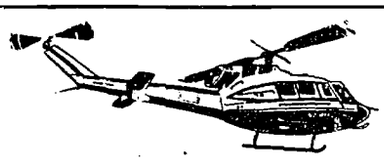
Name_____  Score_____

XIV. Review Exercises

11	12	14	11	12	14	18	16
5		5	6	4	- 9	- 9	- 7

number line.
3) Order fractions.

Comments: Page 303 could be used as an oral review. Use XIII.

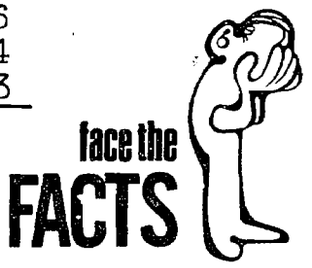
Comments: Review and enrich. Continue work on verbal problems and keep pupils skillful in computation and basic facts. Use XIV.

Name _____ Score _____

XIII. Review Exercises

1.

4	6	2	7	8	6
2	8	5	2	4	4
+ 6	+ 3	+ 5	+ 2	+ 3	+ 3

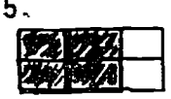


For Problems 2 to 6, choose the fraction that represents the shaded part. Choose your answers from this set. $\{\frac{1}{8}, \frac{1}{6}, \frac{1}{4}, \frac{1}{2}, \frac{3}{8}, \frac{5}{8}, \frac{2}{3}, \frac{3}{4}\}$

2.  ☐

3.  ☐

4.  ☐

5.  ☐

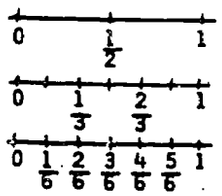
6.  ☐

Use the number line below to write another name for

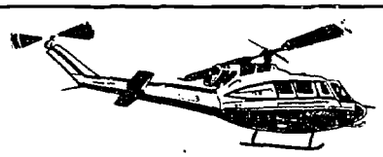
7. $\frac{1}{3}$ ☐ 8. $\frac{1}{2}$ ☐

Place a <, >, or = in the ☐ to make the sentence true.

9. $\frac{1}{3}$ ☐ $\frac{1}{2}$ 10. $\frac{1}{2}$ ☐ $\frac{2}{3}$ 11. $\frac{2}{3}$ ☐ $\frac{4}{6}$



Name _____ Score _____



XIV. Review Exercises

1.

11	12	14	11	12	14	18	16
- 3	- 5	- 5	- 6	- 4	- 9	- 9	- 7

2. $23 + \square = 81$

3. 32×3

4. $738 - 529$

5. $27 - \square = 22$

6. $7\overline{)84}$

7. $30 \div \square = 15$

8. 237 = 1 hundred, ____ tens, 7 ones.

9. Peter had $4.89 in his bank. He then earned $.60 for mowing a lawn and $1.45 for cleaning the garage. After he put his earnings in the bank, how much did he have totally?

$ ☐

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

5th Grade Review

To: All Fifth Grade Teachers
Elementary School Principals

From: John D. Aceto, Consultant in Mathematics

Subject: Review Program for Mathematical Skills

We recognize that our pupils need a reminder of the Arithmetic skills learned in the previous year and practice to maintain those skills that were developed. The contents of this package has the primary objective of suggesting a planned sequential review of the skills that should have been achieved by your pupils last year.

This material should be used during school weeks 2, 3, and 4. One review exercise should be given each day during this time. Either copy the exercises on the chalkboard or supply ditto sheets from a thermofax master made from the contents of this package. Have the pupils correct their solutions during class, discussing exercises causing trouble. Continue with your usual mathematics lessons, but use these reviews as a guide assigning extra practice.

During the fifth week you will be asked to give a test which will be in the standardized test format and will be machine scored. The results will be analyzed on a district-wide basis with feedback for your class and each child giving us diagnostic capabilities to better provide for individual needs of our pupils.

If I can render any assistance, please do not hesitate to call.

Answers Review Exercises — 5th Grade

I. 1. 4, 6, 8, 7, 1, 2, 9, 3, 11, 5, 10, 101
6, 8, 10, 9, 3, 4, 11, 5, 13, 7, 12, 103
5, 7, 9, 8, 2, 3, 10, 4, 12, 6, 11, 102
2. 4, 43
3. 8, 84
4. 3, 13
5. 50, 150
6. 40, 11
7. 0, 100

II. 1. 10, 8, 11, 18, 16, 14, 15, 12, 7, 13
2. 77
3. 85
4. 171
5. 1306
6. 746.23
7. 148

III. 1. 13, 15, 17, 16, 10, 11, 12, 18, 20, 14, 19, 110
12, 14, 16, 15, 9, 10, 11, 17, 19, 13, 18, 109
2. 11, 11, 4
3. 6
4. 333
5. 2324
6. 6415
7. 558
8. $2.32

IV. 1. 12, 14, 13, 9, 6, 15, 8, 8, 3, 3
2. 916
3. 1522
4. 246
5. 1058
6. 1900
7. 6143
8. 1987

V. 1. 5, 9, 9, 5, 5, 5, 16, 11, 10, 13
2. $\frac{4}{5}$
3. $\frac{1}{2}$
4. $\frac{2}{5}$
5. $\frac{7}{12}$
6. $1\frac{4}{5}$ ton
7. $\frac{1}{2}$ yd.

VI. 1. 6, 10, 14, 12, 0, 2, 4, 16, 20, 8, 18, 200
12, 20, 28, 24, 0, 4, 8, 32, 40, 16, 36, 400
15, 25, 35, 30, 0, 5, 10, 40, 50, 20, 45, 500
2. 224
3. 288
4. 380
5. 144
6. 1842
7. 320

VII. 1. 9, 15, 21, 18, 0, 3, 6, 24, 30, 12, 27
27, 45, 63, 54, 0, 9, 18, 72, 90, 36, 81
15, 23, 31, 27, 3, 7, 11, 35, 43, 19, 39
2. 96
3. 603
4. 196
5. 711
6. 1281
7. 2511

VIII. 1. 9, 15, 21, 18, 0, 3, 6, 24, 30, 12, 27, 300
18, 30, 42, 36, 0, 6, 12, 48, 60, 24, 54, 600
19, 29, 39, 34, 4, 9, 14, 44, 54, 24, 49, 504
2. 144
3. 720
4. 864
5. 5394
6. 7
7. 399

IX. 1. 12, 20, 28, 24, 0, 4, 32, 8, 40, 16, 36, 400
24, 40, 56, 48, 0, 8, 64, 16, 80, 32, 72, 800
11, 17, 23, 20, 2, 5, 26, 8, 32, 14, 29, 302
2. 3020
3. 744
4. 3395
5. 12, 120, 1200
6. 48, 480, 4800
7. 1120

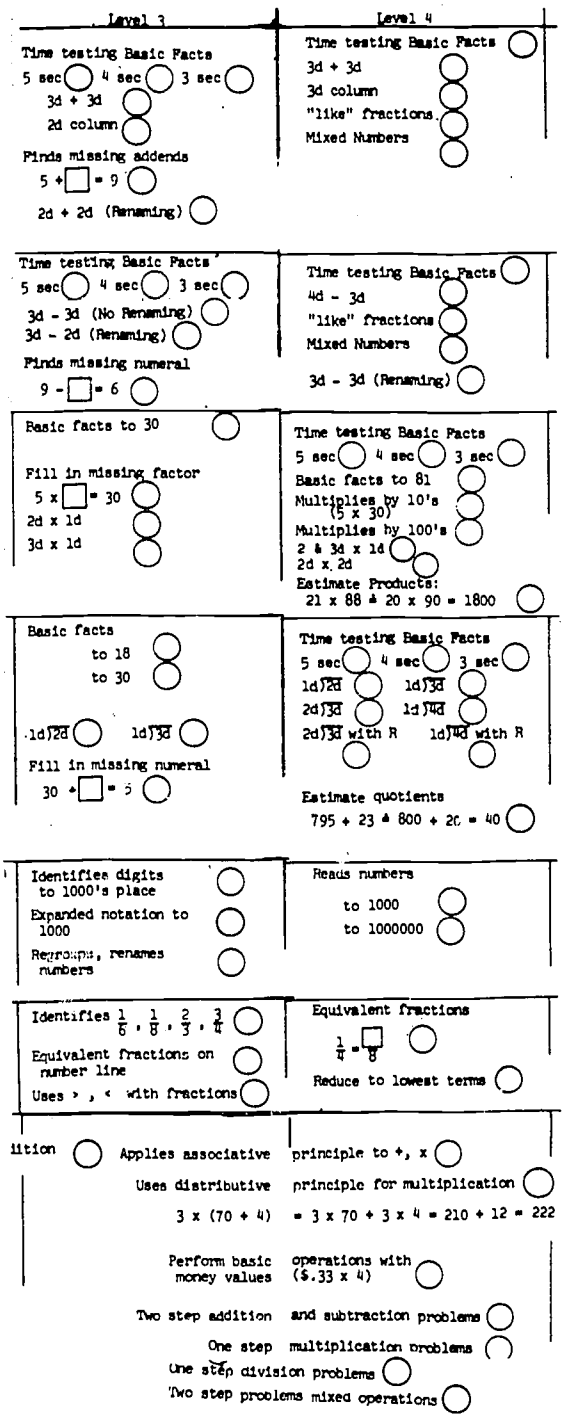
X. 1. 21, 35, 49, 42, 0, 7, 56, 14, 70, 28, 63, 700
27, 45, 63, 54, 0, 9, 72, 18, 90, 36, 81, 900
12, 14, 16, 15, 9, 10, 17, 11, 19, 13, 18, 109
2. 7, 9, 7, 7, 6, 9
3. 21
4. 61
5. 56
6. 6
7. 17

XI. 1. 90, 150, 210, 180, 0, 30, 60, 240, 300, 120, 270, 3000
120, 200, 280, 240, 0, 40, 80, 320, 400, 160, 360, 4000
30, 48, 66, 57, 3, 12, 21, 75, 93, 39, 84, 903
2. 7R2
3. 18R2
4. 61R3
5. 45R4
6. 205, 408, 168
7. 9

XII. 1. 15, 8, 54, 7, 56, 42, 9, 8, 9, 1100
2. 8
3. 7R57
4. 8
5. 4R6
6. 4R6

XIII. 1. 18, 30, 42, 36, 0, 6, 12, 48, 60, 24, 54, 600
24, 40, 56, 48, 0, 8, 16, 64, 80, 32, 72, 800
10, 12, 14, 13, 7, 8, 9, 15, 17, 11, 16, 107
2. 530
3. 10
4. 5
5. 46.80
6. 4824
7. 7
8. .61

XIV. 1. 8, 7, 9, 5, 8, 5, 5, 9, 9, 9
2. 41
3. 4
4. 4R2
5. 6349
6. 8R24
7. $\frac{1}{4}$
8. 46434
9. 8148



The chart at the left represents the exposure of the Computation component of our District's mathematics program for grades 3 and 4.

Last year's fine test scores at the 5th grade level and at the 6th grade level are a testimony to the outstanding job being done in math at the 5th grade level. It does take consistent effort and inspired teaching: you are to be commended.

Time Division

Many teachers have found the time division at the right to be very effective.

Warm Up is intended to stimulate pupils and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other game type activities.

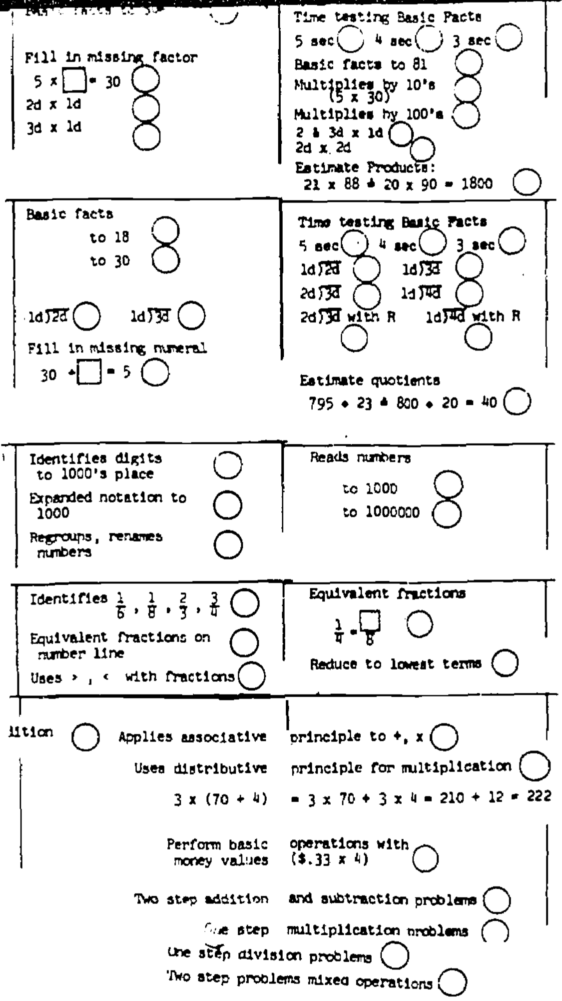
Developmental Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Math Class Time Division

- Warm Up
- Developmental Activities and Practice
- Review
- Review Exercises

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

The written review activity could be used at any appropriate time during the math period, but should probably be used after some developmental oral and/or written activity that reviews the concepts and skills that are represented in the activity. The review activities could give you some feedback as to how well your pupils understand the material presented and what needs they have for reteaching and reinforcement at this time or when it comes up during the year again.



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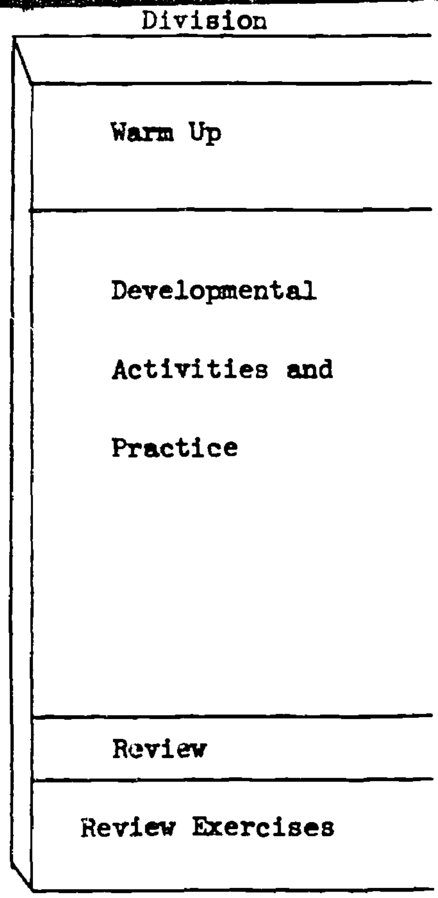


Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

The written review activity could be used at any appropriate time during the math period, but should probably be used after some developmental oral and/or written activity that reviews the concepts and skills that are represented in the activity. The review activities could give you some feedback as to how well your pupils understand the material presented and what needs they have for reteaching and reinforcement at this time or when it comes up during the year again.

After a general explanation of what is involved in the written review activity, pairs of pupils, small groups as well as individual pupils, could complete the activity. Pupil presentations of correct solutions on the chalkboard after completion is also effective. These reviews are to remind and maintain skills and not tests.

Addition

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Basic Facts

To analyze facts needing practice, pupils could check (√) those they know on an addition and multiplication table. They could also make their own set of flash cards as they 'really' learn each fact.

Multiplication

x	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

5th Grade Review

A Drill and Practice Format

This is a format that could be used as drill and practice for basic facts. The directions to be issued would be to add, or multiply, row one by the specified number.

	3	5	7	6	0	1	2	8	10	4	9	100
+3	6	8	10	9	3	4	5	11	13	7	12	103
+9	12	14	16	15	9	10	11	17	19	13	18	109
X2	6	10	14	12	0	2	4	16	20	8	18	200

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	8	2	10	4	9	100

1st Day

Warm Up:

"Within the next few days we will review the Basic Facts at the beginning of each Math period. Let's see how well you know how to add 0, 1, 2, 3 and subtract 1?"

Note: Use +1, +2, +3, -1 facts in Warm Up Activities.

Review Activities:

Objective: The pupil will be able to rename numbers to tens and ones place.

Comments: Problem 1 in each Review Exercise (below) will contain Basic Facts that you will have used in your Warm Up. Urge pupils to complete those quickly to develop speed and accuracy. The exercises are readiness problems for addition and subtraction algorithm. Use Review Exercises I as a culminating activity.

2nd Day

Warm Up:

"Today we will not only use those easy facts in our warm up, but we will use the doubles and one more than the doubles. I know you know 5 + 5, then 5 + 6 is just one more. 7 + 7, 7 + 8, etc."

Review Activities:

Objective: The pupil will be able to add with and without renaming.

Comments: Regrouping in addition is fundamental by this level. Pupils should be working toward speed and accuracy. "Word problems" will appear regularly in the Review reminding you that Problem Solving must be emphasized continually. The completed problem in the "box" will give some rationale to the pupil on "how to do" the problems.

cut-to make thermofax master

I. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+1			8									
+3							5					
+2												102

Renaming Numbers

$$\begin{array}{r} {}^{3}\not{4}{}^{11}\not{3}1 \\ -\ 126 \\ \hline \end{array}$$

$$\begin{array}{r} {}^{1}67 \\ +\ 23 \\ \hline 0 \end{array}$$

2. 3 tens + 13 ones = ☐ tens + 3 ones or ☐

3. 7 tens + 14 ones = ☐ tens + 4 ones or ☐

4. [43] 4 tens, ☐ ones or 3 tens, ☐ ones

5. [357] 300 + ☐ + 7 or 200 + ☐ + 7

6. [241] 200 + ☐ + 1 or 200 + 30 + ☐

7. [903] 900 + ☐ + 3 or 800 + ☐ + 3

Unified School District No. 1
Racine, Wisconsin

II. Review Exercises

NAME _____
SCORE _____

1.										
	5	4	6	9	8	7	7	6	4	7
	+5	+4	+5	+9	+8	+7	+8	+6	+3	+6

Objective: The pupil will be able to rename numbers to tens and ones place.

Comments: Problem 1 in each Review Exercise (below) will contain Basic Facts that you will have used in your Warm Up. Urge pupils to complete those quickly to develop speed and accuracy. The exercises are readiness problems for addition and subtraction algorithm. Use Review Exercises I as a culminating activity.

Objective: The pupil will be able to add with and without renaming.

Comments: Regrouping in addition is fundamental by this level. Pupils should be working toward speed and accuracy. "Word problems" will appear regularly in the Review reminding you that Problem Solving must be emphasized continually. The completed problem in the "box" will give some rationale to the pupil on "how to do" the problems.

cut-to make thermofax master

I. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+1			8									
+3							5					
+2												102

Renaming Numbers

$$\begin{array}{r} {}^{2}\not{4}{}^{11}\not{3}1 \\ -\ 126 \\ \hline \end{array}$$

$$\begin{array}{r} {}^{1}67 \\ +\ 23 \\ \hline 0 \end{array}$$

2. 3 tens + 13 ones = ☐ tens + 3 ones or ☐

3. 7 tens + 14 ones = ☐ tens + 4 ones or ☐

4. [43] 4 tens, ☐ ones or 3 tens, ☐ ones

5. [357] 300 + ☐ + 7 or 200 + ☐ + 7

6. [241] 200 + ☐ + 1 or 200 + 30 + ☐

7. [903] 900 + ☐ + 3 or 800 + ☐ + 3

Unified School District No. 1
Racine, Wisconsin

II. Review Exercises

NAME _____
SCORE _____

1.

5	4	6	9	8	7	7	6	4	7
+5	+4	+5	+9	+8	+7	+8	+6	+3	+6

2. $\begin{array}{r} 24 \\ +53 \\ \hline \end{array}$

3. $\begin{array}{r} 38 \\ +47 \\ \hline \end{array}$

4. $\begin{array}{r} 86 \\ +85 \\ \hline \end{array}$

Addition

$$\begin{array}{r} {}^{1}260 \\ 521 \\ 78 \\ +\ 310 \\ \hline 1169 \end{array}$$

5. $\begin{array}{r} 583 \\ 97 \\ +626 \\ \hline \end{array}$

6. $\begin{array}{r} \$417.67 \\ +\ 328.56 \\ \hline \end{array}$

8. In one basketball game, a team scored 76 points. In the next game, the same team scored 72 points. How many points did the team score in the two games? ☐

Unified School District No. 1
Racine, Wisconsin

3rd Day

Warm Up:
"The 10's combinations are important: 6+4, 7+3, etc. If we really know those, then 8+3 is just one more than 8+2. Adding 10 is easy; adding 9 is just one less."

Review Activities:

Objective: The pupil will be able to subtract 2 numbers to include renaming.

Comments: Special care should be taken to remind pupils of subtractraction problems like #6 which has renaming across two zeros. Extra Practice pages 308, 309 in the back of the book is a good source for oral and board work with some written challenge. Remind pupils how to check subtraction. Use III.

4th Day

Warm Up:
"Do you have a way to remember 5+7, 5+8, 6+3, 8+6? How about subtraction facts like 12-9? Do the addition facts you really know help you remember the subtraction facts?"

Review Activities:

Objective: The pupil will be able to solve a mixed set of addition-subtraction problems.

Comments: Discovering More About Numbers on page 336 is a good motivation for mental arithmetic. Most pupils will find it a challenge. Use IV as a culminating activity.

III. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+10			17									
+9										13		

2.
$$\begin{array}{rrr} 7 & 9 & 10 \\ +4 & +2 & -6 \end{array}$$

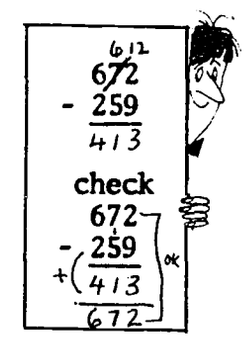
3. $15 - 9 = \square$

4.
$$\begin{array}{r} 758 \\ -425 \end{array}$$

5.
$$\begin{array}{r} 5090 \\ -2766 \end{array}$$

6.
$$\begin{array}{r} 9004 \\ -2589 \end{array}$$

7. $\square + 342 = 900$



8. Ellen took $5.25 on a shopping trip. When she got home, she had $2.93 left. How much money had she spent?

$ ____

Unified School District No. 1
Racine, Wisconsin

IV. Review Exercises

NAME _____
SCORE _____

1.
$$\begin{array}{rrrrrrrrrr} 5 & 6 & 5 & 6 & 15 & 7 & 15 & 5 & 8 & 12 \\ +7 & +8 & +8 & +3 & -9 & +8 & -7 & +3 & -5 & -9 \end{array}$$

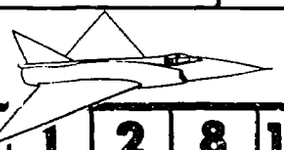
Objective: The pupil will be able to subtract 2 numbers to include renaming.

Comments: Special care should be taken to remind pupils of subtractraction problems like #6 which has renaming across two zeros. Extra Practice pages 308, 309 in the back of the book is a good source for oral and board work with some written challenge. Remind pupils how to check subtraction. Use III.

Objective: The pupil will be able to solve a mixed set of addition-subtraction problems.

Comments: Discovering More About Numbers on page 336 is a good motivation for mental arithmetic. Most pupils will find it a challenge. Use IV as a culminating activity.

III. Review Exercises



NAME _____

SCORE _____

1.

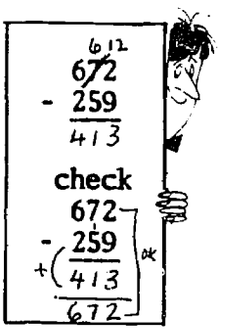
	3	5	7	6	0	1	2	8	10	4	9	100
+10			17									
+9										13		

2. 7 +4 ; 9 +2 ; 10 - 6

3. 15 - 9 = ☐

4. 758 - 425

5. 5090 -2766



6. 9004 -2589

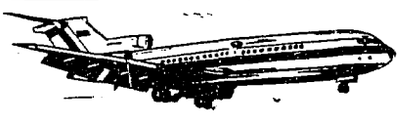
7. ☐ + 342 = 900

8. Ellen took $5.25 on a shopping trip. When she got home, she had $2.93 left. How much money had she spent?

$ ☐

Unified School District No. 1
Racine, Wisconsin

IV. Review Exercises



NAME _____

SCORE _____

1. 5 +7 ; 6 +8 ; 5 +8 ; 6 +3 ; 15 - 9 ; 7 + 8 ; 15 - 7 ; 5 +3 ; 8 -5 ; 12 - 9

2. 534 +382

3. 675 +847

4. 637 -391

5. 5432 -4374

6. 427 839 +634

7. Edenton has a population of 3,465. Gloversville has a population of 2,678. What is the total population of the two towns?

_____

8. Mr. Brown had $758 left in his savings account after he bought a sailboat for $1,229. How much money did he have in his savings account before he bought the boat?

$ _____

ified School District No. 1
Racine, Wisconsin

5th Day

Warm Up:
"Which facts are giving us trouble? Should we use only those facts that need work? How about Subtraction Facts?"

Review Activities:

Objective: The pupil will be able to add and subtract like fractions and reduce to lowest terms.

Comments: Encourage the pupils to draw diagrams when solving fraction problems like #7. You may wish to review reducing to lowest terms to remind them of the process. Use V.

6th Day

Warm Up:
"How good are you at remembering multiplication facts? In the next few days we will work on the mulitplication facts so that all of you will become more proficient. Multiplying by 2 are our doubles; by 4 are double the doubles; by 5 is counting by 5."

Review Activities:

Objective: The pupil will be able to multiply 2d x 1d.

Comments: Remind the pupils of multiplying by 1 and 0. The review is intended to remind pupils of the multiplication algorithm. In Learning Stage 2 you will have another opportunity to explore why the algorithm "works." Page 311 could be explored. Use VI.

V. Review Exercises

NAME _____
SCORE _____

1.

12	12	17	11	14	13	9	8	6	4
- 7	- 3	- 8	- 6	- 9	- 8	+7	+3	+4	+9

Reduce to lowest terms:

2. $\frac{7}{10}$ + $\frac{1}{10}$

3. $\frac{7}{8}$ - $\frac{3}{8}$

4. $1\frac{3}{10}$ - $\frac{9}{10}$

5. $\frac{11}{12}$ - $\frac{5}{12}$

6. Mr. Nelson had a load of $1\frac{1}{5}$ tons of cement blocks and $\frac{3}{5}$ ton of crushed rocks in his truck. What was the weight of the entire load?

7. Mrs. Hanson had $1\frac{1}{4}$ yards of linen. She used $\frac{3}{4}$ yard to make a hand towel. How much linen did she have left?

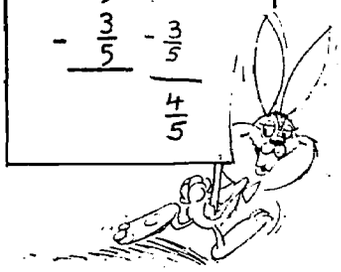
Lowest Terms

$\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$

$\frac{5}{5} \rightarrow 1\frac{2}{5} = \frac{7}{5}$

$- \frac{3}{5} \quad - \frac{3}{5}$

$\frac{4}{5}$



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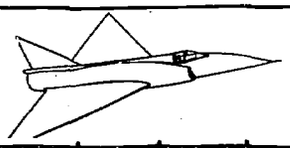
Racine, Wisconsin

VI. Review Exercises



NAME _____
SCORE _____

1.

3	5	7	6	0	1	8	2	10	4	9	100
x2		14									

Multiplication

Objective: The pupil will be able to add and subtract like fractions and reduce to lowest terms.

Comments: Encourage the pupils to draw diagrams when solving fraction problems like #7. You may wish to review reducing to lowest terms to remind them of the process. Use V.

Objective: The pupil will be able to multiply 2d x 1d.

Comments: Remind the pupils of multiplying by 1 and 0. The review is intended to remind pupils of the multiplication algorithm. In Learning Stage 2 you will have another opportunity to explore why the algorithm "works." Page 311 could be explored. Use VI.

V. Review Exercises

NAME _____

SCORE _____

1.

12	12	17	11	14	13	9	8	6	4
- 7	- 3	- 8	- 6	- 9	- 8	+7	+3	+4	+9

Reduce to lowest terms:

2. $\frac{7}{10}$ + $\frac{1}{10}$

3. $\frac{7}{8}$ - $\frac{3}{8}$

4. $1\frac{3}{10}$ - $\frac{9}{10}$

5. $\frac{11}{12}$ - $\frac{5}{12}$

6. Mr. Nelson had a load of $1\frac{1}{5}$ tons of cement blocks and $\frac{3}{5}$ ton of crushed rocks in his truck. What was the weight of the entire load?

7. Mrs. Hanson had $1\frac{1}{4}$ yards of linen. She used $\frac{3}{4}$ yard to make a hand towel. How much linen did she have left?

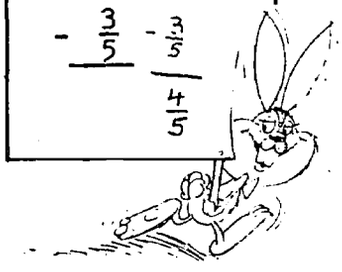
Lowest Terms

$\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$

$\frac{5}{5} \rightarrow 1\frac{2}{5} = \frac{7}{5}$

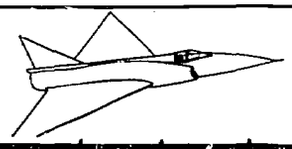
$- \frac{3}{5} \quad - \frac{3}{5}$

$\frac{4}{5}$



Unified School District No. 1
Racine, Wisconsin

VI. Review Exercises



NAME _____

SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x2			14									
x4							32					
x5		25										

2. 4 x 56 = ☐

3. 4 x 72 = ☐

4. 76 x 5

5. 36 x 4

6. 921 x 2

Multiplication

4 x 65 = 4x60 + 4x5
= 240 + 20
= 260

67 x 5 { 5x60 + 5x7 / 300 + 35 / 335

67 x 5 = 35 + 300 = 335

$\overset{3}{67}$ x 5 = 335

7. Marge bought 4 packets of stamps, with 80 stamps in each packet. How many stamps did she receive? ☐

ool District No. 1
e, Wisconsin

7th Day

Warm Up:

"Let's get good at multiplying by 3 and by 9. Do you see patterns that will help you remember? [3x7 = (2x7) + 7; 4x9 = 36, sum of digits in product is always 9; 10's digit is one less than number multiplied by 9]

Review Activities:

Objective: The pupil will be able to multiply 2d x 1d; 3d x 1d

Comments: Row 4 of the drill grid means 4 times 1st Row, then add 3: 4 x □ + 3. Page 312 of the Extra Practice section could be used for oral review and board work. Remember the possible use of the District's Basic Facts sheets for time-testing. Use VII.

8th Day

Warm Up:

"Let's use all of the multiplication facts that we have reviewed already in our warm up activities and investigate x3, x6."

Review Activities:

Objective: The pupil will be able to multiply 2d x 2d.

Comments: Page 338 could serve as a source for enrichment to challenge those who already have mastered 2d x 2d. Use VIII.

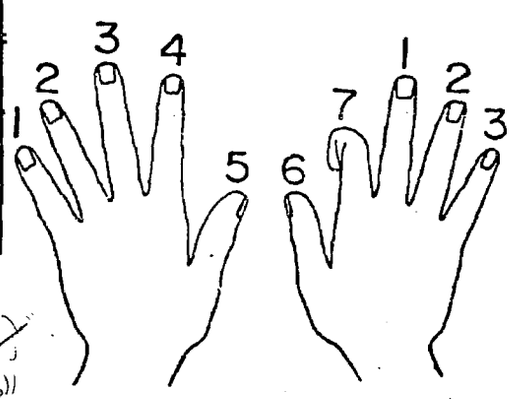
VII. Review Exercises

NAME _____

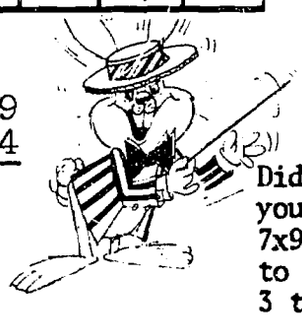
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9
x3		15									
x9				54							
x4; +3							11				



Did you know that you could use your fingers to multiply by 9? 7x9 -- Bend the 7th finger; 6 to the left are 6 tens or 60, 3 to the right are 3 ones or 3, thus 7x9 = 63. Try other products. Does it work?



2. 32 x 3

3. 67 x 9

4. 49 x 4

5. 79 x 9

6. 427 x 3

7. 837 x 3

65 x 9 = 585	576 x 4 = 2304

Unified School District No. 1
Racine, Wisconsin

VIII. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x3							6					

32
x 21

Comments: Row 4 of the drill grid means 4 times 1st Row, then add 3: 4 x ☐ + 3. Page 312 of the Extra Practice section could be used for oral review and board work. Remember the possible use of the District's Basic Facts sheets for time-testing. Use VII.

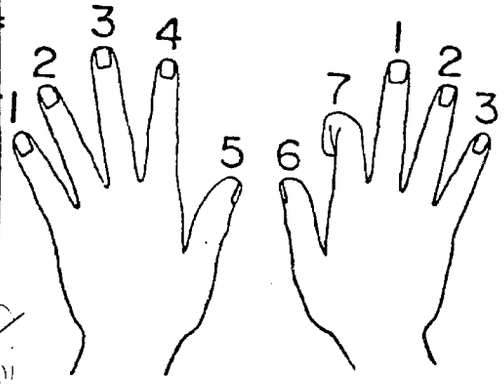
Comments: Page 338 could serve as a source for enrichment to challenge those who already have mastered 2d x 2d. Use VIII.

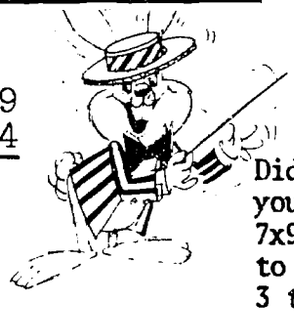
VII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9
x3		15									
x 9				54							
x4; +3							11				





2. 32 x 3

3. 67 x 9

4. 49 x 4

Did you know that you could use your fingers to multiply by 9? 7x9 -- Bend the 7th finger; 6 to the left are 6 tens or 60, 3 to the right are 3 ones or 3, thus 7x9 = 63. Try other products. Does it work?

65 x 9 = 585	576 x 4 = 2304

5. 79 x 9

6. 427 x 3

7. 837 x 3

Unified School District No. 1
Racine, Wisconsin

VIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X 3							6					
X 6												600
x 5; +4		29										

32 x 21 = 32 + 640 = 672

74 x 63 = 222 + 4440 = 4662

2. 24 x 6

3. 24 x 30

4. 24 x 36

5. 58 x 93

6. What is the greatest whole number that will make the sentence true?

☐ x 9 < 65

There were 21 cabins in camp, with 19 boys in each cabin. How many boys were there in camp? ☐

Unified School District No. 1
Racine, Wisconsin

9th Day

Warm Up:
"Is there a relationship between multiplying by 4 and by 8?

Review Activities:

Objective: The pupil will be able to multiply up to 2d x 2d.

Comments: Problems 5 and 6 are types of problems that could be used in oral reviews and Warm Ups. This type of problem is excellent readiness for division. No. 7 uses the array model for multiplication. This could give you an opportunity to review this model for a deeper understanding of multiplication. Use IX.

10th Day

Warm Up:
"How about multiplying by 7? 'Knowing' the multiplication facts aids in remembering the division facts."

Review Activities:

Objectives: The pupil will be able to
1) Divide 3d ÷ 1d without remainders by the "ladder" method.
2) Find the average of a set of numbers.

Comments: The fourth grade curriculum uses the ladder method only for division. You might remind your pupils how to check division. The idea of average should be discussed as a process -- add and divide. The statistical implications of average is a nice enrichment topic. Use X.

IX. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x4	12											
x8				48								
x3; +2								8				

92
x 38
736
2760
3496

2. 604
x 5

3. 24
x 31

4. 97
x 35

5. 4 x 3 = ☐
4 x 30 = ☐
4 x 300 = ☐

6. 8 x 6 = ☐
8 x 60 = ☐
8 x 600 = ☐

7. Mr. Brown owns a tree farm. He planted 32 rows of trees, with 35 trees in each row. How many trees did he plant?

☐

Unified School District No. 1
Racine, Wisconsin

X. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x7						7						

2. 42 ÷ 6 = ____
36 ÷ 4 = ____

Comments: Problems 5 and 6 are types of problems that could be used in oral reviews and Warm Ups. This type of problem is excellent readiness for division. No. 7 uses the array model for multiplication. This could give you an opportunity to review this model for a deeper understanding of multiplication. Use IX.

1) Divide 3d ÷ 1d without remainders by the "ladder" method.
2) Find the average of a set of numbers.

Comments: The fourth grade curriculum uses the ladder method only for division. You might remind your pupils how to check division. The idea of average should be discussed as a process -- add and divide. The statistical implications of average is a nice enrichment topic. Use X.

IX. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x 4	12											
x 8				48								
x 3; +2								8				

92
x 38
736
2760
3496

2. 604 x 5

3. 24 x 31

4. 97 x 35

5. 4 x 3 = ☐
4 x 30 = ☐
4 x 300 = ☐

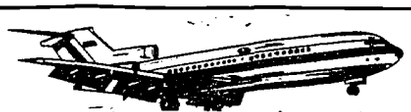
6. 8 x 6 = ☐
8 x 60 = ☐
8 x 600 = ☐

7. Mr. Brown owns a tree farm. He planted 32 rows of trees, with 35 trees in each row. How many trees did he plant?

☐

Unified School District No. 1
Racine, Wisconsin

X. Review Exercises



NAME _____
SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x 7						7						
x 9								18				
+9												109

2. 42 ÷ 6 = ____
36 ÷ 4 = ____
56 ÷ 8 = ____
28 ÷ 4 = ____
30 ÷ 5 = ____
81 ÷ 9 = ____

3. 4)84

4. 8)488

5. 6)336

72
9)648
-180 20
468
-450 50
18
-18 2
0 72

72
9)648
630 70
18
-18 2
0 72

6. $\frac{1}{3}$ of 18 = ☐

7. Jane kept a record of scores she made on 4 spelling tests. Her scores were 17, 13, 18, and 20. What was her average score?

☐

Unified School District No. 1
Racine, Wisconsin

11th Day	12th Day
Warm Up: "In our Warm Up activities, I'm going to choose basic facts from addition, subtraction, multiplication or division."	**Warm Up:** "We will continue to keep skillful with basic facts."
Review Activity: Objective: The pupil will be able to divide up to 3d + 1d with remainder.	**Review Activity:** Objective: The pupil will be able to divide up to 3d + 2d with remainder.
Comments: The most effective readiness for division is the ability to multiply mentally. Problems like #1 and #6 are good examples of types of problems that pupils could be challenged to do mentally. Use XI.	**Comments:** Division is extended to the 2-digit divisor. Extra Practice pages 311-316 is a good source for oral, small group, and board work.

XI. Review Exercises

NAME ________________

SCORE ________________

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x30								240				
x40				240								
x9; +3		48										

8)515 = 64R3
- 480 | 60
35
32 | 4
3 | 64

64 x 8 = 512; 512 + 3 = 515

2. 5)37

3. 4)74

4. 8)491

5. 7)319

6. 5 x 41 = ☐

8 x 51 = ☐

2 x 84 = ☐

7. Mike used 72 pieces of candy to fill 8 bags. He put the same number of pieces into each bag. How many pieces were in each bag? ☐

Unified School District No. 1
Racine, Wisconsin

XII. Review Exercises

NAME ________________

SCORE ________________

1. 8 + 7 = __ 14 - 6 = __ 9 x 6 = __ 7)49 7 x 8 = __ 6 x 7 = __ 15 - 6 = __ 17 - 9 = __ 4)36 300 + 800 = __

Comments: The most effective readiness for division is the ability to multiply mentally. Problems like #1 and #6 are good examples of types of problems that pupils could be challenged to do mentally. Use XI.

Comments: Division is extended to the 2-digit divisor. Extra Practice pages 311-316 is a good source for oral, small group, and board work.

XI. Review Exercises

NAME ____________________
SCORE ____________________

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x30								240				
x40				240								
x 9; +3		48										

64 R3
8)515
- 480 | 60
35
32 | 4
3 | 64

64
x 8
512
+ 3
515

2. 5)37

3. 4)74

4. 8)491

5. 7)319

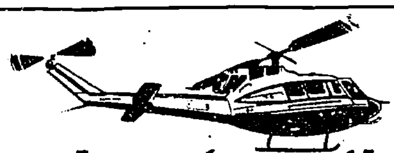
6. 5 x 41 = ☐

8 x 51 = ☐

2 x 84 = ☐

7. Mike used 72 pieces of candy to fill 8 bags. He put the same number of pieces into each bag. How many pieces were in each bag? ☐

XII. Review Exercises



NAME ____________________
SCORE ____________________

1. 8 + 7   14 - 6   9 x 6   7)49   7 x 8   6 x 7   15 - 6   17 - 9   4)36   300 + 800

2. 40)320

3. 60)477

4. 51)408

5. 42)174

6. 71)290

6 R10
84)514
504 | 6
10 | 6

84
x 6
504
+ 10
514

13th Day

Warm Up:
"Which facts should we use in our activities today?"

Review Activity:

Objective: Mixed Problems

Comments: Discovering More About Numbers pages 338, 339 are good exploratory topics that could be used for oral work or small group activities. Use XIII.

14th Day

Warm Up:
"How about just subtraction facts today?"

Review Activity:

Objective: Mixed Problems

Comments: Maintaining skills in computation must be a constant objective of the mathematics program. Pupils should be challenged to get "good" in computation. Higher level objectives and interesting topics can be explored if a pupil is not handicapped by lack of skills. Use XIV.

XIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x6					0							
x8									80			
+7							9					

2. Round off 527 to the nearest ten. ☐

3. ☐ x 15 = 150

4. Which digit is in the ten thousands place in 754,308? ☐

5. $5.20 × 9

6. 603 × 8

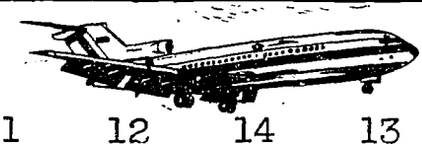
$ ☐

7. $\frac{1}{8}$ of 56 is ☐

8. John belonged to a club that had 9 members. The boys decided to buy a flag for their clubhouse. Each member was to pay his share of the cost of the flag. The flag cost $5.49. What was each member's share?

Unified School District No. 1
Racine, Wisconsin

XIV. Review Exercises



NAME _____
SCORE _____

1.	11	12	14	11	12	14	13	17	18	16
	-3	-5	-5	-6	-4	-9	-8	-8	-9	-7

Comments: Discovering More About Numbers pages 338, 339 are good exploratory topics that could be used for oral work or small group activities. Use XIII.

Comments: Maintaining skills in computation must be a constant objective of the mathematics program. Pupils should be challenged to get "good" in computation. Higher level objectives and interesting topics can be explored if a pupil is not handicapped by lack of skills. Use XIV.

XIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X6					0							
X8									80			
+7							9					

2. Round off 527 to the nearest ten. ☐

3. ☐ x 15 = 150

4. Which digit is in the ten thousands place in 754,308? ☐

5. $5.20 x 9 = ☐

6. 603 x 8 = ☐

7. $\frac{1}{8}$ of 56 is ☐

8. John belonged to a club that had 9 members. The boys decided to buy a flag for their clubhouse. Each member was to pay his share of the cost of the flag. The flag cost $5.49. What was each member's share? $ ☐

Unified School District No. 1
Racine, Wisconsin

XIV. Review Exercises

NAME _____
SCORE _____

1.

11	12	14	11	12	14	13	17	18	16
- 3	- 5	- 5	- 6	- 4	- 9	- 8	- 8	- 9	- 7

2. $8\overline{)328}$

3. $2 = \frac{\square}{2}$

4. $6\overline{)26}$

5. 907 x 7 = ☐

6. $91\overline{)752}$

7. $\frac{1}{8} + \frac{1}{8} = \square$

8. 92232 - 45798 = ☐

9. 97 x 84 = ☐

Unified School District No. 1
Racine, Wisconsin

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

6th Grade Review

To: All Sixth Grade Teachers
Elementary School Principals

From: John D. Aceto, Consultant in Mathematics

Subject: Review Program for Mathematical Skills

We recognize that our pupils need a reminder of the Arithmetic skills learned in the previous year and practice to maintain those skills that were developed. The contents of this package has the primary objective of suggesting a planned sequential review of the skills that should have been achieved by your pupils last year.

This material should be used during school weeks 2, 3, and 4. One review exercise should be given each day during this time. Either copy the exercises on the chalkboard or supply ditto sheets from a thermofax master made from the contents of this package. Have the pupils correct their solutions during class, discussing exercises causing trouble. Continue with your usual mathematics lessons, but use these reviews as a guide assigning extra practice.

During the fifth week you will be asked to give a test which will be in the standardized test format and will be machine scored. The results will be analyzed on a district-wide basis with feedback for your class and each child giving us diagnostic capabilities to better provide for individual needs of our pupils.

If I can render any assistance, please do not hesitate to call.

Answers Review Exercises — 6th Grade

I. 1. 4, 6, 8, 7, 1, 2, 3, 9, 11, 5, 10, 101
6, 8, 10, 9, 3, 4, 5, 11, 13, 7, 12, 103
5, 7, 9, 8, 2, 3, 4, 10, 12, 6, 11, 102
2. 4, 43 3. 8, 84 4. 3, 13
5. 50, 150 6. 40, 11 7. 0, 10

II. 1. 10, 8, 11, 18, 16, 14, 15, 12, 7, 11
2. 59 3. 143 4. 1239
5. 30 6. 1107 7. 1084
8. 8173 9. 31 10. $4.46

III. 1. 13, 15, 17, 16, 10, 11, 12, 18, 20, 14, 19, 110
12, 14, 16, 15, 9, 10, 11, 17, 19, 13, 18, 109
2. 11, 11, 4
3. 24 4. 39 5. 423
6. 268 7. 8476 8. 317 9. 124 10. $51.95

IV. 1. 12, 14, 13, 9, 6, 13, 8, 8, 3, 3
2. 174 3. 367 4. 4548
5. 4016 6. 284 7. 3430 8. 2629

V. 1. 5, 9, 9, 5, 5, 5, 16, 11, 10, 13
2. $\frac{7}{9}$ 3. $\frac{4}{8}$ or $\frac{1}{2}$ 4. $\frac{12}{10}$ or $1\frac{1}{5}$
5. $12\frac{1}{3}$ 6. $2\frac{1}{6}$ 7. $3\frac{11}{24}$ 8. $1\frac{7}{8}$

VI. 1. 6, 10, 14, 12, 0, 2, 4, 16, 20, 8, 18, 200
12, 20, 28, 24, 0, 4, 8, 32, 40, 16, 36, 400
15, 25, 35, 30, 0, 5, 10, 40, 50, 20, 45, 500
2. 272 3. 1356 4. 3525
5. 3920 6. 1228
7. 48 8. 1435

VII. 1. 9, 15, 21, 18, 0, 3, 6, 24, 30, 12, 27
27, 45, 63, 54, 0, 9, 18, 72, 90, 36, 81
15, 23, 31, 27, 3, 7, 11, 35, 43, 19, 39
2. 2074 3. 7905 4. 5166
5. 26197 6. 14732 7. $132.00

VIII. 1. 9, 15, 21, 18, 0, 3, 24, 6, 30, 12, 27, 300
18, 30, 42, 36, 0, 6, 48, 12, 60, 24, 54, 600
19, 29, 39, 34, 4, 9, 44, 14, 54, 24, 49, 504
2. 1152 3. 14701
4. 30508 5. 252450

IX. 1. 12, 20, 28, 24, 0, 4, 8, 32, 40, 16, 36, 400
24, 40, 56, 48, 0, 8, 16, 64, 80 32, 72, 800
14, 20, 26, 23, 5, 8, 14, 29, 35, 17, 32, 305
2. 58 3. 622 4. 504
5. 11 6. $1.24 7. 2367
8. 527

X. 1. 21, 35, 49, 42, 0, 7, 14, 56, 70, 28, 63, 700
150, 250, 350, 300, 0, 50, 100, 400, 500, 200, 450, 5000
210, 350, 490, 420, 0, 70, 140, 560, 700, 280, 630, 7000
2. 7, 9, 7, 7, 6, 9
3. 78 R 34
4. 39 R 67 5. 53 R 77 6. 85

XI. 1. 90, 150, 210, 180, 0, 30, 240, 60, 300 120, 270, 3000
120, 200, 280, 240, 0, 40, 320, 80, 400, 160, 360, 4000
30, 48, 66, 57, 3, 12, 75, 21, 93, 39, 84, 903
2. 22.8 3. 1.834 4. 14.98 5. $84.24 6. 34.11
7. 17.163 8. $.39

XII. 1. 15, 8, 54, 7, 56, 42, 9, 8, 9, 1100
2. $\frac{4}{9}$ 3. $\frac{5}{3}$ or $1\frac{2}{5}$
4. $\frac{12}{8}$ or $1\frac{4}{8}$ or $1\frac{1}{2}$ 5. 6 6. 18 7. 15

III. 1. 13, 15, 17, 16, 10, 11, 12, 18, 20, 14, 19, 110
12, 14, 16, 15, 9, 10, 11, 17, 19, 13, 18, 109
2. 11, 11, 4
3. 24 4. 39 5. 423
6. 268 7. 8476 8. 317 9. 124 10. $51.95

IV. 1. 12, 14, 13, 9, 6, 13, 8, 8, 3, 3
2. 174 3. 367 4. 4548
5. 4016 6. 284 7. 3430 8. 2629

V. 1. 5, 9, 9, 5, 5, 5, 16, 11, 10, 13
2. $\frac{7}{9}$ 3. $\frac{4}{8}$ or $\frac{1}{2}$ 4. $\frac{12}{10}$ or $1\frac{1}{5}$
5. $12\frac{1}{3}$ 6. $2\frac{1}{6}$ 7. $3\frac{11}{24}$ 8. $1\frac{7}{8}$

VI. 1. 6, 10, 14, 12, 0, 2, 4, 16, 20, 8, 18, 200
12, 20, 28, 24, 0, 4, 8, 32, 40, 16, 36, 400
15, 25, 35, 30, 0, 5, 10, 40, 50, 20, 45, 500
2. 272 3. 1356 4. 3525
5. 3920 6. 1228
7. 48 8. 1435

VII. 1. 9, 15, 21, 18, 0, 3, 6, 24, 30, 12, 27
27, 45, 63, 54, 0, 9, 18, 72, 90, 36, 81
15, 23, 31, 27, 3, 7, 11, 35, 43, 19, 39
2. 2074 3. 7905 4. 5166
5. 26197 6. 14732 7. $132.00

VIII. 1. 9, 15, 21, 18, 0, 3, 24, 6, 30, 12, 27, 300
18, 30, 42, 36, 0, 6, 48, 12, 60, 24, 54, 600
19, 29, 39, 34, 4, 9, 44, 14, 54, 24, 49, 504
2. 1152 3. 14701
4. 30508 5. 252450

IX. 1. 12, 20, 28, 24, 0, 4, 8, 32, 40, 16, 36, 400
24, 40, 56, 48, 0, 8, 16, 64, 80 32, 72, 800
14, 20, 26, 23, 5, 8, 14, 29, 35, 17, 32, 305
2. 58 3. 622 4. 504
5. 11 6. $1.24 7. 2367
8. 527

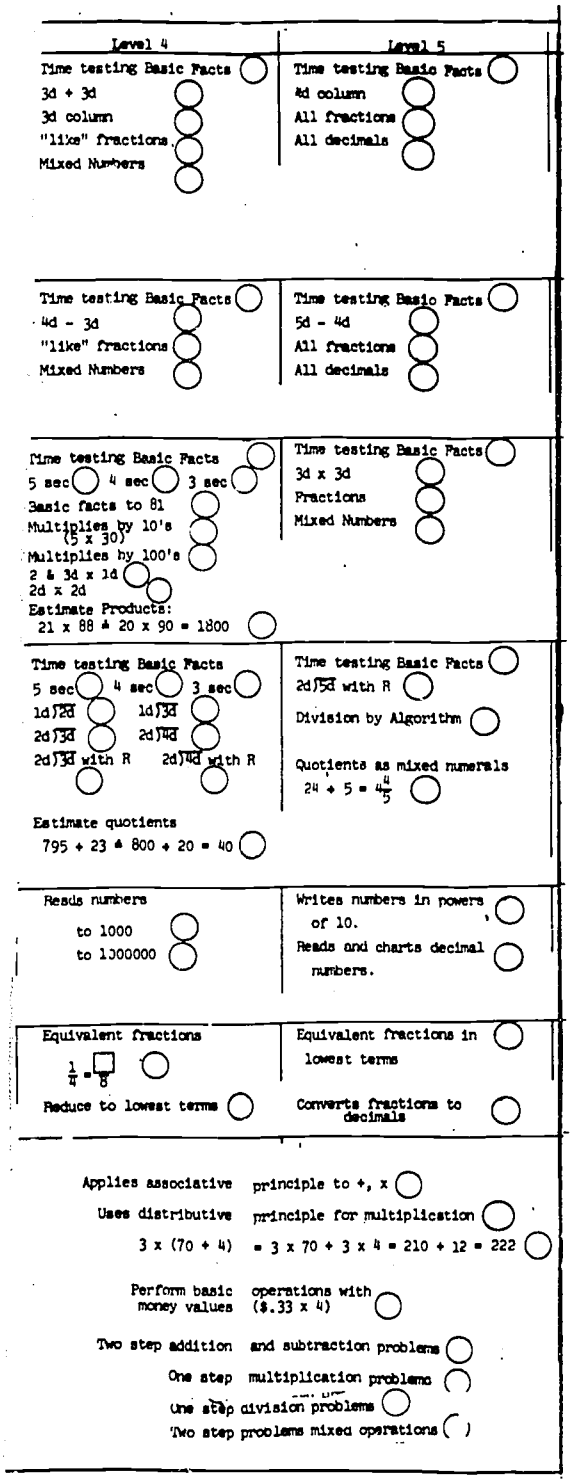
X. 1. 21, 35, 49, 42, 0, 7, 14, 56, 70, 28, 63, 700
150, 250, 350, 300, 0, 50, 100, 400, 500, 200, 450, 5000
210, 350, 490, 420, 0, 70, 140, 560, 700, 280, 630, 7000
2. 7, 9, 7, 7, 6, 9
3. 78 R 34
4. 39 R 67 5. 53 R 77 6. 85

XI. 1. 90, 150, 210, 180, 0, 30, 240, 60, 300 120, 270, 3000
120, 200, 280, 240, 0, 40, 320, 80, 400, 160, 360, 4000
30, 48, 66, 57, 3, 12, 75, 21, 93, 39, 84, 903
2. 22.8 3. 1.834 4. 14.98 5. $84.24 6. 34.11
7. 17.163 8. $.39

XII. 1. 15, 8, 54, 7, 56, 42, 9, 8. 9, 1100
2. $\frac{4}{9}$ 3. $\frac{5}{3}$ or $1\frac{2}{5}$
4. $\frac{12}{8}$ or $1\frac{4}{8}$ or $1\frac{1}{2}$ 5. 6 6. 18 7. 15

XIII. 1. 18, 30, 42, 36, 0, 6, 12, 48, 60, 24, 54, 600
24, 40, 56, 48, 0, 8, 16, 64, 80, 32, 72, 800
10, 12, 14, 13, 7, 8, 9, 15, 17, 11, 16, 107
2. 15735
3. 59185
4. 75
5. 1349 6. $8\frac{2}{5}$ 7. 360000 8. 18

XIV. 1. 8, 7, 9, 5, 8, 5, 5, 9, 9, 9
2. 17 3. 7 4. 41
5. 12 6. 24 7. 9 8. 8x6 9. 3 10. 0 11. 8



The chart at the left represents the exposure of the Computation component of our District's mathematics program for grades 4 and 5

Last year's fine test scores at the 6th grade level are a testimony to the outstanding job being done at 5th and 6th grade level. It does take consistent effort and inspired teaching: you are to be commended.

Time Division

Many teachers have found the time division at the right to be very effective.

Warm Up is intended to stimulate pupils and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other game type activities.

Developmental Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Math Class Time Division

- Warm Up
- Developmental Activities and Practice
- Review
- Review Exercises

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

The written review activity could be used at any appropriate time during the math period, but should probably be used after some developmental oral and/or written activity that reviews the concepts and skills that are represented in the activity. The review activities could give you some feedback as to how well your pupils understand the material presented and what needs they have for reteaching and reinforcement at this time or when it comes up during the year again.

After a general explanation of what is involved in the written review activity, pairs of pupils, small groups as well as individual pupils, could complete the activity. Pupil presentations of correct solutions on the chalkboard after completion is also

Time testing Basic Facts
5 sec ◯ 4 sec ◯ 3 sec ◯
Basic facts to 81 ◯
Multiplies by 10's (5 x 30) ◯
Multiplies by 100's ◯
2 & 3d x 1d ◯
2d x 2d ◯
Estimate Products:
21 x 88 ≐ 20 x 90 = 1800 ◯

Time testing Basic Facts ◯
3d x 3d ◯
Fractions ◯
Mixed Numbers ◯

Time testing Basic Facts
5 sec ◯ 4 sec ◯ 3 sec ◯
1d)$\overline{2d}$ ◯ 1d)$\overline{3d}$ ◯
2d)$\overline{3d}$ ◯ 2d)$\overline{4d}$ ◯
2d)$\overline{3d}$ with R ◯ 2d)$\overline{4d}$ with R ◯
Estimate quotients
795 ÷ 23 ≐ 800 ÷ 20 = 40 ◯

Time testing Basic Facts ◯
2d)$\overline{5d}$ with R ◯
Division by Algorithm ◯
Quotients as mixed numerals
24 ÷ 5 = $4\frac{4}{5}$ ◯

Reads numbers
to 1000 ◯
to 1000000 ◯

Writes numbers in powers of 10. ◯
Reads and charts decimal numbers. ◯

Equivalent fractions
$\frac{1}{4} = \frac{\square}{8}$ ◯
Reduce to lowest terms ◯

Equivalent fractions in lowest terms ◯
Converts fractions to decimals ◯

Applies associative principle to +, x ◯
Uses distributive principle for multiplication ◯
3 x (70 + 4) = 3 x 70 + 3 x 4 = 210 + 12 = 222 ◯
Perform basic operations with money values ($.33 x 4) ◯
Two step addition and subtraction problems ◯
One step multiplication problems ◯
One step division problems ◯
Two step problems mixed operations ◯

Time Division

Many teachers have found the time division at the right to be very effective.

Warm Up is intended to stimulate pupils and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other game type activities.

Developmental Activities is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Division

Warm Up

Developmental Activities and Practice

Review

Review Exercises

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

The written review activity could be used at any appropriate time during the math period, but should probably be used after some developmental oral and/or written activity that reviews the concepts and skills that are represented in the activity. The review activities could give you some feedback as to how well your pupils understand the material presented and what needs they have for reteaching and reinforcement at this time or when it comes up during the year again.

After a general explanation of what is involved in the written review activity, pairs of pupils, small groups as well as individual pupils, could complete the activity. Pupil presentations of correct solutions on the chalkboard after completion is also effective. These reviews are to remind and maintain skills and not tests.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Addition

Basic Facts

To analyze facts needing practice, pupils could check (✓) those they know on an addition and multiplication table. They could also make their own set of flash cards as they 'really' learn each fact.

×	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Multiplication

A Drill and Practice Format

This is a format that could be used as drill and practice for basic facts. The directions to be issued would be to add, or multiply, row one by the specified number.

	3	5	7	6	0	1	2	8	10	4	9	100
+3	6	8	10	9	3	4	5	11	13	7	12	103
+9	12	14	16	15	9	10	11	17	19	13	18	109
X2	6	10	14	12	0	2	4	16	20	8	18	200

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	2	8	10	4	9	100

	3	5	7	6	0	1	8	2	10	4	9	100

1st Day

Warm Up:

"Within the next few days we will review the Basic Facts at the beginning of each Math period. Let's see how well you know how to add 0, 1, 2, 3 and subtract 1?"

Note: Use +1, +2, +3, -1 facts in Warm Up Activities.

Review Activities:

Objective: The pupil will be able to rename numbers to tens and ones place.

Comments: Problem 1 of each Review Exercise, below, will contain Basic Facts that you will have used in your Warm Up. Urge pupils to complete those quickly to develop speed and accuracy. Problems 2-7 are place value readiness for the addition subtraction algorithm. Use Review Exercises I as a culminating activity.

2nd Day

Warm Up:

"Today we will not only use those easy facts in our warm up, but we will use the doubles and one more than the doubles. I know you know 5+5, then 5+6 is just one more. 7+7, 7+8, etc."

Review Activities:

Objective: The pupil will be able to add with and without renaming.

Comments: Regrouping in addition is fundamental by this level. Pupils should be working toward speed and accuracy. "Word problems will appear regularly in the Review reminding you that Problem Solving must be emphasized continually. The completed problem in the "box" will give the pupil a model of a solution of a problem.

cut-to make thermofax master

I. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+1			8									
+3							5					
+2												102

Renaming Numbers

$$\begin{array}{r} {}^{2}\cancel{4}{}^{11}\cancel{3}1 \\ -\ 126 \\ \hline \end{array}$$

$$\begin{array}{r} {}^{1}\ \ 67 \\ +\ 23 \\ \hline 0 \end{array}$$

2. 3 tens + 13 ones = ☐ tens + 3 ones or ☐

3. 7 tens + 14 ones = ☐ tens + 4 ones or ☐

4. [43] 4 tens, ☐ ones or 3 tens, ☐ ones

5. [357] 300 + ☐ + 7 or 200 + ☐ + 7

6. [241] 200 + ☐ + 1 or 200 + 30 + ☐

7. [903] 900 + ☐ + 3 or 800 + ☐ + 3

Unified School District No. 1
Racine, Wisconsin

II. Review Exercises

NAME _____

SCORE _____

1.

5	4	6	9	8	7	7	6	4	7
+5	+4	+5	+9	+8	+7	+8	+6	+3	+6

94 + 35 = ☐ 3 87 4 624 5 6 ☐

Objective: The pupil will be able to rename numbers to tens and ones place.

Comments: Problem 1 of each Review Exercise, below, will contain Basic Facts that you will have used in your Warm Up. Urge pupils to complete those quickly to develop speed and accuracy. Problems 2-7 are place value readiness for the addition subtraction algorithm. Use Review Exercises I as a culminating activity.

Objective: The pupil will be able to add with and without renaming.

Comments: Regrouping in addition is fundamental by this level. Pupils should be working toward speed and accuracy. "Word problems will appear regularly in the Review reminding you that Problem Solving must be emphasized continually. The completed problem in the "box" will give the pupil a model of a solution of a problem.

cut-to make thermofax master

I. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+1			8									
+3							5					
+2												102

Renaming Numbers

$\overset{2\,11}{431} - 126$

$\overset{1}{67} + 23 = 0$

2. 3 tens + 13 ones = ☐ tens + 3 ones or ☐

3. 7 tens + 14 ones = ☐ tens + 4 ones or ☐

4. [43] 4 tens, ☐ ones or 3 tens, ☐ ones

5. [357] 300 + ☐ + 7 or 200 + ☐ + 7

6. [241] 200 + ☐ + 1 or 200 + 30 + ☐

7. [903] 900 + ☐ + 3 or 800 + ☐ + 3

Unified School District No. 1
Racine, Wisconsin

II. Review Exercises

NAME _____

SCORE _____

1.

5	4	6	9	8	7	7	6	4	7
+5	+4	+5	+9	+8	+7	+8	+6	+3	+6

2. 24 + 35 = ☐

3. $87 + 56$

4. $624 + 615$

5. $6 + 9 + 8 + 7$

$\overset{1\,1}{987} + 649 = 1636$

6. $428 + 679$

7. $324 + 513 + 247$

8. $2346 + 5827$

9. Mrs. Smith's class has 11 girls and 20 boys. How many pupils are there in Mrs. Smith's class?

☐

10. How much money must Nancy have in order to buy three gifts? One gift cost $1.28, another costs $.73 and the third one costs $2.45.

$ ☐

Unified School District No. 1
Racine, Wisconsin

3rd Day

Warm Up:
"The 10's combinations are important: 6+4, 7+3, etc. If we really know those, then 8+3 is just one more than 8+2. Adding 10 is easy; adding 9 is just one less."

Review Activities:

Objective: The pupil will be able to subtract up to 4d - 4d with renaming.

Comments: Subtraction across zeros (#8) is a source of error. Extra Practice page 307 in the back of the book is a good source for oral and board work with some written challenge. Remind pupils how to check subtraction. Use III as a culminating activity.

4th Day

Warm Up:
"Do you have a way to remember 5+7, 5+8, 6+3, 8+6? How about subtraction facts like 12-9? Do the addition facts you really know help you remember the subtraction facts?

Review Activities:

Objective: The pupil will be able to solve a mixed set of addition-subtraction problems.

Comments: Addition and subtraction errors are often caused by carelessness. Remind pupils to write problems neatly and clearly to lessen the possibility of error. Stress checking results. Use IV as a culminating activity.

III. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+10			17									
+9										13		

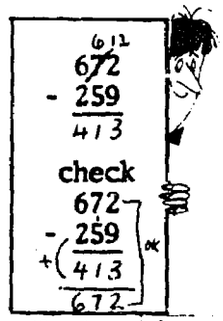
2. 7 +4 ; 9 +2 ; 10 - 6

3. 37 - 13

4. 67 - 28

5. 546 - 123

6. 782 - 514



7. 8937 - 458

8. 7002 - 6685

9. Bob had 162 books in his house. He let his friend Tom have 38 of them. How many does he have left?

10. Joan saved $57.30 for a trip to Chicago. The bus ticket cost $5.35. How much money did she have left to spend in Chicago?

$

Unified School District No. 1
Racine, Wisconsin

IV. Review Exercises

NAME _____
SCORE _____

1.

5	6	5	6	15	5	15	5	8	12
+ 7	+ 8	+ 8	+ 3	- 9	+ 8	- 7	+ 3	- 5	- 9

Objective: The pupil will be able to subtract up to 4d - 4d with renaming.

Comments: Subtraction across zeros (#8) is a source of error. Extra Practice page 307 in the back of the book is a good source for oral and board work with some written challenge. Remind pupils how to check subtraction. Use III as a culminating activity.

Objective: The pupil will be able to solve a mixed set of addition-subtraction problems.

Comments: Addition and subtraction errors are often caused by carelessness. Remind pupils to write problems neatly and clearly to lessen the possibility of error. Stress checking results. Use IV as a culminating activity.

III. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+10			17									
+9										13		

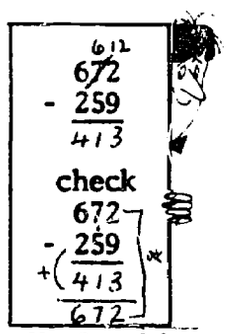
2. 7 +4 ; 9 +2 ; 10 - 6

3. 37 - 13

4. 67 - 28

5. 546 - 123

6. 782 - 514



7. 8937 - 458

8. 7002 - 6685

9. Bob had 162 books in his house. He let his friend Tom have 38 of them. How many does he have left?

10. Joan saved $57.30 for a trip to Chicago. The bus ticket cost $5.35. How much money did she have left to spend in Chicago?

$

Unified School District No. 1
Racine, Wisconsin

IV. Review Exercises

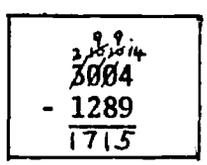
NAME _____
SCORE _____

1. 5 + 7 ; 6 + 8 ; 5 + 8 ; 6 + 3 ; 15 - 9 ; 5 + 8 ; 15 - 7 ; 5 + 3 ; 8 - 5 ; 12 - 9

2. 473 - 299

3. 734 - 367

4. 1314 + 1516 + 1718



5. 114 + 228 + 3674

6. 503 - 219

7. 6002 - 2572

8. The town of Bend has 5003 people. Osborn has 2374 people. How many more live in Bend?

Unified School District No. 1
Racine, Wisconsin

5th Day

Warm Up:
"Which facts are giving us trouble? Should we use only those facts that need work? How about Subtraction facts?"

Review Activities:

Objective: The pupils will be able to add and subtract fractions and reduce to lowest terms.

Comments: This is the only review lesson that is not contained in the first Learning Stage but in the second. This could be a good time to see how much pupils remember of fractions. Review reducing to lowest terms to remind them of the process. Use V.

6th Day

Warm Up:
"How good are you at remembering multiplication facts? In the next few days we will work on the multiplication facts so that all of you will become more proficient. Multiplying by 2 are our doubles; by 4 are double the doubles; by 5 is counting by 5."

Review Activities:

Objective: The pupil will be able to multiply to 3d x 1d.

Comments: Remind pupils of multiplying by 1 and 0. Zeros in a factor seems to give pupils trouble. This review could serve well with page 26. Use VI.

V. Review Exercises

NAME _____
SCORE _____

1.

12	12	17	11	14	13	9	8	6	4
− 7	− 3	− 8	− 6	− 9	− 8	+ 7	+ 3	+ 4	+ 9

Reduce to Lowest Terms:

2. $\frac{2}{9} + \frac{5}{9} =$

3. $\frac{5}{8} - \frac{1}{8} =$

4. $\frac{9}{10} + \frac{3}{10} =$

5. $8\frac{1}{12} + 4\frac{1}{4}$

6. $4 - 1\frac{5}{6}$

7. $1\frac{7}{12} + 1\frac{7}{8}$

$\frac{12}{10} = 1\frac{2}{10} = 1\frac{1}{5}$

$3\frac{1\times3}{4\times3} = 3\frac{3}{12}$
$+ \frac{2\times4}{3\times4} \quad \frac{8}{12}$
$3\frac{11}{12}$

$8\frac{3\times4}{5\times4} = 8\frac{12}{20} = 7\frac{32}{20}$
$- 2\frac{3\times5}{4\times5} = 2\frac{15}{20} - 2\frac{15}{20}$
$5\frac{17}{20}$

8. Mary baked cookies and a cake. The cookies called for $1\frac{1}{8}$ cups of sugar and the cake called for $\frac{3}{4}$ of a cup. How much sugar did she use?

Unified School District No. 1
Racine, Wisconsin

VI. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x2			14									

783 x 5

41
783 x 5

and subtract fractions and reduce to lowest terms.

Comments: This is the only review lesson that is not contained in the first Learning Stage but in the second. This could be a good time to see how much pupils remember of fractions. Review reducing to lowest terms to remind them of the process. Use V.

Objective: The pupil will be able to multiply to 3d x 1d.

Comments: Remind pupils of multiplying by 1 and 0. Zeros in a factor seems to give pupils trouble. This review could serve well with page 26. Use VI.

V. Review Exercises

NAME _____
SCORE _____

1.

12	12	17	11	14	13	9	8	6	4
- 7	- 3	- 8	- 6	- 9	- 8	+ 7	+ 3	+ 4	+ 9

Reduce to Lowest Terms:

2. $\frac{2}{9} + \frac{5}{9} =$

3. $\frac{5}{8} - \frac{1}{8} =$

4. $\frac{9}{10} + \frac{3}{10} =$

5. $8\frac{1}{12} + 4\frac{1}{4}$

6. $4\frac{5}{6} - 1\frac{1}{6}$

7. $1\frac{7}{12} + 1\frac{7}{8}$

$\frac{12}{10} = 1\frac{2}{10} = 1\frac{1}{5}$

$3\frac{1\times3}{4\times3} = 3\frac{3}{12}$

$+ \frac{2\times4}{3\times4} \quad \frac{8}{12}$

$3\frac{11}{12}$

$8\frac{3\times4}{5\times4} = 8\frac{12}{20} = 7\frac{32}{20}$

$- 2\frac{3\times5}{4\times5} = 2\frac{15}{20} - 2\frac{15}{20}$

$5\frac{17}{20}$

8. Mary baked cookies and a cake. The cookies called for $1\frac{1}{8}$ cups of sugar and the cake called for $\frac{3}{4}$ of a cup. How much sugar did she use?

VI. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x2			14									
x4								32				
x5		25										

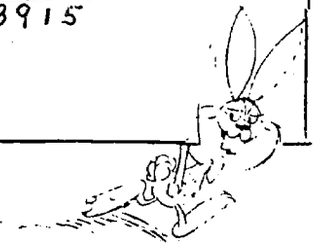
783 x 5 = 15, 400, 3500 = 3915

41
783 x 5 = 3915

2. 68 x 4

3. 678 x 2

4. 705 x 5



5. 980 x 4

6. 307 x 4

7. There are 12 boys in Mrs. Thompson's cub scout den. They went on a picnic. Each boy ate 4 hot dogs. How many hot dogs did the boys eat altogether?

8. If a ship sailed on the average of 287 miles a day for 5 days, how far did it go?

7th Day

Warm Up:
"Let's get good at multiplying by 3 and by 9. Do you see patterns that will help you remember? (3x7 = (2x7) + 7; 4x9 = 36, sum of digits in product is always 9. 10's digit is one less than number multiplied by 9.)

Review Activities:

Objective: The pupil will be able to multiply up to 3d x 2d.

Comments: Row 4 of the drill grid means 4 times 1st Row, then add 3: $(4 \times \square) + 3$. This lesson continues the multiplication algorithm to a 2-digit multiplier. Use VII.

8th Day

Warm Up:
"Let's use all of the multiplication facts that we have reviewed already in our warm-up activities and add x3, x6."

Review Activities:

Objective: The pupil will be able to multiply up to 3d x 3d.

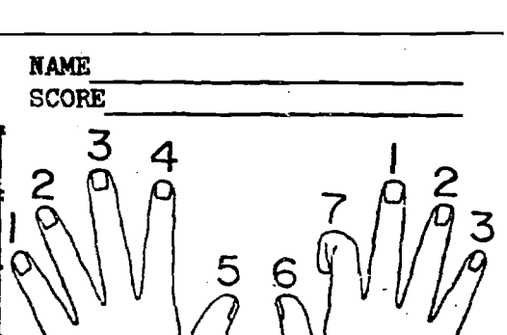
Comments: Discovering More About Numbers page 337 in back of book could be explored for enrichment. Make note of "middle zero" difficulties your pupils may be having. Use VIII.

VII. Review Exercises

NAME _____
SCORE _____

1.

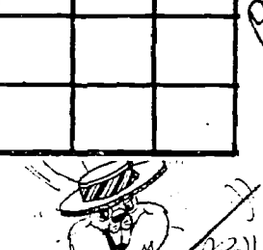
	3	5	7	6	0	1	2	8	10	4	9
x3		15									
x9				54							
x 4; +3							11				



2. 61 x 34

3. 85 x 93

4. 123 x 42



Did you know that you could use your fingers to multiply by 9? 7x9 -- Bend the 7th finger; 6 to the left are 6 tens or 60, 3 to the right are 3 ones or 3, thus 7x9 = 63. Try other products. Does it work?

5. 609 x 43

6. 508 x 29

7. A warehouse shipped 15 cases of paper napkins to a store. The napkins sold for $8.80 a case. What was the total cost of the shipment?

$ _____

605	
x 39	
5445	
18150	
23595	

VIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x3								6				

249	986
x 529	x 302
2241	1972

Objective: The pupil will be able to multiply up to 3d x 2d.

Comments: Row 4 of the drill grid means 4 times 1st Row, then add 3: $(4 \times \square) + 3$. This lesson continues the multiplication algorithm to a 2-digit multiplier. Use VII.

Objective: The pupil will be able to multiply up to 3d x 3d.

Comments: Discovering More About Numbers page 337 in back of book could be explored for enrichment. Make note of "middle zero" difficulties your pupils may be having. Use VIII.

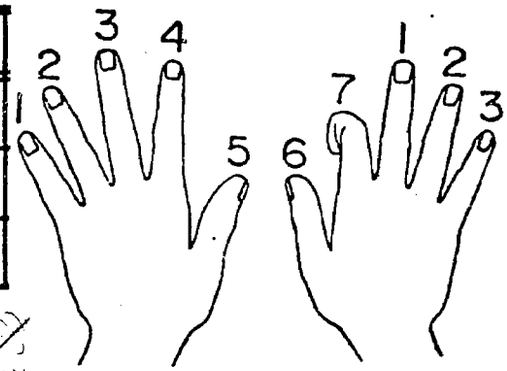
VII. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9
x3		15									
x9				54							
x4; +3							11				



2. 61 x 34

3. 85 x 93

4. 123 x 42

Did you know that you could use your fingers to multiply by 9? 7x9 -- Bend the 7th finger; 6 to the left are 6 tens or 60, 3 to the right are 3 ones or 3, thus 7x9 = 63. Try other products. Does it work?

5. 609 x 43

6. 508 x 29

7. A warehouse shipped 15 cases of paper napkins to a store. The napkins sold for $8.80 a case. What was the total cost of the shipment?

$ _____

VIII. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x3								6				
x6												600
x5; +4		29										

249 x 529	986 x 302
2241	1972
4980	29580
124500	
131721	297772

2. 32 x 36

3. 241 x 61

4. 116 x 263

5. 825 x 306

9th Day

arm Up:
Is there a relationship between multiplying y 4 and by 8?"

Review Activities:

Objective: The pupil will be able to divide up to 5d ÷ 2d no remainder.

Comments: Your pupils should be using the division algorithm but some may still be using the "ladder" method. Hopefully the transition will be made. Again this lesson will work well with the pages of the first Learning Stage. (pp 34-41) Use IX.

10th Day

Warm Up:
"How about multiplying by 7? 'Knowing' the multiplication facts aids in remembering the division facts."

Review Activities:

Objective: The pupil will be able to divide up to 4d ÷ 2d with remainder; find the average of a set of numbers.

Comments: The idea of average should be discussed as a process -- add and divide. The statistical implications of average is a nice enrichment topic. Stress checking of division problems. Use X.

IX. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X4							8					
X8										32		
X3; +5		20										

$6.70
84)$562.80
504
588
588
0

6.70
× 84
2680
536
$562.80

2. 6)348

3. 8)4976

4. 9)4536

5. 83)913

6. 67)$83.08

7. 22)52074

Unified School District No. 1
Racine, Wisconsin

8. A jet made a trip from Seattle to Rome, a distance of about 5800 miles, in 11 hours. About what was the average speed of the plane? (Round off answer to nearest whole number.)

X. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X7						7						

2. 6)42 4)36

8)56 4)28

Objective: The pupil will be able to divide up to 5d ÷ 2d no remainder.

Comments: Your pupils should be using the division algorithm but some may still be using the "ladder" method. Hopefully the transition will be made. Again this lesson will work well with the pages of the first Learning Stage. (pp 34-41) Use IX.

Objective: The pupil will be able to divide up to 4d ÷ 2d with remainder; find the average of a set of numbers.

Comments: The idea of average should be discussed as a process -- add and divide. The statistical implications of average is a nice enrichment topic. Stress checking of division problems. Use X.

IX. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X4							8					
X8										32		
X3; +5		20										

$6.70
84)$562.80
504
588
588
0

6.70
× 84
2680
5360
$562.80

2. 6)348

3. 8)4976

4. 9)4536

5. 83)913

6. 67)$83.08

7. 22)52074

Unified School District No. 1
Racine, Wisconsin

8. A jet made a trip from Seattle to Rome, a distance of about 5800 miles, in 11 hours. About what was the average speed of the plane? (Round off answer to nearest whole number.)

X. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
X7						7						
X50								400				
X70				420								

2. 6)42 4)36

8)56 4)28

5)30 9)81

3. 51)4012

4. 73)2914

5. 79)4264

78R7
98)7651
686
791
784
7

or 78 7/98

CHECK
98
× 78
784
686
7644
+ 7
7651

6. Find the average of the following test scores: 76, 84, 88, 92, 85.

11th Day

Warm Up:

"In one Warm Up activity, I'm going to choose basic facts from addition, subtraction, multiplication or division."

Review Activities:

Objective: The pupil will review addition and subtraction of decimals; multiplication using money.

Comments: This is a review of addition, subtraction and multiplication using decimals. At this point, just remind pupils to keep the decimal point "in line." Use XI.

12th Day

Warm Up:

"We will continue to keep skillful with basic facts."

Review Activities:

Objective: The pupil will be able to multiply fractions.

Comments: Remind pupils of the "method" -- multiply numerators, denominators, and reduce -- wait for Learning Stage 3 to reestablish understanding. Have children notemodel problems in "box."

XI. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x30												
x40												
x9; +3												

2. 13.6 + 9.2

3. 3.528 - 1.694

4. 3.72 + 4.05 + 7.21

5. $3.24 x 26

6. 52 - 17.89 =

7. 3.02 + 14.143 =

8. A store sold 92 notebooks for a total of $35.88. Each notebook was the same price. How much did each notebook cost?

$ ____

Unified School District No. 1
Racine, Wisconsin

XII. Review Exercises

NAME _____

SCORE _____

8 + 7 | 14 - 6 | 9 x 6 | 7)49 | 7 x 8 | 6 x 7 | 15 - 6 | 17 - 9 | 4)36 | 300 + 800

Objective: The pupil will review addition and subtraction of decimals; multiplication using money.

Comments: This is a review of addition, subtraction and multiplication using decimals. At this point, just remind pupils to keep the decimal point "in line." Use XI.

XI. Review Exercises

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	8	2	10	4	9	100
x30												
x40												
x9; +3												

2. $\begin{array}{r} 13.6 \\ +\ 9.2 \\ \hline \end{array}$

3. $\begin{array}{r} 3.528 \\ -\ 1.694 \\ \hline \end{array}$

4. $\begin{array}{r} 3.72 \\ 4.05 \\ +\ 7.21 \\ \hline \end{array}$

5. $\begin{array}{r} \$3.24 \\ \times\ 26 \\ \hline \end{array}$

6. 52 - 17.89 =

7. 3.02 + 14.143 =

8. A store sold 92 notebooks for a total of $35.88. Each notebook was the same price. How much did each notebook cost?

$ ____

Unified School District No. 1
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Objective: The pupil will be able to multiply fractions.

Comments: Remind pupils of the "method" -- multiply numerators, denominators, and reduce -- wait for Learning Stage 3 to reestablish understanding. Have children notemodel problems in "box."

XII. Review Exercises

NAME _____

SCORE _____

1. $\begin{array}{r} 8 \\ +\ 7 \\ \hline \end{array}$ $\begin{array}{r} 14 \\ -\ 6 \\ \hline \end{array}$ $\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array}$ $7\overline{)49}$ $\begin{array}{r} 7 \\ \times\ 8 \\ \hline \end{array}$ $\begin{array}{r} 6 \\ \times\ 7 \\ \hline \end{array}$ $\begin{array}{r} 15 \\ -\ 6 \\ \hline \end{array}$ $\begin{array}{r} 17 \\ -\ 9 \\ \hline \end{array}$ $4\overline{)36}$ $\begin{array}{r} 300 \\ +\ 800 \\ \hline \end{array}$

2. $\frac{2}{3} \times \frac{2}{3} =$

3. $\frac{1}{3} \times 5 =$

4. $4 \times \frac{3}{8} =$

5. $\frac{1}{4}$ of 24 =

6. $\frac{3}{8}$ of 48 =

Bob took a math test with 20 problems. He got $\frac{3}{4}$ of them right. How many did he answer correctly?

____

$\frac{3}{4}$ of $48 = \frac{3}{4} \times \frac{48}{1}$

$= \frac{3 \times 48}{4 \times 1} = \frac{144}{4} = 36$

$\frac{2}{3} \times \frac{5}{9} = \frac{2 \times 5}{3 \times 9} = \frac{10}{27}$

$\frac{1}{3}$ of 2 ft. = 8 in.

$\frac{1}{3} \times \frac{24}{1} = \frac{24}{3} = 8$

$\frac{3}{4} \times \frac{5}{7} = \frac{3 \times 5}{4 \times 7} = \frac{15}{28}$

13th Day

Warm Up:
"Which facts should we use in our activities today?"

Review Activities:

Objective: Mixed problems

Comments: This is a random set of mixed problems. A mixed set of problems of this type given almost daily will help keep pupils skillful in topics that were previously covered. This is especially true when you are covering a topic like fractions and "leave" whole numbers. Use XIII.

14th Day

Warm Up:
"How about just subtraction facts today?"

Review Activities:

Objective: Mixed Problems

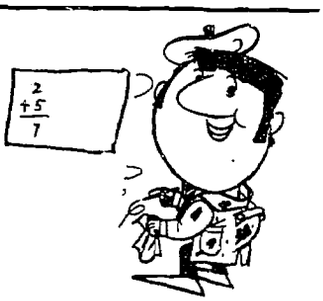
Comments: It is hoped that you will make every effort to move into Learning Stage 2 on "schedule." While working in L.S. 2 you should continue to review the operations with whole numbers keeping pupils skillful on a continual basis. The Warm Up Activities should be continued using more challenging "mental" arithmetic as pupils become skillful in Basic Facts. Use XIV.

XIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x6					0							
x8									80			
+7							9					



2. 1843 + 249 + 9029 + 4614

3. 623 x 95

4. 67)5025

5. 3000 - 1651

6. $3\frac{3}{5} + 4\frac{4}{5}$

7. 600 x 600 =

8. Find the average of the following spelling test scores:
18, 14, 19, 20, 19

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XIV. Review Exercises

NAME _____
SCORE _____

1.	11	12	14	11	12	14	13	17	18	16
	- 3	- 5	- 5	- 6	- 4	- 9	- 8	- 8	- 9	- 7

Objective: Mixed problems

Comments: This is a random set of mixed problems. A mixed set of problems of this type given almost daily will help keep pupils skillful in topics that were previously covered. This is especially true when you are covering a topic like fractions and "leave" whole numbers. Use XIII.

Objective: Mixed Problems

Comments: It is hoped that you will make every effort to move into Learning Stage 2 on "schedule." While working in L.S. 2 you should continue to review the operations with whole numbers keeping pupils skillful on a continual basis. The Warm Up Activities should be continued using more challenging "mental" arithmetic as pupils become skillful in Basic Facts. Use XIV.

XIII. Review Exercises

NAME _____
SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
x6					0							
x8									80			
+7							9					

2. 1843 + 249 + 9029 + 4614

3. 623 x 95

4. 67)5025

5. 3000 - 1651

6. $3\frac{3}{5} + 4\frac{4}{5}$

7. 600 x 600 =

8. Find the average of the following spelling test scores:
18, 14, 19, 20, 19

XIV. Review Exercises

NAME _____
SCORE _____

1.

11	12	14	11	12	14	13	17	18	16
- 3	- 5	- 5	- 6	- 4	- 9	- 8	- 8	- 9	- 7

2. 16 + ☐ = 33

3. 56 ÷ ☐ = 8

4. ☐ - 18 = 23

5. 9 x ☐ = 108

6. ☐ ÷ 24 = 1

7. 18 x 9 = ☐ x 18

8. (5x8) x 6 = 5 x (x)

9. 3 x (4+2) = 12 + (☐ x 2)

10. ☐ + 125 = 125

11. 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = ☐ x 5

Grade Seven Review

Division of Instructional Services
Unified School District No. 1 of Racine County
Racine, Wisconsin

Department of Mathematics

TO: Junior High School Principals
All Seventh Grade Mathematics Teachers

FROM: John D. Aceto, Consultant in Mathematics

SUBJECT: Review Program for Computational Skills

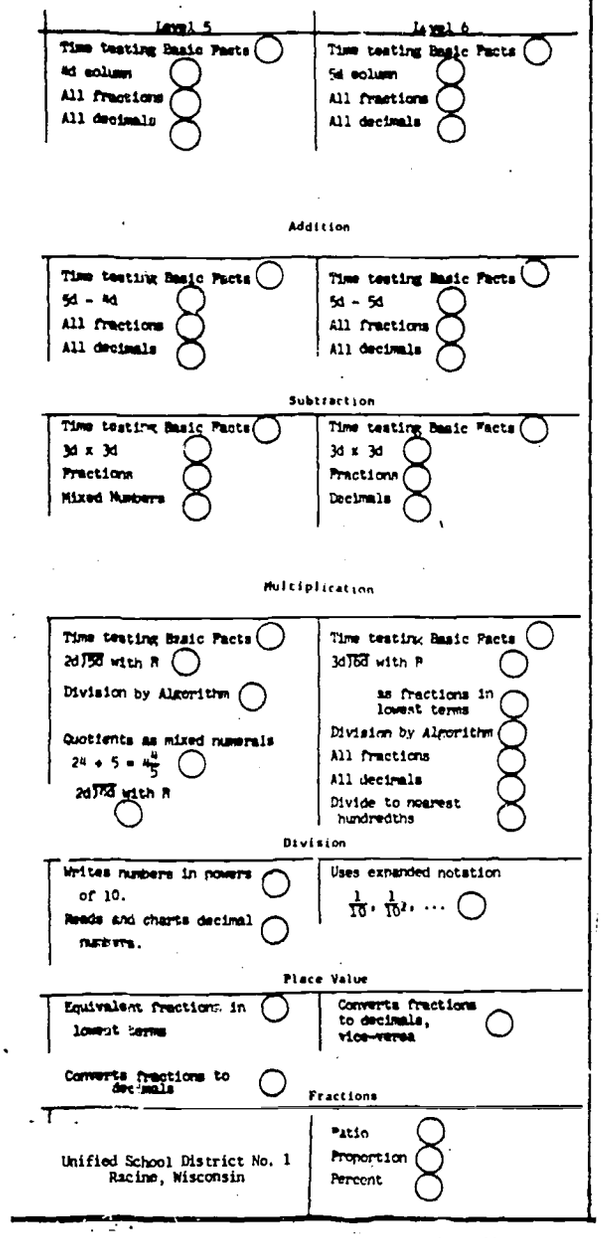
We recognize that our pupils need a reminder of the arithmetic skills learned in previous years and practice to maintain them. This package is designed to help meet these needs. It is a series of brief review exercises to be used during the 2nd, 3rd, and 4th weeks of school.

All of the mathematics in this package is legitimate elementary school mathematics. All of your students have been exposed to the mathematics this package contains. It would be unrealistic to expect top performance on a diagnostic test on the first day of school. It would also waste teacher's time to prescribe remedial work for students who only need a brief reminder of skills previously learned in order to do well at them. This set is intended to provide that brief review. It may be assumed then that students who fail a specific diagnostic item need more than a brief review of that particular skill.

Please give one review exercise each day. Either copy the exercises on the chalkboard or supply ditto copies from a thermofax master made from the contents of this package. Have the pupils correct the solutions during class, discussing exercises causing trouble. Continue with your usual mathematics lessons, but use these reviews as a guide assigning extra practice.

During the fifth week you will be asked to give a test which will be in the standardized test format. The results will be analyzed on a district-wide basis giving us diagnostic capabilities to better provide for individual needs of our pupils.

If I can render any assistance, please do not hesitate to call.



Time Division

Many teachers have found the time division at the right to be very effective.

The chart at the left represents the exposure of the computation component of our District's mathematics program for grades 5 and 6.

On the basis of test results for the junior high school population there is an apparent need to develop and maintain computational skills on a regular basis. The contents of this package and/or contents of the 5th and 6th grade review package could be used to help remind pupils and give you information on what the needs of our pupils are in computation.

Much work has been done at the elementary school to bette prepare your pupils; this effort must be continued.

As you use this package and/or other packages you may want pairs of pupils or small groups of pupils, as well as individual pupils, to complete the exercises. The objective is to get all pupils skillful and remain skillful.

Mathematics Class Time Division

- **Warm Up**
- **Developmental Activities and Practice**
- **Review**
- **Review Exercises**

Warm up (Day-by-day activities are suggested in the 6th grade package.) Warm up is intended to stimulate pupils and maintain skills in Basic Facts. A two to five minute activity at the beginning of each math period is usually quite effective. These activities can take the form of contests, flash card drills, mental arithmetic and other competative type activities.

Developmental Activity is the heart of the mathematics lesson when pupils are involved in learning, discovering and exploring mathematics; practicing and refining understanding.

Review serves as instructional closure; maintaining computational skills, maintaining problem solving skills, remediating, and enriching.

I Addition - Whole Numbers

Objectives

a) To review whole number addition
b) To review column addition
c) To review addition of money

Warm Up

"During the next two weeks we will review the basic facts at the beginning of each math class. Let's see how well you know the addition facts for 3, 7, 9.

Comments

a) Remind students to place decimals under each other when adding or subtracting. (Problem 4)
b) Problem 8 involves subtraction.

Answers

2) 679 3) 94 4) $23.90 5) 259 6) 4070 7) 2708 8) 18 9) 473 10) 66,884 cars

II Subtraction - Whole Numbers

Objectives

a) To review whole number subtraction to 5d minus 5d
b) To review subtraction of money

Warm Up

"Basic subtraction facts, simple? Let's see if you can subtract using 4, 3 and 6.

Comments

a) Problem 6 involves addition. Now may be the time to review the relations between addition and subtraction as inverse operations.

Answers

2) 34 3) 724 4) 457 5) 1086 6) 7172 7) 4128 8) 6715 9) 54489 10) 1,198 people fewer

---cut to make thermofax master---

NAME _____
SCORE _____

I Addition - Whole Numbers

+	3	5	7	6	0	1	2	8	10	4	9	100
3									13			
7					7							
9		14										

2. 552 + 127

3. 75 + 19

4. $5.47 + $8.86 = $9.57

5. 195 + 64

6. 3998 + 72

7. 750 + 435 + 908 + 615 =

8. 34 + ☐ = 52

9. 346 - ☐ = 127

10. During one week, just after the new models appeared, the production of three makes of cars was: Chevrolet 32,264; Ford 28,788; Plymouth 5,832. How many cars were produced that week?

Unified School District No. 1
Racine, Wisconsin

NAME _____
SCORE _____

II Subtraction - Whole Numbers

-	6	8	14	7	30	10	25	9	12	15	20	100
4				3								
		5										

Addition Facts for 3, 7, 9.

Comments

a) Remind students to place decimals under each other when adding or subtracting. (Problem 4)
b) Problem 8 involves subtraction.

Answers

2) 679 3) 94 4) $23.90 5) 259 6) 4070 7) 2708 8) 18 9) 473 10) 66,884 cars

Comments

a) Problem 6 involves addition. Now may be the time to review the relations between addition and subtraction as inverse operations.

Answers

2) 34 3) 724 4) 457 5) 1086 6) 7172 7) 4128 8) 6715 9) 54489 10) 1,198 people fewer

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NAME _____
SCORE _____

I Addition - Whole Numbers

+	3	5	7	6	0	1	2	8	10	4	9	100
3									13			
7					7							
9		14										

2. 552 + 127

3. 75 + 19

4. $5.47 + $8.86 = $9.57

5. 195 + 64

6. 3998 + 72

7. 750 + 435 + 908 + 615 =

8. 34 + ☐ = 52

9. 346 - ☐ = 127

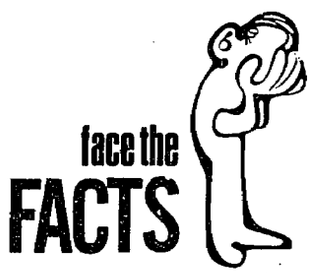
10. During one week, just after the new models appeared, the production of three makes of cars was: Chevrolet 32,264; Ford 28,788; Plymouth 5,832. How many cars were produced that week?

Unified School District No. 1
Racine, Wisconsin

NAME _____
SCORE _____

II Subtraction - Whole Numbers

-	6	8	14	7	30	10	25	9	12	15	20	100
4				3								
3		5										
6									6			



2. 37 - 13

3. 782 - 58

4. 535 - 78

5. 3937 - 2851

6. 7251 + 79 =

7. 4306 - 178

8. 8004 - 1289

9. 56,163 - 1,674

10. At an international amateur hockey game, there was a sellout crowd of 4065. At another game in the same tournament, the crowd was only 2867. How many fewer persons were at the second game?

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Racine, Wisconsin

III Multiplication of Whole Numbers.

Objectives

a) To review multiplication of whole numbers to 5dx5d
b) To review multiplication of dollars times a whole number

Warm Up

Do you recall the basic multiplication facts?

Comment

a) Remind students that decimal points must be properly placed in decimal products. Problem 4.
b) Problem 6 is a feet to inches conversion.
c) Explain the meaning of "average" as used in problem 7
d) Problems 8, 9, 10 are missing factor sentences.

Answers

1. 15,466 2. 3551 3. 162 4. $32.80 5. 608 6. 252 sq. in. 7. 4,880 in. 8. 8 9. 80 10. 88

IV Division of Whole Numbers

Objectives

a) To review division of whole number to 5d : 2d
b) To review division of dollars by a whole number

Warm Up

If you know how to divide by 5, is it easier to divide by 50?

Comments

a) The table is a multiplication exercise intenced to aid the student with some of the dursion work.
b) Some students may not be using a mature division algorithm
c) Problem 6 is a multiplication problem.
d) Problem 7 and 8 require proper placement of the decimal point.

Answers

1. 8R3 2. 607R4 3. 790R4 4. 50R3 5. 52R39 6. 57 7. $6.34 8. $3.52 9. 8 10. 105R28

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NAME_____

III Multiplication of Whole Numbers SCORE_____

Complete this table

X	5	6	7	8	9
6					
7					
8					

Find these products

1. 209 x74
2. 53 x67
3. 18 x9
4. $3.28 x.10
5. 304 x2
6. What is the area in square inches of a rectangular region 3 feet long and 7 inches wide?

Unified School District No. 1
Racine, Wisconsin

7. If an airplane travels at an average speed of 610 miles an hour, how far will it travel in 8 hours?

8. ☐ x 6 = 48
9. ☐ x 6 = 480
10. ☐ x 6 = 528

NAME_____

IV Division of Whole Numbers SCORE_____

Complete this table

X	2	4	8	10	100
7					

1. $7\overline{)59}$
2. $8\overline{)4860}$
3. $9\overline{)7114}$
4. $60\overline{)3003}$
5. $57\overline{)3003}$

b) Problem 6 is a feet to inches conversion.
c) Explain the meaning of "average" as used in problem 7
d) Problems 8, 9, 10 are missing factor sentences.

Answers
1. 15,466 2. 3551 3. 162 4. $32.80 5. 608
6. 252 sq. in. 7. 4,880 in. 8. 8 9. 80
10. 88

dursion work.
b) Some students may not be using a mature division algorithm
c) Problem 6 is a multiplication problem.
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Answers
1. 8R3 2. 607R4 3. 790R4 4. 50R3 5. 52R39
6. 57 7. $6.34 8. $3.52 9. 8 10. 105R28

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NAME _____
SCORE _____

III Multiplication of Whole Numbers

Complete this table

X	5	6	7	8	9
6					
7					
8					

Find these products

1. 209 x74
2. 53 x67
3. 18 x9
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10. ☐ x 6 = 528

NAME _____
SCORE _____

IV Division of Whole Numbers

Complete this table

X	2	4	8	10	100
7					
50					
57					

Unified School District No. 1
Racine, Wisconsin

1. $7\overline{)59}$
2. $8\overline{)4860}$
3. $9\overline{)7114}$
4. $60\overline{)3003}$
5. $57\overline{)3003}$
6. 456 ÷ ☐ = 8
7. $52\overline{)\$329.68}$
8. $7\overline{)\$24.6}$
9. 56 ÷ 7 =
10. $36\overline{)3803}$

VII Fractions - Multiplications

Objectives

a) To review reducing of simple fractions. Unreduced fractions whose numerator and denominator have a G.C.E. of 2, 3, 5 & 10
b) To review the product of common fractions with reducing
c) To review the product of a unit fraction and a whole number as a quotient.
d) To review changing fractions to mixed forms.

Warm Up

What number divides both 12 and 16? Is that the largest such number? What is the difference between $\frac{6}{17}$ and $\frac{7}{17}$

Comments

The table is a list of the multiples of 3 and 7. Problem 7 is a "double reducing.

Answers 1) $\frac{3}{7}$ 2) $2\frac{1}{3}$ 3) $\frac{7}{12}$ 4) $\frac{4}{5}$ 5) $\frac{4}{7}$ 6) $\frac{13}{30}$ 7) $6\frac{2}{3}$ 8) 3 9) 49 10) 64

VIII Fractions - Addition and Subtractions

Objectives

a) To review addition and subtraction of fractions with a common denominator.
b) Adding and subtracting fractions with unlike denominators. $d_1 = nd_2$

Warm Up

What is the sum of 6 cats and 7 cats? What is the sum of and

Comments

Simple addition. No renaming from 1's place

Answers

1) $\frac{11}{13}$ 2) $\frac{5}{6}$ 3) $\frac{1}{2}$ 4) $11\frac{5}{8}$ 5) $10\frac{7}{10}$ 6) $\frac{5}{17}$ 7) $5\frac{1}{2}$ 8) $\frac{2}{9}$ 9) $6\frac{1}{2}$ 10) $\frac{1}{2}$

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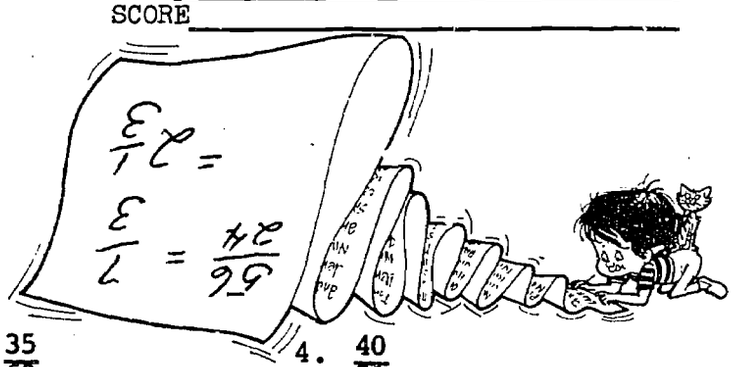
VII Fractions - Multiplications

NAME_____

SCORE_____

Complete this table

	6	9	12				
	14		35				56



1. $\frac{9}{21}$ 2. $\frac{42}{18}$ 3. $\frac{35}{60}$ 4. $\frac{40}{50}$

5. $\frac{2}{3} \times \frac{6}{7} =$

6. $\frac{3}{5} \times \frac{13}{18} =$

7. $\frac{32}{27} \times \frac{45}{8} =$

8. $\frac{1}{5}$ of 15 =

9. $\frac{1}{7}$ of 343 =

10. $\frac{1}{16}$ of 1024 =

Unified School District No. 1
Racine, Wisconsin

VIII Fractions - Addition and Subtraction

NAME_____

SCORE_____

Warm Up

What number divides both 12 and 16? Is that the largest such number? What is the difference between $\frac{6}{17}$ and $\frac{7}{17}$

Comments

The table is a list of the multiples of 3 and 7. Problem 7 is a "double reducing.

Answers 1) $\frac{3}{7}$ 2) $2\frac{1}{3}$ 3) $\frac{7}{12}$ 4) $\frac{4}{5}$ 5) $\frac{4}{7}$ 6) $\frac{13}{30}$ 7) $6\frac{2}{3}$ 8) 3 9) 49 10) 64

Simple addition. No renaming from 1's place

Answers 1) $\frac{11}{13}$ 2) $\frac{5}{6}$ 3) $\frac{1}{2}$ 4) $11\frac{5}{8}$ 5) $10\frac{7}{10}$ 6) $\frac{5}{17}$ 7) $5\frac{1}{2}$ 8) $\frac{2}{9}$ 9) $6\frac{1}{2}$ 10) $\frac{1}{2}$

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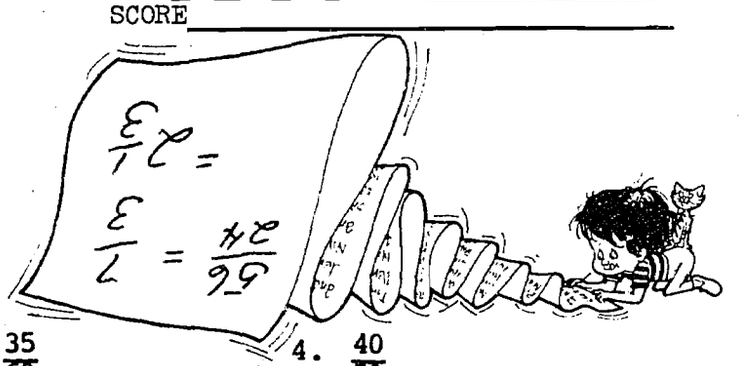
NAME_____

SCORE_____

VII Fractions - Multiplications

Complete this table

	6	9	12				
	14		35				56



1. $\frac{9}{21}$ 2. $\frac{42}{18}$ 3. $\frac{35}{60}$ 4. $\frac{40}{50}$

5. $\frac{2}{3} \times \frac{6}{7} =$ 6. $\frac{3}{5} \times \frac{13}{18} =$ 7. $\frac{32}{27} \times \frac{45}{8} =$

8. $\frac{1}{5}$ of 15 = 9. $\frac{1}{7}$ of 343 = 10. $\frac{1}{16}$ of 1024 =

Unified School District No. 1
Racine, Wisconsin

VIII Fractions - Addition and Subtraction

NAME_____

SCORE_____

1. $\frac{7}{13} + \frac{5}{13} =$ 2. $\frac{2}{3} + \frac{1}{6} =$ 3. $\frac{1}{3} + \frac{1}{6} =$ 4. $5\frac{1}{4} + 6\frac{3}{8}$ 5. $3\frac{3}{5} + 2\frac{1}{10}$

6. $\frac{9}{17} - \frac{4}{17} =$ 7. $7\frac{5}{6} - 2\frac{1}{3}$ 8. $\frac{2}{3} - \frac{4}{9} =$ 9. $8\frac{3}{4} - 2\frac{1}{4}$ 10. $\frac{11}{16} - \frac{3}{16} =$

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Racine, Wisconsin

V Addition - Subtraction - Decimals

Objective

To review decimal addition and subtraction

Warm Up

"Recalling the basic facts, let's put two operations together."

Comments

a) Stress the importance of neatness in arranging the same place value digits below each other.
b) Problem 3 tests place value understanding

Answers

2) 6.52 3) 54.761 4) 26.61 5) 2.51 6) 19.117 7) 9.74 in. 8) 10, 1, $\frac{1}{10}$, $\frac{1}{100}$, $\frac{1}{1000}$ 9) 63.46 10) 72.78

VI Multiplication - Division - Decimals

Objective

To review multiplication and division of two decimals

Warm Up

"Try these basic division facts. Show how well you have mastered them."

Comments

a) Stress inter-relations and inverse nature of these operations
b) Review "decimal point rule"

Answers

1) $10,400 2) .40 3) 13.26 4) 3.1 5) 284 6) .8 7) 105.40 8) .0936 9) 70 10) 3.87

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V Addition - Subtraction - Decimals

NAME _____

SCORE _____

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+30							60					
+15												
X9 +3		48										

2. 4.37 + 2.15

3. 36.005 + 18.756

4. Add: 1.41, 6.2, and 19

5. 2.83 - .32 =

6. 24.402 - 5.285

7. The amount of rainfall in a month is often expressed to hundredths of an inch. Newville had 3.24 inches of rainfall in January. 3.14 inches in February, and 3.36 inches in March. Newville had a total of how many inches of rainfall in these three months?

8. 65.083 = (6 x) + (5 x) + (0 x) + (8 x) + (3 x).

9. 70.04 - 6.58 =

10. 80.16 - 7.38

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Racine, Wisconsin

VI Multiplication - Division (Decimals)

NAME _____

SCORE _____

1. $160 x 65

2. 1.3) .52

3. 1.7 x 7.8

4. 9) 27.9

5. 5.68 x 50

arranging the same place value digits below each other.

b) Problem 3 tests place value understanding

Answers

2) 6.52 3) 54.761 4) 26.61 5) 2.51 6) 19.117 7) 9.74 in. 8) 10, 1, $\frac{1}{10}$, $\frac{1}{100}$, $\frac{1}{1000}$ 9) 63.46 10) 72.78

a) Stress inter-relations and inverse nature of these operations

b) Review "decimal point rule"

Answers

1) $10,400 2) .40 3) 13.26 4) 3.1 5) 284 6) .8 7) 105.40 8) .0936 9) 70 10) 3.87

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NAME_____

SCORE_____

V Addition - Subtraction - Decimals

1.

	3	5	7	6	0	1	2	8	10	4	9	100
+30							60					
+15												
x9 ÷3		48										

2. 4.37 + 2.15

3. 36.005 + 18.756

4. Add: 1.41, 6.2, and 19

5. 2.83 - .32 =

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Unified School District No. 1
Racine, Wisconsin

NAME_____

SCORE_____

VI Multiplication - Division (Decimals)

1. $160 x 65

2. 1.3) .52

3. 1.7 x 7.8

4. 9) 27.9

5. 5.68 x 50

6. 8.94 x.09

7. 6) 632.4

8. 1.56 x.06

9. 4.9 ÷ .07 =

10. .45 x8.6

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Racine, Wisconsin

IX Place Value

Objective
a) State the value of a given digit in a decimal numeral (10^3 thru 10^6)
b) Rewrite a numeral in expanded form as a numeral in standard form
c) Round a given number to a given place

Warm Up
What's the difference between $\frac{3}{10}$ and $3 \times \frac{1}{10}$ Which is greater .017 or .17. What do we mean by rounding? How do we write one million?

Comments
Reading written numbers often presents a problem. The word "and" has special significants in writing decimal numerals.

Answers 1) 4900 2) 90 3) 344.67 4. 0 5) 50 6) 27.6 7) 6,000,400.3 8) 6,400,003 9) thousand 10) $(2 \times 100)+(4 \times 10)+(6 \times 1)+(7 \times \frac{1}{100})$

X Percent

Objectives
a) Change decimals to percent
b) Change percent to decimal
c) Change $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, etc. to percent
d) Simple percent of whole numbers

Warm Up
50 cents is what percent of a dollar?

Comment
Percents have not lessen covered by all of your students.

Answers 1) 50% 2) 25% 3) 100 4) 37.5% 5) $\frac{3}{4}$ or .75 6) 30% 7) 60 8) 50% 9) 24 10) 3

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IX Place Value

NAME_____
SCORE_____

1. 4927 rounded to the nearest hundred would be _____
2. Round 89.39 to the nearest ten. _____
3. $(3 \times 100) + (4 \times 10) + (4 \times 1) + (6 \times \frac{1}{10}) + (7 \times \frac{1}{100})$
4. $\frac{7}{10} - .7 =$ ____
5. What does the 4 in 42.76 stand for? _____
6. Write the number which is $\frac{1}{10}$ of 276 _____
7. Write: six million four hundred and 3 tenths as a numeral in standard form _____
8. Write
8. Write: six million four hundred thousand three as a numeral in standard form. _____
9. Mike rounded 27,686 to 28,000. He was rounding to the nearest _____
10. 246.07 = (2 x ____) + (4 x ____) + (6 x ____) + (7 x ____)

Unified School District No. 1
Racine, Wisconsin

X Percent

NAME_____
SCORE_____

1. $\frac{1}{2}$ = ____%
2. .25 = ____%
3. 50% of 200 is

37.5%!

million?

Comments

Reading written numbers often presents a problem. The word "and" has special significants in writing decimal numerals.

Answers 1) 4900 2) 90 3) 344.67 4. 0 5) 50 6) 27.6 7) 6,000,400.3 8) 6,400,003 9) thousand 10) $(2\times100)+(4\times10)+(6\times1)+(7\times\frac{1}{100})$

Percents have not lessen covered by all of your students.

Answers 1) 50% 2) 25% 3) 100 4) 37.5% 5) $\frac{3}{4}$ or .75 6) 30% 7) 60 8) 50% 9) 24 10) 3

---

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NAME_____

SCORE_____

IX Place Value

1. 4927 rounded to the nearest hundred would be _____
2. Round 89.39 to the nearest ten. _____
3. $(3\times100)+(4\times10)+(4\times1)+(6\times\frac{1}{10})+(7\times\frac{1}{100})$
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10. 246.07 = (2 x ____) + (4 x ____) + (6 x ____) + (7 x ____)

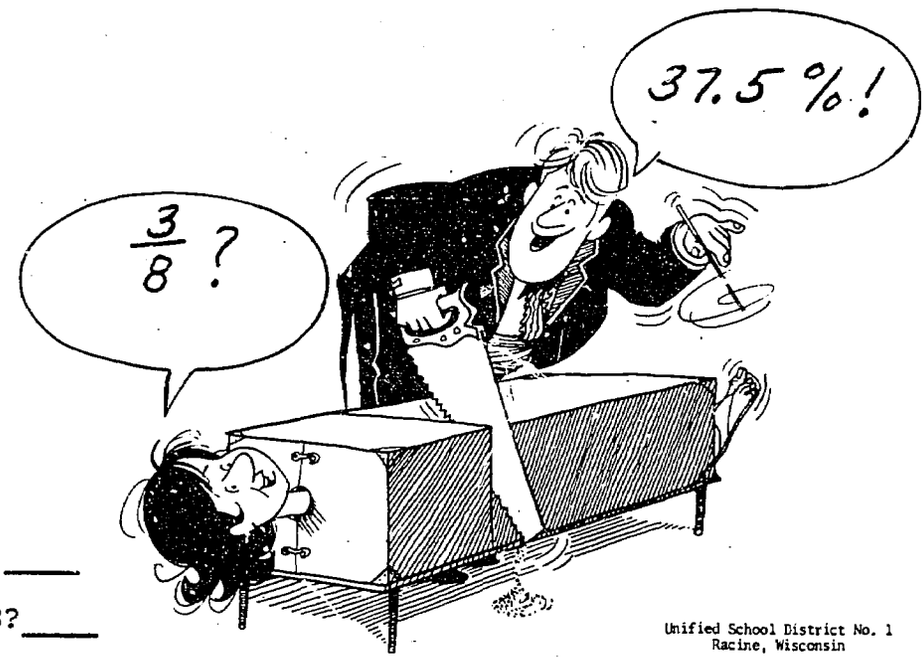
Unified School District No. 1
Racine, Wisconsin

NAME_____

SCORE_____

X Percent

1. $\frac{1}{2}=$ ____%
2. .25 = ____%
3. 50% of 200 is ____
4. $\frac{3}{8}=$ ____%
5. 75% =
6. Three dimes is what % of one dollar?____
7. 60% of 100 =
8. 25 is what percent of fifty?____
9. 12 is 50% of what number ____
10. What number is 37.5% of 8?____



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XI Mixed Problems - Part I

Objective
To review miscellaneous problems

Warm Up
How can math be used somewhere other than math class?

Comments
a) Problem 1 involves exponents
b) Problems 4 and 5 involve ratio and proportion

Answers
1) 125 2) 12 3) a. 14.2 b. 14
4) 10.67 5) 6 hrs.

XII Mixed Problems - Part II

Objective
To continue review of miscellaneous problems.

Warm Up
"Name one thing that is in no way involved with math."

Comments
a) Problem 1 deals with graph reading
b) Problem 4 involves writing a shaded portion as a percent.

Answers
1) 44,500 people 2) 6 3) 2 hrs. 45 min.
4) 25% 5) 102

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XI Mixed Problems - Part I

NAME_____
SCORE_____

1. $5^3 = \square$

2. What is the least common denominator for $\frac{5}{6}$ and $\frac{3}{4}$?

3. Round 14.17 to the nearest
   a) tenth
   b) unit

4. 6 math books cost $32. How much will two books cost? (to the nearest cent)

5. It takes a snail 7 hours to travel 42 miles. How long will it take to travel 36 inches? (to the nearest hour)

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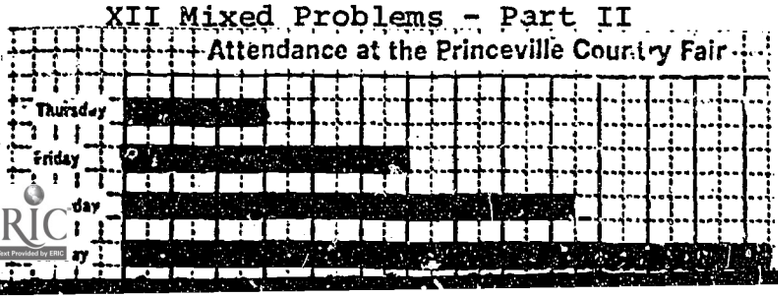
Racine, Wisconsin

XII Mixed Problems - Part II

NAME_____
SCORE_____



2. $10^2 \times 10^4 = 10^{\square}$

3. How long was Tom gone if he left

proportion

Answers
1) 125 2) 12 3) a. 14.2 b. 14
4) 10.67 5) 6 hrs.

portion as a percent.

Answers
1) 44,500 people 2) 6 3) 2 hrs. 45 min.
4) 25% 5) 102

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XI Mixed Problems - Part I

NAME_____
SCORE_____

1. $5^3 = \square$

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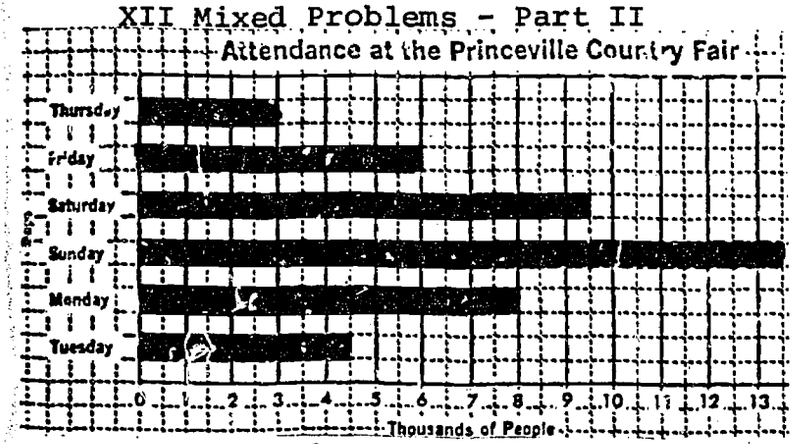
Racine, Wisconsin

XII Mixed Problems - Part II

NAME_____
SCORE_____



What was the total attendance for the six days?

2. $10^2 \times 10^4 = 10^{\square}$

3. How long was Tom gone if he left home at 10:20 and returned home at 1:05 p.m.?

4. What % of this figure is shaded?

5. $\frac{51}{50} = \frac{}{100}$

Unified School District No. 1
Racine, Wisconsin

Unified School District No. 1
Racine, Wisconsin

Level V - Diagnostic Test

Directions: Work the example in each box. Then look at the possible answers in that box and see if your answer is given. If it is, fill in the space on your answer sheet which has the same letter as the answer you have chosen. If your answer is not given, fill in the space for the letter beside NG (Not Given). Use a separate sheet of paper for finding your answers.

SAMPLE A:

$3\overline{)33}$

a 10
b 10 R 2
c 11
d 12
e NG

Sample

A a== b== c== d== e==

1. Which digit is in the ten-thousands place in 842,561? a. 8 b. 4 c. 2 d. 5 e. NG	2. In which number does the 5 have the greatest value? a. 45 b. 87652 c. 256 d. 3576 e. 99658	3. Round off 456 to the nearest ten. a. 460 b. 450 c. 46 d. 45 e. NG
4. $\begin{array}{r} 7563 \\ +\ 8426 \\ \hline \end{array}$ a. 15899 b. 15999 c. 15989 d. 16089 e. NG	5. $\begin{array}{r} 744 \\ +\ 656 \\ \hline \end{array}$ a. 1390 b. 1490 c. 1300 d. 1400 e. NG	6. $756 + (44 + 93) =$ a. 883 b. 783 c. 793 d. 983 e. NG

7.

$$\begin{array}{r} 584 \\ -\ 64 \\ \hline \end{array}$$

a. 510
b. 520
c. 648
d. 24
e. NG

8.

$$\begin{array}{r} 1470 \\ -\ 694 \\ \hline \end{array}$$

a. 886
b. 776
c. 876
d. 786
e. NG

9. $\square$ - 639 = 289

a. 918
b. 818
c. 928
d. 350
e. NG

10. At Tate Camp the boys stay one week. The first week there were 319 boys, the second 464, and the third 238. How many boys were at Tate Camp during the three weeks?

a. 1013
b. 901
c. 1011
d. 1021
e. NG

11.

$$\begin{array}{r} 87 \\ +\ 9946 \\ \hline \end{array}$$

a. 10023
b. 9923
c. 10033
d. 10032
e. NG

12.

$$\begin{array}{r} 5463 \\ 2157 \\ +\ 8576 \\ \hline \end{array}$$

a. 16196
b. 15086
c. 16186
d. 16096
e. NG

13.

$$\begin{array}{r} 8795 \\ 7868 \\ +\ 8979 \\ \hline \end{array}$$

a. 24642
b. 25642
c. 23432
d. 25542
e. NG

14.

$$\begin{array}{r} \$2.74 \\ 1.96 \\ 44.57 \\ +\ 3.48 \\ \hline \end{array}$$

a. $52.75
b. $50.55
c. $52.65
d. $51.75
e. NG

15.

$$\begin{array}{r} \$14.76 \\ -\ 9.82 \\ \hline \end{array}$$

a. $15.14
b. $5.14
c. $5.94
d. $4.94
e. NG

16.

$$\begin{array}{r} 8315 \\ -\ 2928 \\ \hline \end{array}$$

a. 6497
b. 5387
c. 6613
d. 5397
e. NG

17.

$$\begin{array}{r} 7003 \\ -\ 4658 \\ \hline \end{array}$$

a. 2355
b. 2345
c. 3455
d. 3655
e. NG

18.

$$\begin{array}{r} 15106 \\ -\ 7589 \\ \hline \end{array}$$

a. 7517
b. 8483
c. 8627
d. 7627
e. NG

19. Bobby has $2.00. If he buys a model for $.88 and Hot Wheels for $.49, how much change would he get back? (All prices include tax.)

a. $.75
b. $.83
c. $.63
d. $.73
e. NG

20. $3 \times 80 =$

a. 204
b. 240
c. 24
d. 2400
e. NG

21.
$$\begin{array}{r} 51 \\ \times\ 6 \\ \hline \end{array}$$

a. 36
b. 301
c. 305
d. 306
e. NG

22.
$$\begin{array}{r} 304 \\ \times\ 4 \\ \hline \end{array}$$

a. 1216
b. 12016
c. 136
d. 1306
e. NG

23.
$$\begin{array}{r} 342 \\ \times\ 7 \\ \hline \end{array}$$

a. 2184
b. 2294
c. 2394
d. 2194
e. NG

24. Jim bought 3 books costing $.59 each. How much did he pay for the books?

a. $1.51
b. $1.57
c. $1.67
d. $1.77
e. NG

25. $56 \div 7 =$

a. 8
b. 9
c. 6
d. 7
e. NG

26. $\frac{1}{8}$ of 72 =

a. 6
b. 7
c. 8
d. 9
e. NG

27. What is the greatest whole number that will make the sentence below true?

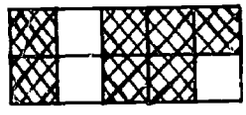
$\square \times 7 < 45$

a. 8
b. 5
c. 6
d. 7
e. NG

28. $7\overline{)45}$

a. 5 R 1
b. 6
c. 6 R 3
d. 6 R 5
e. NG

29. What fractional part of the figure is shaded?



a. $\frac{6}{10}$
b. $\frac{7}{10}$
c. $\frac{8}{10}$
d. $\frac{9}{10}$
e. NG

30. $\frac{5}{8} + \frac{2}{8} =$

a. $\frac{7}{8}$
b. $\frac{7}{16}$
c. $\frac{3}{8}$
d. $\frac{3}{16}$
e. NG

31. $\frac{6}{8} = \frac{\square}{4}$

a. 3
b. 2
c. 6
d. 12
e. NG

32. $\square \times 12 = 120$

a. 12
b. 100
c. 10
d. 5
e. NG

33.
$$\begin{array}{r} 32 \\ \times\ 30 \\ \hline \end{array}$$

a. 90
b. 960
c. 150
d. 92
e. NG

34.
$$\begin{array}{r} 32 \\ \times\ 52 \\ \hline \end{array}$$

a. 1664
b. 224
c. 1564
d. 804
e. NG

35. Jim kept a record of his math scores on tests. His scores were 23, 27, 21, 29. What was his average score?

a. 100
b. 80
c. 27
d. 25
e. NG

36. $5\overline{)305}$

a. 65
b. 59
c. 61
d. 601
e. NG

37. $3\overline{)651}$

a. 210 R 1
b. 210 R 7
c. 217
d. 207
e. NG

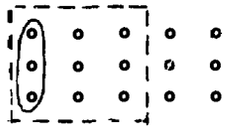
38. $60\overline{)305}$

a. 5 R 5
b. 50 R 5
c. 52
d. 5 R 3
e. NG

39. $12\overline{)264}$

a. 21 R 2
b. 21
c. 22 R 2
d. 22
e. NG

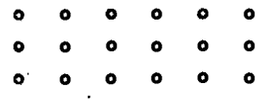
40. $\frac{3}{5}$ of 15 =



$\frac{1}{5}$ of 15 is 3

so $\frac{3}{5}$ of 15 is 3 x 3 or 9.

Now find $\frac{5}{6}$ of 18



a. 12
b. 15
c. 3
d. 6
e. NG

End of Test

Check Your Work

DIAGNOSTIC FEEDBACK - MATHEMATICS

Level V

Item Analysis

Fall, 1972

Unified School District No. 1
Racine, Wisconsin

Level V - Diagnostic Test

Directions: Work the example in each box. Then look at the possible answers in that box and see if your answer is given. If it is, fill in the space on your answer sheet which has the same letter as the answer you have chosen. If your answer is not given, fill in the space for the letter beside NG (Not Given). Use a separate sheet of paper for finding your answers.

SAMPLE A:

$3\overline{)35}$

a 10
b 10 R 2
c 11
d 12
e NG

D - District
I - Inner
O - Outer

Sample

A ● b c d e

1. Which digit is in the ten-thousands place in 842,561?

D 68 a. 8
b. 4
I 49 c. 2
d. 5
O 75 e. NG

2. In which number does the 5 have the greatest value?

D 64 a. 45
I 38 b. 87652
c. 256
O 71 d. 3576
e. 99659

3. Round off 456 to the nearest ten.

D 67 a. 460
b. 450
I 41 c. 46
d. 45
O 75 e. NG

4.
$$\begin{array}{r} 7563 \\ +\ 8426 \end{array}$$

D 90 a. 15899
b. 15999
I 85 c. 15989
d. 16089
O 92 e. NG

5.
$$\begin{array}{r} 744 \\ +\ 656 \end{array}$$

D 87 a. 1390
b. 1490
I 78 c. 1300
O 89 d. 1400
e. NG

6. $756 + (44 + 93) =$

D 76 a. 883
b. 703
I 67 c. 793
d. 983
O 80 e. NG

7.
$$\begin{array}{r} 584 \\ -\ 64 \end{array}$$

D 87 a. 510
b. 520
I 84 c. 648
d. 24
O 88 e. NG

8.
$$\begin{array}{r} 1470 \\ -\ 694 \end{array}$$

D 69 a. 886
b. 776
I 54 c. 876
d. 786
O 73 e. NG

9. $\square \cdot 639 = 289$

D 66 a. 918
b. 818
I 50 c. 928
d. 350
O 72 e. NG

10. At Tate Camp the boys stay one week. The first week there were 319 boys, the second 464, and the third 258. How many boys were at Tate Camp during the three weeks?

D 77 a. 1013
b. 901
I 71 c. 1011
d. 1021
O 79 e. NG

11.
$$\begin{array}{r} 87 \\ +\ 9946 \end{array}$$

O 82 a. 10023
b. 9923
I 77 c. 10033
d. 10032
O 84 e. NG

12.
$$\begin{array}{r} 5463 \\ 2157 \\ +\ 8576 \end{array}$$

D 76 a. 16196
b. 15086
I 71 c. 16186
d. 16096
O 78 e. NG

13.
$$\begin{array}{r} 6795 \\ 7868 \\ +\ 8979 \end{array}$$

D 60 a. 24642
b. 25642
I 54 c. 23432
d. 25542
O 63 e. NG

14.
$$\begin{array}{r} \$2.74 \\ 1.96 \\ 44.57 \\ +\ 3.48 \end{array}$$

D 52 a. $52.75
b. $50.55
I 39 c. $52.65
d. $51.75
O 56 e. NG

15.
$$\begin{array}{r} \$14.76 \\ -\ 9.82 \end{array}$$

D 68 a. $15.14
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d. $4.94
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$$\begin{array}{r} 8315 \\ -\ 2928 \end{array}$$

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O 71 e. NG

17.
$$\begin{array}{r} 7003 \\ -\ 4658 \end{array}$$

D 65 a. 2355
b. 2345
I 52 c. 3455
d. 3655
O 70 e. NG

18.
$$\begin{array}{r} 15106 \\ -\ 7589 \end{array}$$

D 63 a. 7517
b. 8483
I 50 c. 8627
d. 7627
O 68 e. NG

19. P[illegible].00. If he buy[illegible] for $.88 and hot W[illegible]s for $.49, how much change would he get back? (All prices include tax.)

D 49 a. $.75
b. $.83
I 32 c. $.63
d. $.73
O 54 e. NG

20. $3 \times 80 =$

D 81 a. 204
b. 240
I 68 c. 24
d. 2400
O 86 e. NG

21.
$$\begin{array}{r} 51 \\ \times\ 6 \end{array}$$

O 76 a. 36
b. 301
I 63 c. 305
d. 306
O 80 e. NG

22.
$$\begin{array}{r} 304 \\ \times\ 4 \end{array}$$

a. 1216
D 63 b. 12016
c. 136
I 46 d. 1306
O 69 e. NG

23.
$$\begin{array}{r} 342 \\ \times\ 7 \end{array}$$

D 64 a. 2184
b. 2294
I 51 c. 2394
d. 2194
O 68 e. NG

24. Jim bought 3 books costing $.59 each. How much did he pay for the books?

D 74 a. $1.51
b. $1.57
I 59 c. $1.67
d. $1.77
O 79 e. NG

25. $56 \div 7 =$

O 70 a. 8
b. 9
I 50 c. 6
d. 7
O 76 e. NG

26. $\frac{1}{8}$ of 72 =

D 62 a. 6
b. 7
I 44 c. 8
d. 9
O 69 e. NG

27. What is the greatest whole number that will make the sentence below true?

$\square \times 7 < 45$

a. 8
D 60 b. 5
c. 6
I 39 d. 7
O 68 e. NG

28. $7\overline{)45}$

D 60 a. 5 R 1
b. 6
I 41 c. 6 R 3
d. 6 R 5
O 66 e. NG

29. What fractional part of the figure is shaded?

a. $\frac{6}{10}$ e. NG
D 73 b. $\frac{7}{10}$
I 57 c. $\frac{8}{10}$
O 78 d. $\frac{9}{10}$

30. $\frac{5}{8} + \frac{2}{8} =$

a. $\frac{7}{8}$ e. NG
D 60 b. $\frac{7}{16}$
I 42 c. $\frac{3}{8}$
O 66 d. $\frac{3}{16}$

31. $\frac{6}{8} = \frac{\square}{4}$

D 48 a. 3
b. 2
I 27 c. 6
d. 12
O 54 e. NG

32. $\square \times 12 = 120$

D 62 a. 12
b. 100
I 41 c. 10
d. 5
O 69 e. NG

33.
$$\begin{array}{r} 32 \\ \times\ 30 \end{array}$$

D 55 a. 90
b. 960
I 36 c. 150
d. 92
O 61 e. NG

34.
$$\begin{array}{r} 32 \\ \times\ 52 \end{array}$$

D 43 a. 1664
b. 224
I 26 c. 1564
d. 804
O 49 e. NG

35. Jim kept a record of his math scores on tests. His scores were 23, 27, 21, 29. What was his average score?

D 46 a. 100
b. 80
I 45 c. 27
d. 25
O 47 e. NG

36. $5\overline{)305}$

D 48 a. 65
b. 59
I 28 c. 61
d. 601
O 54 e. NG

37. $3\overline{)651}$

D 38 a. 210 R 1
b. 210 R 7
I 25 c. 217
d. 207
O 43 e. NG

38. $60\overline{)305}$

O 41 a. 5 R 5
b. 50 R 5
I 25 c. 52
d. 5 R 3
O 45 e. NG

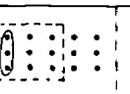
39. $12\overline{)264}$

D 33 a. 21 R 2
b. 21
I 17 c. 22 R 2
d. 22
O 38 e. NG

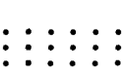
40. $\frac{3}{5}$ of 15 =

$\frac{1}{5}$ of 15 is 3

so $\frac{3}{5}$ of 15 is 3 x 3 or 9.



Now find $\frac{5}{6}$ of 18 ,



D 23
I 18
O 24
a. 12
b. 15
c. 3
d. 6
e. NG

End of Test

Check Your Work

Item Set 1

Grade 5

ADDITION

4. $\begin{array}{r} 7563 \\ +\ 8426 \end{array}$

a. 15899
b. 15599
c. 15989
d. 16089
e. NG

4d + 4d

No renaming

p. 21
p. 308

D I O
90 85 92

10. At Tate Camp the boys stay one week. The first week there were 319 boys, the second 464, and the third 238. How many boys were at Tate Camp during the three weeks?

a. 1013
b. 901
c. 1011
d. 1021
e. NG

Word problem requiring addition

p. 22

D I O
77 71 79

5. $\begin{array}{r} 744 \\ +\ 656 \end{array}$

a. 1390
b. 1490
c. 1300
d. 1400
e. NG

3d + 3d

Repeated renaming

p. 21
p. 308

D I O
87 78 89

11. $\begin{array}{r} 87 \\ +\ 9946 \end{array}$

a. 10023
b. 9923
c. 10033
d. 10032
e. NG

2d + 4d

Rename into 99

p. 21
p. 308

D I O
82 77 84

6. $756 + (44 + 93) =$

a. 883
b. 783
c. 793
d. 983
e. NG

To 3d column

Horizontal format

unequal lengths

p. 21
p. 308

D I O
76 67 80

12. $\begin{array}{r} 5463 \\ 2157 \\ +\ 8576 \end{array}$

a. 16196
b. 15086
c. 16186
d. 16096
e. NG

4d column to 3 addends; "carry" 1 in each column

p. 21
p. 308

D I O
76 71 78

9. $\square - 639 = 289$

a. 918
b. 818
c. 928
d. 350
e. NG

Number equation

Relating addition and subtraction

p. 27
p. 309

D I O
66 50 72

13. $\begin{array}{r} 8795 \\ 7868 \\ +\ 8979 \end{array}$

a. 24642
b. 25642
c. 25432
d. 25542
e. NG

4d column to 3 addends;

"carry" 2 in each column

p. 21
p. 308

D I O
60 54 63

Item Set 2

Grade 5

ADDITION

14.
$$\begin{array}{r} \$2.74 \\ 1.96 \\ 44.57 \\ +\ 3.48 \\ \hline \end{array}$$

(a.) $52.75
b. $50.55
c. $52.65
d. $51.75
e. NG

To 4d column;
Repeated renaming;
Money

p. 21
p. 308

D I O
52 39 56

19. Bobby has $2.00. If he buys a model for $.88 and Hot Wheels for $.49, how much change would he get back? (All prices include tax.)

a. $.75
b. $.83
(c) $.63
d. $.73
e. NG

Word problem requiring addition and subtraction

p. 33

D I O
49 32 54

55. Jim kept a record of his math scores on tests. His scores were 23, 27, 21, 29. What was his average score?

a. 100
b. 80
c. 27
(d) 25
e. NG

Word problem asking for average;
requires division

p. 102

D I O
46 45 47

Item Set 3

Grade 5

SUBTRACTION

7. $\begin{array}{r} 584 \\ -\ 64 \end{array}$

a. 510
(b.) 520
c. 648
d. 24
e. NG

3d - 2d;
No renaming

p. 28, 30-31
p. 309

D I O
87 84 88

16. $\begin{array}{r} 8315 \\ -\ 2938 \end{array}$

a. 6497
(b.) 5387
c. 6613
d. 5397
e. NG

4d - 4d
Repeated renaming across one zero

p. 31
p. 309

D I O
66 53 71

8. $\begin{array}{r} 1470 \\ -\ 694 \end{array}$

a. 886
(b) 776
c. 876
d. 786
e. NG

4d - 3d
Repeated renaming

p. 31
p. 309

D I O
69 54 73

17. $\begin{array}{r} 7003 \\ -\ 4658 \end{array}$

a. 2355
(b.) 2345
c. 3455
d. 3655
e. NG

4d - 4d
Repeated renaming; across two zeros

p. 32
p. 309

D I O
65 52 70

9. $\square - 639 = 289$

a. 918
b. 818
(c.) 928
d. 350
e. NG

Number equation
Relating addition and subtraction

p. 27
p. 309

D I O
66 50 72

18. $\begin{array}{r} 15106 \\ -\ 7589 \end{array}$

(a.) 7517
b. 8483
c. 8627
d. 7627
e. NG

5d - 4d
Repeated renaming across one zero with subsequent renaming across one zero

p. 32
p. 309

D I O
63 50 68

15. $\begin{array}{r} \$14.76 \\ -\ 9.82 \end{array}$

a. $15.14
b. $5.14
c. $5.94
(d) $4.94
e. NG

4d - 3d
Repeated renaming; Money

p. 32
p. 309

D I O
68 54 72

19. Bobby has $2 00. If he buys a model for $.8[illegible] and Hot Wheels for $.49, how much change would he get back? (All prices include tax.)

a. $.75
b. $.83
(c.) $.63
d. $.73
e. NK

Word problem requiring addition and subtraction

p. 33

D I O
49 32 54

Item Set 4

MULTIPLICATION

Grade 5

20. 3 x 80 = ?

a. 24
b. 240
c. 21
d. 2400
e. NG

2d x 1d
No renaming

p. 44-45
p. 311

D I O
81 68 86

24. Jim bought 3 books costing $.59 each. How much did he pay for the books?

a. $1.51
b. $1.57
c. $1.67
d. $1.77
e. NG

Word problem requiring multiplication

p. 46

D I O
74 59 79

28. 51 x 6

a. 56
b. 301
c. 305
d. 306
e. NG

2d x 1d
No renaming

p. 44-45
p. 311

D I O
76 63 80

32. ☐ x 12 = 120

a. 12
b. 100
c. 10
d. 5
e. NG

Number equation;
involving multiplication;
requires division

p. 141

D I O
62 41 69

22. 304 x 4

a. 1216
b. 12016
c. 136
d. 1306
e. NG

3d x 1d
Rename into zero

D I O
63 46 69

33. 32 x 30

a. 90
b. 960
c. 150
d. 92
e. NG

2d x 2d
Multiple of ten

D I O
55 36 61

23. 342 x 7

a. 2184
b. 2294
c. 2394
d. 2194
e. NG

3d x 1d
Easy renaming

p. 44-45
p. 311

D I O
64 51 68

34. 32 x 52

a. 1664
b. 224
c. 1564
d. 804
e. NG

2d x 2d
Easy renaming

pp. 49-50
p. 312

D I O
43 26 49

27. What is the greatest whole number that will make the sentence below true?

☐ x 7 < 45

a. 8
b. 5
c. 6
d. 7
e. NG

Number inequality involving multiplication

p. 103
p. 315

D I O
60 39 68

Item Set 5

Grade 5

DIVISION

25. 56 ÷ 7 =

a. 8
b. 9
c. 6
d. 7
e. NG

2d ÷ 1d
No remainder;
No subtraction

p. 55
p. 314

D I O
70 50 76

36. 5)305

a. 65
b. 59
c. 61
d. 601
e. NG

3d ÷ 1d
No remainder
No subtraction

p. 63-65
p. 314

D I O
48 28 54

28. 7)45

a. 5 R 1
b. 6
c. 6 R 3
d. 6 R 5
e. NG

2d ÷ 1d
Remainder
w/subtraction

p. 58-60
p. 314

D I O
60 41 66

37. 3)651

a. 210 R 1
b. 210 R 7
c. 217
d. 207
e. NG

3d ÷ 1d
No remainder
w/subtraction

p. 63-65
p. 314

D I O
38 25 43

32. □ x 12 = 120

a. 12
b. 100
c. 10
d. 5
e. NG

Number equation;
involving multiplication;
requires division

p. 141

D I O
62 41 69

58. 60)305

a. 5 R 5
b. 50 R 5
c. 52
d. 5 R 3
e. NG

3d ÷ 2d
Divisor is multiple of ten
Remainder

p. 81
p. 315

D I O
41 25 45

35. Jim kept a record of his math scores on tests. His scores were 23, 27, 21, 29. What was his average score?

a. 100
b. 80
c. 27
d. 25
e. NG

Word problem asking for average;
requires division

p. 102

D I O
46 45 47

39. 12)264

a. 21 R 2
b. 21
c. 22 R 2
d. 22
e. NG

3d ÷ 2d
No remainder
w/subtraction

p. 83
p. 316

D I O
33 17 38

Item Set 6

Grade 5

PLACE VALUE

1. Which digit is in the ten-thousands place in 842,561? a. 8 (b) 4 c. 2 d. 5 e. NG	Place value; Naming places
p. 1-3	D I O 68 49 75
2. In which number does the 5 have the greatest value? a. 45 b. 87652 c. 256 (d) 3576 e. 99658	Place value
p. 1-3	D I O 64 38 71
3. Round off 456 to the nearest ten. (a) 460 b. 450 c. 46 d. 45 e. NG	Place value; Rounding
p. 68	D I O 67 41 75

Item Set 7

Grade 5

FRACTIONS

26. $\frac{1}{8}$ of 72 =

a. 6
b. 7
c. 8
(d) 9
e. NG

Fraction;

Multiplication of whole number by unit fraction; really a division problem

p. 177-178
p. 325

D I O
62 44 69

31. $\frac{6}{8} \cdot \square = \frac{3}{4}$

(a) 3
b. 2
c. 6
d. 12
e. NG

Fraction;

Reducing fraction to lowest terms

p. 107-109
p. 319

D I O
48 27 54

29. What fractional part of the figure is shaded?

a. $\frac{6}{10}$ e. NG
(b) $\frac{7}{10}$
c. $\frac{8}{10}$
d. $\frac{9}{10}$

Fraction;

Representing a part of the whole as a fraction

p. 175

D I O
73 57 78

40. $\frac{3}{5}$ of 15 =

$\frac{1}{5}$ of 15 is 3

so $\frac{3}{5}$ of 15 is 3 x 3 or 9.

Now find $\frac{5}{6}$ of 18

a. 12
(b) 15
c. 3
d. 6
e. NG

Fraction; Multiplication of whole number by fraction

p. 177-178
p. 325

D I O
23 18 24

30. $\frac{5}{8} \cdot \frac{2}{8} =$

(a) $\frac{7}{8}$ e. NG
b. $\frac{7}{16}$
c. $\frac{3}{8}$
d. $\frac{1}{6}$

Fraction;

Add fractions with same denominator; no reducing

p. 114-115
p. 320

D I O
60 42 66

Item Set 8

Grade 5

PROBLEM SOLVING

10. At Tate Camp the boys stay one week. The first week there were 319 boys, the second 464, and the third 238. How many boys were at Tate Camp during the three weeks?

a. 1013
b. 901
c. 1011
(d.) 1021
e. NG

Word problem requiring addition

p. 22

D I O
77 71 79

19. Bobby has $2.00. If he buys a model for $.88 and Hot Wheels for $.49, how much change would he get back? (All prices include tax.)

a. $.75
b. $.83
(c) $.63
d. $.73
e. NG

Word problem requiring addition and subtraction

p. 33

D I O
49 32 54

24. Jim bought 3 hooks costing $.59 each. How much did he pay for the books?

a. $1.51
b. $1.57
c. $1.67
(d) $1.77
e. NG

Word problem requiring multiplication

p. 46

D I O
74 59 79

35. Jim kept a record of his math scores on tests. His scores were 23, 27, 21, 29. What was his average score?

a. 100
b. 80
c. 27
(d) 25
e. NG

Word problem asking for average; requires division

p. 102

D I O
46 45 47

Unified School District No. 1 of Racine County
DIVISION OF INSTRUCTIONAL SERVICES

NAME _____

SCHOOL _____

TEACHER	GRADE

DECIMALS

SKILLS	D1	Change decimal to fraction
	D2	Change fraction to decimal
	D3	Change decimal to mixed number
	D4	Change mixed number to decimal
	D5	
ADD.	D6	Add; equal dec. lengths; H & V
	D7	Add; unequal dec. lengths; H & V
	D8	Add; integers plus decimals; H & V
	D9	
SUBT.	D10	Subtract; equal dec. lengths; H & V
	D11	Subtract shorter decimal from longer; H&V
	D12	Subtract longer decimal from shorter; H&V
	D13	Subtract integer from dec.; dec. from int.
	D14	
MULT.	D15	Multiply; one factor has dec. point
	D16	Multiply; both factors have dec. points
	D17	Multiply; requires zeros in products
	D18	
DIVISION	D19	Divide; decimal point in D.
	D20	Divide; dec.pt.in D; 0 after dec.pt.in Q.
	D21	Divide; dec. point in D and d
	D22	Divide; dec. pt. in D & d; 0 at end in D&
	D23	Divide; dec. point in d.
	D24	Divide; dec. pt.in d; 0 in D; no 0 in Q
	D25	
ROUNDING	D26	Round decimal to one less place
	D27	Round decimal more than one place
	D28	Round to 0 in last decimal place
	D29	Divide; dec. quotient, round quotient
	D30	
	D31	Progress Test 1; Add & Sub.
	D32	Progress Test 2; Multiply
	D33	Progress Test 3; Add, Sub., Mult.
	D34	Progress Test 4; Divide
	D35	Progress Test 5; Add, Sub., Mult., Divide

PERCENT

P1	2 digit percent to decimal
P2	1 digit percent to decimal
P3	3 digit percent to decimal
P4	Percent with decimal to decimal
P5	Fractional or mixed percent to decimal
P6	Decimal to percent
P7	Fraction to percent
P8	Percent to fraction; reduce
P9	Mixed percent to fraction; reduce
P10	
P11	Finding a percent of a number, whole %
P12	Finding a percent of a number, mixed %
P13	Finding a percent of a number, fract %
P14	Finding number when percent is known
P15	Finding what the percent is
P16	Find percent; round off
P17	
P18	Progress Test 1; Percent - Decimal
P19	Progress Test 2; Percent - Fraction
P20	Progress Test 3; Using percent
P21	Progress Test 4; Using percent

Specification of the Computational Component of the Mathematics Program.
GRADES 3-8

RACINE, WISCONSIN

WHOLE NUMBERS

ADDITION	1	
	2	Basic Facts - Addition
	3	Fact equations
	4	to 4d + 4d, no R V & H
	5	to 3d + 3d W/R to rR V & H
	6	to 3d col. carry 1 V & H
	7	to 3d col. carry 2 V & H
	8	to 5d col. carry 1, 2
	9	Special case add. (1e to 99)
	10	
SUBTRACTION	11	Basic Facts - Subtraction
	12	to 4d - 4d no R
	13	to 4d - 4d w/r R
	14	to 5d - 5d w/sep. R
	15	to 5d - 5d w/rR across Os
	16	Sub. eq. Horiz. easy
	17	Sub. eq. Horiz. hard
	18	Subtraction check - special cases
	19	
MULTIPLICATION	20	Basic Facts - Multiplication
	21	2d x 1d, no R
	22	to 3d x 1d, w/easy R, R to O, H&V
	23	to 3d x 1d, w/hard R, H&V
	24	mults. of 10, 100
	25	2d x 2d, to hard R, H&V
	26	to 4d x 2d, to hard R, R to O, H&V
	27	to 4d x 3d, to hard R
	28	to 4d x 3d, w/Os in factors
	29	Facts equations, Special Cases
	30	Checking Multiplication, /9
	31	
DIVISION	32	Basic Facts - Division
	33	to 4d ÷ 1d no rem. easy
	34	to 4d ÷ 1d no rem. hard, O in Q
	35	to 4d ÷ 1d w/rem. easy
	36	to 4d ÷ 1d w/rem. hard, O in Q
	37	to 4d ÷ 2d, easy
	38	to 4d ÷ 2d, hard, to O in Q
	39	to 4d ÷ 2d, rem. as fraction
	40	Division equat'on, Special Cases
	41	Checking division
	42	
	43	Progress test 1 A&S
	44	Progress test 2 A&S
	45	Progress test 3 M&D
	46	Progress test 4 M&D
	47	Progress test 5 ASMD
	48	Progress test 6 ASMD

FRACTIONS

SKILLS	F1	
	F2	Reduce to lowest terms; easy
	F3	Improper fr. to mixed no.; no red.
	F4	Improper fr. to mixed no.; w/red.
	F5	Reduce to lowest terms; hard
	F6	Renaming fractions; higher terms
	F7	Mixed no. to improper fraction
	F8	LCD equals larger denom.
	F9	LCD; relatively prime
	F10	LCD: common factor
	F11	LCD of 3 fractions
	F12	Ordering fractions
	F13	
ADDITION	F14	Add; same denom.; no red.
	F15	Add; same denom.; w/red.
	F16	Add; same denom.; sum≥ 1
	F17	Add mixed nos.; same denom.
	F18	Add; one denom. mult. of other
	F19	Add; relatively prime denoms.
	F20	Add; denom. w/common factor
	F21	Add; three fractions; diff. denoms.
	F22	
SUBTRACTION	F23	Subtract; same denom.; simple
	F24	Subtract mixed; same denom; no borr
	F25	Subtract; same denom; w/borrowing
	F26	Subtract, diff. denom.; simple
	F27	Subtract mixed; diff. denom; borrow
	F28	
MULT	F29	Multiply; no reducing
	F30	Multiply w/reducing
	F31	Integer x frac.; "of"; inverses
	F32	Multiply mixed numbers
	F33	Multiply large numbers; three frac.
	F34	
DIV.	F35	Divide by fraction
	F36	Divide by mixed number or integer
	F37	
	F38	Progress Test 1; Fraction Skills
	F39	Progress Test 2; Fraction Skills
	F40	Progress Test 3; Add
	F41	Progress Test 4; Sub.
	F42	Progress Test 5; Add. & Sub.
	F43	Progress Test 6; Multiply
	F44	Progress Test 7; Add., Sub., Mult.
	F45	Progress Test 8; Divide
	F46	Progress Test 9; Mult. & Divide
	F47	Progress Test 10; Add., Sub., Mult., Div
	F48	

RTSS19-10 R A C I N E D I A G N O S T I C F E E D B A C K S Y

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***
PERCENTILES-RAW SCORES-PRIMARY PUPIL SETS

PRIMARY PUPIL SET- SAWASKY 03 81
RESULTS FOR TEST -

HIGH- 37 LOW- 12 MEAN- 26.0
NUMBER OF PUPILS- 28

SCORE	FREQ	PC-ILE	STA9	SCORE	FREQ	PC-ILE
12	1	0.0	1			
16	1	3.6	2			
17	1	7.1	2			
18	1	10.7	3			
20	1	14.3	3			
21	1	17.9	3			
22	1	21.4	3			
23	2	25.0	4			
24	3	32.1	4			
25	1	42.9	5			
26	1	46.4	5			
27	1	50.0	5			
28	2	53.6	5			
29	1	60.7	6			
30	3	64.3	6			
31	1	75.0	6			
32	1	78.6	7			
33	1	82.1	7			
34	2	85.7	7			
35	1	92.9	8			
37	1	96.4	9			

T- SAWASKY 03 81
-

MEAN- 26.0
- 28

-ILE	STA9	SCORE	FREQ	PC-ILE	STA9
0.0	1				
3.6	2				
7.1	2				
10.7	3				
14.3	3				
17.9	3				
21.4	3				
25.0	4				
32.1	4				
42.9	5				
46.4	5				
50.0	5				
53.6	5				
60.7	6				
64.3	6				
75.0	6				
78.6	7				
82.1	7				
85.7	7				
92.9	8				
96.4	9				

RTSS14-08 RACINE DIAGNOSTIC FEEDBACK S

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***
RESPONSES FOR SCORING SETS BY PRIMARY PUPIL SET

PRIMARY PUPIL SET .. HOSS 01 84

TEST PART .LEVEL VII DIAG. TEST
PUPILS ANSWERING ... 29

ITEM	PERCENT SELECT A	B	C
1	0	93*	0
2	0	17	7
3	62*	10	14
4	3	0	90*
5	0	0	24
6	0	10	0
7	3	83*	3
8	7	72*	3
9	7	0	76*
10	21	3	7
11	0	0	48*
12	83*	3	3
13	17	34*	14
14	83*	7	3
15	0	3	0
16	0	90*	0
17	0	66*	14
18	83*	3	0
19	0	0	79*
20	3	76*	0
21	3	7	41
22	66*	7	7
23	41	7	45*
24	3	28	31
25	69*	7	0
26	0	0	7
27	17	0	55*
28	0	14	45*
29	7	48*	7
30	59*	7	3
31	28*	21	3
32	7	7	31*
33	7	55*	7
34	14*	21	21
35	3	3	7
36	3	14	28*
37	0	17	41*
38	48*	0	14
39	10	0	7
40	17	31*	7

1 84

TEST

PERCENT SELECTING RESPONSE					
A	B	C	D	E	OMIT
0	93*	0	7	0	0
0	17	7	62*	14	0
62*	10	14	3	10	0
3	0	90*	0	7	0
0	0	24	72*	3	0
0	10	0	0	90*	0
3	83*	3	0	10	0
7	72*	3	0	17	0
7	0	76*	7	10	0
21	3	7	41*	28	0
0	0	48*	0	52	0
83*	3	3	0	10	0
17	34*	14	3	31	0
83*	7	3	3	3	0
0	3	0	76*	21	0
0	90*	0	3	7	0
0	66*	14	10	7	3
83*	3	0	0	10	3
0	0	79*	0	17	3
3	76*	0	0	14	7
3	7	41	24*	21	3
66*	7	7	7	7	7
41	7	45*	0	0	7
3	28	31	31*	0	7
69*	7	0	10	7	7
0	0	7	83*	3	7
17	0	55*	7	7	14
0	14	45*	7	21	14
7	48*	7	3	21	14
59*	7	3	7	10	14
28*	21	3	0	28	21
7	7	31*	14	21	21
7	55*	7	3	3	24
14*	21	21	7	10	28
3	3	7	52*	7	28
3	14	28*	3	24	28
0	17	41*	10	3	28
48*	0	14	0	10	28
10	0	7	21*	31	31
17	31*	7	10	3	31

RTSS17-07 R A C I N E D I A G N O S T I C F E E D B A C K S

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***

FAIL/MARGINAL REPORT

NO FAIL PRESCRIPTION

ITEM SET 7-PERCENT--PLACE VALUE FAIL LIMIT 0 PC. MARGIN

TEETER LARRY	MARGINAL	33
BEDNAR KEITH	MARGINAL	16
BRISH CHERYL	MARGINAL	50
SIEVERT DOUGLAS	MARGINAL	50
DENNARD REBECCA	MARGINAL	33
MARTINEZ MARIO	MARGINAL	50
MCGEE SAMUEL	FAIL	0
RUGG DEBRA	MARGINAL	33
KLACAN SUSAN RAE	MARGINAL	50
GALLION TERRI JO	MARGINAL	50
OSZUSCIK EDWARD T	MARGINAL	50
ALBRITTON EDDIE J	MARGINAL	33
LAFEVER DEBRA	MARGINAL	33
THOMPSON RANDALL	MARGINAL	50
ETLICHER SANDRA	MARGINAL	50
SHAFF MARTIN	MARGINAL	50

MARGINAL PRESCRIPTION

1-PLACE VALUE ROUNDING LTC P 71 2-EXPANDED NO

3-PLACE VALUE LTC P 66 38-WORD PROBLEM PERC

39-EXPRESS FRACTIONAL PART OF WHOLE AS PERCENT

40-CHANGE 2 DIGIT PERCENT TO DECIMAL LTC P 11

NO FAIL PRESCRIPTION

ITEM SET 8-APPLICATION PROBLEMS FAIL LIMIT 0 PC. MARGIN

TEETER LARRY	FAIL	0
BEDNAR KEITH	FAIL	0
BRISH CHERYL	MARGINAL	50
SIEVERT DOUGLAS	MARGINAL	50
MCGEE SAMUEL	FAIL	0
HANSEN LORRAINE K	MARGINAL	25
KLACAN SUSAN RAE	MARGINAL	25
GALLION TERRI JO	MARGINAL	25
PETERSEN MARK T	MARGINAL	25
OSZUSCIK EDWARD T	MARGINAL	25
RABUCK JOHN P	MARGINAL	50
ALBRITTON EDDIE J	MARGINAL	25

FAIL PRESCRIPTION

ENT-PLACE VALUE FAIL LIMIT 0 PC. MARGINAL LIMIT 50 PC.

	MARGINAL	33
	MARGINAL	16
	MARGINAL	50
AS	MARGINAL	50
CA	MARGINAL	33
O	MARGINAL	50
	FAIL	0
	MARGINAL	33
RAE	MARGINAL	50
JO	MARGINAL	50
RD T	MARGINAL	50
IE J	MARGINAL	33
	MARGINAL	33
ALL	MARGINAL	50
RA	MARGINAL	50
	MARGINAL	50

RGINAL PRESCRIPTION
PLACE VALUE ROUNDING LTC P 71 2-EXPANDED NOTATION LTC P 69
PLACE VALUE LTC P 66 38-WORD PROBLEM PERCENT MSM P 468
-EXPRESS FRACTIONAL PART OF WHOLE AS PERCENT MSM P 468
-CHANGE 2 DIGIT PERCENT TO DECIMAL LTC P 112, MSM P 468.

FAIL PRESCRIPTION

ICATION PROBLEMS FAIL LIMIT 0 PC. MARGINAL LIMIT 50 PC.

	FAIL	0
	FAIL	0
	MARGINAL	50
AS	MARGINAL	50
	FAIL	0
NE K	MARGINAL	25
RAE	MARGINAL	25
JO	MARGINAL	25
T	MARGINAL	25
RD T	MARGINAL	25
	MARGINAL	50
IE J	MARGINAL	25

RTSS26-04 R A C I N E D I A G N O S T I C F E E D B A C K S

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***

STUDENT SCORES

PUPIL SET - YORE 01 82 DISTRICT P

NUMBER	NAME	TEST	RAW	PCILE	STA9	MEAN
03694	SEAGER BARBARA	GRADE 7 MATHDF 10-72	17	14	3	30
03914	HOLSTEIN DONALD	GRADE 7 MATHDF 10-72	38	94	8	30
03982	TARWID GERALD	GRADE 7 MATHDF 10-72	33	74	6	30
04571	AKGULIAN KARI	GRADE 7 MATHDF 10-72	35	84	7	30
04677	WAGNER CHARLES	GRADE 7 MATHDF 10-72	37	91	8	30
04813	FINLEY PAUL	GRADE 7 MATHDF 10-72	22	30	4	30
04825	LEFFLER CATHY	GRADE 7 MATHDF 10-72	37	91	8	30
04835	SNEED CONNIE	GRADE 7 MATHDF 10-72	29	55	5	30
04862	PETERSEN MICHELE	GRADE 7 MATHDF 10-72	33	74	6	30
04875	TSUCHIYA PAMELA	GRADE 7 MATHDF 10-72	28	51	5	30
04876	WHITSTON REGINA	GRADE 7 MATHDF 10-72	35	84	7	30
04887	KINDER SUSAN	GRADE 7 MATHDF 10-72	40	99	9	30
04900	POLZIN KATHY	GRADE 7 MATHDF 10-72	35	84	7	30
04918	SHOEMAKER LAURA	GRADE 7 MATHDF 10-72	34	78	7	30
04924	TARVER LISA	GRADE 7 MATHDF 10-72	35	84	7	30
04928	WISHAU BRENDA	GRADE 7 MATHDF 10-72	40	99	9	30
08068	HARTLEIN SANDRA	GRADE 7 MATHDF 10-72	34	78	7	30
08086	THOMPSON BRENDA	GRADE 7 MATHDF 10-72	21	25	4	30
08102	HENDERSON JODI	GRADE 7 MATHDF 10-72	13	6	2	30

GRADE 7 MATHEMATICS DIAGNOSTIC TEST *** DATE 10/16/72

STUDENT SCORES

		DISTRICT		PUPIL SET				STANDARD		
ST	RAW	PCILE	STA9	MEAN	HIGH	LOW	PUPIL/MEAN	GRADE	PCILE	STA9
ADE 7 MATHDF 10-72	17	14	3	30	40	9	56.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	38	94	8	30	40	9	126.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	33	74	6	30	40	9	110.0	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	35	84	7	30	40	9	116.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	37	91	8	30	40	9	123.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	22	30	4	30	40	9	73.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	37	91	8	30	40	9	123.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	29	55	5	30	40	9	96.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	33	74	6	30	40	9	110.0	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	28	51	5	30	40	9	93.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	35	84	7	30	40	9	116.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	40	99	9	30	40	9	133.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	35	84	7	30	40	9	116.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	34	78	7	30	40	9	113.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	35	84	7	30	40	9	116.6	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	40	99	9	30	40	9	133.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	34	78	7	30	40	9	113.3	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	21	25	4	30	40	9	70.0	RAW SCORES ONLY		
ADE 7 MATHDF 10-72	13	6	2	30	40	9	43.3	RAW SCORES ONLY		

RTSS24-06 R A C I N E D I A G N O S T I C F E E D B A C K S

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***
ITEM SET RESPONSE ANALYSIS

HUBERTY 03 81

PORTIONS OF THE TEST REFERENCED IN FOLLOWING REPORTS ARE --

	ITEM SETS	TEST PART
1	ADD AND SUBTRACT	LEVEL VII DIAG. TEST
2	MULT WHOLE NUMBERS	
3	DIVISION WHOLE NOS	
4	DECIMALS ADD, SUBT	
5	DECIMALS MULT, DIV	
6	FRACTIONS	
7	PERCENT-PLACE VALUE	
8	APPLICATION PROBLEMS	

CEO IN FOLLOWING REPORTS ARE --

TEST PART
LEVEL VII DIAG. TEST

RTSS24-06 R A C I N E D I A G N O S T I C F E E D B A C K S

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST ***

ITEM SET RESPONSE ANALYSIS

HUBERTY 03 81

		SET 1	SET 2	SET 3	SET 4	SET 5	SET 6
	TEST PART.....	1111111111	1111	1111	1111	111111	111111
	ITEM NUMBER.....	0000011111	1123	2333	0111	122222	222333
	.....	4567902456	8990	4234	8013	901238	567567
3667	BEDNAR KEITH	....AA.C..	...	BEDB	EAEE	..E.AE	D...EE
3722	BRISH CHERYL	..B.A.C.E.	CDAD	E..D	E.ED	DCCE.B	....EB
3767	SIEVERT DOUGLAS	....AAE...	ED.E	B..C	.AED	DECBDA	..A..A
4101	DENNARD REBECCA	.....B....	...	..DB	ABEA	.D..A.	...CBD
8182	MARTINEZ MARIO	....BA.BAD	B...	C..E	DA.D	..ACD.	..DAEB
8206	MCGEE SAMUEL	BE.EDEE.E.	E...	BE..	AEEE	..E..E	C.E.EB
8248	GREEN TOMMY	B.........	.E..	....	..EE	E.C.AE	....E.
8272	HANSEN LORRAINE K	....	....	.E..	...A	....AE	.CE.E.
8291	RUGG DEBRA	....	...D	...D	...A	..ABB.	D...ED
8321	KLACAN SUSAN RAE	....A.E...	E...	...E	....	.....	.....
8351	GALLION, TERRI JO	....	....	CE..	..EE	.EC.AE	.CE.E.
8369	PETERSEN MARK T	E.CD AD.A.	.E..	EBED	.A.D	EDACA.	.....B
8405	OSZUSCIK EDWARD T	.E...E....	....	EEA	.EEE	..ECA.	.C...E
8436	RABUCK JOHN P	AC...AE...	CBCC	E..C	.A..	BAACDB	...CD.
8447	CHASE SCOTT C	..C..AC...	....	EB..	.A.A	.E.DAD	.....
8551	ALBRITTON EDDIE J	.....BBE.E	.E..	C.EB	.BEE	E.E.A.	D.E.E.
9617	HODGSON GARY	........E.	....	B...	....	.....	.C..E.
9675	LAFEVER DEBRA	.C...AE...	.E..	B.AC	.A.E	E.C.D.	....E.
9694	THOMPSON RANDALL	BE..EB....	...E	B...	.BEE	..E..E	....E.
9709	BELLOVARY PATRICK	..DEECE...	.E..	E.DB	.C..	ECBD.	.EE.E.
9740	ETLICHER SANDRA	...EEE...E	..A.	...C	.E.E	..E.AE	....ED
9819	SHAFF MARTIN	...EB.D.E.	.DEE	CAAC	C..C	DEECAB	....D.
14143	PANIZZA STEVEN J	E.....E...	...E	BEA.	....	..E.AE	..E..B
14240	WATSON PAMELA	....	....	B...	....	....A.	..D...
30313	JOHNSON TAMRA	.....E....	....	C.A.	.EE.	..E.E.	.....
30435	TEETER LARRY	....A.....	.BEE	EDDC	...E	BEEDAE	.CAB.A

*** GRADE 7 MATHEMATICS DIAGNOSTIC TEST *** DATE 10/16/72

ITEM SET RESPONSE ANALYSIS

T 1	SET 2	SET 3	SET 4	SET 5	SET 6	SET 7	SET 8
11111111	1111	1111	1111	111111	111111	111111	1111
00011111	1123	2333	0111	122222	222333	000334	1133
67902456	8990	4234	8013	901238	567567	123890	0718
..AA.C..	...	BEOB	EAEE	..E.AE	D...EE	AB.BEC	AEEB
B.A.C.E.	CDAD	E..D	E.ED	DCCE.B	....EB	.C..AC	.CE.
..AAE...	ED.E	B..C	.AED	DECBDA	..A..A	.BB.A.	A.E.
...B....	...	..DB	ABEA	.D..A.	...CBD	AAC.C.	B...
..BA.BAD	B...	C..E	DA.D	..ACD.	..DAEB	.C..AD	A...
.EDEE.E.	E...	BE..	AEEE	..E..E	C.E.EB	DABEEC	ECCE
....	.E..	....	..EE	E.C.AE	....E.	.E....	..B.
....	....	.E..	...A	....AE	.CE.E.	..BE..	.AEE
....	...D	...D	...A	..ABB.	D...ED	DE.B.C	...B
..A.E...	E...	...E	....	......	......	...DEC	.CBD
....	....	CE..	..EE	.EC.AE	.CE.E.	.ACE..	.CEE
CD AD.A.	.E..	EBED	.A.D	EDACA.	....B	..E.A.	AEE.
...E....	....	EEA	.EEE	..ECA.	.C...E	.AB.E.	ECC.
...AE...	CBCC	E..C	.A..	BAACDB	...CD.	.E....	A. .
C..AC...	....	EB..	.A.A	.E.DAD	......	.....D	A...
...BBE.E	.E..	C.EB	.BEE	E.E.A.	D.E.E.	.BC.CA	BCB.
......E.	....	B...	....	......	.C..E.	......	..B.
...AE...	.E..	B.AC	.A.E	E.C.D.	....E.	.A.BAA	ACBB
..EB....	...E	B...	.BEE	..E..E	....E.	.CC..A	B.E.
DEECE...	.E..	E.DB	.C..	ECBD.	.EE.E.	.E..A.	C.E.
.EEE...E	..A.	...C	.E.E	..E.AE	....ED	A.BB..	ECEB
.EB.D.E.	.DEE	CAAC	C..C	DEECAB	....D.	.A..AA	..E.
....E...	...E	BEA.	....	..E.AE	..E..B	.C....	..E.
....	....	B...	....	....A.	..D...	......	..B.
...E....	....	C.A.	.EE.	..E.E.	.....	.E....	E.E.
.A......	.BEE	EDDC	...E	BEEDAE	.CAB.A	AEBCBD	.CBC

DOCUMENT RESUME

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DESCRIPTORS *Aesthetic Education; *Affective Behavior; *Art Education; Audiovisual Aids; Changing Attitudes; Data Analysis; Educational Research; Environment; Field Trips; Interpersonal Relationship; Measurement Instruments; Program Descriptions; Rating Scales; Self Concept; Self Expression; *Values; Video Tape Recordings; *Visual Literacy
IDENTIFIERS Childs View of Himself Scale

ABSTRACT

An experimental program, examining a variety of experiences from an aesthetic point of view, focused on growth in the affective domain. The purpose of the study was to investigate the effectiveness of a five-week program in value-building activities with emphasis on: 1) increasing aesthetic perceptions of the sensitivity to the environment; 2) impr[illegible] the self concept; and 3) developing socially acceptable ways [illegible]sing feelings as well as accepting the feelings of others. T[illegible] pils of divergent backgrounds, from the sixth to eleve[illegible]es, participated in a program implemented by two art teachers us[illegible]ng four components: field experiences; audio-visual stimuli; group discussions; and self-examination experiences. Data were collected and analyzed comparing changes between pre and post tests. Personal interviews, anecdotal records, audio-tapes, photographs, and the Child's View of Himself Scale used to collect relevant data recorded significant changes in all three areas. Appendices contain copies of the Child's View of Himself Scale and a recording sheet for anecdotal records. (KSM)

AESTHETIC AWARENESS:

A Means to Improve Self Concept

In A Multi-cultural Environment

RESEARCH MONOGRAPH NUMBER 6

Aesthetic Awareness:
A Means to Improve Self-Concept
in a
Multi-Cultural Environment

by

Wendell Abbott
and
Margaret Haynes

ACKNOWLEDGMENTS

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To Mrs. Virginia Allen, for unlimited time and expert leadership on fieldtrips;

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To Dr. Felecia West for her interest and encouragement;

and lastly, to the students. Each contributed much.

PREFACE

> In spite of our affluence there is general discontent--youths are disillusioned; the poor are dissatisfied, the wealthy are bored; the blacks are angry; the middle class is frustrated and bewildered by rapidly changing values and mores; and ever increasing violence occurs. It seems obvious that we must develop a new approach to life through which we can utilize our new affluence in a more meaningful way. It is at this point that we should consider what role the arts can play in enriching our lives and curing the malaise that permeates our society. (18, p.19)

In the study reported in this monograph, attention was directed toward consideration of the arts within the larger framework of aesthetics. Webster's Third New International Dictionary defines aesthetics as:

> relating to the beautiful as distinguished from the merely pleasing, the moral, and especially the useful and utilitarian; appreciative of, responsive to, or zealous about the beautiful: having a sense, real or affected, of beauty or fine culture; involving pure feeling or sensation, especially in contrast to ratiocination.

The inherent multi-dimensional nature of the aesthetic experience is implicit within the definition. At a first level is recognition of the yearnings for the good, the true, and the beautiful in mankind and acknowledgment of these within "self". At a second level is recognition of feelings, emotions, and sensations stimulated in response to these qualities, responses which are in themselves beautiful. At yet another level is recognition of the need for "self" to identify with those qualities of life which are universally significant. Identification is found through searching the depths of consciousness, the very spark of life, while at the same time stretching forth to grasp the design for the ultimate which man may become. Ultimately, then, aspiring to the highest levels of enjoyment in aesthetic expression and response, a quality of life may

be established which enhances his significance as "one with all life."

The experimental program, designed in light of these dimensions, sought to examine a wide variety of experiences from an aesthetic point of view with emphasis on growth in the affective domain. Students from highly divergent cultural and economic backgrounds were stimulated to recognize the yearnings, the feelings, the emotions as expressed by others engaged in aesthetic activities and to acknowledge these same responses within "self". Findings indicate that during participation in the program a significant shift from ego-centered to others-centered occurred; aesthetic appreciation for the environment was broadened; more socially acceptable ways of expressing feelings and emotions were exhibited; and concept of self and others was modified in a positive direction.

One characteristic of creativity is that it has to be original, fresh, non-used, and generated from within the creator. When one shows "the way", by its very nature creativity is inhibited. This monograph is not intended to show "the way". Rather, it is hoped that this report will be of practical benefit in stimulating others to be inventive in developing their own programs and techniques for accomplishing similar objectives.

Dr. J. B. Hodges, Director
P.K. Yonge Laboratory School
and Professor of Education
College of Education
University of Florida

CONTENTS

TABLES

GRAPHS

APPENDICES

Aesthetic Awareness:
A Means to Improve Self-Concept
in a
Multi-Cultural Environment

Awareness of and sensitivity to the nature of one's total environment are essential to living in harmony with and maintaining control over the environment. The creation of an environment which is aesthetically pleasing requires a broad knowledge of and desire to apply those values, attitudes, and human relationships which potentially contribute to the development of quality. The desire to create such an environment is in itself characteristic of an adequate personality. At the same time, social growth may be stimulated through developing within a group an awareness of a common concern for the establishment and maintenance of an aesthetically pleasing environment.

THE STUDY

The purpose of this study was to investigate the effectiveness of a five week program in value-building activities of an aesthetic nature with emphasis on 1) increasing aesthetic perceptions of and sensitivity to the environment, 2) improving the self-concept, and 3) developing socially acceptable ways of expressing feelings as well as accepting the feelings of others.

The program was implemented through the team efforts of two art teachers. Four major components served as vehicles to achieve the goals: Field experiences focused on developing an awareness of and increasing sensitivity to the environment; audio-visual stimuli focused on developing aesthetic awareness of and sensitivity to feelings

Improving individual intake is what perception is all about.

"I thought I couldn't do it, and others did too. Somebody had to help me know I could and then show me the way!"

in self; group discussions focused on cooperative pupil-pupil and pupil-teacher interaction and planning; self-examination experiences focused on developing awareness of and sensitivity to the verbal and non-verbal "self" via self-photographs and audio-tapes viewed and discussed in daily individual conferences between teacher and individual students.

Did It Work?

The study sought answers to three questions:

1. Do students increase the number of socially acceptable ways in which they express their feelings?

Frequency of others-centered anecdotes as compared to ego-centered anecdotes increased significantly beyond the .01 level. Changes in behavior progressed through three phases:

(1) No response or negative response to others, verbal attacks on each other, finding fault with others;
(2) A somewhat negative reaction but a trend toward willingness to allow others to think differently;
(3) Acknowledgement of others' rights and actions; acceptance of feelings as important.

2. Are students' aesthetic perceptions of the environment broadened as a result of participation in the five week program?

Significance occurred in perceptions of physical attractiveness of the school and immediate educational activities. Significance in both aspects was recorded at the .01 level of confidence. High interest in the environment, on and off campus, and its effect upon the senses were observed.

3. Is there improvement in the self-concept of those who participate?

In general, data indicate students made shifts toward a more positive perception of "self" in the areas of mental ability, body attractiveness, physical prowess, relationship with pupils, relationship with adults, relationship with parents, and relationship with siblings. Significant changes occured at the .05 level in perceptions of physical prowess, relationships with pupils, adults, and parents.

Why This Approach?

"In education, improving individual intake is what perception is all about. Nothing can happen within the child until he has perceived, and the quality of his intake affects everything that happens thereafter." (17)

Perception deals with three modes, identified by Smith (17) as social, scientific, and aesthetic. In any situation an individual perceives in all three modes, but to varying degrees and at varying levels of consciousness and sensitivity, depending upon the help he has had in developing perception. A high level of perception in all three modes is an essential element in healthy individuals; healthy individuals exhibit more positive behavior and socially acceptable ways of self-expression. Maslow emphasizes that "healthy people make their culture more healthy." (13, p.5.)

To by-pass any of the modes results in deprivation and, therefore, inhibits the fulfillment of the individual. Considerable emphasis is given to the development of the scientific mode in educational programs. Deprivation is more likely to be in the social and aesthetic modes.

Concerning the social mode, a recent study of clique membership (5) reveals that some students are never able to establish membership in any group, remaining isolated throughout their enrollment in school. Furthermore, the dropout rate among "loners" is high. In addition, among those who are accepted in a group, mobility from one group to another almost never occurs. Even among those students who are more gregarious, anxiety and hostility are compounded when large numbers of students from widely differing racial and socio-economic backgrounds are brought together. The basic problem lies in their

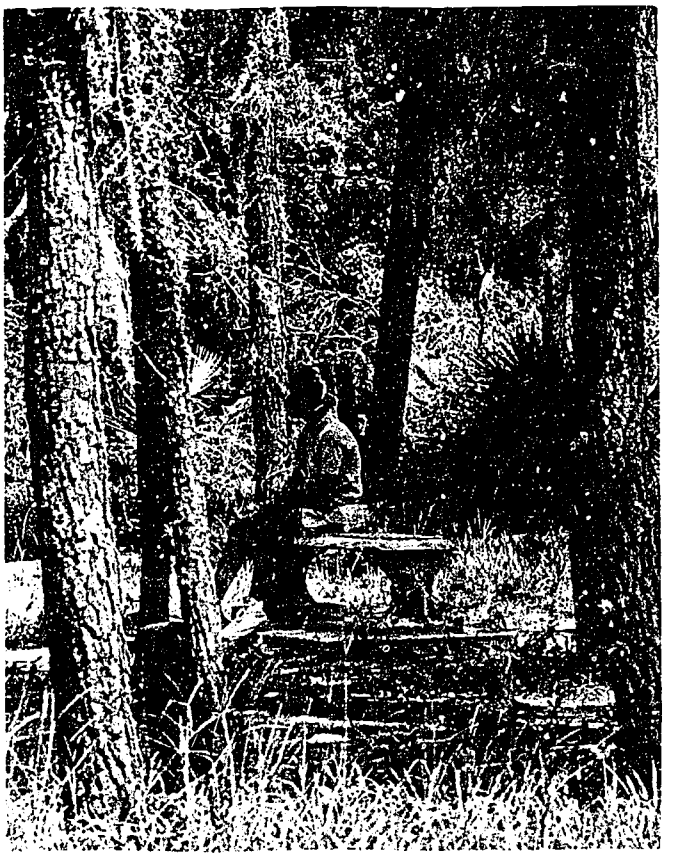
highly divergent values.

Mere forced changes in a school's student mix does not change values; neither do changes in internal operation. Yet, values determine that to which a person attends--to his and society's detriment or beneficence. Values lift "figure" from "ground" in the gestalt experience. Further, the literature reveals a clear relationship between values, self-concept, and socially acceptable ways of behaving. Nevertheless, generally, little attention is given in the curriculum to helping students perceive themselves as potential group members and to assisting them in developing the values and skills needed to "stand alone" or to establish membership in a group. Only through such assistance may the student be helped to attune himself to the world around him--to build toward becoming an adequate personality.

> Through social perception we build open-ended values and help children keep their thinking free from stero-types and unsubstantiated ideas. It is more than the basis for social learnings or for acquiring several skills--it is at the very roots of the child's search for self-realization and his ability to interact successfully with others. (17)

The call is not for conformity of values--values by their very nature are individual. However, education must create and enhance sufficient commonality and sensitivity to encourage development of that which is mutually beneficial.

To facilitate the transitional movement of students, a common ground is necessary--a common concern--a common value upon which to begin increasing self-awareness and awareness of others. An area common to all is the environment of the school and other facets of the community. It is at this point that a thread which ties all



Development of a sensitivity to and awareness of aesthetics should be a primary concern of us all.

people together may be utilized--the arts in all their various manifestations. There is no way that the arts can favor any one group of people. Everyone can identify and latch onto the thread of art which runs throughout the ages through all strata of society--the poor, the rich, the young, the old, the convergent, and the divergent. Through the arts man communicates in a universal language, without bias, that which is important to him. Hence, the arts should be studied closely to determine what part they may play in self-actualization. One outcome may be that our affluence may be utilized to bring more meaning and self-fulfillment into our lives.

Development of a sensitivity to and awareness of the aesthetically satisfying environment should be a primary concern in the total educational program. The need for attention to aesthetic growth becomes more significant in recognizing that, as Herbert Read states, aesthetic education is "the education of those senses upon which consciousness, and ultimately the intelligence and judgment of the human individual are based." (12, p.58) Lowenfield agrees,

> It is through aesthetic growth that an individual shows his ability to make meaningfulness out of chaos--to relate in positive ways. Well-adjusted individuals have essentially Positive attitudes toward self, which is in itself characteristic of adequate personalities. (12, p.58)

Combs and Snygg emphasize that such personalities are not luxuries in our society but "a continuously increasing necessity. . . The best guarantee we have that people will operate effectively to fulfill their own and other people's needs is that their own feeling of worth and value has been filled. . ." (3,p.264).

> Aesthetic perception can have a high threshold in children's consciousness, yet they must be helped to be aware of it in seemingly ordinary situations. (Further:) Through selective experiences we can learn to perceive in far greater depth and with much more discrimination than we could before. (17)

Cleaning up helps to establish and maintain an aesthetically pleasing environment.

It is clear that aesthetic education should be one of the major forces in our society. "If an individual is not encouraged to develop aesthetic awareness--if his intake does not include aesthetic values--then we are neglecting an important area of his education." (17) He is deprived; his fulfillment limited. He is condemned to perpetual inadequacy--never able to fulfill his own, other people's, or society's needs.

Roger Stephens calls our attention to the environmental consequences of neglecting development of the aesthetic mode:

"The failure to teach students to appreciate design and beauty at an early age has appreciable impact on the appearance of our cities and roadsides." (18, p.19) Stephens' thesis is that one of the reasons our cities are, in many cases, so unsightly with misplaced "hot dog stands, gaudy gasoline stations, garish store fronts, and generally bad design" is that Americans have not been sensitized to their environment from the aesthetic point of view. Hence, Stephens reinforces the contention that there is a critical need for strengthening the individual's ability to identify and evaluate a set of well defined values directed toward establishing and maintaining an aesthetically pleasing environment. Hence, for this study, a program emphasizing development of the aesthetic mode while providing experiences in self-awareness and awareness of others (social mode) was developed. It was hypothesized that the effect might be to bring people together from widely divergent backgrounds, with their equally divergent values, in such a way that self-concepts would improve, aesthetic sensitivity would increase, and socially acceptable behavior would become the norm of the group.

Multi-aged and multi-cultural grouping enriches interpersonal relationships.

It is through such manifestation of "becoming" that people are prepared "to live in a society of variety and make it work, to live among people with widely differing starting points and find joy in seeing them all moving forward at their optimum pace, to find happiness and fulfillment not in power--in dominion--in self-destruction, greed, and materialism--but in helping others to find value in their lives." (15, p.6)

How Was It Done?

The Pupils:

Thirteen pupils participated in this five week summer program. There were nine girls, grades six through eleven, and four boys, grades seven through eleven. Nine were newly enrolled, scheduled to enter the School the following fall. Four had attended the School for at least one school term. Nine were black students: two boys and seven girls. Four were white students: two boys and two girls. Divergence in backgrounds was represented in age, sex, race, and socio-economic status.

Enrollment was by choice, and all participated to the end of the program.

The Place:

Sessions were held on the School's campus, using the art room, shop, patios, shade of trees, walk areas, steps, sandy areas in the playground, and the library. Every effort was made in the use of facilities to emphasize living and to avoid the limitations of a structured classroom atmosphere. Students were encouraged to pull away from the group when they felt like being alone.

Environmental field trips took students to many off-campus places in the community as well as others outside the community. These included:

A nearby creek to discover some relationships in nature, to hunt fossils found from life in past eras, and to enjoy the splash of water tumbling over stones and concrete retention walls;

An Indian burial site to observe archeologist's excavating, identifying and plotting finds in order to provide opportunities for students to become aware of the value of such remains in helping us gain insight into ourselves from our past;

A geological sink to see layers of exposed earth and to read some of the earth's story from the deposits, dating from the Pleistocene period;

A sculptor's studio to visit with him and learn about the way he works, what he hopes to accomplish, and how his work is an expression of himself;

The building site of a new home to observe the relationship of the aesthetic design of the structure and its function;

The site of the new Florida State Museum to observe the relationship between the design of the structure; and its exhibits.

Several other structures to study the variety of ways architectural forms reflect the needs of individuals, families, commerce, and government;

An architectural maze representing an environment to experience how surroundings help determine how one feels, functions, and relates;

A clay mine to observe clay dredged, refined, and processed to be used in making home and business fixtures and articles, creating ceramics, pottery;

The Cross-Florida barge canal to gain first-hand information about the ways the canal changed the ecology of Florida, to collect fossils, and to examine evidence of already observable future effects;

A science teacher's home to examine mastodon bones from digs to broaden concepts of time and to aid in visualizing extinct animals;

The University Art Galleries to view the expressions of contemporaries executed as drawings, paintings, and sculptures;

The University Research Farm to learn some ways in which man tries to learn more about himself through studying other animals;

The University Nutritional Laboratory to increase an awareness of ways in which society, sensitive to people's basic needs, strives to combat hunger the world over.

A Mexican Foods restaurant to experience food tastes characteristic of the Mexican culture;

Several material scavenger hunts to gather no-cost media, to extend concepts of possibilities in that which is available and the need to conserve materials;

The University Research Library to view and handle unique collections of photographs, original manuscripts, artifacts, sculpture, etc.

The University's Reitz Union to explore this excellent example of modern architectural design and gain first-hand experience about the setting, landscaping, and function of the building;

A music education class to listen to examples of contemporary styles, to discuss the reasons for this development, and to learn about musicians who made important contributions to the music of today;

The Marineland Sea Aquarium to observe marine life in an environment not unlike nature's and to observe different levels of animal intelligence as they communicate among themselves and with man;

The Potter's Wax Museum to see and to hear about the notable people from world history represented there;

The St. Augustine Beach to play in the surf and sand, to picnic, and to gather shells;

A cattle ranch to feel the immensity of the ranching business, share refreshments, and to enjoy each other at a swimming party;

A quarter horse farm, where the racing greats are raised and trained, to learn about the relationship between trainer and horse.

The Program:

During the five weeks, a typical weekly schedule included activities in the field, presentation of audio-visual stimuli, participation in group discussions and reflective self-examination via photographs and audio tapes, and the creation by each student of an individual environment to "speak for self". Except for days on which distant field trips were taken, sessions lasted four hours, including a refreshment break, when initiated by students.

"Man! Look at that!"

Program content was selected to provide stimuli calling for examination of the environment as well as self and others from the aesthetic point of view. More specifically, responses to new ways of perceiving were stimulated as students were exposed to a wide variety of opportunities for development of sensory perceptions through field experiences and audio-visual materials, including music as well as other sounds, stories, poetry, and movies.

Field Experiences

Each trip site was cooperatively selected and planned by the teachers and students. The purpose was determined on the basis of the potential to contribute to development of social and aesthetic perceptions.

Planning for each trip reflected recognition of the following general objectives:

1. To provide experiences in common to serve as a basis for developing skills in communication and interpersonal relationships.
2. To provide opportunities to assume individual and group identity.
3. To provide opportunities for a wide variety of intake in stimulating environments.

The learning pattern for experiences and expressions of perception incorporated:

1. Intake--The sensory perception of experience;
2. Mode of expression--Relating the experience information with what one already knows and formulating approaches and tools for individual or group expression;


Opportunity
for a wide
variety
of intake

3. Output--The expression itself, motor, visual and verbal, or combination of them.

Audio-Visual Stimuli

In addition to field trips, recordings of music and other sounds, film strips, and sixteen millimeter films were vehicles to stimulate discussions of feelings and values. Numerous expressions in all media resulted. As a result of listening to the teacher-made tape of various sounds, students became interested in taping sounds themselves. Tapes and recorders were taken home by students for recording home and night sounds. Listening to tapes stimulated students to imitate sounds, then record their imitations and play them back for listening again. Sounds were highly diverse, including horses, crickets, trains, and frogs.

The ten films used were:

Feeding Time

The changes brought about by "progress" often uproot people. Frequently, entire sections of cities and whole forests are destroyed. Beautiful, well-kept homes and lawns along with slums give way to expressway or urban renewal projects. Huge machines devour in an orgy of metallic indigestions. Human microcosms scurry about tending the steel dragons to the sound of "rinky-tink" pianos, boat horns, and rocket launchings. Whispers of the past echo through the film. How does it feel to observe the changing faces of woodlands and cities--cities with disposable homes, often filled with disposable things and disposable people, sharply cut into the screen? 14 minutes, b/w film, no narration.

The Water's Edge

A luminous, shimmering camera study of natural water forms which begins with a quiet, melting icicle; builds to the pounding, roaring waves; and retreats to quiet, sleepy rivers. The life found along the route from icicle to ocean is suggested. Moods of the water tug at the viewer to unite with them. Film won The Grand Prix award of the Venice Film Festival. 12 minutes, b/w film.

The Loon's Necklace

This North land Indian myth builds awareness of man's relationship to God and nature as man seeks wisdom in time of famine. Richly painted and carved wooden masks are worn and displayed, depicting human conflict and imploring gods to intervene with nature. from among the populace to lead the people, an old blind warrior hears through the call of the loon the message for man and searches blindly through the forest for the talisman to be used. In gratitude, the blind leader pitches his beads of precious value to the loon. As the necklace settles around the bird, the beads unite with the feathers to become the delicate and perfectly placed adornment found on the loon's slender, graceful neck today. Color, 11 minutes.

Picasso

A life of the artist condensed in a "nut shell". An experience which aids the student to understand how Picasso has saved art from its own self-destruction. One is made aware of art's evolvement from an ornamentation to a dynamic and provocative means of communication. Through Picasso's life the artist is seen as one who lays mankind open, inspects it bit by bit, then reassembles it so that it is a new existence. The 477 works shown in the film make the inner yearnings of Man so visible that their very image creates sound which may be heard through sight. 50 minutes.

The Americans: Three East Coast Artists at Work

The artists, Milton Avery, Hans Hoffman, and Jack Tworkov, discuss their work. Insight is gained about ways artists mature and become a reflection of the human and natural forces around them. Their efforts are barometers for today, prophecies of tomorrow, and an anchor to the past from which we have journeyed. The artists provide us a glimpse into the transcience of life by capturing and preserving it so that part of the spirit of times, places, and people become visually static for everyone to own. 19 minutes

Wild Rivers

An experience aimed at sensitizing the viewer to the roles played by water in its natural state. Vistas of a woodland haven for creatures of the wild and recreational areas for man are dramatically etched into the screen. Graphic illustrations show how man, as he created his incorporated habitats, and industries, created a demon named pollution. An urgent cry for conservation!! Color, 13 minutes.

Options

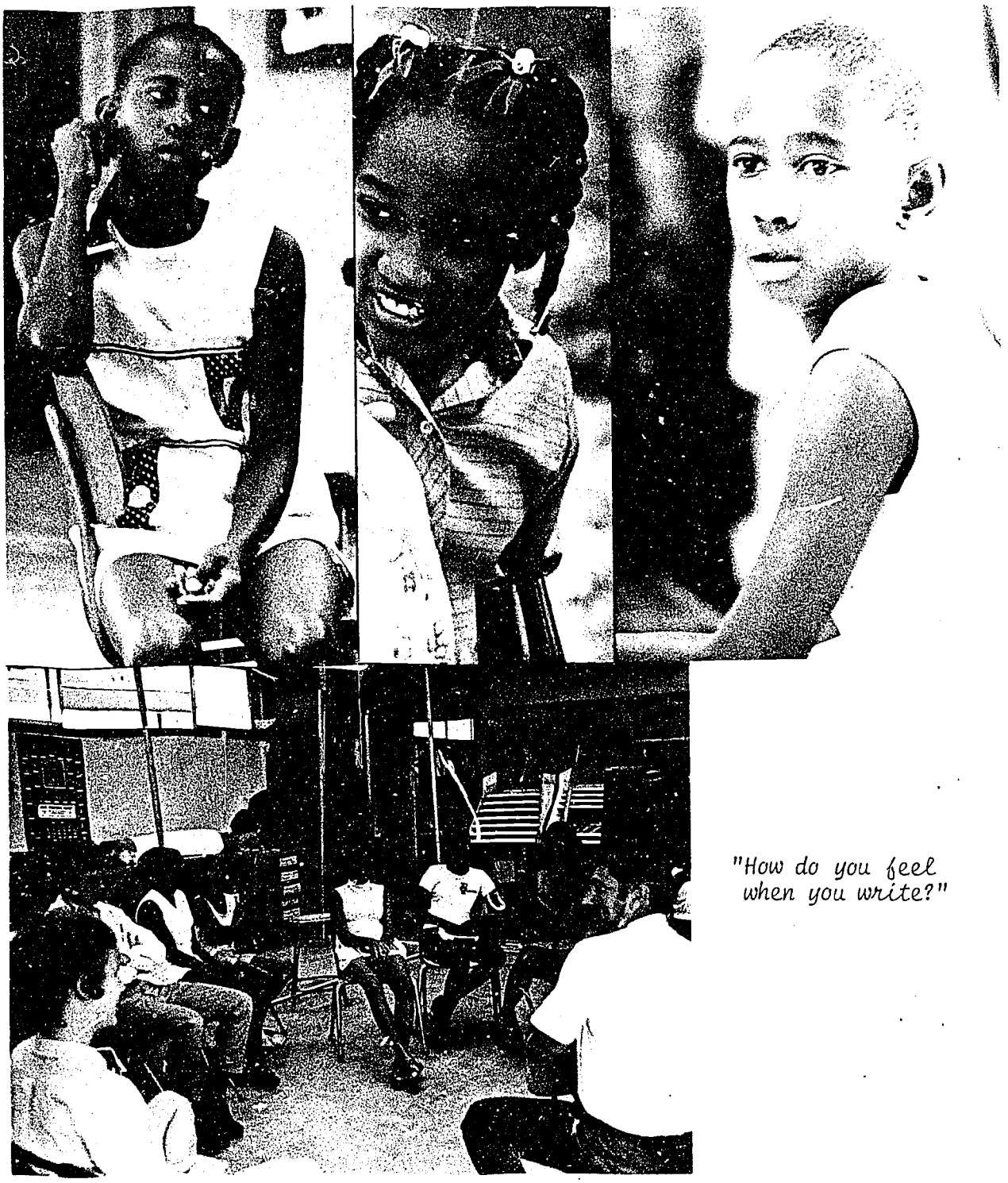
On the theory that art should be an expression of artist and viewer, the Museum of Contemporary Art offers works which demand an involvement of both the creator and visitor to the museum. The visitor finds he has become a part of the art objects as the sight and sounds of his approach are translated by the objects into kinetic energy. Movement and sound generated within the objects presents an ever-changing appearance. Startling surprises are in store for the museum visitor as the pieces on exhibit act and react to him. Color, 9 minutes.

Discovering Color (16 min.), Discovering Line (19 min.), Discovering Texture (17 1/2 min.)

Unexpected and usually unexplored ways of sensing the world

"How do you feel about what you heard yourself say?"

"What do you think you were thinking when the photograph was taken?"



"How do you feel when you write?"

through sight and touch are the focus of these films. Ways by which color, line, and surface combine to suggest moods, emotions, and states of being emerge through excellent camera art. Living collages of color, line, and texture flow along as the lense sees in focus then slowly out of focus. The indescribable hues, sheens, glimmers, and tonings carry the viewer through ever changing, pulsating shapes and forms which tease the senses. The mundane bric-a-brac from the everyday world have never been so acutely seen as the films portray them. One senses them as basic universals which are timeless as aids to develop an awareness for the forcefulness of line, texture, and color.

Self-Examination

Insight into one's "self" was sought in relation to every activity. In addition, however, an in-depth quest into the verbal and non-verbal "self" was directed to increase awareness of and sensitivity to self. Study of self-photographs and audio-tapes discussed in individual conferences between teacher and individual students proved an effective technique.

To help the students introduce themselves to the other members of the class during the first day of the study, polaroid cameras were made available for them to use. Their problem was to have photographs made of themselves which showed what they wished others to know about them, things they enjoyed doing, activities which had meaning to them, etc. The snapshots were later used by the students to exhibit in the classroom. They supplied any additional information they chose to share through posters, captions, displays, and mementos.

Allen chose to pose on his "scooter". He said, "Let me tell you something, Mr. Abbott. Guess what! I've done it by myself! It's all mine! I've paid it off!" He worked for the money to buy the motor-scooter.

Photographs were taken of students individually and in groups frequently through a day's activities whether at "home" or in the field. Photographs then served as the basis for recalling and describing feelings and the non-verbal behavior established. Values were examined along with alternatives where appropriate to more acceptable means of channeling feelings for expression. Discussions were taped and replayed for closer examination of "self" as revealed verbally.

During interviews and conferences on replays to evaluate photographs the following questions were asked:

1. How do you feel about what you see in the photograph?
2. What do you think you were feeling when the photo was taken?
3. What do you think you were thinking when the photo was taken?
4. What do you think others in the photo were thinking when it was taken?

Then in response to replays of audio tapes the students were asked, do you feel the same as you did when you stated this on the tape? The discussion elaborated from that point as the teacher captured clues from the student's response to the question.

Example: If a student responded, "Yes, I still feel that way," the teacher would perhaps ask, "Now what was it you said caused you to feel that way yesterday?"

Discussion Groups:

Emphasis in follow-up discussions was on "feelings" stimulated by the various activities. Three key questions served to centralize emphasis on the examination of feelings: How do you feel about this? What do you think others around you felt about this? Was this experience like any other you've ever had? These then were expanded to include questions like:

1. What does this make you feel like?

2. If you were that person, what do you think you would be feeling?

3. Can you compare this to something you have done?

4. What do you think you were thinking when the photo was taken?

5. If you were to create a picture of how you feel or felt, what would you put in it? (sounds, colors, shapes, forms, materials)

6. If you were doing this again, how would you change it?

Expressions were accepted as long as they showed a serious endeavor to communicate an idea. Follow-through in pursuit of any seemingly worthwhile idea was encouraged. Thus, capacities and areas for expression were broadened and channeled into acceptable norms with controlled release. Example: Openness to others was enhanced as feelings of others outside the group were explored. An author visited the class and expressed how he feels when he writes, what motivates him to write, and how his writing provides self-fulfillment for him. Drama students and their instructor talked with participants in the program about how they enter a "character". A refugee talked about feelings when fleeing a homeland. Role-playing was used frequently as a vehicle through which students reflected their interpretations of others actions, words, and moods, striving "to walk in the other fellows shoes".

Creating an Environment

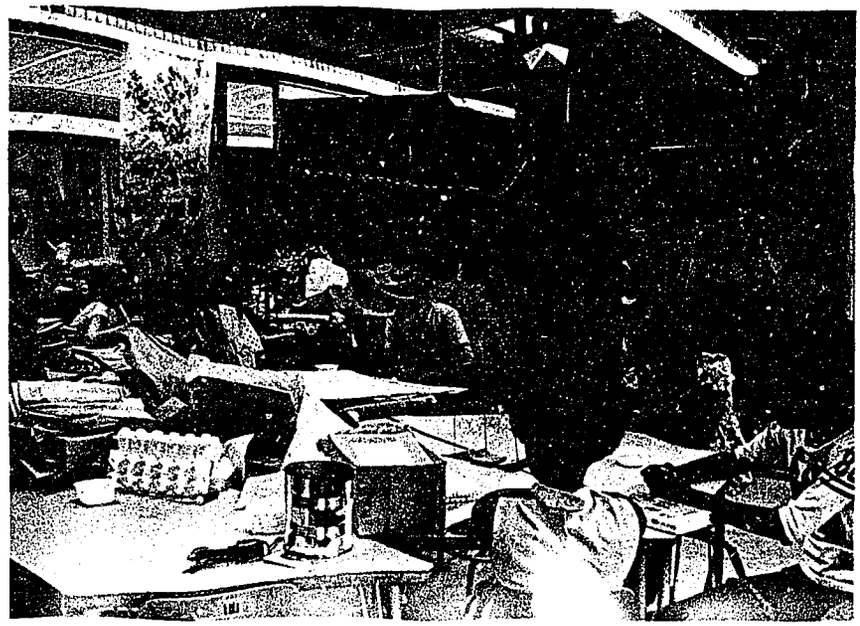
At the beginning of the program each student chose a section of the art studio in which he was to create a surrounding reflective of himself and with which he wanted to be identified. Everyone was encouraged to arrange, rearrange, build structures or enclosures and decorate in ways to provide a private place in which he could lose himself in quiet reflection. Equally important this helped others gain some insight into him by seeing his area.

Quickly these areas were termed environments by the teachers and students. Time was devoted almost every day to their construction, each student was encouraged to explore, experiment, and invent ways to use it. Teachers advised and helped when asked to do so but never directed the ways in which the structures were to be accomplished.

Daily media experiences helped students discover new materials and ways in which they could be used. Use of natural materials and materials found on scavanger hunts was emphasized. Those used most were wooden framing boards, plastic sheets, pieces of parachutes, cotton fabrics, flowering plants, sea shells, pebbles, stones, styrofoam, tempera paint, day-glo paint, black light, recorded music and sounds, cushions, chairs, fans to create movement, small electric motors, cardboard cutouts, clay sculptures and ceramics, tie-dye and fold-dye fabrics, batiks, tree limbs and roots, fossils, mushrooms, Spanish moss, leaves, record jackets, and poster art.

What each discovered about materials was readily shared with others, since for many students using wooden framing, visqueen plastic sheets, and fabric yardage was not within their previous realms of experiences.

Understanding that color may control and communicate emotions became evident as large panels of color slowly found their way into the environments. After laminating masses of chipped wax crayons between large sheets of plastic, Karla became overwhelmed by its size and power. To enjoy it more fully, the huge panel was suspended from overhead beams to catch the breeze and sway gently back and forth within her environment. Day after day Karla and her peers were observed watching this statement in color--the gently moving color panel.



Everyone

enjoyed

watching

Karla's

powerful

panel

Another important aspect of the environment was sound recording. Identifiable sounds, music, and rhythmic recordings were built into the over-all effect.

Frequently, when a student was missed from an activity, he would be found in his environment reading, sitting quietly, or listening to a tape as he lounged on the floor. As students were observed throughout the activities, it became apparent that they identified closely with their individual environment. Two anecdotes illustrate:

Anecdote 1:

> Instead of riding his scooter to school today, Allen's sister brought him. When it was time to go home he said, My dumb sister isn't here to get me. Can I work on my environment frame by the window so I can see her when she comes?"

Anecdote 2:

> Today Steve volunteered to help David get the drinks mixed for refreshment. David had bought unsweetened Kool Aid, but no sugar was in the room. Steve tried to remedy the situation by suggesting they look in the lunchroom. It was not open. A few sugar cubes were located in teacher's lounge, but not enough to sweeten the drink. As he began serving, Steve tried to encourage everyone to react positively to its sour taste by explaining that it wasn't quite sweet enough but the cold was great. David, embarrassed by his mistake in purchasing, retreated into his environment while Steve remained at the serving post passing out sour Kool Aid and cookies.

As the program neared conclusion the idea of uniting all environments was discussed. The project was undertaken enthusiastically as ways in which the best overall effect could be achieved were suggested and discussed. During the greater part of one morning students set aside all of the previously scheduled activities in order to devote a large block of time experimenting with the effects

they could create within the large environment. Special lighting and sounds were tried as well as rearranging items. When this cooperative culmination was completed, the group agreed the creation was generally aesthetically pleasing to all members. Various aspects of the incorporated decor revealed common as well as divergent values, demonstrating that a harmonious whole may result from cooperative efforts.

On the last day the necessity for disassembling the environment and putting the art studio together again had to be faced. Tearing down was obviously traumatic and was begun with much reluctance. One student expressed himself by saying, "I hate to tear down my environment. I really had fun making it."

In summary, students involved in the experimental program were:

1. exposed to a wide variety of sensory perception experiences and group projects;

2. helped to relate sensory experiences to what they already knew and to formulate approaches and tools for individual and group expression in relation to self;

3. encouraged to experiment with motor, visual, and verbal methods of expressions.

Resources used to assist students in developing awareness were:

1. photographs taken of the students in the program stimulated self-awareness;

2. field trips to locations provided maximum opportunity for stimulating expression and feeling about aesthetic aspects of environment;

3. sixteen millimeter films, filmstrips, and recordings stimulated discussion of feelings;

4. library materials supplemented and enhanced intake from the various sources;

5. natural materials demonstrated and provided practice in creating;

6. community personalities provided experiences with creative people outside the school

What Do the Data Show?

Design of the Study:

The thirteen participating students all enrolled by choice and participated until the end of the program. There was no control group. Data were collected and analyzed comparing changes from pre to post on the basis of self-concept and concept of others, ego-centered and others-centered, aesthetic perceptions of environment, and ways students expressed thoughts and feelings.

Instrumentation:

The objectives of the program were affective rather than cognitive in that they focused on attitudinal changes and personal adjustments rather than on readily testable skills. Because of the student population serviced by this program, pencil and paper testing of these changes were not deemed appropriate, primarily to avoid any resemblance to a formal classroom setting. Instead, personal interviews, anecdotal records, audio-tapes, photographs, and The Child's View of Himself Scale were used to collect data relative to changes in self-concept, aesthetic appreciation, and social adjustment. The measures used in evaluating the program depended upon the sensitivity of the teachers involved to make global judgments about students after having collected a variety of data in a systematic manner. Work in psychiatry* has indicated that global judgments have validity.

1. Personal Interviews

When a person is confronted with a series of articles from the

*Drs. Marion Miller, Louisiana State School of Medicine, Stephen H. Voss, Florida Atlantic University, Arthur Jersild, Columbia University, Leslay Tuttle, University of South Florida, Floyd Corneilson, University of Oklahoma have found that global judgments made by trained observers are highly valid. (1)

everyday world and asked to select the ones which have the most meaning, he will reveal something about himself through his selections. Further, when one is asked to talk about the reasons he feels the articles are important, additional insight into his values system is provided. If this process is repeated over a given period of time, it will tend to indicate change which has taken place in the way the individual feels and gives clues to what he then thinks is important.

As one way to collect as much data over a short period of time as possible, students were asked to "rank value" a number of articles and to verbalize their reasons for the selections.

The articles presented to stimulate interaction were:

Cowrie shell
Natural wood sample
Bar of soap
Hand lens
Newspaper
Piece of jewelry
Library card
Red Cross first aid card
Set of car keys
Ball point pen
Telephone book
Check book
Volume of the World Book Encyclopedia
Book of fiction
Y.M.C.A. (Y.W.C.A.) program leaflet
Photography by La Rue
Tube of lipstick

Pre and post responses were recorded in order to attempt to measure changes in aesthetic appreciation. No formal analysis of data was attempted on the basis of this procedure as a separate method. Rather, information gleaned from analysis of responses during these and other interviews as well as other anecodotal records were categorized and recorded as ego or others-centered and basically positive or negative. Data are reflected in Graphs 1 and 2. The process was considered valuable, also in setting the tone for the program and establishing a readiness for this communications setting, an important aspect of the treatment.

An example follows to illustrate what might be expected to occur and the means of recording pertinent information.

6/30 Jerry Lee was brought to the interview by his uncle, Mr. Jackson--Jerry is small for a 7th grader. His uncle explained that Jerry Lee has asthma and had been sick with it lately. The boy got out of bed in order to come to the interview. He was dressed in jeans and knit shirt, lace up leather slippers. He appeared to be frightened and his hands trembled. Eyes were weepy. His uncle seemed to be a little anxious. He stayed close by and seemed to watch and listen to what was being said to Jerry in his "get acquainted" interview.

Articles selected in order of importance were:

Pre-Interview, 6/30	Post-Interview, 8/7
1. Newspaper	1. Newspaper
2. World Book Encyclopedia	2. Telephone directory
3. Library Card	3. First Aid Card
4. Story Book	4. Library Card

Questions asked:	Answers given: Pre	Post
1. Do you like to read?	No, sir.	No, sir.
2. Do you read much?		

2. Anecdotal Records*

Daily anecdotal records on each student were compiled and classified by the staff. Classification identified behaviors as ego-centered or others-centered and basically positive or negative. Further classification revealed the subject's view (in the immediate world) of self, peers, and adults as well as the way the subject was viewed by peers and adults. In addition, changes in ways of expressing feelings and in aesthetic perception were revealed.

3. Photographs**

Daily, many photographs were taken of the enrolled students.

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* At the University of Maryland, Dr. Daniel Prescott developed a means of writing objective information which is valid in collecting data about a case study. The format is an open-ended, objective anecdotal record of behavior, quotes, and observation made by trained observers. One of the instructors of this program has been trained in this method at the University of Maryland.

** In a study at the University of Florida by Drs. Charles A. Cate, Myron Cunningham, and Theodore Landsman, it was found that photographs are valid in measuring growth of self-concept.

A panel of independent judges, expert in self-concept, coded their interpretation of the non-verbal behavior perceived. Photographs were ordered in a sequence to seek indication of change in self-concept. Correlations were run between the sequences of the various judges as well as the actual sequence in which the pictures were taken. In addition, students' verbal responses, during personal interviews, to photographs taken of themselves in program activities were captured on audio tape two or three times a week. Content analysis was made and responses relating to self were tabulated as ego or others-centered and basically positive or negative. Ways of expressing feelings were also indicated.

4. The Child's View of Himself Scale

The Child's View of Himself Scale was completed by the teachers on each student on a regular basis to record how the individual student perceived his mental abilities, physical self, and school and extra-school environments. Pre and post data were compared.

Findings:

The study attempted to make certain judgments concerning the program's basic objectives which were to find in what ways the environmental experiences would improve students' self-concepts and concepts of others, expand socially accepted ways students express thoughts and feelings, and broaden students' aesthetic perception.

Self-Concept and Concept of Others

1. The Child's View of Himself Scale

The instrument, The Child's View of Himself Scale, reveals change in the way a student perceives his mental ability, physical self, and relationship of self to others. The change in perception is revealed as a more positive, and/or less positive, way of viewing himself.

It was developed by Dr. Stephen Voss, Florida Atlantic University, as part of his doctoral program at the College of Education, University of Florida. A committee composed of Dr. George Spache, Dr. Ailene Haines, and Dr. Dorothy Laird (all of the University of Florida at the time) was chosen to test independently the interjudgmental reliability of the instrument. Their findings were in agreement, and as a result of their investigation, the reliability of the instrument was found to be .90. A copy of the instrument is included in the Appendix.

For this study 14 items of the test were used. The estimated reliability of the shorter instrument is .80. Each item had a 5 point rating: extremely negative, negative, neutral, positive, and extremely positive. During the use of the instrument, it was discovered that, at times, not enough evidence was present to make a judgment about a student's perception. Consequently, during the analysis of the findings, a "No Evidence" factor was used when this occurred. Tables summarizing the findings of the instrument follow.

Table 1 shows change made by individuals toward a more positive manifestation at any point on the scale, but it is expressed as a percent of the total group. It should be understood, however, that this table does not reflect the total positive attitudes, only the change; i.e., the group members whose perception changed to a more positive assessment. Significant change in a positive direction in perception of mental ability occurred at a .05 level of confidence. Perception of physical prowess; relationships with peers, parents, and other adults; physical aspects of school; and immediate educational activities all changed significantly at the .01 level of confidence. No significant group growth in perceptions of body attractiveness, physical aspects of home, or leisure activities were indicated.

Table 1. Areas Representing Change in Students' Perception

Items on test	Percent of group
Mental ability	34*
Body attractiveness	15
Physical prowess	62**
Relationship with pupils	69**
Relationship with adults	77**
Relationship with parents	62**
Relationship with siblings	15
Perceptions of physical aspects of school	100**
Perceptions of immediate educational activities	85**
Perceptions of physical aspects of home	8
Perceptions of leisure activities	8

* significant at .05 level of confidence
** significant at .01 level of confidence

In Table 2 a comparison of pre and posttest findings is made of the negative expressions about self. It should be remembered that the table does not reflect the total attitudes, only the change from a negative to a more positive perception in the areas listed. It is important to notice that at the time of posttesting students still had some negative perceptions about only one item on the test -- physical attractiveness.

Table 2. Elimination of Negative Perceptions

Items Compared	Percent of group with negative Perceptions	
	Pre test	Post test
Mental ability	15	0
Physical attractiveness	22	15
Physical prowess	22	0
Relationship with adults	22	0
Relationship with parents	22	0
Physical aspects of school	31	0
Immediate educational activities	22	0

Using the sign test, seven changes out of seven in the same direction would occur by chance less than one time in a hundred. Hence, these shifts may be considered significant.

A comparison of the pre and posttest findings of the positive expressions of self perception is made in Table 3. Although a high percent of the total group expressed positive feelings about the way they perceived self when the pretest was administered, a greater percent of the group expressed positiveness in their perceptions about self at the time of posttesting.

Table 3. Comparison of Positive Perceptions

Items compared	Pre-test	Post-test	Percent Perception Change
Mental ability	85	100	15
Physical attractiveness	70	77	7
Relationship with pupils	39	85	46**
Relationship with adults	22	69	47*
Relationship with parents	30	39	9
Physical aspects of school	15	84	69**
Immediate educational activities	39	92	53**

* Significant at .05 level of confidence
** Significant at .01 level of confidence

All students showed increased positiveness in the way they perceived on eleven items. Significant change was made in the way they perceived physical aspects of school, immediate educational activities, relationship with pupils, and relationship with adults. Apparent positive changes in the way the students perceived physical aspects of home and leisure activities were not significant.

The posttesting showed an elimination of all negative perceptions

of six characteristics of self, others, and school. On the pretest the six characteristics were negatively perceived by 15% to 22% of the students.

A high percentage of students showed basically positive perceptions during pretesting on two items. On five other items they showed varying degrees of positiveness. The posttest showed an increase of positiveness in perception on all seven items.

It was found that some areas tested showed very little change from the pre to the posttesting time. It is worthy to note that at pretesting 8% of the group had negative feelings about clothing appearance. The posttest showed the 8% still had negative feelings about clothing appearance.

Evidence is inconclusive as to what, if any, change took place in the way in which individuals perceived their relationships with relatives, both older and younger than they. A slight positive change in the way the students viewed their leisure time and the physical aspects of home was recorded. The change is so slight that the findings may be inconclusive also.

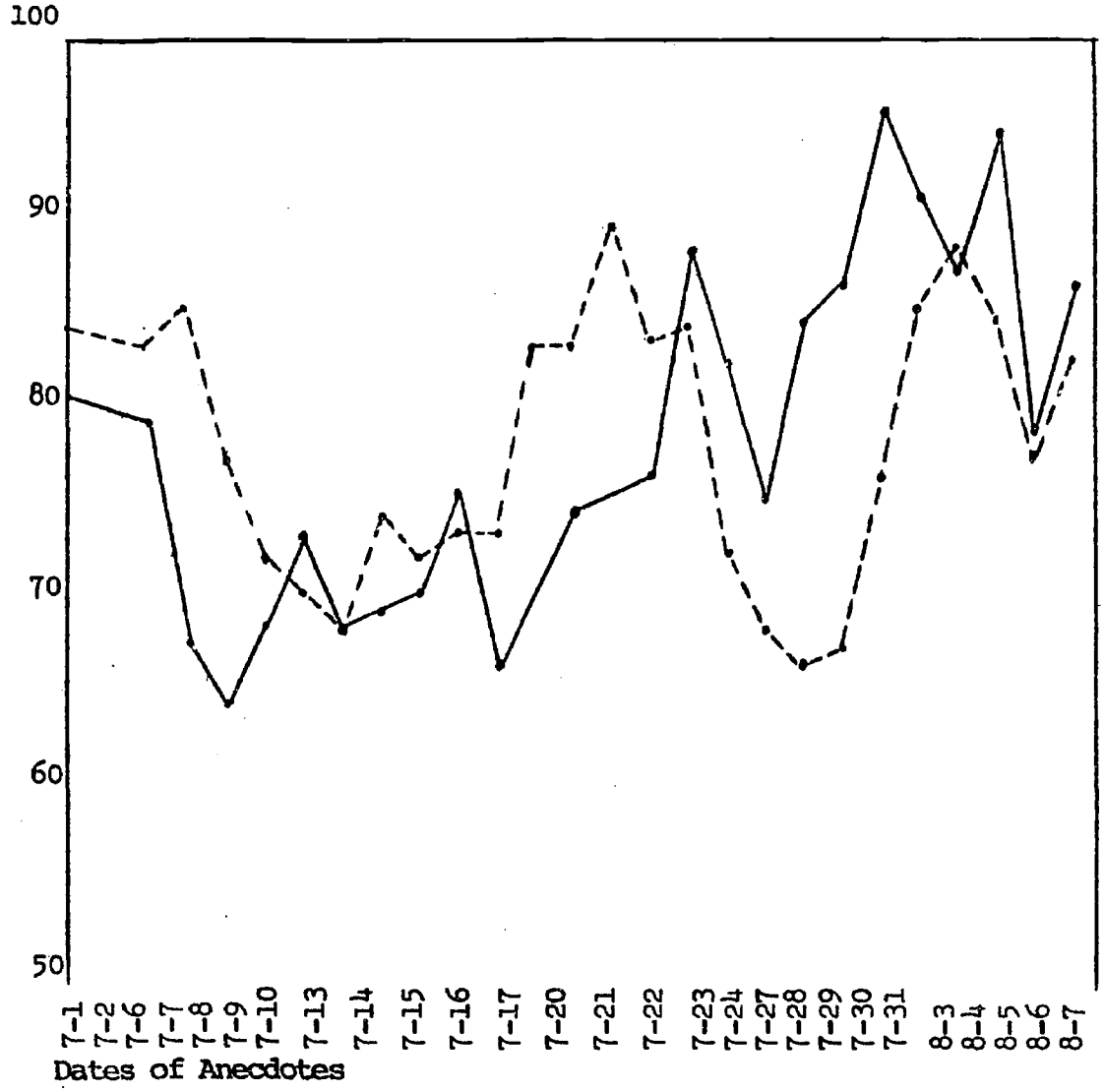
2. Anecdotal Records

Prescott, of the University of Maryland, developed ways of systematically recording and classifying anecdotes so they become helpful and meaningful tools for the teacher in making objective judgments. For the purpose of collecting data for this project, an adaptation of the classification process was made. Anecdotes were classified as being ego-centered or others-centered and as being basically negative or positive.

In order to get a clearer picture of the way the total group's behavior looked throughout the program, a plotting was made on a day-day basis. The plotting reflected the frequency with which anecdotes

appeared as they related to the mental, physical, emotional aesthetic, creative, and/or social self. Graphs have been made to show a comparison of the percent of ego-centered and others-centered anecdotes as well as percent of negative and positive anecdotes.

Graph 1. Ego-centered Compared with Others-centered Anecdotes



Graph showing comparison of percentage of ego-centered anecdotes with others-centered anecdotes. The method of moving averages has been used.

Key. . . Ego-centered - - - - - - - - - - N = 956 Total N = 1664
Others-centered _____ N = 708

Graph 1 shows a comparison of the ego-centered with others-centered ancedotes. For the comparison, only the basically positive anecdotes of the two classifications have been used.

Notice it was not until the second half of the project that the frequency of others-centered anecdotes began to be greater than the ego-centered ones. This trend continued throughout the rest of the project with a steady increase in their frequency.

Other readings from the graph include:
Change was made in both classifications of anecdotes. Greater change was made in others-centered expressions. Ego-centered expressions started at a higher frequency but ended with a lower frequency than those of others-centered. As the program progressed others-centered expressions showed steady upwardness in peaks and an upswing of the lower points.

Table 4 is an analysis of ego-centered and others-centered anecdotal reports by weeks as the program progressed.

Table 4. Analysis of Ego-Centered and Others-Centered Anecdotal Reports by Weeks

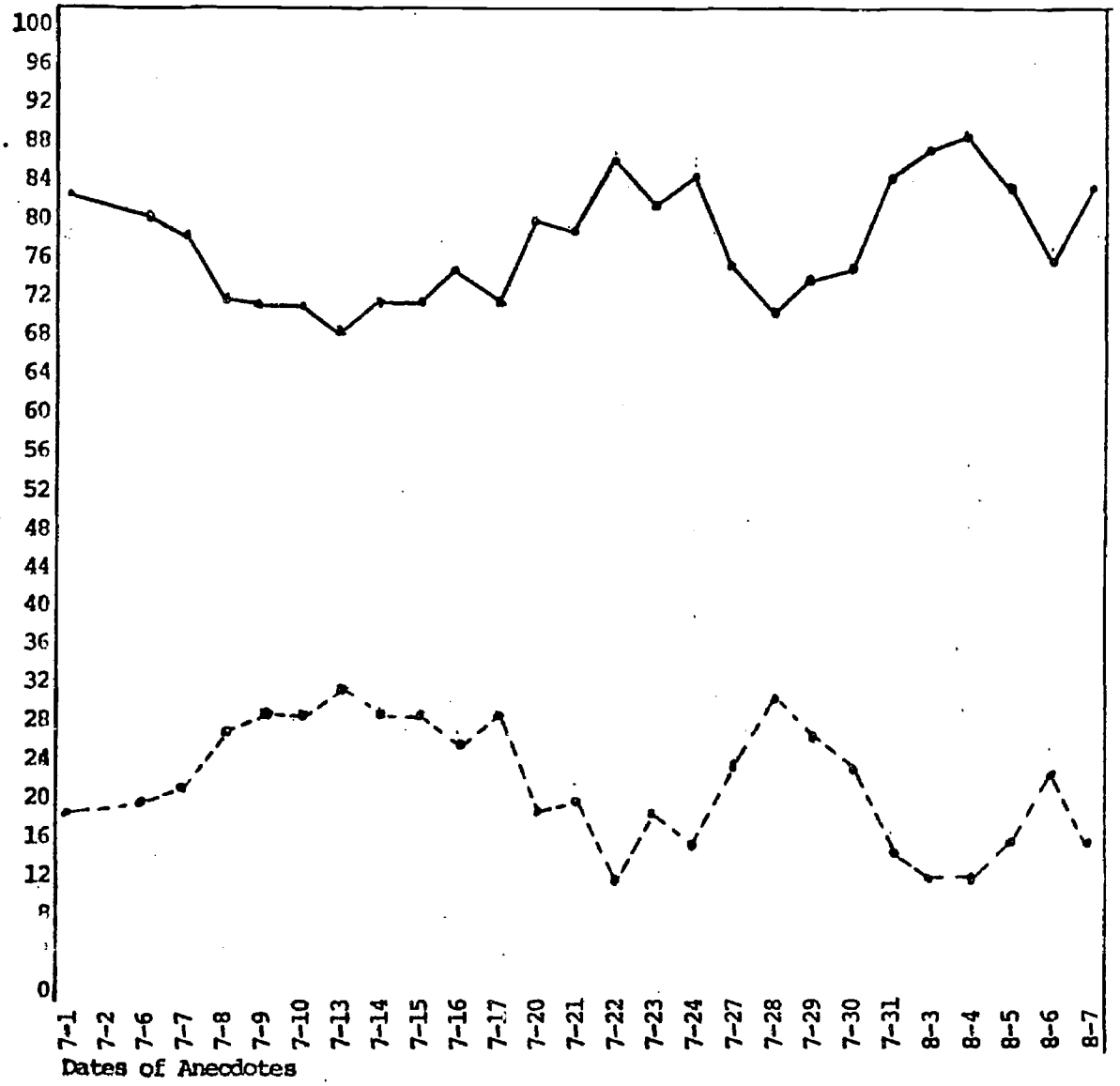
Week	No. Ego-Centered	No. Others-Centered	Proportion Ego-Centered	Proportion Others-Centered
1	258	150	.6323	.3677
2	172	170	.5029	.4971
3	83	43	.6587	.3413
4	179	142	.5576	.4424
5	231	262	.4685	.5315
First 2	430	320	.5733	.4267
Last 2	410	404	.5037	.4963

Difference in proportion of others-centered, first week and last week	.1638
Standard error of difference	.0328
z for ratio of difference to standard error	4.99
Difference in proportion of others-centered, first two weeks and last two weeks	.0696
Standard error of difference	.0252
z for ratio of difference to standard error	2.762

Both of these differences in proportions are highly significant, well beyond the one percent level of confidence.

Graph 2 presents the percent of the total number of anecdotes recorded and classified during the project. In this graph a comparison of the negative and positive classification is made. Reading from the graph, the trend is toward a larger percent of positive anecdotes.

Graph 2. Positive Compared with Negative Anecdotes



Graph showing comparison of percentage of positive and negative anecdotes. The method of moving averages was used.

Key. . . Positive anecdotes _____ N = 1664 Total N = 2245
Negative anecdotes - - - - - - N = 581

The "up and down" pattern indicates positive change; that is "up" in the positive anecdotes is positive while "down" in the negative is positive.

Anecdotes classified as basically positive were found to be of a lower frequency at the beginning of the program when they were compared with the frequency of basically negative anecdotes. As the program progressed there was an increase in the frequency of anecdotes classified as basically positive. At the conclusion, others-centered occurred with higher frequency.

After classifying and studying a total of 2,245 ancedotes the researchers concluded that the ancedotes strongly support the instrument, The Child's View of Himself Scale.

3. Photographs

Photographs were taken continuously throughout the program from the time the students came for their initial conference to the end of the program. Photographs were multi-purposed. They provided students with an opportunity for using visual impressions of themselves and their activities. While viewing photographs of "self", students communicated feelings of how they perceived themselves and the program. As students used photographs in individual interviews, they provided feedback relative to how students perceived themselves in relationship to their peers and to the learning tasks. At the same time they were useful in stimulating change.

A team of experts in the field of child growth and development were asked to view a sampling of photographs made from the many shots taken of each student during the program. They were asked to read from the photographs those things indicative of growth and development. They worked independently on the task and arrived at three general areas for identifying development: dress and appearance, interpersonal relationships, and activities and range of interest.

The specialists pointed out more specific information relative to what an individual's appearance indicated about perceptions of dress and attractiveness during the overview of the program. In some cases the dress became more conventional; in others a variety of styles were chosen (clothing, head dress, and hair styles).

Socially Accepted Ways to Express Feelings

1. Anecdotal Records

Data analysis reveals three general growth relationship phases; however, at no one time does it show a definite time when change was made from one phase to another. Neither was there any time when it seemed the characteristics were exclusive to a given phase. Rather, characteristics were found throughout aspects of all phases, but nevertheless, could be readily associated with a particular one because of the frequency of the behavior.

Behavior characteristics by which each of the phases could be distinguished were:

Phase I.	No response to others, a negative response to others, verbally building up self, verbally attacking others.
Phase II.	A somewhat negative reaction to others (nevertheless a genuine response), a tendency toward willingness to allow others to think and respond differently than they.
Phase III.	Verbal acknowledgment of others' rights, and behaviorally accepting as important the actions, feelings, and rights of others.

During the first phase students were found to be individually exploring all avenues in building relationship of "self to other" and "self to environment". At no given time could the change from Phase I to Phase II or Phase III be pinpointed for an individual student.

However, the anecdotes indicated the varying length of time required by an individual in making the transition from one phase to another. The two examples which follow clearly demonstrate individual variations in transition time needed. The first anecdote was recorded during the initial conference with a student, and the second one was taken from a conversation of another student during the 4th week of the program. Both anecdotes have to do with students' relationship with their mothers.

Anecdote 1.

During the conversation about her mother, Kathryn said, "I like my mother. She's a great gal."

Anecdote 2.

After Louise's mother visited today some girls were talking to her about her mother. Susan commented to Louise, your mother sure is pretty. You look a lot like her." Louise retorted "I certainly hope not, because my mother is stupid."

Obviously, Louise, in her fourth week, had not yet progressed to the point at which Kathryn had entered the program.

It was observed that individuals used personality tools they had previously developed in manipulating themselves to meet their needs within a group. Not until the final evaluation of the total program could the teachers comprehend fully the extreme negative responses which occurred during Phase I. Most all negative responses were of verbal and/or withdrawal nature as the following anecdote illustrates:

Allen was sitting in the front seat of a station wagon at the beginning of a trip. As soon as the motor was started, he turned the air-conditioning vents toward himself and turned the control on low. When students in the back protested, Allen remarked to the driver, "Let them (those in the back seat) be hot, I don't want to be cold." The driver said, "How about your changing with someone in the back seat, then? The student replied, "Never mind," as he readjusted the vents and control.

Since the program was designed to build aesthetic perception, this phase had to be "lived out" by each individual. Teachers in the program made every effort to model positive responses throughout this phase. Their continuous acceptance of and positive attitudes toward students' negative behaviors sometimes appeared to bewilder students.

Gradually, as students realized that maintaining positiveness consistently was part of the learning environment and the teachers involved with them were going to maintain a positive, accepting posture, they began to explore other ways of relating to teachers and to one another. The movement in a positive direction and from ego to others-centered is illustrated by the following anecdote, characteristic of Phase II:

> In discussing styles of architecture seen in the community, Robert said, "I liked the building that looked like big boxes put together." John immediately responded, "You liked that! I don't see how anybody could like that!" There was a pause. Then John continued, "'Scuse me, you said you liked it--you have a right to like it. You didn't really say I had to like it."

Characteristic attitudes of Phase III may be illustrated by the following anecdotes recorded toward the end of the program:

> Anecdote 1.
>
> On a trip to the Millhopper, Allen helped carry the ice chest with drinks to the car and called out, "David, save me a seat in the front." When he took his place in the car, he started the air conditioner and adjusted the air flow upward and toward the rear saying, "Let's adjust the wind so it'll get in the back."
>
> Anecdote 2.
>
> On a trip to the river students observed a lady catch a nice sized drum. Four rushed to help her take it off the hook.

Anecdote 3.

After a trip to the Taco Bell, a local restaurant which provided a special price for the group, Pam asked, "Can we write him (the owner) a letter and take it down to him?" The teacher suggested that it could be mailed. She reacted "Oh, no, I couldn't put 75¢ in it that way." She kept adding up the amount her food would be and kept commenting about how he was losing money and, how nice he was to just let everyone eat as much as they could for just 30¢."

She worked on a committee to write the thank you letter, but she also went to the owner personally to thank him for his hospitality.

Anecdote 4.

One student was observed throughout the session doing his part to make the group function well. When this positive behavior was brought to his attention, his comment was, "I have tried and feel like it (the program) has helped me."

It was during the planning activities that positive relationships seemed to develop the most. The following statement was made by a student in such an activity and is typical of kinds of anecdotes recorded in similar situations. "I don't know why I'm doing this for her. It isn't my batik, but I know she wouldn't like it with all the cracks in it.

2. Photographs

The greatest number of things which could be read from photographs were interpersonal relationships. Facial expressions and body attitudes suggested the level of interest, interaction, withdrawal, choice of peer friendship, involvement in a group pursuit, individual choices, observation of others, testing of peers and adults, and being accepting and rejecting. The range of interest and multiplicity of activities as well as the nature and degree of participation were reflected also. Visual evidence showed students involved with both exploratory and skills pursuits.

In some situations it appeared that students were more active with peers or adults or with peers and adults. In addition, the team of evaluators pointed out that the program at times offered an opportunity for students to be either active or passive in participation. Students seemed to feel free in making choices concerning how actively they participated. Students seemed to feel free in making choices concerning how actively they participated in group activities.

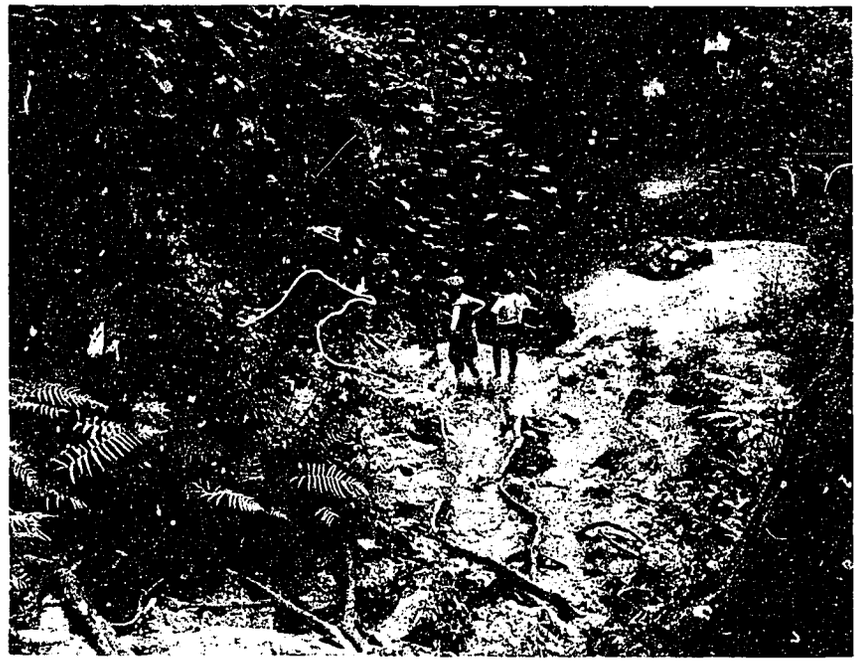
Increasing Aesthetic Awareness

Focus on aesthetic aspects of environment was the primary instructional approach for the purpose of improving self-concept and increasing socially acceptable ways of expressing feelings. Hence, data collection and analysis procedures relative to these have been carefully presented in as clear and meaningful way as possible. At the same time increasing aesthetic awareness was also an objective and, therefore, data relative to accomplishments follow:

1. The Child's View of Himself Scale

Changes in perceptions of "self" and the immediate environment from an aesthetic point of view is revealed in examination of three items on this instrument--physical attractiveness of "self" and perceptions of physical aspects of home and school. Although not significant, analysis indicates a shift in a positive direction concerning physical attractiveness (See Table 1) and physical aspects of home. However, perceptions of physical prowess and physical aspects of school did shift in a positive direction, significant at the .01 level.

"It's like an old friend you enjoy having around."



2. Anecdotal Records

As previously noted, anecdotal record analyses related to self-concept and concept of others are reflected in Graphs 1 and 2. Specific anecdotes related to increased aesthetic awareness are cited here to provide some indication of the nature of students' aesthetic perceptions relative to "self" and to the environment.

An illustrative anecdote reports a Black girl's strife revealed during a photo-interview about mid-way through the program:

> Regina talked about the things which she is thinking but usually keeps to herself. She stated, "I have to keep saying 'Black is Beautiful'. All Black people have to keep saying it. They have known shacks and slums so much that they have to say 'Black is Beautiful'. I don't believe that I am Black, neither that I am white. No one is really white."

In discussions and interviews students gradually began to share personal feelings about aesthetic perceptions of the environment, illustrated by the anecdotes following:

> Anecdote 1.
>
> In discussing an exploration of the creek which flows through the campus a student stated, "It's like an old friend you enjoy having around."
>
> Anecdote 2.
>
> In reference to baby sitting, the older brother said, "I love to sit and watch my little sister dance."

The following anecdotes are typical of indications of broadened perceptions and appreciations:

> Anecdote 1.
>
> After visiting a sculptor, a girl said she sees Mr. Aaron in a different way since she got to talk with him and was impressed by the way he told about how he began to carve

wood. She said she had thought of him only as a "funny little old man living in a cluttered old shack" before the visit.

Anecdote 2.

Although most disliked the Law College Building at the University, Allen found it interesting. He liked the "massive feeling" it had.

Anecdote 3.

Allen wanted glo-paint for his environment. Someone had left the lid off the blue and it had spilled out all over other paint. This seemed to bother Allen because he took the time and initiative to carefully clean the box out and salvage all the blue paint he could. He made the comment, "It looks like people would take the time to screw the lids on the paint jars."

Anecdote 4.

I went into Allen's environment and observed that he had come up with quite a mature concept using parts of egg cartons and glo-paint. The glo-paint on shapes made the eye move fast and illusion (lines) began to follow the design he had worked out. Inside was total darkness except for black light reacting to his glo-paint design shapes. You physically wanted to lie down and look up.

Anecdote 5.

On a creek trip Pam showed natural excitement, was sensitive to sand formations, fossil findings, and sand stone. Once in a while she would unexpectedly say, "I'm scared." I would suggest we go back. The answer was always, "No, let's go just a little further," and immediately she returned her attention to the creek's natural beauty and objects of interest. She wanted a shark's tooth so bad. Every pebble she picked up she would want me to confirm that it was really a shark's tooth. There were none. She collected many interesting things and expressed joy at the feel of water and sand in her shoes, although she complained she had to curl her toes in the sand to keep her shoes on.

Anecdote 6.

During Media period, Jerry worked slowly on a picture trying to get the feeling for water. He was the last getting finished and reacted, "I'm always the slowest one doing anything." "I don't think that matters while you're painting," I said. "Maybe not, but I hate to be the last," he said.

How Can Other Schools Incorporate This Program?

Staff:

Qualities desired in the teacher are vigor and imagination. Needed also are a high degree of tolerance for divergent behavior within a group as well as sensitivity to appropriate moments at which relatively negative behavior may be channeled into more acceptable expressions.

Pupils:

The study was conducted with 13 multi-aged students ranging in grade level from 6 through 11 who were undergoing a transitional experience. That is to say, most of the participants were new to the school. Making new friends among the "old" students will facilitate integration of students new to the school into established groups. The investigators see no reason that a program such as this would not be effective with any group of middle and secondary level students.

The Place:

The areas selected for implementation of the program may be as broad or as limited as resources permit with the exception that a feeling of "openness" must prevail. Although it may not always be practical logistically and financially to "travel" widely, there is much at hand within walking distance both on and off school campuses to provide the necessary variety and to stimulate inventiveness on the part of pupils and teachers.

The Program:

The program has three primary objectives:

1) To increase socially acceptable ways of expressing feelings,
2) To broaden aesthetic perceptions of the environment,
3) To improve self-concept.

The four major components of the program which serve as vehicles for accomplishing the goals are 1) field experiences which focus on developing an awareness of and increasing sensitivity to the environment, audio-visual stimuli which focus on developing aesthetic awareness of and sensitivity to feelings in self, group discussion which focuses on pupil-pupil and pupil-teacher interaction and planning, and self-examination experiences which focus on developing awareness of and sensitivity to the verbal and non-verbal "self". All components combine to provide variety and openness for experiences with the environment and with people.

Questions directed toward exploring how one feels about what is happening are central to the program, since finding ways to express feelings that are socially acceptable is a major goal. Some examples of the kind of questions are: How did you feel about yourself at that time? Was it like you have felt at any other time? Can you tell me about it? How did you feel differently about yourself at that time?

Significant also is the focus on "what" is around rather "who" is around. Evidence indicates that the "who" takes care of itself when concentration is directed toward the "what". As aesthetic awareness and sensitivity increase relative to the environment, a new dimension to "self" as one relates to other people seems to open-up. "Others" seem to be perceived in a different light. A cause and effect relationship becomes apparent, then, between the aesthetic and social modes of perception; or perhaps, it is that increased aesthetic awareness serves as a vehicle for improving self-concept. Thus, indeed, changed behavior in one's relationship with others has no choice but to follow.

Every activity in the program should be developed in such a way

that the different concentration levels can function with a minimum of frustration. Sometimes the younger has longer "spans"--sometimes, the older. The nature of the activity seems to be the determining factor more than the age of the student. Other factors which seem to affect levels of interest and length of attention are 1) personalities, 2) past experiences, 3) work-skill habits, 4) and need of the individual to "know" at a specific level.

Although careful planning is as essential to the success of this program as it is to any other, flexibility, spontaneity, and sensitivity must be watchwords. Alertness to any opportunity to respond to signals that a revelation, an illumination, a rapture is about to occur is a must.

Equipment and Materials:

A tape recorder, preferably a casette, and a sixteen millimeter projector are the only special equipment needed. Basic arts and crafts materials may be supplemented by much that is free from nature and commercial firms, particularly advertising and display discards. Scavanger hunts may serve several purposes in that these extend opportunities for inquiry into the environment, provide openings for communicating with people in the community, and, at the same time, supply "aesthetic finds" for use in creating the classroom environment.

There is no magic in the films used, although those described are stimulating and pertinent to the objectives and content of the program. Hence, titles and sources are listed:

Films Incorporated, 277 Pharr Road N.E.

Atlanta, Georgia 30305

Water's Edge

Options

Feeding Time

McGraw/Hill Films, 330 West 42nd Street

New York, New York 10036

The Americans: Three East Coast Artists at Work

Picasso

Encyclopedia Britannica Educational Corporation, 425 Michigan Avenue

Chicago, Illinois 60611

Wild Rivers

The Loon's Necklace

Bailey-Film Associates, 11559 Santa Monica Boulevard

Los Angeles, California 60069

Discovering Art Series

Staff Development and Workshops:

If sufficient interest in planning similar programs is indicated by other schools or school systems, P.K. Yonge Laboratory School is in a position to offer drive-in conferences or workshops as a service to the public schools of Florida. Simply contact Dr. J. B. Hodges, Director P.K. Yonge Laboratory School, University of Florida, Gainesville, 32601, in order that he may determine if the level of interest warrants planning one or more of such conferences.

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APPENDIX A

The Child's Views of Himself

Pictures
Film

Name _____ Date of Video taping _____

Class _____ Judgments by _____

Directions: After viewing the videotapes, film, or pictures, place an X on the scale at the point which reflects the subject's views of himself on each scale.

I. He perceives his mental abilities as

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments: (Subject's strong and weak traits)

II. He perceives his physical self

A. Physical (Bodily) Attractiveness

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments: Evidences

B. Physical Prowess

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments: Evidences

C. Clothing

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

C. (continued)

Comments: Evidences

III. He perceives the relationships in the human aspects of his environment

A. Pupils

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments: Evidences

B. Adults

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments: Evidences

IV. He perceives the relationships in his human environment.

A. Parents

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

B. Siblings

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

C.$_1$ Relatives (of his own age or younger)

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

C.$_2$ Relatives (older than he is or adults)

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

V. He perceives the physical aspects of his school environment as

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

VI. He perceives his immediate educational activities as

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

VII. He perceives the physical aspects of his home and neighborhood environment as

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

VII. (Continued)

Comments:

VIII. He perceives his <u>leisure activities</u> as

1	2	3	4	5
Extremely Negative	Negative	Neutral	Positive	Extremely Positive

Comments:

Summary Sheet
The Child's Views of Himself

I. Mental Abilities

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

II. Physical Self

A. Bodily attractiveness

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

B. Physical Prowess

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

C. Clothing

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

III. Relationships in human aspects

A. Pupils

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

B. Adults

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

IV. Relationships in human environment

A. Parents

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

B. Siblings

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

C. Relatives his own age

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

D. Relatives older than he

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

V. Physical aspects of school

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

VI. Immediate education activities

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

VII. Physical aspects of home

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

VIII. Leisure activities

First reading 1____ 2____ 3____ 4____ 5____

Last reading 1____ 2____ 3____ 4____ 5____

APPENDIX B

Recording Sheet for Anecdotal Records

Ego-centered

"P" Positive anecdotal material
" " neutral anecdotal material
"N" Negative anecdotal material

Name ____________________

Date	Mental	Physical	Emotional	Aesthetic	Creative	Social

Recording Sheet for Anecdotal Records

Other-centered

"P" Positive anecdotal material
" " neutral anecdotal material
"N" Negative anecdotal material

Name ____________________

Date	Mental	Physical	Emotional	Aesthetic	Creative	Social

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