LIFEPAC®

MATH

Student Book

▶ **3rd Grade**

MATH 301
ADDITION AND SUBTRACTION TO 18 AND PLACE VALUE

CARRYING AND BORROWING

This unit begins with a review of basic fact families, patterns, addition, and subtraction. This information will be used to expand your skills in adding with carrying, skip-counting, and place value. There will be additional practice in subtraction with borrowing , checking addition and subtraction, money, and fractions. You will learn to classify numbers as odd or even, to name the parts of a fraction, and to name lines. In this LIFEPAC®, you will also practice the skills of sequencing and naming shapes.

Unit Objectives

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAC.

1. I know fact families.
2. I can recognize patterns.
3. I can add with carrying to hundreds' place.
4. I can skip-count by 2's, 5's, and 10's.
5. I know even and odd numbers.
6. I can read and write fractions.
7. I can learn the names of fractions.
8. I can subtract with borrowing to tens' place.
9. I can recognize flat and solid shapes.
10. I can learn about lines and end points.
11. I know pennies, nickels, dimes, quarters, and dollars.
12. I can check addition and subtraction problems.

1. ADDITION AND SUBTRACTION FACTS

Fact Families

Fact families make it easier to learn addition and subtraction facts.
There are three numbers in each fact family.
We use the three numbers to write two addition and two subtraction facts.

Complete these activities.

1.1 Write two addition and two subtraction facts.

	addition		subtraction	
5, 6, 11	_____	_____	_____	_____
3, 4, 7	_____	_____	_____	_____
8, 9, 17	_____	_____	_____	_____
6, 7, 13	_____	_____	_____	_____

We use addition and subtraction facts to 'think' answers.

1.2 Think the answer. Write the answer.

$6 + 8 - 7 + 4 =$ _____ $13 - 5 + 2 - 5 =$ _____

$4 + 3 + 5 - 6 =$ _____ $8 - 0 + 2 + 6 =$ _____

$15 - 8 - 3 + 2 =$ _____ $5 + 4 + 8 - 9 =$ _____

$7 + 6 - 5 - 8 =$ _____ $18 - 9 - 5 + 2 =$ _____

We count thousands by following the number pattern we have learned.

1,001   1,002   1,003 …   1,483   1,484   1,485 …

We say one thousand, one; one thousand, two; one thousand, three.
We say one thousand, four hundred eighty-three;
one thousand, four hundred eighty-four;
one thousand, four hundred eighty-five.

1.6 Write the numbers that come after…

1,005 1,006 _____ _____ _____ _____ _____

1,621 1,622 _____ _____ _____ _____ _____

1,032 1,033 _____ _____ _____ _____ _____

Addition

➡️ **Complete this activity.**

1.7 Add. Remember to carry.

$$\begin{array}{r} 23 \\ +45 \\ \hline \end{array} \qquad \begin{array}{r} 47 \\ +52 \\ \hline \end{array} \qquad \begin{array}{r} 89 \\ +63 \\ \hline \end{array} \qquad \begin{array}{r} 76 \\ +45 \\ \hline \end{array} \qquad \begin{array}{r} 52 \\ +88 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ 9 \\ +8 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ 4 \\ +3 \\ \hline \end{array} \qquad \begin{array}{r} 53 \\ 25 \\ +61 \\ \hline \end{array} \qquad \begin{array}{r} 68 \\ 57 \\ +32 \\ \hline \end{array} \qquad \begin{array}{r} 91 \\ 63 \\ +48 \\ \hline \end{array}$$
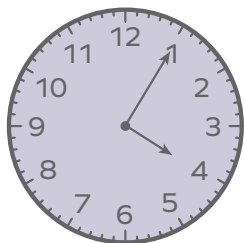
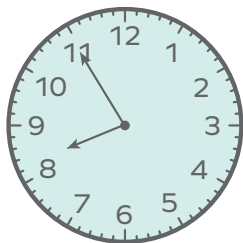$$\begin{array}{r} 426 \\ +365 \\ \hline \end{array} \qquad \begin{array}{r} 583 \\ +275 \\ \hline \end{array} \qquad \begin{array}{r} 982 \\ +327 \\ \hline \end{array} \qquad \begin{array}{r} 215 \\ +608 \\ \hline \end{array}$$

1.15 Write the time shown on the clocks.

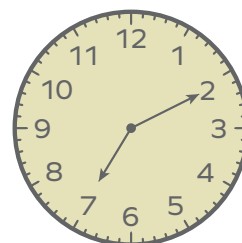_____ : _____   _____ : _____   _____ : _____   _____ : _____

1.16 Add 7 to each number.

6 _____   5 _____   9 _____   2 _____   0 _____

Fractions

Like whole numbers, fractions can be written in digits or words.

➡️ **Complete these activities.**

1.17 Write the name for each part of the fraction on the lines.

_____

_____ $\dfrac{3}{4}$ numerator
                                                                                denominator
_____   fraction bar

1.18 Write the fractions in digits.

four-sevenths _____   five-ninths   _____

one-half   _____   three-fifteenths _____

seven-twelfths _____   two-eighths   _____

Adding to the Thousands' Place

We can add numbers to the thousands' place without carrying.

$$\begin{array}{r} 3,625 \\ + \ 2,071 \\ \hline 5,696 \end{array}$$

Add ones' place. $5 + 1 = 6$
Add tens' place. $2 + 7 = 9$
Add hundreds' place. $6 + 0 = 6$
Add thousands' place. $3 + 2 = 5$
Write the comma to separate thousands from hundreds.

1.3   Add.

$$\begin{array}{r} 4,290 \\ + \ 3,506 \\ \hline \end{array} \qquad \begin{array}{r} 2,357 \\ + \ 6,232 \\ \hline \end{array} \qquad \begin{array}{r} 5,114 \\ + \ 4,603 \\ \hline \end{array} \qquad \begin{array}{r} 1,624 \\ + \ 4,603 \\ \hline \end{array}$$

We can add numbers to the thousands' place with carrying.

$$\begin{array}{r} 111 \\ 4,736 \\ + \ 2,496 \\ \hline 7,232 \end{array}$$

Add ones. $6 + 6 = 12$ Write the 2 and carry 1 ten.
Add tens. $1 + 3 + 9 = 13$ Write the 3 and carry 1 hundred.
Add hundreds. $1 + 7 + 4 = 12$ Write the 2 and carry 1 thousand
Add thousands. $1 + 4 + 2 = 7$ Write the comma in the sum.

We do not always need to carry each place.

$$\begin{array}{r} 1 \quad 1 \\ 3,315 \\ + \ 4,738 \\ \hline 8,053 \end{array}$$

Add ones. $5 + 8 = 13$ Write the 3 and carry 1 ten.
Add tens. $1 + 1 + 3 = 5$ Write the 5.
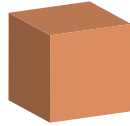Add hundreds. $3 + 7 = 10$ Write the 0 and carry 1 thousand.
Add thousands. $1 + 3 + 4 = 8$ Write the comma in the sum.
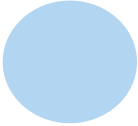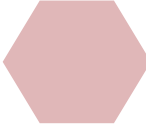
Shapes

➡️ **Complete the following activities.**

1.1 Match the shapes with the names.

_____ pentagon

_____ cone

_____ triangle

_____ oval

_____ cylinder

_____ square

_____ rectangle

_____ pyramid

_____ cube

_____ circle

_____ hexagon

_____ rectangular solid

_____ octagon

SELF TEST 1

Complete these activities (each answer counts as 1 point, except where otherwise noted).

1.01   Write the answers to the facts. (5 points)

$$\begin{array}{r} 9 \\ +\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 4 \\ +\ 6 \\ \hline \end{array} \qquad \begin{array}{r} 7 \\ +\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 9 \\ +\ 7 \\ \hline \end{array} \qquad \begin{array}{r} 6 \\ +\ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \\ -\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 11 \\ -\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 8 \\ -\ 3 \\ \hline \end{array} \qquad \begin{array}{r} 16 \\ -\ 9 \\ \hline \end{array} \qquad \begin{array}{r} 13 \\ -\ 7 \\ \hline \end{array}$$

1.02   Draw a line of symmetry.
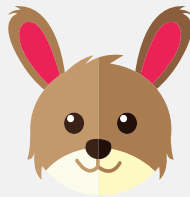
1.03   Match.

length

line segment

perimeter

end points

angle
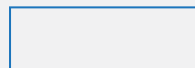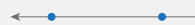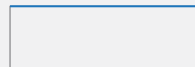
1.04   Write in words.

$\dfrac{4}{5}$ _____ $3\dfrac{1}{8}$ _____

1.05   Write in numbers.

six-ninths _____   seven and two-thirds _____

1.06   Shade the fraction.
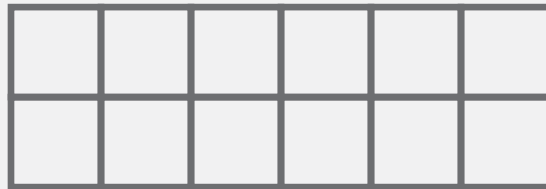
$$\dfrac{2}{6}$$

1.07   Circle the fraction.
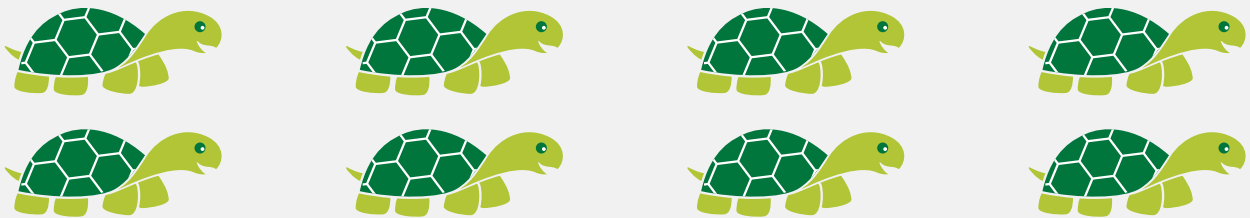
$$\dfrac{1}{4}$$

1.08   What is each of these fractions equal to?

$\dfrac{4}{4}$ $\dfrac{5}{5}$ $\dfrac{6}{6}$ $\dfrac{2}{2}$ _____

LIFEPAC®

MATH

Teacher's Guide

▶ **3rd Grade**

Alpha Omega
PUBLICATIONS

MATH 300
Teacher's Guides

INSTRUCTIONS FOR MATH

The LIFEPAC curriculum from grades two through twelve is structured so that the daily instructional material is written directly into the LIFEPACs. The student is encouraged to read and follow this instructional material in order to develop independent study habits. The teacher should introduce the LIFEPAC to the student, set a required completion schedule, complete teacher checks, be available for questions regarding both content and procedures, administer and grade tests, and develop additional learning activities as desired. Teachers working with several students may schedule their time so that students are assigned to a quiet work activity when it is necessary to spend instructional time with one particular student.

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

1) Introduction of Skills
2) Additional Activities
3) Teacher Instruction Pages
4) Answer Keys
5) Alternate Tests
6) Math Terms Glossary

The Introduction of Skills is a more detailed overview of skills than that presented in the *Scope and Sequence*. Additional Activities provide opportunities for problem solving, encourage the student's interest in learning, and may be used as a reward for good study habits. These are general activities that can be used to supplement the concepts as they are covered in the units. The Teacher Instruction Pages contain guidelines for teaching each lesson. The Math Terms Glossary gives a definition of many math terms and a table of measurements.

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. Measurements re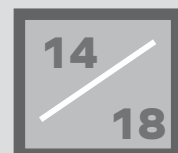quire measuring cups, rulers, empty containers. Boxes and other similar items help the study of solid shapes. Construction paper, beads, buttons, beans are readily available and can be used for counting, base ten, fractions, sets, grouping, and sequencing. Students should be presented with problem situations and be given the opportunity to find their solutions.

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 300 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 18	301	1
3 numbers 1–digit	302	1
2 numbers 2, 3–digits n/c	301	2,3
2 numbers 4–digit n/c	306	1
3 numbers 2–digit n/c	303	1
3 numbers 3–digit n/c	304	1
2 numbers 2–digits w/c	301	4
2 numbers 3–digits w/c	302	2
2 numbers 4–digits w/c	306	1
3 numbers 2–digits w/c	303	1
3 numbers 3–digits w/c	305	2
checking answers	302	4
sum, addend	301	2
Decimals		
used in money	302	4
to tenths	308	2
Digits		
as number symbols	301	5
Directions		
north, south, east, west	308	3
Even and odd		
numbers	302	3
rules to add and subtract	305	4
Expanding numbers		
see place value		
Families of facts		
addition and subtraction	302	1
Fractions		
addition and subtraction	304	4
equal to one whole	309	1
equivalent fractions	306	3
mixed numbers		
in words	307	1
addition and subtraction	307	2
numerator, denominator, fraction bar	302	3
part of an object or set	302	3
writing in words	302	3

CONCEPT	LIFEPAC	SECTION
Geometry		
flat (plane) shapes	302	4
lines, closed and curved, end points	302	4
line segment, angle	306	4
solid shapes	302	4
symmetry	305	3
Graphs (Charts)		
gathering and posting data	305	2
bar	305	2
line	306	4
circle	307	3
picture	308	3
Measurements – standard		
area	306	2
dozen	301	3
length, width	308	4
linear		
inches, feet, yards	301	3
miles	306	2
perimeter	305	3
ruler		
to quarter–inch	304	2
square measurement	305	3
temperature (Fahrenheit)	305	2
time		
to hour, half–hour, minute	301	4
AM, PM	303	4
digital clock	301	4
calendar – days, weeks, months, years	301	4
volume – cups, pints, quarts, gallons	303	2
weight – ounces, pounds, tons	303	2
Measurements – metric		
Celsius (temperature)	309	2
liter, gram	309	4
Missing number problems		
addition	307	4
subtraction	310	3

*n/c no carrying   *w/c with carrying

ADDITIONAL ACTIVITIES

1. Plan **regular drill** periods for **math facts**. These should occasionally be timed. They may be either oral or written.

2. **Manipulatives**, **hand–held objects**, are basic to developing a relationship between the written problem and an understanding by the student of the problem solution. Manipulatives are both appropriate and essential at all grade levels. A majority of the manipulatives used in problems may be developed from material already available in the classroom or home. Measurements require measuring cups, rulers, and empty containers. Boxes and other similar items help the study of solid shapes. Construction paper, beads, buttons, beans are readily available to use for counting, fractions, sets, grouping, sequencing, and flat and solid shapes. **Manipulatives may extend to drawings**. For example, students may draw the shape of a figure when solving for area or perimeter. Have the students use colored pencil or crayons to show the figure's dimensions and flat surface. Then have them explain the logic of their answers.

3. **Dictation** strengthens comprehension. Dictate problems with answers for students to write on paper. (Five plus six equals eleven or 5 + 6 = 11.) This will help them to develop vocabulary and spelling of math terms. Problems may be written numerically or in words.

4. Keep a **log book of terms** with which the student is having difficulty. These may be identified from the *Introduction of Skills* or the *Math Terms Glossary*. Quiz the student regularly until the term is mastered.

5. An **oral arithmetic bee** can be held in which problems are given orally and must be solved mentally. Selected LIFEPAC pages may be used for this exercise. Teach estimation and grouping of numbers for easier problem solving.

6. The student may create **number patterns** for others to solve.

When studying geometry,

7. Create 2– and 3–dimensional figures out of construction paper or cardboard.

8. Create figures that are congruent and/or similar. Form circles, squares, and rectangles from triangles. Try making octagons and pentagons from triangles, squares and rectangles. Cut figures into geometric shapes similar to jigsaw puzzles and then put back together.

When studying measurements,

9. Use groups of coins to show what combination of coins may be worth a certain amount of money.

10. Using local newspaper advertisements, have students make a collage of the items they could buy if they had $10.00 to spend. Prices should be included on the clippings.

11. Have students fill containers and then use a combination of measurers such as cup and quart, ounce and pound to determine quantity and weight.

12. Have the students measure their height, length of arms, legs and feet, the lengths around their heads, arms, wrists, and ankles.

TEACHING NOTES

MATERIALS NEEDED FOR LIFEPAC
• Chart of numbers from LIFEPAC page 6 • Fact cards for addition and subtraction through 18 • Counters for ones, tens, and hundreds – these may be cardboard strips 2 inches by 5 inches each set (ones, tens, hundreds) a different color. (Popsicle sticks work well as counters. Cereal boxes are an excellent source of cardboard.) pages 10 and 16. • Ten digit cards – ten pieces of cardboard 2 inches by 5 inches numbered 0 through 9 – page 16 • 12-inch ruler, yardstick – page 23 • Digital clock, dial clock for student use, current calendar – pages 33 and 34

Objectives

1. I can remember addition and subtraction facts.

2. I can learn the meaning of digits.

3. I can count and read numbers to 999.

4. I know place value for ones, tens, and hundreds.

5. I can learn the names of addition and subtraction problems.

6. I can add and subtract on the number line.

7. I can add and subtract three–digit numbers and carry in addition to tens' place.

8. I can measure inches, feet, yards, and dozen.

9. I know operation symbols +, –, =, ≠, >, <.

10. I know cardinal and ordinal numbers.

11. I can tell time on the clock and on the calendar.

12. I can read and write about the things I have learned.

Teaching Notes

NOTE to teachers, parents, and students:
As part of a continuing effort to improve the LIFEPAC curriculum a new layout of this unit has been produced. The content of this unit has not changed but the page numbers referenced in the Teacher Notes of the Teacher's Guide may no longer match.

Section 1: Addition and Subtraction

1. Page 3 – Read the introduction. Discuss the *Objectives*.

2. Pages 4 and 5 – These pages contain a random selection of addition and subtraction facts. An assessment of the students' mastery of facts should be made. Students should be drilled regularly on facts not committed to memory.

ANSWER KEYS

SECTION 1

1.1
13	13	7	15	8	13	11	14	10
10	12	6	8	9	11	11	15	18
14	11	7	10	12	5	12	15	12
6	9	12	10	9	16	10	16	7
8	8	15	9	17	13	10	16	17
11	14	9	12	14	13	14	13	11

1.2
8	4	5	6	8	7	8	9	7
4	8	6	7	5	9	6	8	9
7	4	6	8	6	5	9	9	5
5	7	4	5	6	7	9	8	7
6	5	7	8	9	5	6	9	8
5	6	9	7	5	6	8	9	7

1.3

		2			5	6			9
10		12				16		18	
	21		23		25		27		
30			33	34				38	
		42		44		46			49
	51				55		57	58	
60		62			65				69
	71		73	74		76			
80					85		87		89
	91	92		94		96			
	101	102	103	104	105	106	107	108	109

1.4 101

1.5 Teacher check

1.6
| 36 | 42 | 54 | 63 | 76 | 89 | 96 |
| 12 | 15 | 39 | 50 | 51 | 68 | 86 |

1.7
52, 54	39, 41	66, 68
17, 19	98, 100	30, 32
88, 90	44, 46	0, 2
21, 23	11, 13	105, 107

1.8
| 35, | 37, | 38, | 40 |
| 99, | 100, | 102, | 103 |

1.9
seven	fifty–eight
thirty	seventy–two
sixty–four	ninety–three
forty–one	nineteen
eighty–two	thirty–six

SELF TEST 1

1.01
| 8 | 9 | 7 | 4 | 13 | 14 | 6 | 10 |
| 5 | 4 | 6 | 7 | 7 | 4 | 5 | 8 |

1.02 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

1.03
| 12 | 35 | 41 | 47 | 67 | 73 | 76 | 93 |

1.04
thirteen	forty–seven
sixty–three	twenty
eight	ninety–five

LIFEPAC TEST

1. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
2. five hundred twenty–nine
   eight hundred four
3. 5, 18, 43, 57, 195, 356, 791, 820
4. 6, 7   5, 8, 4
   60, 7   500, 80, 4
5.
addend	minuend
addend	subtrahend
78 sum	21 difference
6. 15   7
7. 72   17   120   593   514   451
8. 12   36
9. feet   inches
10. 11 – 4 ≠ 8
    0 + 6 = 6
11. =   ≠
    <   >
12. second
    fifth
13. 7   9:28
14. 277   486   271
15. 85 pennies
    42 pennies

ALTERNATE LIFEPAC TEST

1. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
2. seven hundred three
   nine hundred sixty–one
3. 3, 17, 38, 72, 204, 430, 600, 931
4. 8, 6   2, 7, 6
   80, 6   200, 70, 6
5.
addend	minuend
addend	subtrahend
96 sum	23 difference
6. 6   19
7. 42   16   103   682   427   733
8. 12   36
9. feet   inches
10. 5 + 4 = 9
    7 – 3 ≠ 5
11. =   ≠
    >   <
12. third
    fifth
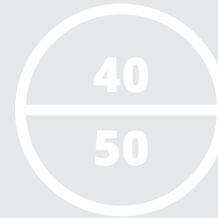13. 7   4:58
14. 498   685   441
15. 58 rocks
    40 rocks

MATH 301

ALTERNATE LIFEPAC TEST

NAME _____

DATE _____

SCORE _____

$$\frac{40}{50}$$

Each answer = 1 point unless otherwise noted

1. Write the ten digits. (5 points)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

2. Write the number words.

703 _____

961 _____

3. Write the numbers in number order. (4 points)

72   17   600   38   931   430   204   3

_____ _____ _____ _____ _____ _____ _____ _____

4. Write how many. Write the value. (4 points)

86 = _____ tens   + _____ ones

86 = _____   + _____

276 = ____ hundreds   + ____ tens   + ___ ones

276 = _____   + _____   + _____

5. Find the answers. Name the problem.

difference   subtrahend   addend   sum   minuend

$$\begin{array}{r} 34 \\ + \ 62 \\ \hline \end{array}$$ _____
_____

$$\begin{array}{r} 59 \\ - \ 36 \\ \hline \end{array}$$ _____
_____

6. Think the answer. Write the answer.

4 + 3 + 8 – 9 = _____

13 – 8 + 6 + 8 = _____

7. Add or subtract.

```
    37          4         56        423        459        865
  +  5          3       + 47      + 259       – 32       – 132
              + 9
```

8. How many …

inches in a foot? _____

inches in a yard? _____

9. Write the answer on the line.

| yards | inches | dozen | feet |

What would you use to measure …

how tall you are? _____

the size of a pencil? _____

10. Write the sentences using digits and operation symbols.

Five plus four is equal to nine. _____

Seven minus three is not equal to five. _____

11. Circle the operation sign.

6 + 4 (=, ≠) 2 + 8

12 – 5 (=, ≠) 11 – 5

4 + 8 (<, >) 18 – 9

16 – 7 (<, >) 9 + 8

12. Write the ordinal number word.

63   24   46   59   73   18

Forty-six is the _____ number in the row.

Seventy-three is the _____ number in the row.