LIFEPAC®

MATH

Teacher's Guide Part 1

▸ **1st Grade**

Alpha Omega
PUBLICATIONS

MATH 100
Teacher's Guide Part 1

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PUBLICATIONS

INSTRUCTIONS FOR MATH

The first grade Teacher's Guides of the LIFEPAC curriculum are designed to provide a step-by-step procedure that will help the teacher prepare for and present each lesson effectively. In the early LIFEPACs, the teacher should read the directions and any other sentences to the children. However, as the school year progresses, the student should be encouraged to begin reading and following his own instructional material in preparation for the independent study approach that begins at the second grade level.

The remainder of the Teacher's Guide includes the following teacher aids:

1) Introduction of Skills

For each unit:
2) Materials Needed
3) Objectives
4) Teacher Instruction
5) Answer Keys
6) Alternate Tests

After the last unit:
7) Math Terms Glossary
8) Conversion Charts

The Introduction of Skills is a more detailed overview of skills than that presented in the *Scope and Sequence*. The Math Terms includes a glossary of math terms and a table of measurements. The Teacher Instruction Pages contain guidelines for teaching each lesson. Additional learning activities provide opportunities for problem solving, encourage the student's interest in learning, and may be used as a reward for good study habits.

Math is a subject that requires skill mastery. But skill mastery needs to be applied toward active student involvement. The Teacher Instruction Pages list the required or suggested materials used in the LIFEPAC lessons. These materials include items generally available in the school or home. Pencils, paper, crayons, scissors, paste and/or glue stick are materials used on a regular basis. Construction paper, beads, buttons, and beans can be used for counting, sets, grouping, fractions, and patterning. Measurements require measuring cups, rulers, and empty containers. Boxes and similar items help in the study of solid shapes.

Any workbook assignment that can be supported by a real-world experience will enhance the student's ability for problem solving. There is an infinite challenge for the teacher to provide a meaningful environment for the study of math. It is a subject that requires constant assessment of student progress. Do not leave the study of math in the classroom.

MATH 100 INTRODUCTION OF SKILLS

Introduction of Skills is a quick reference guide for the teacher who may be looking for a rule or explanation that applies to a particular skill or to find where or when certain skills are introduced in the LIFEPACs. The first number after the skill identifies the LIFEPAC, and the second number identifies the section.

CONCEPT	LIFEPAC	SECTION
Addition		
facts to 9	101	3
facts to 10	102	1
1-digit number added to 10	102	3
facts to 18	104	1
3 numbers, 1 digit	105	1
2 numbers, 2 digits	106	3
checking answers	105	1
3 numbers, 2 digits	109	1
Calendar	103	4
Count		
to 99	101	1
to 100	103	4
to 200	107	1
Directions		
north, east, south, west	110	3
Estimation		
size and weight	102	4
numbers	107	5
Even and odd numbers	104	2
Families of facts		
addition and subtraction	109	1
Fractions		
$\frac{1}{2}$ of an object, of a set	103	3
$\frac{1}{4}$ of an object, of a set	105	3
Graphs (Charts)		
posting data	105	4
	107	5
	109	3
Measurements		
objects big and little	101	4
objects greater than, less than	101	4
long and short	101	4
dozen	105	3
ruler—inch	101	4
ruler—one-half inch	108	2
weight	102	4
Money		
pennies, dimes	104	4
nickels	106	4

CONCEPT	LIFEPAC	SECTION
Number line	101	1
Number order		
before and after to 99	101	2
bigger and smaller to 99	101	2
before and after to 100	103	5
before and after to 200	107	3
greater than, less than to 100	105	2
greater than, less than to 200	107	1
closest multiple of 10	109	3
	110	1
Number sentences	103	2
Number words		
zero to ten	102	5
to twenty	104	3
to ninety-nine	106	2
Operation symbols		
+, −, =	102	1
≠	103	2
>, <	106	2
Ordinal numbers		
to tenth	102	5
Place value		
for ones	102	3
for tens	102	3
for hundreds	107	2
Problem solving		
estimation	102	4
how many facts equal a number	102	5
sensible answers	109	4
Sequencing and number patterns	102	5
Shapes		
flat	101	4
solid	102	4
Skip counting		
by 10's	101	1
	104	2
by 2's	104	2
by 5's	106	1
objects by grouping	108	5

PAGES 4 & 5: COUNT NUMBERS TO 19

MATERIALS NEEDED

- pencils
- objects for counting

Concept:

counting numbers to 19

Teacher Goal:

To teach the children to tell "how many" by counting to nineteen.

Teaching Pages 4 and 5:

Draw a number line for *0* through *19* on the board. Introduce the numbers *10*, *11*, *12*, *13*, *14*, *15*, *16*, *17*, *18*, and *19* as the numbers that follow *9*. Have the children say the numbers aloud several times. Place groups of objects for counting from *0* through *19* in front of the students in random order. Have them count the objects and then write the number on the paper. Do this several times until the children understand what you are asking them to do and are familiar with the numbers through *19*.

Turn to page 4. Point to the word *count* and have the children read it aloud. Tell the children to point to the leaves and count them aloud. Have them trace the numbers *10* through *19* at the bottom of the page. Tell the children to close their books and use the objects for counting to count to *19*.

Turn to page 5. Have the children write each number five times.

PAGE 6: COUNT TO 99

MATERIALS NEEDED

- pencils
- paper
- objects for counting (40 objects)

Concepts:

sets of 10, counting to 99

Teacher Goals:

To teach the children to group objects in sets of 10 and to count to 99.

Teaching Page 6:

Introduce the word *set* to the students. Explain to them that a set of objects is the same as a group of objects. Tell the students to use the objects for counting to make a set of *ten* objects. Have them count the set aloud and write *10* on a piece of paper. Have them make another set of *ten* objects. Keep the two sets separate but have the students use them to count to *19*. Introduce the number *20* to them. Write *20* on the board and then ask the students to write the number. Tell them to use the objects for counting to make another set of *ten* objects. Introduce the number *30*. Ask the children to write this number on paper. Have them use the three sets to count to *30*.

Turn to page 6. Read the instructions on the page to the children. Tell them that they can count to *99*. Start at the first row of numbers and have the students count aloud to *10*. Tell the children that this represents their first set of ten objects. Continue on the second row of numbers and have the students count aloud. Call attention to the number *20*. Tell them that this represents their second set of *ten* objects. Go on with the third row, calling attention to the number *30*.

Ask the students to continue counting from *31* through *40*. Have them pull an object for counting for each number that they count. Ask them if they now have another set of *ten*. (yes) Continue counting aloud with the students until they reach *99*. Call attention to the *50*, *60*, *70*, *80*, and *90*. Have the children count again from *0* through *99*, pointing at each number as they say it aloud.

Count to 99.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

6 | Section 1

MATH 101

ALTERNATE LIFEPAC TEST

Name _____

Date _____

My Score

40

50

Write the number in the box.

How many?

How many?

PAGES 8 & 9: SUBTRACTION FACTS

MATERIALS NEEDED

- pencils
- operation symbol cards for −, =
- number symbol cards
- subtraction fact cards (LIFEPAC 101, page 19; LIFEPAC 102, page 7)

Concept:

subtract number facts

Teacher Goal:

To teach the children to subtract number facts horizontally and vertically.

Teaching Pages 8 and 9:

Turn to pages 8 and 9. Read the instructions at the top of the page with the children. Have them count aloud the number of dogs in the first two sets. Point to the symbols (−, =). Ask the children to read the problem aloud. (Five dogs minus [take away] two dogs equals three dogs.) Have the children point to the two number facts. Tell them that there are two ways to write their number facts, horizontally (across) and vertically (up and down). Ask them to read the number facts again. Follow the same procedure for the blocks. Ask the children to read the problem aloud as they point to the horizontal number fact. Tell them to fill in the vertical number fact. Have them fill in the blanks for the bunnies. They should follow the same steps to complete page 9.

Have the children use the number symbol cards and the new operation symbol cards to make subtraction number facts. Explain how the cards can be rearranged to show the facts horizontally and vertically. Allow the children to illustrate several facts themselves.

Select a group of number symbol cards and addition fact cards. Play a game of concentration.

Subtract the sets. Write the fact.

Number Fact: $5 - 2 = 3$

$$\begin{array}{r} 5 \\ -\ 2 \\ \hline 3 \end{array}$$

Subtract the sets. Write the fact.
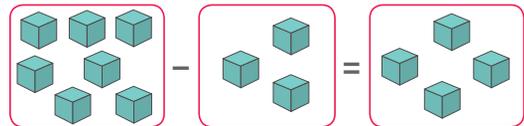
Number Fact: $7 - 3 = 4$

$$\begin{array}{r} 7 \\ -\ 3 \\ \hline 4 \end{array}$$

Subtract the sets. Write the fact.

Number Fact: $\underline{8} - \underline{2} = \underline{6}$

$$\begin{array}{r} 8 \\ -\ 2 \\ \hline 6 \end{array}$$

Subtract the sets. Write the facts.
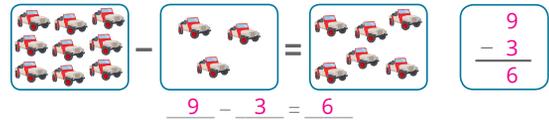
$\underline{9} - \underline{3} = \underline{6}$

$$\begin{array}{r} 9 \\ -\ 3 \\ \hline 6 \end{array}$$
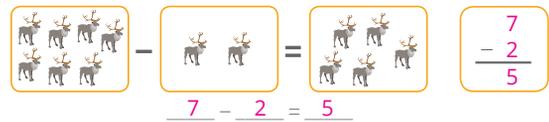
$\underline{7} - \underline{2} = \underline{5}$

$$\begin{array}{r} 7 \\ -\ 2 \\ \hline 5 \end{array}$$
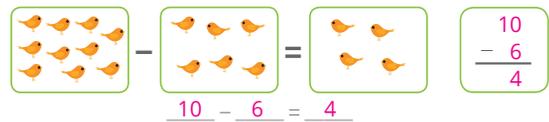
$\underline{10} - \underline{6} = \underline{4}$

$$\begin{array}{r} 10 \\ -\ 6 \\ \hline 4 \end{array}$$
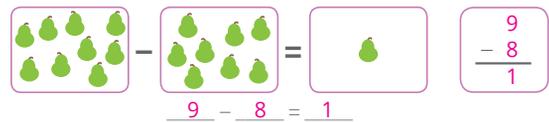
$\underline{9} - \underline{8} = \underline{1}$

$$\begin{array}{r} 9 \\ -\ 8 \\ \hline 1 \end{array}$$
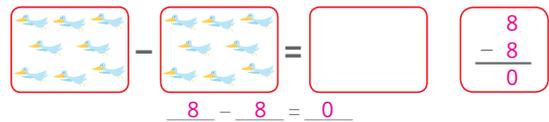
$\underline{8} - \underline{8} = \underline{0}$

$$\begin{array}{r} 8 \\ -\ 8 \\ \hline 0 \end{array}$$

2. READING A NUMBER SENTENCE

PAGES 8 & 9:
NUMBER SENTENCES

MATERIALS NEEDED

• pencils

Concept:

reading number sentences

Teacher Goal:

To teach the children to read number sentences in addition and subtraction.

Teaching Pages 8 and 9:

Turn to page 8. Tell the children that a sentence is a statement that tells them something. Explain to them that they can make a statement using numbers and/or words. Have the children point to the sets of pans and then have them point to the number fact. Ask them what the operation sign (+) stands for (plus) and what the sign (=) stands for (equals). Have the children point to each word as they read the sentence, "Three plus four equals seven." Read the directions and have the children complete the page.

Turn to page 9. Remind the children that a sentence is a statement that tells them something. It may be in numbers or in words. Have the students point to the sets of hearts and then have them point to the number fact. Ask them what the operation sign (–) stands for (minus) and what the sign (=) stands for (equals). Have the children point to each word as they read the sentence, "Five minus two equals three." Read the directions and have the children complete the page.

FRACTIONS, TIME, AND SYMBOLS | Unit 3

2. READING A NUMBER SENTENCE

+ **plus**   = **equals**
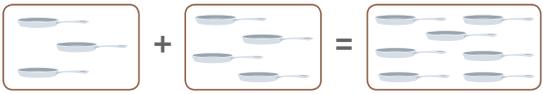
3 + 4 = 7   Three **plus** four **equals** seven.

Write the missing word on the line. Read the sentence aloud.
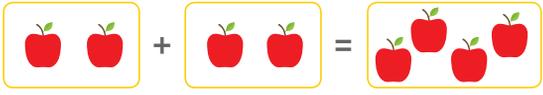
2 + 2 = 4   Two ___plus___ two ___equals___ four.

4 + 1 = 5   Four ___plus___ one ___equals___ five.
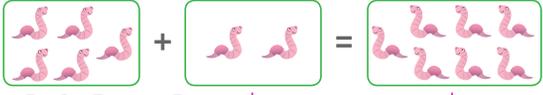
5 + 2 = 7   Five ___plus___ two ___equals___ seven.

8 | Section 2

Unit 3 | **FRACTIONS, TIME, AND SYMBOLS**

+ **plus**   − **minus**   = **equals**

5 − 2 = 3   Five **minus** two **equals** three.

Write the missing word on the line. Read the sentence aloud.
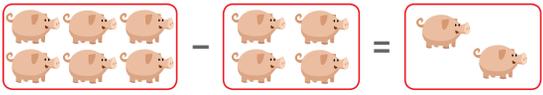
6 − 4 = 2   Six ___minus___ four ___equals___ two.

4 − 1 = 3   Four ___minus___ one ___equals___ three.

7 − 3 = 4   Seven ___minus___ three ___equals___ four.

Section 2 | **9**

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1.   ADDITION FACTS TO 18

PAGES 2 & 3: ADDITION FACTS

MATERIALS NEEDED

• pencils
• addition fact cards

Concept:

addition facts to 18

Teacher Goal:

To teach the children to add facts to 18 using a number line.

Teaching Pages 2 and 3:

Turn to page 2. Ask the children whether they remember counting on the number line. Have them count to eighteen on the number line, pointing to each number as they count. Tell them that they will use the number line to help them learn their new addition facts. Read the directions with the children and have them put their fingers at *6* on the second number line. Tell them to count *three* more. Ask them where they are on the number line now. (9)

Point to the number fact at the bottom of the page. Have the children say aloud, "Six plus three is equal to nine." Remind the children that this is a number sentence. Have the students find this fact in their set of addition fact cards.

Turn to page 3. Read the directions aloud with the children and work with them as they complete the page.

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1. ADDITION FACTS TO 18

Count to 18 on the number line.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
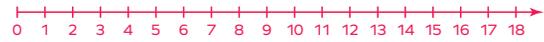
We can add on the number line.

We can add 6 + 3 = 9.

6   **3**

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
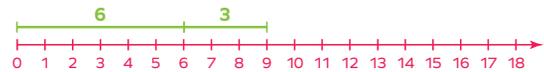
Count to 6 and put your finger on the 6.

Count 3 more.

We have counted to 9 on the number line.

We can say that 6 + 3 = 9.

We can find facts to 18 on the number line.

2 | Section 1

Add on the number line.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
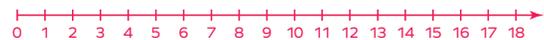
Put your finger on the 1 and ...

   **count 1 more.**

      1 + 1 = __?__

      We have counted to __2__ on the number line.

      We can say that 1 + 1 = __2__ .

   count 2 more.

      1 + 2 = __?__

      We have counted to __3__ on the number line.

      We can say that 1 + 2 = __3__ .

   count 3 more.

      1 + 3 = __?__

      We have counted to __4__ on the number line.

      We can say that 1 + 3 = __4__ .

   count 4 more.

      1 + 4 = __?__

      We have counted to __5__ on the number line.

      We can say that 1 + 4 = __5__ .

Section 1 | **3**

PAGES 4 & 5: ADDITION FACTS

MATERIALS NEEDED

- pencils
- addition fact cards for 1's, 2's and 3's
- new fact cards for 2 + 9, 3 + 8, and 3 + 9
- number symbol cards
- new number symbol cards for 11 and 12

Concept:

addition facts to 18

Teacher Goal:

To teach the children to add facts to 18 using a number line.

Teaching Pages 4 and 5:

Tell the children that they have already learned many of the addition number facts. Tell them that today they will begin working with the remainder of the facts. Explain to them that they should have learned all the facts to *ten* and now they will learn the facts to *eighteen*.

Turn to pages 4 and 5. Ask the children to point to the number line. Tell them that the number line will help them find the answer to the facts until they learn them by heart. Have the children complete the first two lines of facts. Ask them if there is a new fact that they have not learned. (2 + 9) Help them find the answer to the number fact by using the number line. The children should be able to complete the line of *3's* until they reach *3 + 8*. Help them to find the answers to *3 + 8* and *3 + 9* by using the number line. Continue in this manner until pages 4 and 5 are complete. Introduce the new fact cards (2 + 9, 3 + 8, 3 + 9). Play a game of concentration using the fact cards for *2's* and *3's* and the number symbol cards.

ADD TO 18, MONEY, MEASUREMENT | Unit 4

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
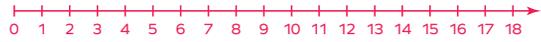
Use the number line for the facts.
Write the number in the ☐ .

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

2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9
2	3	4	5	6	7	8	9	10	11

3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9
3	4	5	6	7	8	9	10	11	12

4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9
4	5	6	7	8	9	10	11	12	13

4 | Section 1

Unit 4 | **ADD TO 18, MONEY, MEASUREMENT**

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

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

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

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

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

Section 1 | **5**

2.   NUMBER ORDER

PAGES 9 & 10: COUNT BY 2'S AND 10'S

MATERIALS NEEDED

- pencils
- chart of numbers
- pennies, dimes

Concept:

count numbers by 2's and 10's

Teacher Goal:

To teach the children to skip count by 2's and 10's.

Teaching Pages 9 and 10:

Review skip counting by *2's* with the students using their chart of numbers. Give the students a set of *ten* pennies and have them count them individually. Then have them divide them into sets of *twos* and skip count to *ten*.

Turn to page 9 and read the directions with the students. Tell them to point to the pennies and count to *ten*. Have them complete the page by filling in the missing numbers. When the page is finished, have them read the numbers aloud.

Show the students a dime and have them count how many pennies equal one dime. Review skip counting by *10's* with the students using their chart of numbers. Point out to them that skip counting by *10* is the same as counting dimes. Have them skip count to *100* using dimes.

Turn to page 10 and read the directions with the students. Have them point to the dimes and count to *one hundred*. Emphasize that *ten* dimes are equal to *one hundred* pennies. Tell the students to complete the page by filling in the missing numbers. When the page is finished, have them read the numbers aloud.

Unit 5 | **COLUMN ADDITION AND ESTIMATION**

2. NUMBER ORDER

Count by 2's.

| 1 2 | 3 4 | 5 6 | 7 8 | 9 10 |

2   4   6   8   10

Count the pennies: *2*, *4*, *6*, *8*, *10*.

How many cents?   **10**

Write the missing numbers.

2	4	**6**	8	10
12	14	16	**18**	20
22	24	26	28	**30**
32	34	36	38	40

Section 2 | **9**

COLUMN ADDITION AND ESTIMATION | Unit 5

Count by 10's.

dime   A dime is 10 cents.

10 20 30 40 50 60 70 80 90 100
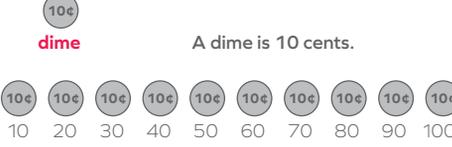
Count cents by 10: *10*, *20*, *30*, *40*, *50*, *60*, *70*, *80*, *90*, *100*.

How many cents?   **100**

Write the missing numbers.

10 **20** 30 40 **50** 60 **70**

50 **60** 70 **80** 90 **100**

10 | Section 2

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MATH TERMS GLOSSARY

acute angle .... An angle that is less than a right angle or less than 90 degrees.

addend .... A number to be added in an addition problem.

angle .... The distance between two rays or line segments with a common endpoint.

area .... The measurement of a flat surface. $A = l \times w$ (rectangle); $A = \pi r^2$ (circle); $A = \frac{1}{2} b \times h$ (triangle).

associative property .... No matter how numbers are grouped in addition and multiplication, the answer is always the same.

average .... The total of a group divided by the number in the group.

bar graph .... A graph that uses bars to show data.

base (1) .... The bottom part of a geometric figure on which the figure rests.

base (2) .... The number used as a factor in exponential notation.

cancelling .... Simplifying a problem in multiplication or division of fractions within the problem.

cardinal numbers .... Numbers used for counting. 1, 2, 3, 4 …

Celsius .... Metric unit of measurement for temperature. Freezing, 0° C. Boiling, 100° C.

chart .... An arrangement of data in a logical order.

circle .... A continuous closed line always the same distance from a center point.

circle graph .... A circular graph that always represents the whole of the data.

circumference .... The distance around (perimeter) a circle. $C = 2\pi r$ or $C = \pi d$

common denominator .... Fractions must have the same or common denominator to be added or subtracted.

compass .... An instrument having two hinged legs used for drawing circles, curved lines, and measuring distances.

composite number .... A number that can be divided by 1, by itself, and other numbers.