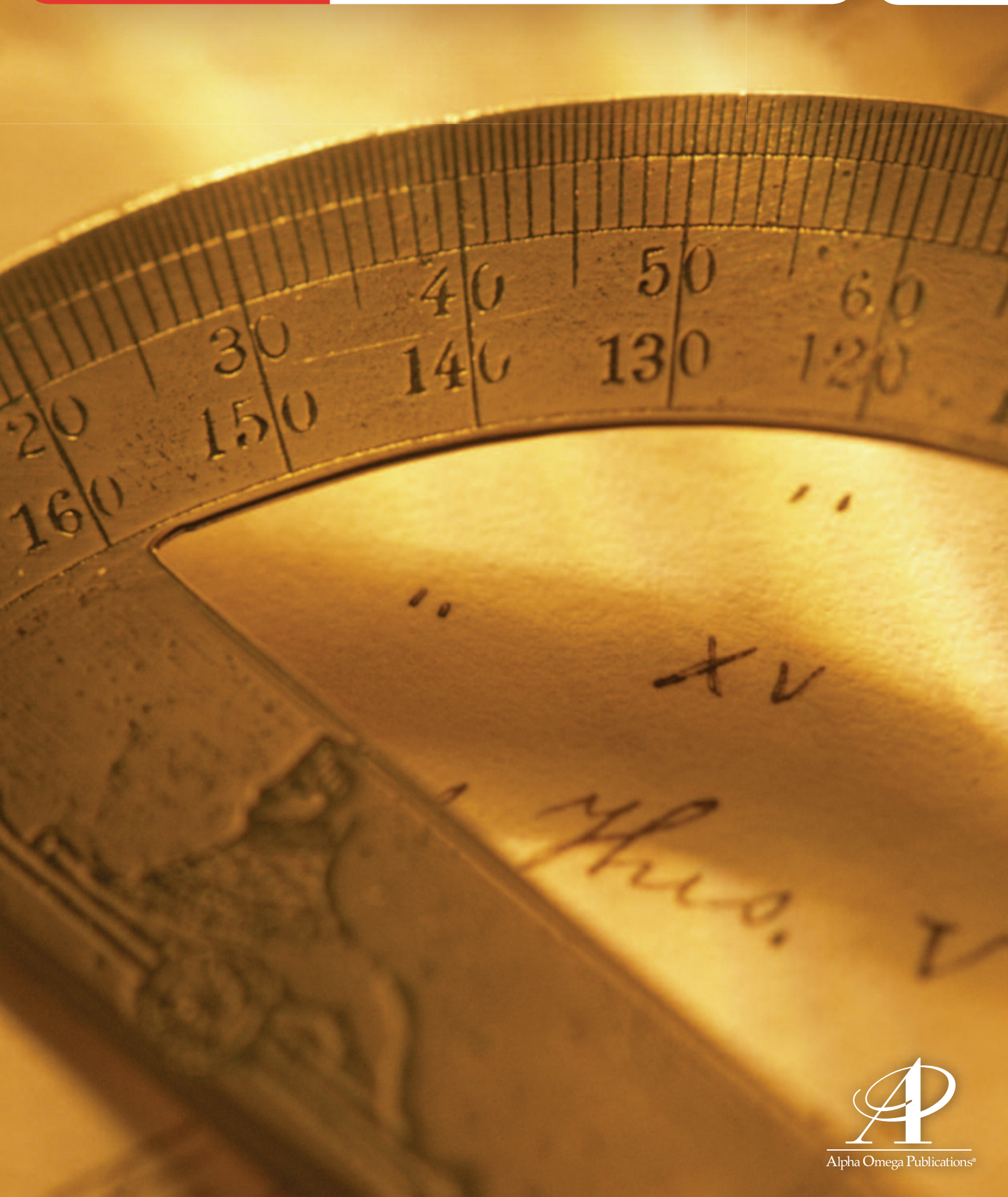
LI·F·E·PAC®

Math

Teacher's Guide

Grade 2



Alpha Omega Publications®

Mathematics 200
Teacher's Guide

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Alpha Omega Publications®

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LIFEPAC

MANAGEMENT

STRUCTURE OF THE LIFEPAC CURRICULUM

The LIFEPAC curriculum is conveniently structured to provide one teacher handbook containing teacher support material with answer keys and ten student worktexts for each subject at grade levels two through twelve. The worktext format of the LIFEPACs allows the student to read the textual information and complete workbook activities all in the same booklet. The easy to follow LIFEPAC numbering system lists the grade as the first number(s) and the last two digits as the number of the series. For example, the Language Arts LIFEPAC at the 6th grade level, 5th book in the series would be LAN0605.

Each LIFEPAC is divided into 3 to 5 sections and begins with an introduction or overview of the booklet as well as a series of specific learning objectives to give a purpose to the study of the LIFEPAC. The introduction and objectives are followed by a vocabulary section which may be found at the beginning of each section at the lower levels, at the beginning of the LIFEPAC in the middle grades, or in the glossary at the high school level. Vocabulary words are used to develop word recognition and should not be confused with the spelling words introduced later in the LIFEPAC. The student should learn all vocabulary words before working the LIFEPAC sections to improve comprehension, retention, and reading skills.

Each activity or written assignment has a number for easy identification, such as 1.1. The first number corresponds to the LIFEPAC section and the number to the right of the decimal is the number of the activity.

Teacher checkpoints, which are essential to maintain quality learning, are found at various locations throughout the LIFEPAC. The teacher should check 1) neatness of work and penmanship, 2) quality of understanding (tested with a short oral quiz), 3) thoroughness of answers (complete sentences and paragraphs, correct spelling, etc.), 4) completion of activities (no blank spaces), and 5) accuracy of answers as compared to the answer key (all answers correct).

The self test questions are also number coded for easy reference. For example, 2.015 means that this is the 15th question in the self test of Section II. The first number corresponds to the LIFEPAC section, the zero indicates that it is a self test question, and the number to the right of the zero the question number.

The LIFEPAC test is packaged at the centerfold of each LIFEPAC. It should be removed and put aside before giving the booklet to the student for study.

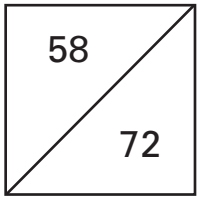
Answer and test keys have the same numbering system as the LIFEPACs and appear at the back of this handbook. The student may be given access to the answer keys (not the test keys) under teacher supervision so that he can score his own work.

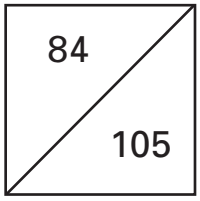
A thorough study of the Curriculum Overview by the teacher before instruction begins is essential to the success of the student. The teacher should become familiar with expected skill mastery and understand how these grade level skills fit into the overall skill development of the curriculum. The teacher should also preview the objectives that appear at the beginning of each LIFEPAC for additional preparation and planning.

TEST SCORING and GRADING

Answer keys and test keys give examples of correct answers. They convey the idea, but the student may use many ways to express a correct answer. The teacher should check for the essence of the answer, not for the exact wording. Many questions are high level and require thinking and creativity on the part of the student. Each answer should be scored based on whether or not the main idea written by the student matches the model example. "Any Order" or "Either Order" in a key indicates that no particular order is necessary to be correct.

Most self tests and LIFEPAC tests at the lower elementary levels are scored at 1 point per answer; however, the upper levels may have a point system awarding 2 to 5 points for various answers or questions. Further, the total test points will vary; they may not always equal 100 points. They may be 78, 85, 100, 105, etc.

ex. 1 

ex. 2 

A score box similar to ex.1 above is located at the end of each self test and on the front of the LIFEPAC test. The bottom score, 72, represents the total number of points possible on the test. The upper score, 58, represents the number of points your student will need to receive an 80% or passing grade. If you wish to establish the exact percentage that your student has achieved, find the total points of his correct answers and divide it by the bottom number (in this case 72.) For example, if your student has a point total of 65, divide 65 by 72 for a grade of 90%. Referring to ex. 2, on a test with a total of 105 possible points, the student would have to receive a minimum of 84 correct points for an 80% or passing grade. If your student has received 93 points, simply divide the 93 by 105 for a percentage grade of 89%. Students who receive a score below 80% should review the LIFEPAC and retest using the appropriate Alternate Test found in the Teacher's Guide.

The following is a guideline to assign letter grades for completed LIFEPACs based on a maximum total score of 100 points.

LIFEPAC Test	=	60% of the Total Score (or percent grade)
Self Test	=	25% of the Total Score (average percent of self tests)
Reports	=	10% or 10* points per LIFEPAC
Oral Work	=	5% or 5* points per LIFEPAC

*Determined by the teacher's subjective evaluation of the student's daily work.

Example:

LIFEPAC Test Score	=	92%	92	x	.60	=	55 points
Self Test Average	=	90%	90	x	.25	=	23 points
Reports						=	8 points
Oral Work						=	4 points
TOTAL POINTS						=	90 points

Grade Scale based on point system:				
100	–	94	=	A
93	–	86	=	B
85	–	77	=	C
76	–	70	=	D
Below		70	=	F

TEACHER HINTS and STUDYING TECHNIQUES

LIFEPAC Activities are written to check the level of understanding of the preceding text. The student may look back to the text as necessary to complete these activities; however, a student should never attempt to do the activities without reading (studying) the text first. Self tests and LIFEPAC tests are never open book tests.

Language arts activities (skill integration) often appear within other subject curriculum. The purpose is to give the student an opportunity to test his skill mastery outside of the context in which it was presented.

Writing complete answers (paragraphs) to some questions is an integral part of the LIFEPAC Curriculum in all subjects. This builds communication and organization skills, increases understanding and retention of ideas, and helps enforce good penmanship. Complete sentences should be encouraged for this type of activity. Obviously, single words or phrases do not meet the intent of the activity, since multiple lines are given for the response.

Review is essential to student success. Time invested in review where review is suggested will be time saved in correcting errors later. Self tests, unlike the section activities, are closed book. This procedure helps to identify weaknesses before they become too great to overcome. Certain objectives from self tests are cumulative and test previous sections; therefore, good preparation for a self test must include all material studied up to that testing point.

The following procedure checklist has been found to be successful in developing good study habits in the LIFEPAC curriculum.

1. Read the introduction and Table of Contents.
2. Read the objectives.
3. Recite and study the entire vocabulary (glossary) list.
4. Study each section as follows:
    a. Read the introduction and study the section objectives.
    b. Read all the text for the entire section, but answer none of the activities.
    c. Return to the beginning of the section and memorize each vocabulary word and definition.
    d. Reread the section, complete the activities, check the answers with the answer key, correct all errors, and have the teacher check.
    e. Read the self test but do not answer the questions.
    f. Go to the beginning of the first section and reread the text and answers to the activities up to the self test you have not yet done.
    g. Answer the questions to the self test without looking back.
    h. Have the self test checked by the teacher.
    i. Correct the self test and have the teacher check the corrections.
    j. Repeat steps a–i for each section.

5. Use the SQ3R* method to prepare for the LIFEPAC test.
6. Take the LIFEPAC test as a closed book test.
7. LIFEPAC tests are administered and scored under direct teacher supervision. Students who receive scores below 80% should review the LIFEPAC using the SQ3R* study method and take the Alternate Test located in the Teacher Handbook. The final test grade may be the grade on the Alternate Test or an average of the grades from the original LIFEPAC test and the Alternate Test.

   *SQ3R: **S**can the whole LIFEPAC.
   Question yourself on the objectives.
   Read the whole LIFEPAC again.
   Recite through an oral examination.
   Review weak areas.

GOAL SETTING and SCHEDULES

Each school must develop its own schedule, because no single set of procedures will fit every situation. The following is an example of a daily schedule that includes the five LIFEPAC subjects as well as time slotted for special activities.

Possible Daily Schedule

8:15	–	8:25	Pledges, prayer, songs, devotions, etc.
8:25	–	9:10	Bible
9:10	–	9:55	Language Arts
9:55	–	10:15	Recess (juice break)
10:15	–	11:00	Mathematics
11:00	–	11:45	Social Studies
11:45	–	12:30	Lunch, recess, quiet time
12:30	–	1:15	Science
1:15	–		Drill, remedial work, enrichment*

*Enrichment: Computer time, physical education, field trips, fun reading, games and puzzles, family business, hobbies, resource persons, guests, crafts, creative work, electives, music appreciation, projects.

Basically, two factors need to be considered when assigning work to a student in the LIFEPAC curriculum.

The first is time. An average of 45 minutes should be devoted to each subject, each day. Remember, this is only an average. Because of extenuating circumstances a student may spend only 15 minutes on a subject one day and the next day spend 90 minutes on the same subject.

The second factor is the number of pages to be worked in each subject. A single LIFEPAC is designed to take 3 to 4 weeks to complete. Allowing about 3-4 days for LIFEPAC introduction, review, and tests, the student has approximately 15 days to complete the LIFEPAC pages. Simply take the number of pages in the LIFEPAC, divide it by 15 and you will have the number of pages that must be completed on a daily basis to keep the student on schedule. For example, a LIFEPAC containing 45 pages will require 3 completed pages per day. Again, this is only an average. While working a 45 page LIFEPAC, the student may complete only 1 page the first day if the text has a lot of activities or reports, but go on to complete 5 pages the next day.

Long range planning requires some organization. Because the traditional school year originates in the early fall of one year and continues to late spring of the following year, a calendar should be devised that covers this period of time. Approximate beginning and completion dates can be

noted on the calendar as well as special occasions such as holidays, vacations and birthdays. Since each LIFEPAC takes 3-4 weeks or eighteen days to complete, it should take about 180 school days to finish a set of ten LIFEPACs. Starting at the beginning school date, mark off eighteen school days on the calendar and that will become the targeted completion date for the first LIFEPAC. Continue marking the calendar until you have established dates for the remaining nine LIFEPACs making adjustments for previously noted holidays and vacations. If all five subjects are being used, the ten established target dates should be the same for the LIFEPACs in each subject.

FORMS

The sample weekly lesson plan and student grading sheet forms are included in this section as teacher support materials and may be duplicated at the convenience of the teacher.

The student grading sheet is provided for those who desire to follow the suggested guidelines for assignment of letter grades found on page 3 of this section. The student's self test scores should be posted as percentage grades. When the LIFEPAC is completed the teacher should average the self test grades, multiply the average by .25 and post the points in the box marked self test points. The LIFEPAC percentage grade should be multiplied by .60 and posted. Next, the teacher should award and post points for written reports and oral work. A report may be any type of written work assigned to the student whether it is a LIFEPAC or additional learning activity. Oral work includes the student's ability to respond orally to questions which may or may not be related to LIFEPAC activities or any type of oral report assigned by the teacher. The points may then be totaled and a final grade entered along with the date that the LIFEPAC was completed.

The Student Record Book which was specifically designed for use with the Alpha Omega curriculum provides space to record weekly progress for one student over a nine week period as well as a place to post self test and LIFEPAC scores. The Student Record Books are available through the current Alpha Omega catalog; however, unlike the enclosed forms these books are not for duplication and should be purchased in sets of four to cover a full academic year.

NOTES

INSTRUCTIONS FOR SECOND GRADE MATHEMATICS

The LIFEPAC curriculum for grades two through twelve is structured so that the daily instructional material is written directly into the LIFEPACs. However, because of the variety of reading abilities at this grade level, the second grade mathematics Teacher's Guide contains additional instructional material to help the teacher prepare and present each lesson effectively. As the year progresses, students should be encouraged to read and follow the instructional material as presented in the LIFEPACs 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 section of the Teacher's Guide includes the following teacher aids: 1) Introduction of Skills 2) Mathematics Terms 3) Teacher Instruction Pages 4) Additional Activities.

The Introduction of Skills is a more detailed overview of skills than that presented in the *Scope and Sequence*. The Mathematics Terms includes a glossary of mathematics 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.

Mathematics 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 mathematics. It is a subject that requires constant assessment of student progress. Do not leave the study of mathematics in the classroom.

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. 205/3 refers to Mathematics LIFEPAC 205, Section 3.

Addition		
facts to 18	201/1	
1-digit number added to 10's n/c	201/2	*n/c no carrying
2 numbers 2-digits n/c	201/2	
3 numbers 1-digit	201/4	
3 numbers 2-digits n/c	201/4	
1 digit number added to 10's w/c	203/2	* w/c with carrying
2 numbers 2-digits w/c	203/2	
2 numbers 3-digits n/c	204/2	
2 numbers 3-digits w/c 1's or 10's place	204/5, 207/4	
2 numbers 3-digits w/c 1's and 10's place	208/4	
3 numbers 2-digits w/c	209/1	
3 numbers 3-digits n/c	210/1	
checking answers	202/3	
no carry boxes	210/3	
Directions		
north, south, east, west	208/4	
Even and odd		
numbers	202/1	
rules to add and subtract	209/5	
Expanding numbers		
see place value		
Families of facts		
addition and subtraction	201/4	
Fractions		
part of an object or set	202/4	
addition	205/3	
subtraction	206/4	
writing in words	207/1	
Graphs (Charts)		
gathering and posting data	205/1	
Measurements		
dozen	205/5	
linear		
inch	203/2	
one-half inch	203/2	
one-quarter inch	209/2	
(square inches)	209/1	

MATHEMATICS TERMS

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 end point.
associative property No matter how numbers are grouped in addition and multiplication, the answer is always the same.
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)
average The total of a group divided by the number in the group.
bar graph A graph that uses bars to show data.
base The bottom part of a geometric figure on which the figure rests.
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.
commutative property No matter what order numbers are added or multiplied, the answer is always the same.
congruent Figures that have the same size and shape.
cross multiplication Multiplying the numerators and denominators of two fractions.
cube A solid shape with six square faces.
cylinder A round shape with flat ends.
data A list of facts from which a conclusion may be drawn.
decimal number A fraction with an understood denominator of 10, 100, 1,000...
decimal point A dot separating the whole number from the fractional part of a decimal number.
degree The unit of measurement for angles.
denominator The bottom number of a fraction. This number represents the whole.
diameter The distance across a circle straight through the middle.
difference The answer to a subtraction problem.
digit Symbols 0, 1, 2, 3, 4, 5 ,6, 7, 8, 9 which when used alone or in combinations represent a value.
division bar The line that separates the numerator from the denominator of a fraction.
divisor The number doing the dividing in a division problem.
dividend The number being divided in a division problem.

end points Dots that show the beginning and end of a line segment.
equal to Has the same value as. equal = (not equal ≠)
equation A number sentence that contains an equal sign.
equilateral triangle A triangle whose sides are all equal in length.
equivalent fractions Two or more fractions of equal value. To make an equivalent fraction, multiply or divide the numerator and denominator by the same number.
estimate To find an approximate answer.
even number Any number divisible by two.
expanded form Expressing a number by showing the sum of the digits times the place value of each digit.
exponent The number that tells how many times a base number is used as a factor.
exponential notation Writing a number with a base and its exponent.
face The surfaces of a solid figure.
factor(s) Numbers which when multiplied together form a product or multiple.
Fahrenheit U.S. standard measurement for temperature. Freezing 32°F. Boiling 212°F.
fraction A number that represents all or part of a whole.
fraction bar Also called the division bar.
frequency distribution The number of times data falls within a particular classification.
gram Metric unit of the measurement of weight.
graph A special kind of chart. The most common are bar, line, picture, and circle.
greater than Has larger value than. 2>1
greatest common factor The largest factor that can be divided into two numbers.
hexagon A six-sided polygon.
horizontal Level to or parallel to the horizon.
improper fraction A fraction that is greater than or equal to 1. The numerator is larger than or equal to the denominator.
input Data entered into a calculator (computer).
International Date Line The 180th meridian. People who cross the line going west gain a day. People who cross going east lose a day.
intersecting lines Lines that cross each other.
invert To turn around the positions of the numerator and denominator of a fraction.
isosceles triangle A triangle that has two sides of equal length.
least common multiple The smallest multiple that two numbers have in common.
less than Has smaller value than. 1<2
line A continuous set of dots that has no beginning and no end.
line graph A graph that shows data by connecting points with lines.
line segment The part of a line that has a beginning and an end.
liter Metric unit of liquid or dry measurement.
minuend The number from which another number is being subtracted in a subtraction problem.
mean The same as the average.
median The number located exactly in the middle of a list of numbers.
meter Metric unit of linear (line) measurement.

Metric Chart of Prefixes

smallest	_milli_	- a unit contains 1,000
	__centi__	- a unit contains 100
	___deci ___	- a unit contains 10
	____unit ____	- unit (meter, liter, gram)
	_____deca _____	contains 10 units
	______hecto______	contains 100 units
largest	_______kilo _______	contains 1,000 units

English System of Weights and Measures

Length	Weight	Dry Measure	Liquid Measure
12 inches = 1 foot	16 ounces = 1 pound	2 cups = 1 pint	16 fl ounces = 1 pint
3 feet = 1 yard	2,000 lb = 1 ton	2 pints = 1 quart	2 cups = 1 pint
36 inches = 1 yard		8 quarts = 1 peck	2 pints = 1 quart
5,280 ft = 1 mile		4 pecks = 1 bushel	4 quarts = 1 gallon
320 rods = 1 mile			

Conversion Chart

To convert	To	Multiply by	To convert	To	Multiply by
linear measure					
centimeters	inches	.394	inches	centimeters	2.54
meters	yards	1.0936	yards	meters	.914
kilometers	miles	.62	miles	kilometers	1.609
liquid measure					
liters	quarts	1.057	quarts	liters	.946
dry measure					
liters	quarts	.908	quarts	liters	1.101
weight					
grams	ounces	.0353	ounces	grams	28.35
kilograms	pounds	2.2046	pounds	kilograms	.4536

mode The number that appears most often in a list of numbers.
mixed number A number that combines a whole number and a fraction.
multiple A multiple of a number is a product of that number.
multiplicand The number being multiplied in a multiplication problem.
multiplier The number doing the multiplying in a multiplication problem.
negative number A number with a value less than zero.
norm A standard for a particular group.
number line A line with even spaces used to represent certain values.

numeral A figure that stands for or represents a number.
numerator The top number of a fraction. This number represents the parts being described.
obtuse angle An angle greater than a right angle (90 degrees) but less than a straight line (180 degrees).
octagon An eight-sided polygon.
odd number Any number that cannot be divided by two.
ordered pairs Two numbers written in a particular order so that one can be considered the first number and the other the second number.
ordinal numbers Numbers that show position. 1st, 2nd, 3rd, 4th.....
output The answer to data entered into a calculator (computer).
oval A flattened circle - egg shaped.
parallel lines Lines that are always the same distance apart.
pattern A set arrangement or design of forms, colors or numbers.
pentagon A five-sided polygon.
percent The relationship between a part and a whole. The whole is always 100.
perimeter The distance around the outside of a closed figure.
perpendicular lines Lines that form right or 90 degree angles.
pictograph A graph that uses pictures to represent data.
pi (π) 3.14 Used to solve for the circumference or area of a circle.
place value The value of a digit determined by its position in a number.
plane shape A flat shape. A plane shape is two-dimensional.
point of intersection The one and only point that intersecting lines have in common.
polygon A closed plane figure with three or more sides.
positive number A number with a value greater than zero.
prediction To tell something in advance.
prime factorization Prime factors of a number expressed in exponential notation.
prime meridian The longitudinal meridian (0 degrees) that passes through Greenwich, England.
prime number A number divisible by only 1 and itself.
probability The study of the likelihood of events.
product The answer to a multiplication problem.
proper fraction A fraction greater than 0 but less than 1. The numerator is smaller than the denominator.
property of zero In addition, any number added to zero will have itself as an answer. In multiplication, any number multiplied by zero will have zero as an answer.
proportion An equation stating that two ratios are equal.
protractor A semi-circular instrument marked in degrees used to find the measure of an angle.
pyramid A solid figure with a polygon as a base and triangular faces that meet at a point.
quadrilateral A four-sided polygon.
quotient The answer to a division problem.
radius The distance from the center of a circle to the edge of a circle. The radius is half of the diameter.
random sample A sample in which every member of a large group has an equal chance of being chosen.
ratio The relationship of two numbers to each other written 1:2 or $\frac{1}{2}$.
ray A line with one end point.

reciprocal The fraction that results from inverting a fraction.
rectangle A four-sided polygon with four right angles.
rectangular solid A solid figure with six rectangular faces.
reduced fraction A fraction equivalent to another fraction that has been written in smaller numbers. This is also called simplifying a fraction or reducing to lowest terms.
remainder The amount that remains when a division problem has been completed.
right angle An angle that measures 90 degrees.
right triangle A triangle with one right angle.

Roman numerals The ancient Roman numeral system.
I = 1 V = 5 X = 10 L = 50 C = 100 D = 500 M = 1,000

scalene triangle A triangle with no equal sides.
sequence Numbers arranged in a certain pattern.
similar Figures that have the same shape but not necessarily the same size.
solid shape A shape that takes up space. A solid shape is three-dimensional.
sphere A geometric solid in a round shape.
square A rectangle with all sides equal.
straight angle An angle that measures 180 degrees.
subtrahend The number being taken away or subtracted in a subtraction problem.
symmetry Shapes with equal halves.
sum The answer to an addition problem.
triangle A three-sided polygon.
vertex The point at which two rays or line segments meet.
vertical Straight up and down. Perpendicular to the horizon.
volume The measurement of space that a solid figure occupies. $V = l \times w \times h$
whole numbers Digits arranged to represent a value equal to or greater than a whole.

Materials Needed for LIFEPAC

Cards (3 inches by 5 inches) printed with number symbols *0* through *9* and number words *zero* through *nineteen*, also *twenty, thirty, forty,* and so on through *one hundred*. Several sets would be useful. (Cereal boxes are an excellent source of cardboard.)

Cards with operation symbols -

plus + minus − equal = not equal ≠ greater than > less than <

Fact cards for addition and subtraction through *18*

Counters for *ones* and *tens* - these may be cardboard strips (2 inches by 5 inches) - one color for *ones*, another color for *tens*. See LIFEPAC 201 page 10. (Popsicle sticks also work well as counters.)

Objects for counting - beads, beans, buttons, bread wrapper twists

Crayons, construction paper, scissors

Objectives

1. I can read and write numbers to 100.
2. I know addition and subtraction facts to 18.
3. I can learn place value for ones and tens.
4. I can follow oral instruction.
5. I can add and subtract to tens' place.
6. I know operation symbols +, −, =, ≠, >, <.
7. I can write number sentences.
8. I can write fact families.
9. I can solve story problems in addition.
10. I can recognize patterns and tell what comes next.
11. I can recognize flat shapes.

Teacher Notes

Part I: Number Symbols and Words to 100, Addition Facts

1. Page 1 - Have the students write their names. Discuss *Memory Verse* and *Objectives*.
2. Pages 2 and 3 - Have the students practice with cards, reading and putting number symbols and words in number order (1 through 19). Complete pages 2 and 3.
3. Pages 4 and 5 - Introduce addition fact cards through *18*. Set aside facts that the students have not mastered and practice several times a week.
4. Page 6 - Show the students several examples of two-digit numbers (twenty-three, 23) on the board. Have them use combinations of number symbol and word cards to form numbers and words through *100*. Remind them about the hyphen that joins the tens' place and ones' place.
5. Complete page 7.

Part II: Subtraction Facts, Place Value, Listen and Write, Add, Subtract

1. Pages 8 and 9 - Introduce subtraction fact cards through *18*. Set aside facts that the students have not mastered and practice several times a week.

2. Page 10 - Introduce counters for ones and tens. Be sure students understand that the tens' counter is equal to *10* ones' counters. Have students illustrate various numbers *1 - 99* using counters (37 = 3 tens' counters and 7 ones' counters). Use the counters to illustrate ones' place and tens' place. Have the students say the numbers aloud for ex. 2.2 before circling tens' place and ones' place. Dictation develops the students' ability to follow oral instructions. Dictate:
   Listen and write in numbers.
   Listen and write. Circle the number in the tens' place.
   16 26 59 70 98 41 37 62
   Listen and write in words. (Hyphen should be included. Spelling must be correct.)
   Listen and write. Circle the word in the tens' place.
   twenty-seven thirty-five sixty-one eighty-nine
   forty-four ninety-six seventy-two fifty-three
3. Page 11 - Follow the illustration. Students should circle each set of tens, write how many, and then write the number of ones. They should use their counters to show how many tens and how many ones.
4. Pages 12 and 13 - Use the tens' and ones' counters to illustrate the number *63* (6 tens' counters and 3 ones' counters). Remind students that *nothing* is represented by the number symbol *0*. Have the students add *4* ones' counters to the group of *3* ones' counter. Add *6* tens' counters to *no* tens' counters. Combine the ones' and tens' counters and show they are equal to *67*. Use this method to illustrate addition and subtraction of the ones' place and the tens' place. The students may continue using the counters to illustrate the problems on pages 12 and 13.
5. Complete page 14.
   Listen and write in numbers and words.
   Listen and write. Circle the tens' place.
   numbers 12 39 57 82 words twenty-three forty-eight

Part III: Number Order, Operation Symbols, Number Sentences

1. Pages 15 and 16 - Use the number symbol cards and number word cards to introduce these pages to the students. Place a number card(s) in front of them and ask them to find the number card(s) before and after. (32 would result in the students selecting cards showing 31 and 33.) Continue the exercise until the students show proficiency. Be sure to use both number and word cards. Complete pages 15 and 16.
2. Pages 17, 18, 19, and 20 - Introduce the following operation symbols:
   plus + minus − equal = not equal ≠ greater than > less than <
   Use objects for counting and operation symbol cards to illustrate each one of the operation symbols. For greater than, less than, the students simply need to understand that the open side of the sign is always toward the larger number. Complete pages 17 through 21. Continue to use counters, objects, and cards to help the students understand number order, number value, and number comparison.
3. Complete page 21.

Part IV: Fact Families, Story Problems, Patterns, Add

1. Pages 22 and 23 - Introduce the students to fact families. For ex. 4.4, students should select three numbers and write a fact family. Quiz students orally by giving them a subtraction fact (12 – 7 = 5) and ask for an addition fact in the same family (5 + 7 = 12). Students must have a good grasp of addition and subtraction facts to be successful at addition with carrying and subtraction with borrowing.
2. Page 24 - Follow the 5-step instructions for story problems. Point out the word *together* as the key word in the story, telling the reader that this is a problem in addition. Use objects for counting to represent items in story problems, if helpful to the students. All students should show answers as number facts.
3. Page 25 - Pattern recognition develops students' problem solving skills. Introduce students to patterns by giving them an example. Say the numbers *1, 2, 3, 4* and ask what comes next (5). Ask them to describe the pattern (counting in number order). Suggest patterns of greater than and less than, counting backward and forward, numbers grouped in fact families. Have the students identify the patterns on page 25 and show what comes next.
4. Pages 26 and 27 - Use objects for counting to introduce three-number column addition. Make sets of *3, 1,* and *5*. Explain to the students that *3* and *1* are added together first and then the *5* is added. Do not allow them to count *1-2-3-4, 5-6-7-8-9*. Have them illustrate addition of two-digit numbers by making sets of ones and tens. As the students add the two-digit numbers on page 26, emphasize that they should add the ones' place first and the tens' place second.
5. Complete page 28.

Part V: Number Order, Facts, Operation Symbols, Flat Shapes

1. Pages 29, 30, 31, and 32 - Use the number symbol and number word cards to practice before and after. Show the students a number in number symbols and have them select the corresponding number word cards. Change the order and have them select number symbols for number words. Review the operation symbols. Complete pages 29 through 32.
2. Page 33 - Introduce flat shapes - circle, square, triangle, rectangle. Have the students use construction paper and scissors to cut out shapes in various sizes and colors to reacquaint them with the various shapes. Turn to page 33. Tell the students to locate and color each shape to match the shapes at the top of the page. Have them identify the corresponding colors and shapes on the houses and then draw lines connecting the shapes to the houses.
3. Complete page 34.

Administer LIFEPAC Test

The test may be administered in two sessions. Give no help except with directions.
Evaluate the tests and review areas where the students have done poorly.
Review the pages and activities that stress the concepts tested.
If necessary, administer the Alternate LIFEPAC test.

ADDITIONAL ACTIVITIES

1. Plan **regular drill** periods for **mathematics 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 mathematics 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 *Mathematics Terms*. 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.

When studying statistics,

13. Gather data to form charts and graphs. Begin with gathering the data; then, decide how the data could be most effectively presented. Suggestions for data collection would be number of people living in each home, students eye color, shoe size, height, weight, food preferences.

14. LIFEPAC **word problems** often reflect everyday experiences of the student. If a problem relates to the distance, rate and time of travel when a family visits friends or relatives, develop a similar problem the next time an actual trip is taken. Use all possible opportunities to translate word problems into similar real experiences.

ALTERNATE

TESTS

Reproducible Tests
for use with the Mathematics
200 Teacher's Guide

MATHEMATICS

2 0 1

ALTERNATE LIFEPAC TEST

40/50

Name _____

Date _____

Score _____

MATHEMATICS 201: Alternate LIFEPAC TEST

1. Match

thirty-six	13
sixty-three	33
sixty-six	63
thirteen	66
thirty-three	36

2. Write in words

11 _____

7 _____

56 _____

30 _____

82 _____

3. Write addition and subtraction facts.

7	8	9	5	4	15	7	9	13	11
+ 3	+ 4	+ 0	+ 6	+ 3	− 8	− 0	− 4	− 5	− 8

4. Circle the tens' place.

46 13 84

5. Write what comes next.

5, 4, 3, _____

6. Add or subtract.

32	41	4	43	75	57
+ 7	+ 23	2	20	− 42	− 26
		+ 3	+ 15		

7. Write the number

before.		after.	
_____	14	69	_____
_____	eighty	thirteen	_____

8. Write a fact family. (2 points)

4, 7, 11

____ + ____ = _____

____ + ____ = _____

____ − ____ = _____

____ − ____ = _____

9. Circle the symbol.

6 (+, −) 5 = 11

14 (+, −) 7 = 7

8 + 2 (=, ≠) 11

25 (>, <) 23

---

10. Read the story. Work the problem. (2 points)

Katie has five dimes.
Chad has four dimes.
How many dimes do
they have altogether? Answer:

11. Write the number sentence using symbols.

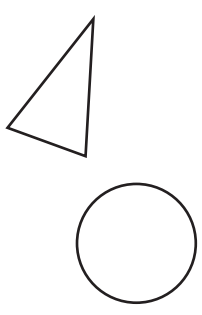
Thirteen minus four equals nine. _____

Forty-seven is greater than thirty-seven. _____

Sixteen is less than seventeen. _____

Five plus zero is not equal to six. _____

12. Match.

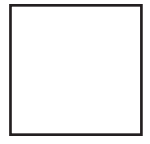


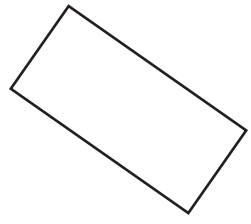
circle

rectangle

square

triangle





LIFEPAC

ANSWER KEYS

Part One

1.1 0 1 2 3 4 5 6 7 8 9 10

1.2 zero one two three four
five six seven eight nine ten

1.3 4 3 6 5 0
9 2 7 10 8 1

1.4 11 12 13 14 15 16 17 18 19 20

1.5 eleven twelve thirteen fourteen
fifteen sixteen seventeen
eighteen nineteen twenty

1.6

b	c
t	f
m	s
r	g
d	o
e	p
q	k
n	a
l	i
h	j

1.7

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

1.8

10	20	30	40	50
60	70	80	90	100

1.9 ten twenty thirty forty fifty sixty
seventy eighty ninety one hundred

1.10

16	forty-five
31	sixty
67	seventy-nine
85	thirteen
49	eighty-one
11	thirty-six
70	fifty-four
93	one hundred

Part Two

2.1

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

2.2

(2)7	(4)5	(8)3	(6)1
(1)7	(5)8	(1)1	(9)6
1(2)	7(8)	3(9)	4(6)
8(9)	1(5)	2(2)	7(0)

2.3

(1)6	(2)6	(5)9	(7)0
(9)8	(4)1	(3)7	(6)2

2.4

(twenty)-seven	(thirty)-five
(sixty)-one	(eighty)-nine
(forty)-four	(ninety)-six
(seventy)-two	(fifty)-three

2.5

1	7	17
2	3	23
2	7	27
0	4	4
4	3	43
2	8	28
4	6	46

2.6

49	35	55	67	29	75
37	79	68	98	62	86

2.7

88	56	48	86	97	52
69	47	66	84	95	79

2.8

46	32	54	28	65	70
33	75	62	60	93	47

2.9

65	53	14	63	81	82
46	16	44	72	21	54

Part Three

3.1

15	85	12
22	10	99
74	19	49
4	62	36

3.2

23	13	100
52	27	64
90	52	20
32	40	77

3.3

79	34	16
44	99	49
28	4	22
20	82	91

3.4

thirteen	ten
twenty-one	fifty-two
sixty-two	seventy
seventy-nine	forty

3.5

forty-five	sixty-seven
eighty-two	forty
thirteen	ninety-four
eight	seventeen

3.6

twenty
forty-seven
ninety-one
sixty-eight
ten
seventy-four
thirty-six
ninety-nine

3.7

+	–
=	–
–	+
–	=
+/–	+
=	=
+	–
–	+
=	=
+	–

3.8

=	≠
≠	=
=	≠
≠	=
≠	≠
≠	≠
=	=
≠	≠

3.9

12, 7, 9, 11, 6, 8, 10, 5
9, 12, 13, 11, 14, 8, 10, 15

3.10

>	<
<	>
>	>
>	>
>	<
<	<
>	>
>	>

3.11

13, 14, 16, 17, 18, 20
38, 39, 40, 42, 43, 44
74, 76, 77, 79, 80, 81

3.12

$6 + 3 = 9$
$8 - 4 \neq 3$
$12 > 11$
$54 < 56$
$13 - 7 = 6$
$4 > 0$
$6 + 2 \neq 7$
$81 < 95$
$3 + 5 > 4 + 2$
$26 - 4 < 19 + 8$

Part Four

4.1

8	9, 14	7, 8, 15
8	5, 14	8, 7, 15
6	5, 9	15, 7, 8
2	9, 5	15, 8, 7

4.2 Suggested Answers:

0	1	4	6	7	8
+ 6	+ 5	+ 2	– 0	– 1	– 2
6	6	6	6	6	6

4.3

3, 9, 12	2, 7, 9	4, 7, 11
9, 3, 12	7, 2, 9	7, 4, 11
12, 3, 9	9, 2, 7	11, 4, 7
12, 9, 3	9, 7, 2	11, 7, 4
3, 5, 8	8, 9, 17	6, 7, 13
5, 3, 8	9, 8, 17	7, 6, 13
8, 3, 5	17, 8, 9	13, 6, 7
8, 5, 3	17, 9, 8	13, 7, 6

4.4 Suggested Answers:

4, 6, 10	5, 9, 14	0, 5, 5
4, 6, 10	5, 9, 14	0, 5, 5
6, 4, 10	9, 5, 14	5, 0, 5
10, 4, 6	14, 5, 9	5, 0, 5
10, 6, 4	14, 9, 5	5, 5, 0

4.5

$$\begin{array}{r} 6 \\ +\ 7 \\ \hline 13 \end{array}$$ 13 pets

$$\begin{array}{r} 3 \\ +\ 9 \\ \hline 12 \end{array}$$ 12 sisters

$$\begin{array}{r} 6 \\ +\ 8 \\ \hline 14 \end{array}$$ 14 people

4.6

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

$4 < 5$

$$\begin{array}{r} 14 \\ -\ 9 \\ \hline 5 \end{array}$$

thirty-four

$$\begin{array}{r} 76 \\ -\ 40 \\ \hline 36 \end{array}$$

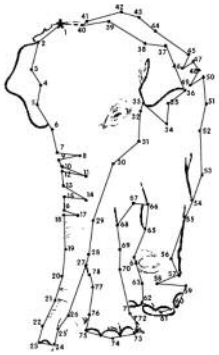
39

17

4.7

6	8	9	9	8	10
9	6	8	7	9	10
98	57	83	79	88	

4.8



no

Part Five

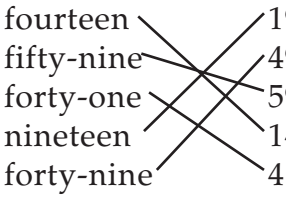
5.1

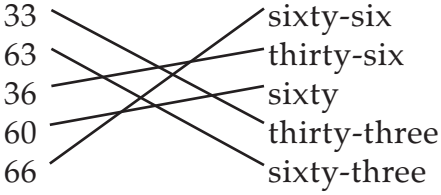
four	twenty-six
ten	forty-two
thirty-five	fourteen
seventy-nine	sixty-four

5.2

forty	forty-one
sixteen	seventeen
seventy-two	seventy-three
ninety-eight	ninety-nine

5.3





5.4

7	13	12
10	6	15
17	10	8
8	16	16
12	12	9
7	3	4
9	9	9
12	14	2

5.5

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

5.6

7	15	9	10	13	12	9	14
16	4	5	18	12	4	7	8
6	10	11	10	12	14	1	11

5.7

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

5.8

=	=
−	≠
≠	−
+	≠
=	+
−	−
≠	≠
=	=

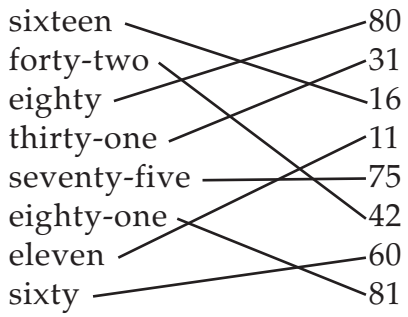
5.9

>	<
<	>
<	<
>	>

5.10 Teacher Check

Self Test 1

1.01



1.02 seventeen
twenty-four
eight
thirty-seven
sixty-five
nineteen
fifty-three
twenty

1.03

9	11	17	7	7	10
10	15	7	10	11	7
9	7	8	14	12	6

Self Test 2

2.01

1	7	5	8	3	8
1	5	5	0	4	1
8	3	5	4	5	6

2.02

②3	④8	①1	⑨6
1⑤	3⑦	8⑤	5⓪

2.03 28 67 54 32

2.04

①2	③9	⑤7	⑧2

twenty- three forty- eight

Self Test 3

3.01

12	thirty-three
45	100
seventy-four	60

3.02

=	+
–	≠
≠	–

3.03

>	<
<	>

3.04 13 – 5 = 8
47 > 43
4 + 8 ≠ 11
65 < 75

Self Test 4

4.01 4, 5, 9
4, 5, 9
5, 4, 9
9, 4, 5
9, 5, 4

4.02 12 11 98 69

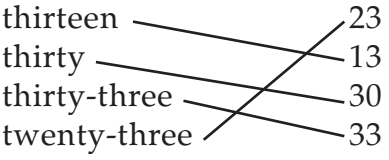
4.03 Mary has ② apples.
Jack has ④ apples.
How many apples do
Mary and Jack have altogether?

$$\begin{array}{r} 2 \\ +\ 4 \\ \hline 6 \end{array}$$ 6 apples

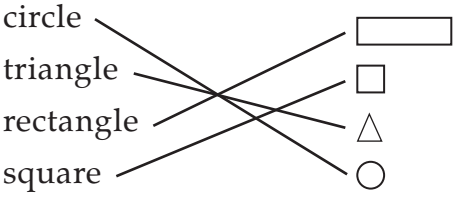
4.04 6 >5
40

Self Test 5

5.01



5.02



5.03

9	5
15	5
7	6
10	1

5.04 58, 60, 61, 63, 65, 66

5.05 ≠ – >

LIFEPAC

TEST KEYS

LIFEPAC TEST 201

1. fifty-seven — 57
   fifteen — 15
   seventy-five — 75
   seventy-seven — 77
   fifty-five — 55

2. twelve
   eight
   thirty-nine
   fifty
   sixty-two

3. 7 9 12 13 11 9 5 6 8 5

4. (7)4 (8)6 (9)2

5. 6

6. 27 98 9 93 22 44

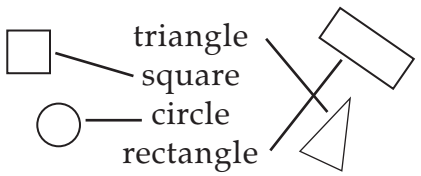
7. 17 40
   sixty-nine thirteen

8. 4, 8, 12
   4, 8, 12
   8, 4, 12
   12, 4, 8
   12, 8, 4

9. –
   –
   ≠
   <

10. 3
    + 5
    8
    8 nickels

11. 14 – 6 = 8
    13 < 23
    9 + 7 ≠ 14
    85 > 62

12. 

ALTERNATE
LIFEPAC TEST 201

1. thirty-six — 36
   sixty-three — 63
   sixty-six — 66
   thirteen — 13
   thirty-three — 33

2. eleven
   seven
   fifty-six
   thirty
   eighty-two

3. 10 12 9 11 7 7 7 5 8 3

4. (46) (13) (84)

5. 2

6. 39 64 9 78 33 31

7. 13 — seventy-nine
   70 — fourteen

8. 4, 7, 11
   $4 + 7 = 11$
   $7 + 4 = 11$
   $11 - 4 = 7$
   $11 - 7 = 4$

9. +
   –
   ≠
   >

10. $\begin{array}{r} 5 \\ +\ 4 \\ \hline 9 \end{array}$ 9 dimes

11. $13 - 4 = 9$
    $47 > 37$
    $16 < 17$
    $5 + 0 \neq 6$

12.