Before You Start ...

THE CHALLENGE

Today's average high school graduate knows and can do less math than their counterpart of ten, fifteen, or twenty years ago. Basic math skills have deteriorated to the point that many wonder if this country can continue to be a leader in shaping the technology of the future. Unfortunately, the general trend of modern education of all types is downward. Students in private education, while they score higher overall than public school students, still do poorly in math computation skills.

THE GOAL

The goal of this curriculum is to provide the parent and teacher with a tool that will help them effectively combat this deterioration of math skills by raising the level of student performance. Research of the content and methods of other existing curriculums, the concepts evaluated by achievement tests, and typical courses of study resulted in selection of the *Scope and Sequence* starting on page 14. This curriculum was not planned around any particular group of students. Rather, it was determined that the material in this curriculum constituted a reasonable level of performance for second grade students. The curriculum is designed so that the teacher can adapt its use to student(s) of widely varying ability. In other words, the curriculum is a tool that is capable of performing well over a broad range of student ability to help them achieve a higher minimum level of proficiency. The two major components of the curriculum are the student text (in two volumes) and the *Teacher's Guide*. These are the absolute minimum components for accomplishing the objective of teaching the concepts in the *Scope and Sequence*. Since this guide was designed as an integral part of the curriculum, its use is absolutely necessary. The guide contains activities not found in the student texts that are essential to the accomplishment of the curriculum objectives. As you will see in the following sections, this *Teacher's Guide* contains a significant number of suggestions and helps for the teacher. Unlike first grade, all manipulatives are identified with *italics* so that the teacher may easily see them at a glance.

THE DESIGN

Take a moment to look at the sample chart entitled, *Development of Concepts*, on page 28–29. Take note of how the curriculum concepts are developed. The first presentation is usually a brief familiarization. Then the basic teaching is accomplished as part of three to five lessons. The thoroughness of a presentation depends on how

new and how important the concept is to the student's academic development.

THE DEVELOPMENT

Each concept will be reviewed for three to five lessons after the complete presentation. For the next two months the concept will be presented every two weeks as a part of two or three consecutive lessons. After a break in presentation of four weeks, the concept will be thoroughly reviewed as part of the lesson for three to five days. This will be followed by a period of two months where the concept will be reviewed every two weeks as part of two or three lessons. This progression continues until the student(s) have had the opportunity to thoroughly master the concept.

AN EXAMPLE

Some mathematics curriculums might teach *graphs* for two weeks and not go back to it again. In this curriculum it will be introduced and practiced for two weeks. For the next two months, *graphs* will be presented every two weeks as a part of two or three lessons to give the student(s) continual practice to develop mastery of the concept. The third month will be considered a break from presenting the concept and *graphs* will not be taught. In the fourth month, *graphs* will first be thoroughly reviewed and again practiced every two weeks as a part of two or three lessons. By having a series of practices every two weeks, the student(s) will retain what they have learned to a greater degree. Short periods of exposure repeated many times is much more effective than long periods with fewer exposures. Since there are three types of graphs to study at this level (bar, line, and pictograph), each type is introduced at separate intervals. The *bar graph* is taught at the introduction to the study. *Line graphs* are introduced a month later (following the same progression), and *pictographs* another month later. After each type of graph has been completely introduced individually, the three types are presented together for the remainder of the year. Review the chart on page 29 to see how the concepts are developed.

Readiness Evaluation

WHY EVALUATE READINESS?

Teaching could be defined as the process of starting with what a student knows and guiding him to added knowledge with new material. While this may not be a dictionary definition of teaching, it is descriptive of the processes involved. Determining a student's readiness for second grade mathematics is the first step to successful teaching.

TYPES OF READINESS

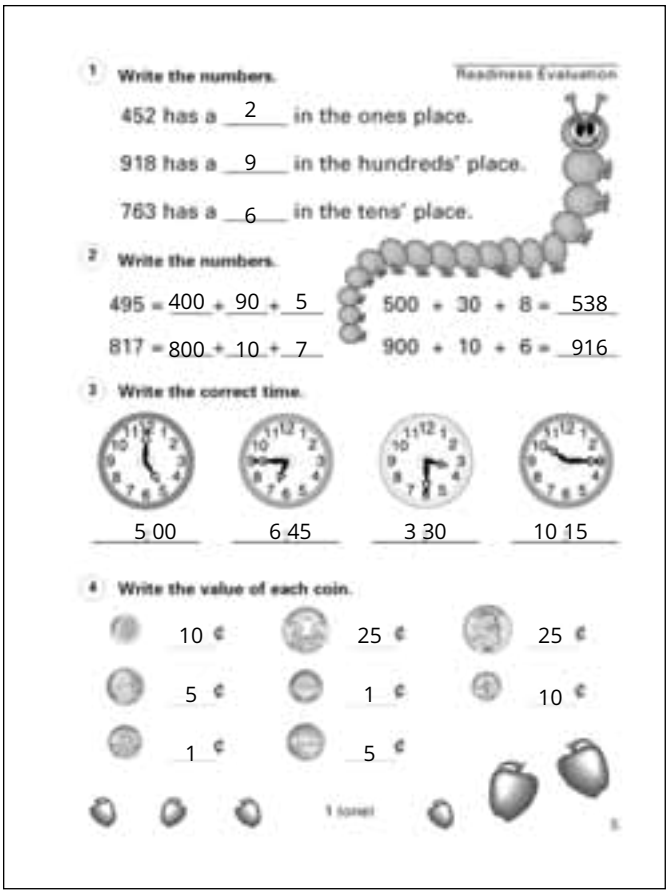
True readiness has little to do with chronological age. Emotional maturity and mental preparation are the main components of academic readiness. The teacher who is dealing directly with the student is best able to determine a child's emotional maturity. An emotionally immature student may need special student training in their problem areas. It might be wise, in this case, to delay placing them in the second grade until the next year. A child's mental *preparation* can be more easily discerned with a simple diagnostic evaluation. Observing the child's attitude of confidence or insecurity while taking the evaluation may help determine emotional readiness.

DETERMINING READINESS

The second grade *Readiness Evaluation* on pages 5–8 helps the teacher to determine if student(s) are ready to begin studying math at the second grade level. Complete this evaluation the first or second day of school. The evaluation should take about 30 minutes. It would be helpful to evaluate all of the students to determine what each student knows. However, you may want to evaluate only those student(s) who have not had a thorough first grade program. It is especially important to evaluate any student who is using this curriculum for the first time. The student(s) should be able to complete the test on their own with the teacher making sure they understand the directions for each individual activity.

The answer key is on page 4. Count each individual answer as a separate point except in ***Student Activity Twelve*** where only the numbers in the boxes, not the circled numbers, are counted. The total for the test is 100 points. The student should achieve a score of 70 or more points to be ready to begin second grade. Be sure to note the areas of weakness of each student, even those who have scored over 70 points. If the student(s) scored under 70 points, they may need to repeat first grade math or do some refresher work in their areas of weakness. For possible review of the identified areas of weakness, refer to the chart "Appearance of Concepts" on page 46 of the *Horizons Mathematics 1 Teacher's Guide*. It will locate lessons where the concepts were taught.

Readiness Evaluation Answer Key



1 Write the numbers. Readiness Evaluation

452 has a 2 in the ones place.

918 has a 9 in the hundreds' place.

763 has a 6 in the tens' place.

2 Write the numbers.

495 = 400 + 90 + 5

817 = 800 + 10 + 7

500 + 30 + 8 = 538

900 + 10 + 6 = 916

3 Write the correct time.

5 00 | 6 45 | 3 30 | 10 15

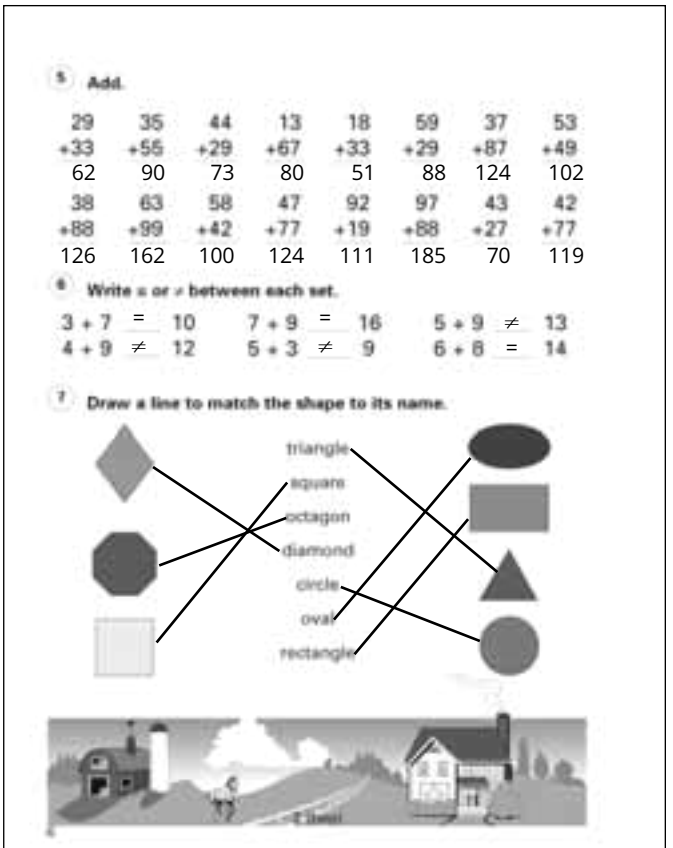
4 Write the value of each coin.

10 ¢ | 25 ¢ | 25 ¢

5 ¢ | 1 ¢ | 10 ¢

1 ¢ | 5 ¢

1 (one)



5 Add.

29	35	44	13	18	59	37	53
+33	+55	+29	+67	+33	+29	+87	+49
62	90	73	80	51	88	124	102
38	63	58	47	92	97	43	42
+88	+99	+42	+77	+19	+88	+27	+77
126	162	100	124	111	185	70	119

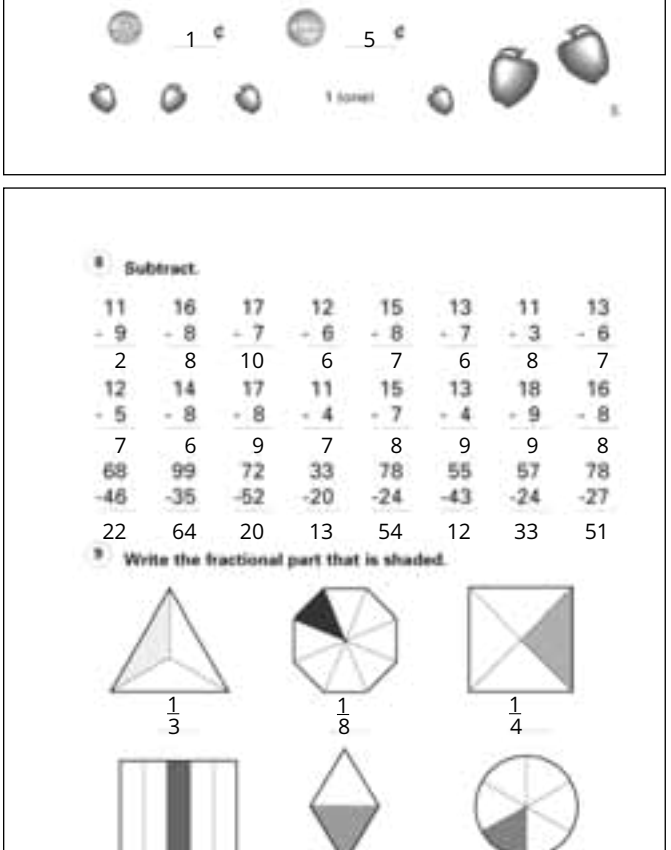
6 Write = or ≠ between each set.

3 + 7 = 10 | 7 + 9 = 16 | 5 + 9 ≠ 13

4 + 9 ≠ 12 | 5 + 3 ≠ 9 | 6 + 8 = 14

7 Draw a line to match the shape to its name.

triangle
square
octagon
diamond
circle
oval
rectangle



8 Subtract.

11	16	17	12	15	13	11	13
- 9	- 8	- 7	- 6	- 8	- 7	- 3	- 6
2	8	10	6	7	6	8	7
12	14	17	11	15	13	18	16
- 5	- 8	- 8	- 4	- 7	- 4	- 9	- 8
7	6	9	7	8	9	9	8
68	99	72	33	78	55	57	78
-46	-35	-52	-20	-24	-43	-24	-27
22	64	20	13	54	12	33	51

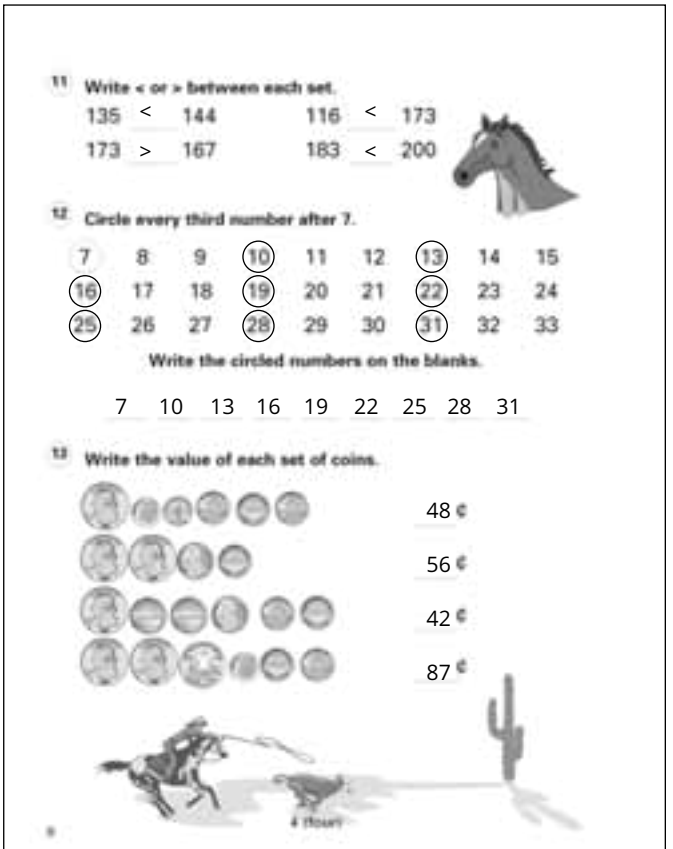
9 Write the fractional part that is shaded.

$\frac{1}{3}$ $\frac{1}{8}$ $\frac{1}{4}$

$\frac{1}{5}$ $\frac{1}{2}$ $\frac{1}{6}$

10 How many eggs are in a dozen? 12

3 (three)



11 Write < or > between each set.

135 < 144 | 116 < 173

173 > 167 | 183 < 200

12 Circle every third number after 7.

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

Write the circled numbers on the blanks.

7 10 13 16 19 22 25 28 31

13 Write the value of each set of coins.

48 ¢

56 ¢

42 ¢

87 ¢

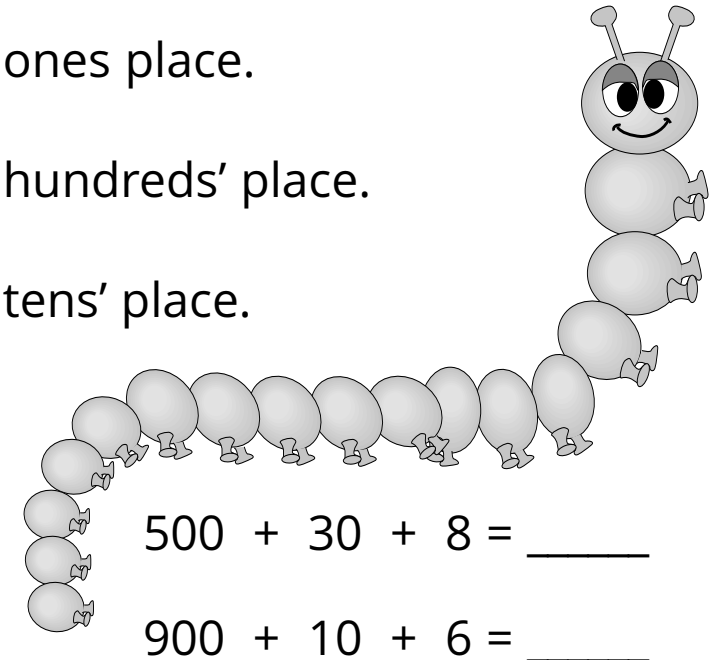
4 (four)

1 **Write the numbers.**

452 has a _____ in the ones place.

918 has a _____ in the hundreds' place.

763 has a _____ in the tens' place.



2 **Write the numbers.**

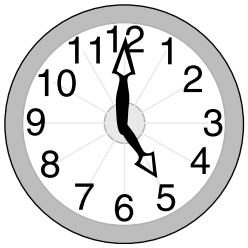
495 = ____+____+____

817 = ____+____+____

500 + 30 + 8 = _____

900 + 10 + 6 = _____

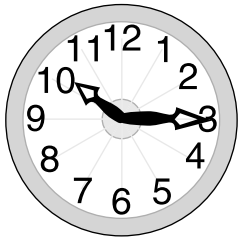
3 **Write the correct time.**



_____:_____

_____:_____

_____:_____



_____:_____

4 **Write the value of each coin.**

_____¢

_____¢

_____¢

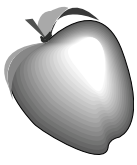
_____¢

_____¢

_____¢

_____¢

_____¢



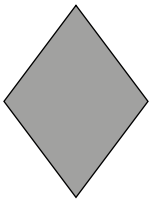
5 **Add.**

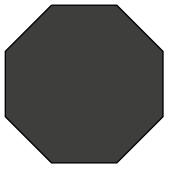
29	35	44	13	18	59	37	53
+33	+55	+29	+67	+33	+29	+87	+49
38	63	58	47	92	97	43	42
+88	+99	+42	+77	+19	+88	+27	+77

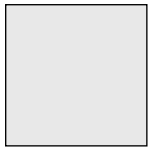
6 **Write = or ≠ between each set.**

3 + 7 ____ 10	7 + 9 ____ 16	5 + 9 ____ 13
4 + 9 ____ 12	5 + 3 ____ 9	6 + 8 ____ 14

7 **Draw a line to match the shape to its name.**







triangle

square

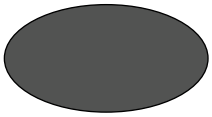
octagon

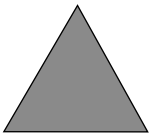
diamond

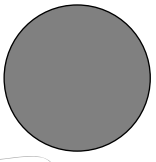
circle

oval

rectangle



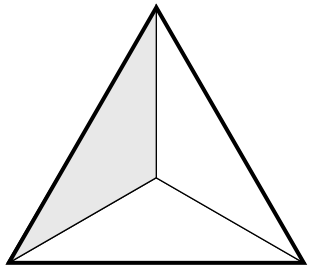


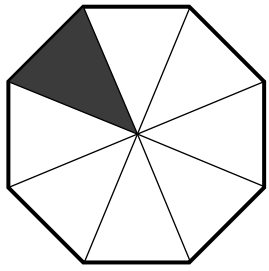


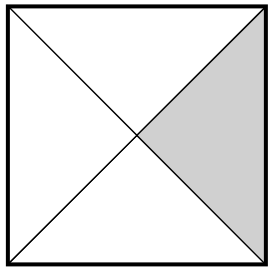
8 **Subtract.**

11	16	17	12	15	13	11	13
- 9	- 8	- 7	- 6	- 8	- 7	- 3	- 6
12	14	17	11	15	13	18	16
- 5	- 8	- 8	- 4	- 7	- 4	- 9	- 8
68	99	72	33	78	55	57	78
-46	-35	-52	-20	-24	-43	-24	-27

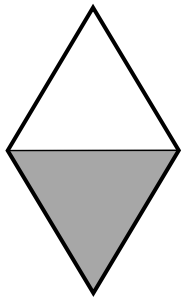
9 **Write the fractional part that is shaded.**

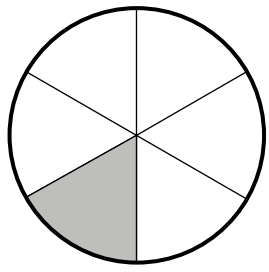






____ ____ ____





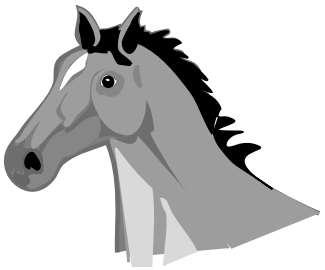
____ ____ ____

10 **How many eggs are in a dozen?** _____

11 **Write < or > between each set.**

135 _____ 144 116 _____ 173

173 _____ 167 183 _____ 200



12 **Circle every third number after 7.**

(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

Write the circled numbers on the blanks.

_____ _____ _____ _____ _____ _____ _____ _____ _____

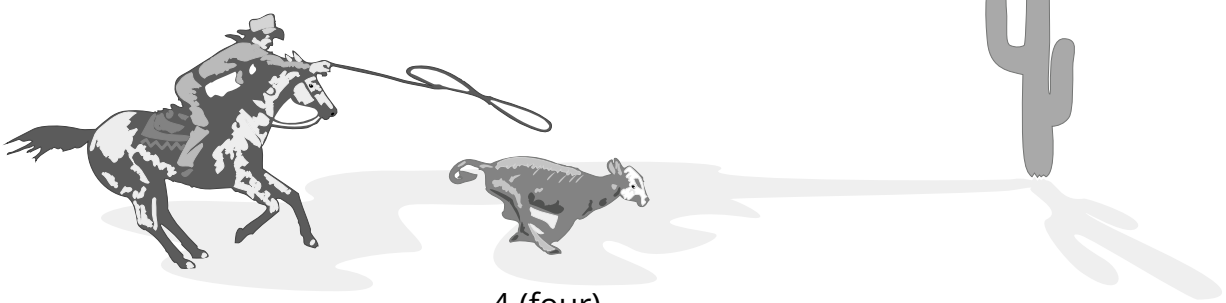
13 **Write the value of each set of coins.**

_____ ¢

_____ ¢

_____ ¢

_____ ¢



Preparing a Lesson

GENERAL INFORMATION
There is some room on the teacher lessons for you to write your own notes. The more you personalize your teacher's guide in this way, the more useful it will be to you.

You will notice that there are 160 student lessons in the curriculum. This allows for the inevitable interruptions to the school year like holidays, test days, inclement weather days, and those unexpected interruptions. It also allows the teacher the opportunity to spend more time teaching any concept that the student(s) may have difficulty with. Or, you might wish to spend a day doing some of the fun activities mentioned in the Teaching Tips. If you find that the student(s) need extra drill, use the worksheets as extra lessons. There are no new concepts introduced after lesson 142. The last eighteen lessons reinforce by application the concepts presented throughout the year.

STUDENT'S LESSONS ORGANIZATION
The lessons are designed to be completed in thirty to thirty-five minutes a day. If extra manipulatives or worksheets are utilized, you will need to allow more time for teaching. Each lesson consists of a major concept and practice of previously taught concepts. If the student(s) find the presence of four or five different activities in one lesson a little overwhelming at the beginning, start guiding the student(s) through each activity. By the end of two weeks, they should be able to work more independently as they adjust to the format. Mastery of a new concept is not necessary the first time it is presented. Complete understanding of a new concept will come as the concept is approached from different views using different methods at different intervals. Because of the way the curriculum is designed, *the student(s) need to do all the problems in every lesson every day*. Directions to the student(s) are given in black type and examples or explanations are presented in blue type. If you expect to have very many students, you will find it extremely helpful to remove all pages from the individual student books and file them (all of Lesson 1 in one file, all of Lesson 2 in another file, etc.) before school starts. This will keep the lessons from being damaged or lost in the students' desks.

Tests
Starting with Lesson 10, tests are included in every tenth lesson. They should require approximately twenty minutes to administer. If your daily schedule time is a major factor, the student lesson may be completed the following day. This will require efficient

scheduling of the lessons throughout the year to complete the program by the end of the school year. The 16 tests and 160 lessons each administered or taught on separate days would bring the scheduled curriculum days to a total of 176.

Do not make the test a special lesson. Allow the student(s) to perceive the test as a regular lesson with no undue pressure. The purpose of testing is not just to measure student progress, although that is an important consideration. A test is also an important teaching tool. It should be returned to the student and any missed items discussed so that it is a true learning experience. For this reason, it is important to grade and return the tests as soon as possible while material is fresh in the student's mind.

The test structure is such that the student(s) will have had sufficient practice with a concept to have learned it before being tested. Therefore, no concept is tested until the initial presentation has been completed. For example, test 2 in lesson 20 covers concepts completed in lessons 6–15. Lessons 16–19 may include the introduction of some new material which will not be covered in test 2. Test 8 in lesson 80 will cover lessons 66–75. The new material from lessons 76–79 will not be covered in test 8.

TEACHER'S LESSONS ORGANIZATION

Each lesson is organized into the following sections: *Concepts*; *Objectives*; *Teaching Tips*; *Materials, Supplies, and Equipment*; *Activities*; *Worksheets*; and occasionally a maxim or proverb. Each of the sections have a distinct symbol to help you locate them on the page of the teacher's lesson. To be a master teacher you will need to prepare each lesson well in advance.

Concepts

Concepts are listed at the beginning of each lesson in the following order: 1.) Concepts taught by the teacher from the activities in the *Teacher's Guide* that do not have a corresponding written activity in the student lesson 2.) New concepts 3.) Concepts that are practiced from previous lessons (listed in the order they appear in the student lesson). Second grade math has twenty-one major concepts. These are developed in a progression that is designed to give the student(s) a solid foundation in the basic math skills while providing enough variety to hold the student's interest. Definitions are given for new terms.

Objectives

The Objectives list criteria for the student's performance. They state what the student should be able to do at the completion of the lesson. You will find objectives helpful in determining the student's progress, the need for remedial work, and readiness for more advanced information. Objectives are stated in terms of measurable student performance so that the teacher has a fixed level of performance to be attained before the student(s) are ready to progress to the next level.

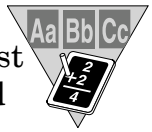
Teaching Tips

Each tip is related to one of the Activities in the lesson. Some Teaching Tips require the teacher to make a manipulative needed to complete the activity. Teaching Tips are optional activities that the teacher can do to enhance the teaching process. You will find them useful for helping the student who needs additional practice to master the concepts or for the student who needs to be challenged by extra work.

Materials, Supplies, and Equipment

Materials, Supplies, and Equipment lists the things you'll need to find before you teach each lesson. Sometimes you will also find instructions on how to make your own materials, supplies, and equipment. When "Number Chart" is listed, it is understood to refer to the chart for 0–99. The number chart for 100–199 will state "Number Chart 100–199." A complete list of all manipulatives and where they are used starts on page 16.

Activities



The teacher's greatest concentration should be on the Activities section. Here the teacher will find step-by-step directions for teaching each lesson. All activities are designed to be teacher directed both in the student lesson and in the teacher's guide. You will need to use your own judgement concerning how much time is necessary to carry out the activities. Be sure, however, that the student(s) do every problem of every lesson. When the activity is part of the student lesson you will find it referred to as ***Student Activity One, Student Activity Two,*** etc.

referring to the number in the circle on the student lesson. If the activity is not part of the student lesson there will be no bold face italic reference and the student will receive the activity from the teacher. Each activity is important to the over all scope of the lesson and must be completed.

Do not omit any portion of the activities unless the student(s) have thoroughly mastered the concept being presented. Please do not put off looking at the activities in the lesson until you are actually teaching. Taking time to preview what you will be teaching is essential. Choose the manipulatives that fit your program best.

Worksheets

There is approximately one worksheet for every two lessons. If worksheets are suggested in a particular lesson you will find them listed in the Worksheets section. Each worksheet has a worksheet number and the number of the lesson with which it is associated. Note that some worksheets will be used over and over as resources, so you'll need to keep a master copy. The *Teacher's Guide* identifies where these resource worksheets are essential to the lessons. All addition, subtraction, and multiplication drill sheets are included in the worksheets. If the Worksheet symbol is on the page, there is a worksheet associated with that lesson. The worksheets will be handy for many purposes. You might use them for extra work for student(s) who demonstrate extra aptitude or ability or as remedial work for the student(s) who demonstrate a lack of aptitude or ability. You may also make your own worksheets and note where you would use them in the worksheet section on the teacher's lesson.

Maxims

In some lessons you will find a short maxim or proverb at the bottom of the right hand page. These maxims provide a collection of various wise and pithy sayings that deal with character. They are intended for the teacher to share and discuss with the student(s). Ask the student(s) to suggest ways that they could apply the maxim to their day-to-day activities of life. Have them think of a time when their friends may have put the maxim into practice. Tell them to watch for opportunities to practice the maxim in the next week and report the incident to you. You may use or not use them as you wish.

Lesson Summary

The curriculum will work best when you prepare in the following manner. First, note that the teacher's lesson has items that pertain to an overview of the lesson on the left-hand page. The details are on the right-hand page. It is suggested that you first look at the Concepts involved in the lesson. Then study the Objectives to get an idea of the tasks that the student(s) will need to perform to complete the lesson. Next, look at the Activities to get an

idea of the presentation of the lesson. If you would like to view the student lessons, the complete student curriculum is included in reduced format in the answer key section. This presentation will allow you to see the whole student lesson in one place as well as all the answers at the same time. You will need more preparation for some of the activities that aren't in the student lessons. Some of the activities will refer to a worksheet which you will find listed in the Worksheet section below the Activities section. You might also want to check the Teaching Tips section for any additional ideas on presenting the lesson. Finally, check the Materials, Supplies, and Equipment for any resources that you may need before you begin the lesson.

ANSWER KEYS

The answer keys section of the *Teacher's Guide* provides answers to the student lessons (reduced so that there are four student pages on each answer key page and printed in black and white). It is suggested that you give the student(s) a grade for tests only. Daily work is to be a learning experience for the student, so do not put unnecessary pressure on them. You should correct every paper, but you should not grade every paper. This means that each lesson should be marked for correct and incorrect answers, but it is not necessary to record a letter or percentage grade on every lesson. The lessons should then be returned to the student(s) so that they have the opportunity to learn from their mistakes.

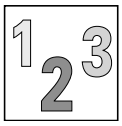
WORKSHEETS

The next section contains the worksheets. Note that some worksheets will be used over and over as resources, so you will need to keep a master copy. Worksheets are reproducible and may be copied freely. You will find a complete listing of worksheets, where they are used, and which worksheets are used more than once on pages 20 and 21. Separate packets of all the necessary worksheets for an individual student are also available.

WORKSHEET ANSWER KEYS

Answer keys to the worksheets are provided in the same manner as for the student lessons and reduced so that there are four worksheets on each page of the answer key. The multiple use worksheets do not have answer keys since the answers will vary each time the worksheets are used.

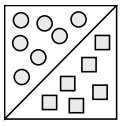
Horizons Second Grade Mathematics SCOPE & SEQUENCE



1. COUNTING 1–999

(Recognition)

By 1's, 5's, 10's, 2's, 3's, 6's, 9's, 4's, 8's, and 7's
By 1's from 100–999
One-to-one correspondence
Even and odd numbers
Tally marks
Word numbers to 999
Roman numerals



2. SETS

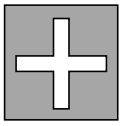
(Count and Use)

Groups

3. NUMBER ORDER

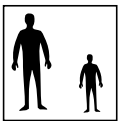
(Recognition and Use)

Ordinal numbers to 100
The number that comes before and after a given number



4. ADDITION

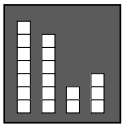
Carrying in the 1's, 10's, and 100's columns
Two numbers single, double, triple, and four digit
Three numbers single, double, triple, and four digit
Four numbers single and double digit
Horizontal and vertical addition
Word problems
Word sentences
Equations



5. CORRESPONDENCE OF QUANTITIES

(Distinguish Between and Use)

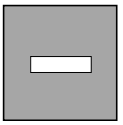
Greater than and less than
Equal and not equal
Greater than, less than, and equal to



6. PLACE VALUE

(Digit Value)

Ones, tens, and hundreds
Thousands



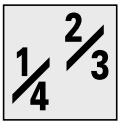
7. SUBTRACTION

Borrowing in the 1's and 10's columns
Two numbers single, double, triple, and four digit
Horizontal and vertical subtraction
Word problems
Word sentences
Equations

8. TIME

(Read and Write)

Hour, half hour, and quarter hour
Five minutes
All times
Equivalents



9. FRACTIONS

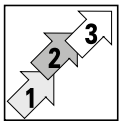
(Meaning, Recognition, and Use)

Fractional part of whole
Fractional part of a set
Fraction words

10. MONEY

(Recognition, Value, and Use)

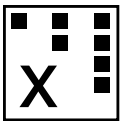
Penny, nickel, dime, and quarter
Half dollar
One, five, ten, and twenty dollar bills
Counting money
Adding, subtracting, and multiplying money



11. SEQUENCE

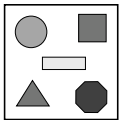
(Create and Identify)

Numbers
Shapes
Objects
Events



12. MULTIPLICATION

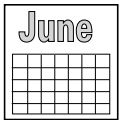
Readiness
Multiplication facts for 0–10
Word problems



13. SHAPE

(Recognition and Characteristics)

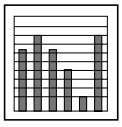
Circle, square, triangle, rectangle, oval, diamond, octagon, pentagon, hexagon, sphere, cylinder, cube, cone, and pyramid
Symmetry



14. CALENDAR

(Memorize and Use)

Months of the year and abbreviations
Days of the week and abbreviations



15. GRAPHS

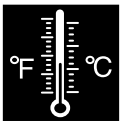
(Draw and Interpret)

Bar graphs, line graphs, pictographs, and grids

16. MEASUREMENT

(Practice and Use)

Inches
Centimeters
Equivalents:
  English linear
  English weights
  English liquid
Dozen
Optical illusion
Map reading



17. TEMPERATURE

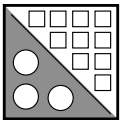
(Read and Interpret)

Fahrenheit thermometer

18. ESTIMATION

(Practice)

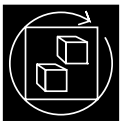
Rounding numbers
Height, length, and time



19. RATIO

(Write)

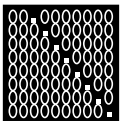
Comparison of two numbers



20. AREA, PERIMETER, AND VOLUME

(Calculate)

Area
Perimeter
Volume



21. DECIMALS

(Use)

Money

Manipulatives

Manipulative Name	Description	Used In Lesson
Books (5)	any size	130
Brad	one per student	21
Butter	lb.	127
Calendar	picture	54, 69, 70, 71, 73, 74, 126, 135
Clock model	large	18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 62, 63, 72, 73, 74, 75, 76, 77, 88, 89, 101, 102, 103, 124, 125, 126, 135, 152, 153
Clock model	small	21, 22, 24, 25, 28, 38, 39, 40, 44, 45, 47, 48, 62, 63, 75, 88, 89, 90, 102, 103, 124, 152, 153
Cloth	½ yard of burlap or denim	7
Construction paper		21, 150
Counting chips	20 per student	2, 60, 71, 86, 91, 98, 127, 134, 135, 136, 159
Cubes	5	146, 147
Dictionary		98
Dowel rod	½ inch 12 inches long	7
Erasers		119, 129
Flannel board		107, 123, 149, 150, 152
Flannel board materials		107, 123, 149, 150, 152
Flashcards	addition facts	3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 32, 34, 35, 37, 39, 40, 42, 44, 45, 47, 49, 50, 52, 54, 55, 57, 59, 60, 62, 63, 64, 65, 67, 69, 70, 72, 74, 75, 77, 79, 80, 82, 84, 85, 87, 89, 90, 91, 92, 94, 95, 97, 99, 100, 102, 104, 105, 107, 110, 112, 114, 115, 117, 119, 120, 122, 124, 125, 127, 129, 130, 132, 134, 135, 137, 139, 140, 142, 144, 145, 147, 149, 150, 152, 154, 155, 157, 159, 160

Manipulative Name	Description	Used In Lesson
Flashcards	days of the week	130, 132
Flashcards	English weight equivalents	151, 152, 155, 157
Flashcards	= and ≠ symbols	23, 24
Flashcards	< and > symbols	44
Flashcards	English linear equivalents	118, 152, 155, 157
Flashcards	English liquid equivalents	144, 152, 155, 157
Flashcards	months of the year	55, 117, 118
Flashcards	multiplication	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, 100, 101, 102, 103, 104, 105, 106, 107, 108, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160
Flashcards	ordinal numbers	1, 2, 3, 4, 5, 28, 29, 52
Flashcards	Roman numerals	93, 94, 95, 96, 108, 109, 122, 144, 145, 149, 150, 156, 157
Flashcards	shapes	93, 94, 95, 96, 97, 98, 99, 111, 112, 113, 124, 125, 126
Flashcards	solids	114, 115, 128, 140, 151
Flashcards	subtraction facts	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 35, 36, 40, 41, 43, 45, 46, 48, 50, 51, 53, 55, 56, 58, 60, 61, 63, 65, 66, 68, 70, 71, 73, 75, 76, 78, 80, 81, 83, 85, 86, 88, 90, 91, 93, 95, 96, 98, 100, 101, 103, 105, 106, 108, 110, 111, 113, 115, 116, 118, 120, 121, 123, 125, 126, 128, 130, 131, 133, 135, 136, 138, 140, 141, 143, 145, 146, 148, 150, 151, 153, 155, 156, 158, 160

Manipulative Name	Description	Used In Lesson
Flashcards	tally marks	3, 4, 5, 6, 7, 23
Flashcards	time equivalents	85, 86, 87, 141, 143, 151, 152, 155, 157
Flashcards	word numbers	21, 24, 25, 26, 31, 32, 40, 41, 49, 50, 51, 65, 76
Flour	5 lbs.	127
Fraction materials		82, 83, 84, 85, 89, 90, 91, 103, 104, 113
Graph paper	½ sheet per student	157
Hanger	1 per student	7
Happy face stamp, stickers		13
Liquid measure containers	English	141, 142, 143
Magnetic strips	12 inches	133
Markers	3	130
Meter stick		121
Mirror		138
Multiplication chart		64, 66, 68, 69, 70, 72, 79, 80, 82, 86, 90, 91, 96, 97, 99, 100, 101, 102, 103, 105, 106, 110, 111, 114, 116, 119, 120, 121, 122, 123, 126, 138, 139
Newspaper	magazines or online sources	99, 110
8 1/2 x 11 plain paper		137, 138, 143
Note pads	2	119
Number chart	0–99	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 17, 18, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 55, 56, 57, 58, 59, 61, 62, 63, 64, 67, 68, 74, 76, 77, 85, 109, 113, 146
Number chart	100–199	16, 32, 54, 55, 56, 76, 77, 145
Number line		41, 43, 44
Paper plate	1 per student	21
Pencils or pens		119, 129

Manipulative Name	Description	Used In Lesson
Place value materials		5, 6, 7, 11, 12, 13, 14, 22, 26, 27, 28, 31, 33, 34, 35, 36, 37, 38, 39, 44, 45, 46, 47, 48, 50, 51, 52, 53, 54, 63, 65, 66, 67, 88, 91, 92, 93, 96, 97, 100, 112
Place Value Pockets		7, 31, 32, 33, 47, 97, 141
Play money		68, 69, 70, 71, 74, 75, 76, 82, 83, 84, 85, 87, 88, 90, 92, 93, 94, 95, 105, 106, 107, 108, 119, 127
Posterboard	6 sheets	1, 10, 99, 109, 133, 143, 157
Real money		75, 87
Rubber bands	2 dozen	5, 7, 36
Ruler	12 inch	58, 71, 114, 115, 116, 118, 129, 130, 131, 132, 133, 134, 135, 142
Ruler	30 cm	41, 42, 43, 120, 121, 123, 137, 144
Shoe box		146
Solid models		109, 110, 115, 116, 127, 128, 139, 140, 151, 156
Stickers		13
Straws	20 per student	5, 7, 36, 37, 44, 45
String	8 inches	135
Thermometer	Fahrenheit	142
Thermometer model		143, 144, 145, 153, 154, 155, 159, 160
Yardstick		32, 59, 70, 115, 116, 117

Worksheet Duplication Masters

Where To Use
Mathematics Worksheets

In this handbook you will find eighty worksheets to be used as ***Duplication Masters.***

This chart shows where worksheets may be used.
You will need to **duplicate** any worksheet used more than once.

No.	Master Worksheet Name	Lessons Where Worksheets Are Used
1	Number chart 0–99	1, 2, 5, 8, 12, 13, 16, 18, 23, 28, 33, 38, 55
2	Ordinal numbers	3
3	Place value	5
4	Blank number chart	6
5	Number ladder	9
6	Addition drill sheet	11
7	Place value	13
8	Addition drill sheet	16
9	Counting over 100	17
10	Time (hour)	19
11	Addition drill sheet	21
12	Time	23
13	Addition drill sheet	26
14	Number ladder	27
15	Subtraction facts	29
16	Addition and subtraction drill sheet	31
17	Addition with carrying in tens' column	33
18	Addition and subtraction drill sheet	36
19	Place value	39
20	Addition and subtraction drill sheet	41
21	Time for 5 minutes	42
22	Time for 5 minutes	45
23	Addition and subtraction drill sheet	46
24	Addition with ones and tens double-digit answer	48
25	Blank clocks	49
26	Addition and subtraction drill sheet	51
27	Subtraction with borrowing	54
28	Addition and subtraction drill sheet	56
29	More and less	58
30	Addition and subtraction drill sheet	61
31	Multiplication chart	62
32	Missing addend	64
33	Addition and subtraction drill sheet	66
34	Sequences	68
35	Addition and subtraction drill sheet	71
36	Value of coins	74

Where To Use Mathematics Worksheets, continued:

No.	Master Worksheet Name	Lessons Where Worksheets Are Used
37	Addition and subtraction drill sheet	76
38	Multiplication by twos	77
39	Word number	79
40	Addition and subtraction drill sheet	81
41	Blank multiplication chart	82
42	Multiplication	84
43	Addition and subtraction drill sheet	86
44	Money (bills)	88
45	Addition and subtraction drill sheet	91
46	Shape sequence	92
47	Money	94
48	Addition and subtraction drill sheet	96
49	Multiplication of pairs	98
50	Bar graph	100
51	Addition and subtraction drill sheet	101
52	Fractions	103
53	Addition and subtraction drill sheet	106
54	Solve equations	107
55	Roman numerals	108
56	Addition, subtraction, and multiplication drill sheet	111
57	Inches	114
58	Addition, subtraction, and multiplication drill sheet	116
59	Solve equations	119
60	Addition, subtraction, and multiplication drill sheet	121
61	Pictograph	122
62	Centimeters	123
63	Addition, subtraction, and multiplication drill sheet	126
64	Fractions	127
65	Addition, subtraction, and multiplication drill sheet	131
66	Adding money	132
67	Fractions	135
68	Addition, subtraction, and multiplication drill sheet	136
69	Line of symmetry	139
70	Multiplication word problems	140
71	Addition, subtraction, and multiplication drill sheet	141
72	Shapes	142
73	Shapes	143
74	Addition, subtraction, and multiplication drill sheet	146
75	Cube pattern	146
76	Addition, subtraction, and multiplication drill sheet	151
77	Area	153
78	Multiplication	155
79	Addition, subtraction, and multiplication drill sheet	156
80	Map reading	159

APPEARANCE OF CONCEPTS

MATHEMATICS 2

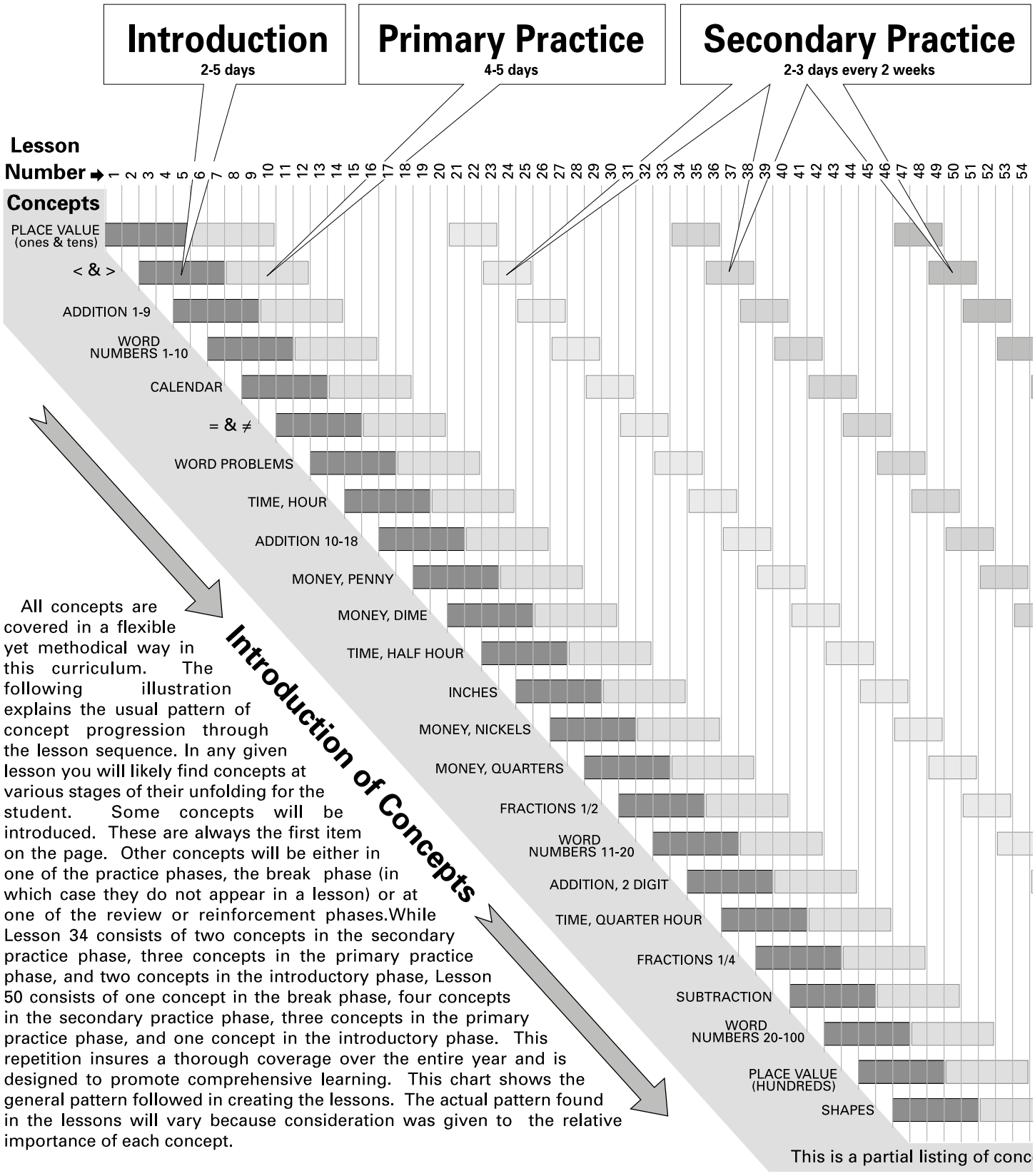
1. **COUNTING**	**Appears in Lesson**
By 1's to 100	1, 2, 3
By 5's to 100	4, 5, 6, 66, 67, 68, 69, 70, 72, 73, 74
By 10's to 100	7, 8, 9
By 2's to 100	10, 11, 12, 76, 77, 78, 79, 80, 81, 82, 83, 84
By 3's to 36	13, 14, 15, 16, 17, 86, 87, 88, 89, 90, 91, 92, 93, 94
By 6's to 72	18, 19, 20, 21, 22, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105
By 9's to 108	23, 24, 25, 26, 27, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115
By 4's to 48	28, 29, 30, 31, 32, 117, 118, 119, 120, 121, 122, 123, 124, 125
By 8's to 98	33, 34, 35, 36, 37, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145
By 7's to 84	38, 39, 40, 41, 42, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135
Counting by 1's	
from 100–999	17, 29, 32, 33, 38, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64
One to one	
correspondence	1, 2, 3, 4, 5
Even and odd numbers	
even numbers	55, 67
odd numbers	56, 68
even and odd numbers	77, 78, 98, 113, 114
addition	86, 87, 99
Tally marks	3, 4, 5, 6, 7, 23
Word numbers	
0–100	21, 22, 24, 25, 26, 31, 32, 40, 41, 51, 52, 53, 54, 55, 60, 61, 62, 63, 66, 67, 68, 71, 72, 73, 79, 80, 81, 84, 85, 86, 96, 97, 99, 113, 114, 124, 136, 137
100–999	49, 50, 51, 65, 66, 76, 79, 148, 149
Roman numerals	92, 93, 94, 95, 96, 108, 109, 122, 123, 144, 145, 149, 150, 156, 157
2. **SETS**	
Groups	1, 2, 3, 4, 5,
3. **NUMBER ORDER**	
Ordinal numbers	1, 2, 3, 4, 5, 16, 17, 28, 29, 52, 53, 69, 117, 130
Before and after	
by 1's	1, 2, 3
by 5's	4, 5, 6
by 10's	7, 8, 9
by 2's	10, 12
by 3's	13, 14, 15, 16, 17
by 6's	18, 19, 20, 21, 22
by 9's	25, 26, 27

by 4's	30, 31, 32
by 8's	35, 36, 37
by 7's	40, 41, 42
4. **Addition**	
Without carrying	
two numbers	
single digit	7, 8, 38, 39, 45, 46, 72, 80, 101, 106, 120
two numbers	
double digit	9, 40, 87
two numbers	
triple digit	10, 12, 15
two numbers	
four digit	11, 16
three numbers	
single digit	13
three numbers	
double digit	14
With carrying	
two numbers	
double digit	22, 23, 31, 32, 99
two numbers	
triple digit	24, 25, 33, 34, 35, 47, 48, 49, 50, 51, 52, 57, 58, 59, 60, 61, 62, 98, 130
two numbers	
four digit	26, 27, 37, 38, 39, 41, 53, 54, 55, 63, 64, 65, 66, 67, 68, 100, 101, 102, 103, 104, 106, 107, 108, 109, 110, 112, 113, 114, 115, 116, 123, 124, 125, 126, 129, 131, 132, 133, 135, 136, 139, 140
three numbers	
double digit	28, 29, 30, 73, 74, 75
three numbers	
triple digit	76, 77, 78, 79, 80, 81, 82, 83, 84, 91
three numbers	
four digit	86, 88, 143, 144, 146, 147, 148, 150, 151, 152
four numbers	
single digit	18, 19
four numbers	
double digit	154, 155, 156, 157, 158, 159
Horizontal and	
vertical addition	9, 19, 30, 50, 131
Word problems	21, 22, 23, 27, 28, 29, 31, 33, 34, 35, 43, 44, 45, 46, 47, 48, 49, 61, 62, 63, 71, 123, 147, 154, 159
Word sentences	51, 52, 53, 54, 55, 66, 67, 68, 79, 81, 85, 99, 113, 114, 124, 136, 137, 148, 149
Write own word problems	112, 125, 135, 136, 148, 160
Missing addends	61, 62, 63, 64, 69, 70, 71, 85, 88, 90, 91, 94, 95, 101, 102
Equations	107, 108, 109, 111, 119, 120, 121, 127, 128, 129, 139, 140, 141, 147, 148, 156

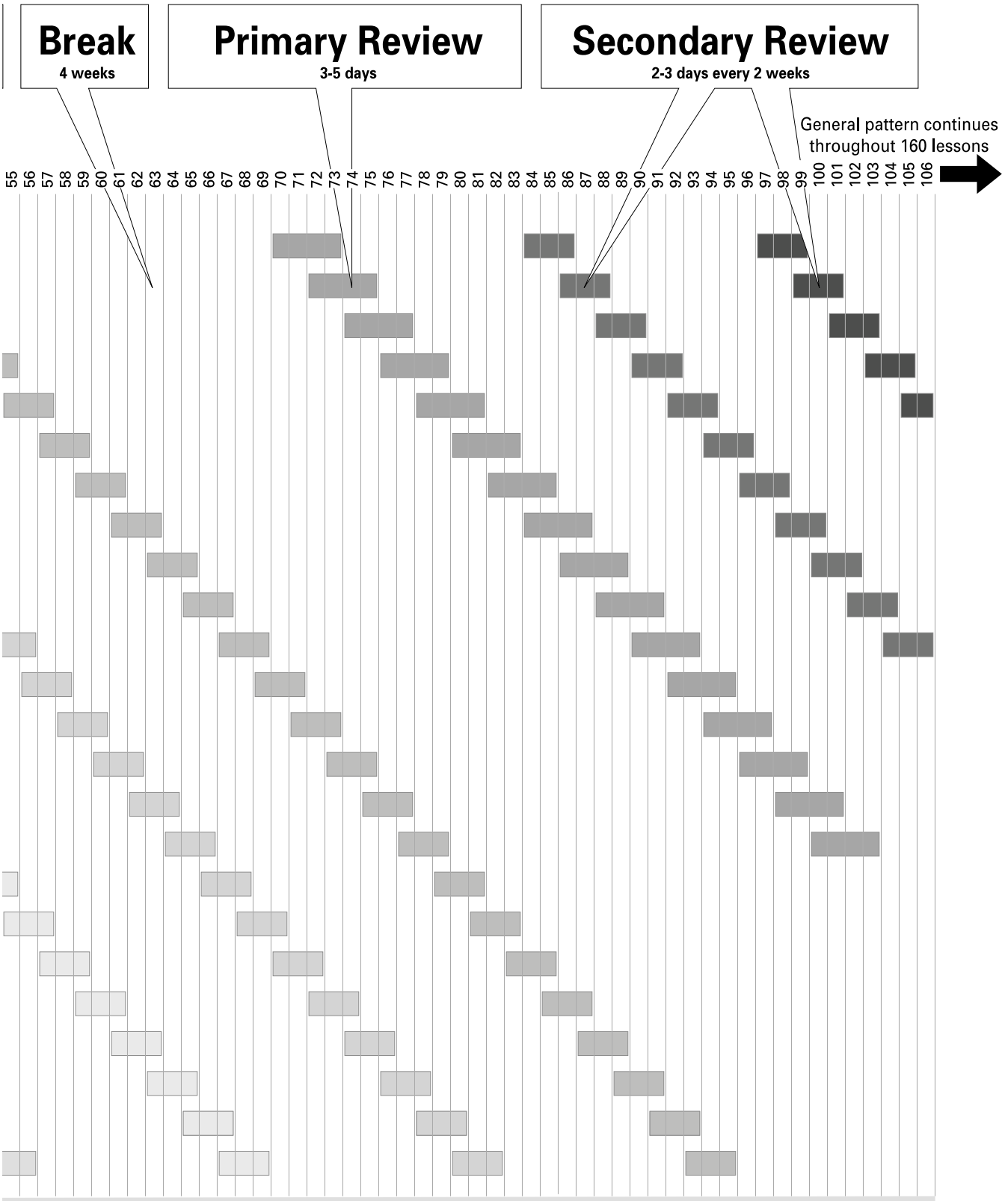
15. **GRAPHS**	
Bar graphs	98, 99, 100, 141, 156
Line graphs	109, 110, 111, 112, 118, 119, 142, 155
Pictographs	121, 122, 127, 128, 133, 134, 143, 157
Grids	144, 145, 150, 151, 156, 157
16. **MEASUREMENT**	
Inches	
whole	114
half	115, 116, 117, 118
quarter	129, 131, 132, 133, 134, 142, 143
Centimeters	120, 121, 122, 123, 130, 137, 144
English linear equivalents	116, 117, 131, 152, 155, 157, 158, 160
English weights equivalents	126, 127, 134, 151, 152, 155, 157, 158, 160
English liquid equivalents	141, 142, 143, 144, 152, 155, 157, 158, 160
Dozen	153
Optical illusion	132
Map reading	46, 159, 160
17. **TEMPERATURE**	
Fahrenheit thermometer	142, 143, 144, 145, 153, 154, 155, 159, 160
18. **ESTIMATION**	
	41, 42, 43, 44, 46, 47, 48, 58, 59, 70, 71, 84, 85, 109, 121, 122, 126, 133, 134, 145, 146
19. **RATIO**	
Compare two sets	105, 106, 107, 117, 118, 119, 129, 130, 138, 139, 150, 151
20. **AREA, PERIMETER, AND VOLUME**	
Area	131, 132, 133, 141, 142, 153
Perimeter	135, 136, 137, 138, 144, 154
Volume	146, 147, 148, 155
21. **DECIMALS**	
Money	131, 132, 145, 146, 147

Development of Concepts

GENERAL PATTERN:



All concepts are covered in a flexible yet methodical way in this curriculum. The following illustration explains the usual pattern of concept progression through the lesson sequence. In any given lesson you will likely find concepts at various stages of their unfolding for the student. Some concepts will be introduced. These are always the first item on the page. Other concepts will be either in one of the practice phases, the break phase (in which case they do not appear in a lesson) or at one of the review or reinforcement phases.While Lesson 34 consists of two concepts in the secondary practice phase, three concepts in the primary practice phase, and two concepts in the introductory phase, Lesson 50 consists of one concept in the break phase, four concepts in the secondary practice phase, three concepts in the primary practice phase, and one concept in the introductory phase. This repetition insures a thorough coverage over the entire year and is designed to promote comprehensive learning. This chart shows the general pattern followed in creating the lessons. The actual pattern found in the lessons will vary because consideration was given to the relative importance of each concept.



epts. A list of all concepts may be found in the Scope and Sequence on pages 14 and 15.

Lessons

Lesson 1

Concepts:

Counting by ones, sets, one-to-one correspondence, the number that comes before and after by ones, and ordinal numbers

Definitions: Cardinal numbers are counting numbers.
Ordinal numbers are numbers that show order like first, second, third, and fourth.

Objectives:

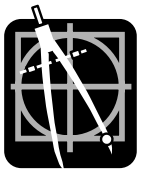
1. The student shall be able to count out loud by ones to 100.
2. The student shall be able to correctly count the objects in a given set and write the number.
3. The student shall be able to write the missing numbers from 0 to 49.
4. The student shall be able to write the numbers that come before and after a given number when counting by ones.
5. The student shall be able to correctly place a set of letters, numbered ordinally, on blanks corresponding to the appropriate ordinal numbers.
6. The student shall be able to draw a circle around the larger of two given numbers.

Teaching Tips:

1. The student(s) will be using *Worksheet 1* several times throughout the year. Have the student(s) place it in a folder to keep in their desks for easy access. Or you may want to collect the worksheet each time and hand it to the student(s) as the need arises. Be sure to keep the master copy for later use.

Materials, Supplies, & Equipment:

1. Number chart 0–99
2. Flashcards for ordinal numbers
3. Posterboard



Note: For a complete listing of materials and where they are used in the curriculum, see page 16 in the introduction.

Activities:

1. Have the student(s) count to 100 using the *number chart* if necessary. Remind them that the numbers used in counting are called cardinal numbers.

2. Have the student(s) read the directions for ***Student Activity One***. Count out loud, together, each of the objects in the first set. They should be able to count the remaining sets by themselves.

3. Ask the student(s) to write the numbers 0–10 on a clean sheet of paper. Check each number to see that it is correctly formed. When the student(s) can form the numbers 0–10 correctly, let them complete ***Student Activity Two*** on their own using a *number chart* only if needed.

4. Using the *number chart*, point to several numbers and have the student(s) tell the number that comes before and after each number. Remind them that the number that comes before is one less, one taken away, or one subtracted from the given number. The number that comes after is one more, plus one, or one added to the given number. *Worksheet 1* may be used by the student(s) for ***Student Activity Three***.

5. Have the student(s) read and spell the words on both sides (first, 1st) of the *flashcards for ordinal numbers* 1–10. Notice the spelling for the words "fifth" ("ve" changed to "f") and "ninth" (the "e" has been dropped). After putting the flashcards out of order, place the card that says "first" on the board rail. Ask a student to choose the next card that should be placed on the board rail to put them in order. Continue in the same way until all the cards have been arranged in correct order. Have the student(s) point to the first ordinal number in ***Student Activity Four***. Have them point to the second blank and tell you what letter should be placed on that blank (E). Continue helping those who need it until all blanks have been filled.

6. Since this may be the first time many student(s) have worked a cross-number puzzle, make a large copy of the puzzle in ***Student Activity Five*** on *posterboard* or on the board before class time. Have the student(s) read "1 across" and tell the answer. Write the answer for "1 across" on your cross-number puzzle as a guide for the student(s) to follow. The *number chart* may be useful. Complete the puzzle in the same manner.

7. After doing the first two sets of numbers with the student(s) in ***Student Activity Six***, they should be able to continue without further help.

Worksheet:

1. *Worksheet 1* – Number chart 0–99

Lesson 2

Concepts:

Counting by ones, before and after by ones, ordinal numbers, sets, and one-to-one correspondence

Objectives:

1. The student shall be able to count out loud by ones to 100.
2. The student shall be able to draw a circle around the smaller of two given numbers.
3. The student shall be able to write the missing numbers from 50 to 99.
4. The student shall be able to write the numbers that come before and after a given number when counting by ones.
5. The student shall be able to draw a line to match a written ordinal number to the corresponding abbreviated form of the ordinal number.
6. The student shall be able to correctly count the objects in a given set and write the number.

Teaching Tips:

1. When doing activity 6, discuss with the student(s) the different places they have seen and used ordinal numbers and their abbreviations. Suggest the newspaper, street signs, grades, names of companies, names of churches, and anniversaries.

Materials, Supplies, & Equipment:

1. Number chart 0–99
2. Flashcards for ordinal numbers
3. Counting chips

Activities:

1. Count out loud with the student(s) from 1 to 100 without the use of the *number chart*.

2. The student(s) should be able to complete ***Student Activity One*** independently once they have found the starting point at the number "1." Make the *number chart* available for those who need it. You may want to give the student(s) time to color the picture after completing the entire lesson.

3. After discussing the directions, the student(s) should be able to complete ***Student Activity Two*** on their own.

4. Allow the student(s) to complete ***Student Activity Three*** using *Worksheet 1* only if necessary.

5. Using the *number chart*, point to several numbers and have the student(s) tell the number that is one less and the number that is one more than each number. Discuss with them how the number that comes before is one less than the given number and the number that comes after is one more than the given number. *Worksheet 1* may be used by the student(s) in completing ***Student Activity Four*** if needed.

6. Using the *flashcards for ordinal numbers*, drill 1–10 and discuss with the student(s) the abbreviated form of ordinal numbers. Remind them of the difference between cardinal numbers (counting numbers) and ordinal numbers (order or which one). Together, read out loud the directions and each of the ordinal numbers in ***Student Activity Five***. Instruct the student(s) to draw the necessary lines without further help.

7. Have the student(s) count 15 *counting chips* and then several other sets at their desk. Remind them to say only one number as they point to each chip. Allow the student(s) to count each set in ***Student Activity Six*** by themselves. If any of them have a difficult time keeping the counting of objects clear in their minds, have them draw a line through each object as they count off the numbers to themselves.

Worksheet:

1. *Worksheet 1* – Number chart 0–99

Since courtesy is contagious, we need a good epidemic.

Lesson 3

Concepts:

Counting by ones, tally marks, before and after by ones, ordinal numbers, sets, and one-to-one correspondence

Objectives:

1. The student shall be able to count out loud by ones to 100.
2. The student shall be able to make a tally mark for each given object.
3. The student shall be able to write the number that is one more or one less than a given number.
4. The student shall be able to correctly place a set of letters, numbered ordinally, on blanks corresponding to the appropriate ordinal numbers.
5. The student shall be able to circle a given number of objects.
6. The student shall be able to correctly arrange a given set of numbers in the proper sequence.

Teaching Tips:

1. When doing activity 6, discuss with the student(s) the difference between ordinal numbers and cardinal numbers. Ordinal numbers tell which one. Cardinal numbers or counting numbers tell how many. Say several ordinal and cardinal numbers and have the student(s) tell if they show which one or how many.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts, tally marks, and ordinal numbers
2. Number chart 0–99

Activities:

1. Count out loud with the student(s) from 1 to 100 without the use of the *number chart*.
2. Using *flashcards for addition facts*, drill 1–18 with the answers showing to give the student(s) an accurate review. These would include sums that total 18 or less. After the next two lessons, the drill will be done without the answers showing.
3. Review with the student(s) how to make tally marks for one through ten. Remind them to make one mark for each object in the set. Pay special attention to the tally marks for five and ten. *Tally mark flashcards* may be a help. After reading the directions for ***Student Activity One***, complete the first three tally marks together. With the tally marks for one through ten on the board, the student(s) should complete the activity on their own.
4. Discuss with the student(s) the meaning of "the number that comes after" (one more, plus one, or one added). Point to several numbers on the *number chart* and have the student(s) tell the number that is one more. With the aid of the *number chart*, they should be able to complete ***Student Activity Two*** by themselves.
5. Discuss with the student(s) the meaning of "the number that comes before" (one less, one taken away, or one subtracted). Point to several numbers on the *number chart* and have the student(s) tell the number that is one less. With the aid of the *number chart*, they should be able to complete ***Student Activity Three*** independently.
6. Have the student(s) read and spell the words on both sides (first, 1st) of the *flashcards for ordinal numbers* 10–20. Notice the spelling of the word "twelfth" ("ve" changed to "f" as in five and fifth). Have the student(s) say the first ordinal number in ***Student Activity Four***. Have them point to the seventeenth blank and tell you what letter should be placed on that blank (E). Continue helping those who need help until all blanks have been filled.
7. Read the directions for ***Student Activity Five*** with the student(s). They should be able to finish drawing one circle around each set without further help.
8. After reading the directions, have the student(s) choose the smallest number listed in ***Student Activity Six*** and make an "X" on that number. Then write the number on the first blank. Now the student(s) need to choose the next smallest number listed, make an "X" on that number, and write the number on the second blank. The "X's" will enable the student(s) to know what numbers they have used. Continue with the same procedure until the student(s) can proceed on their own.

Worksheet:

1. *Worksheet 2* – Ordinal numbers

Lesson 4

Concepts:

Counting by fives, tally marks, ordinal numbers, before and after by fives, sets, and one-to-one correspondence

Objectives:

1. The student shall be able to count out loud by fives to 100.
2. The student shall be able to make tally marks for each given number.
3. The student shall be able to draw a line to match a written ordinal number to the corresponding abbreviated form of the ordinal number.
4. The student shall be able to write the numbers that come before and after a given number when counting by fives.
5. The student shall be able to correctly arrange a given set of numbers in the proper sequence.
6. The student shall be able to circle a given number of objects.
7. The student shall be able to write the missing numbers when counting by ones and by fives.

Teaching Tips:

1. As another method of doing activity 6, find the smallest number (23). Then have the student(s) find all the numbers that are in the thirties and arrange them in correct order. Find all the numbers that are in the forties and arrange them in correct order. Follow the same procedure with the fifties.

Materials, Supplies, & Equipment:

1. Number chart 0–99
2. Flashcards for addition facts, tally marks, and ordinal numbers

Activities:

1. Count out loud with the student(s) by fives to 100 using the *number chart*.
2. Using *flashcards for addition facts*, drill sums 1–18 with the answers showing to give the student(s) an accurate review. After the next lesson, the drill will be done without the answers showing.
3. Discuss with the student(s) the procedure used in making tally marks for the numbers from ten to twenty (e.g., eleven would be 2 groups of five plus 1 mark). *Tally mark flashcards* may be a help (tally marks on one side and numerals on the other side). Write the number "18" on the board. Allow the student(s) to tell how to make the tally marks for 18 (3 groups of 5 plus 3 marks). Continue to make the tally marks for the numbers to 20. Allow the student(s) to complete ***Student Activity One*** on their own but provide help where needed.
4. Have the student(s) read the *ordinal number flashcards* 10–20. This should be done out loud and together. Read the instructions for ***Student Activity Two*** to the student(s). They should be able to complete the activity without any further help.
5. Point to several multiples of five on the *number chart* as you discuss the meaning of "the number that comes before by fives" (five less, five taken away, or five subtracted) and "the number that comes after by fives" (five more, plus five, or five added). With the aid of the *number chart*, the student(s) should be able to complete ***Student Activity Three*** independently.
6. To begin ***Student Activity Four***, read the directions and have the student(s) find the smallest number to write on the first blank. They should be able to complete the activity without further help.
7. After making sure that the student(s) understand the directions, they should be able to complete ***Student Activity Five***, ***Six***, and ***Seven*** by themselves. Allow the student(s) to refer to the *number chart* if necessary.

It is a grand person who can laugh at himself with others and enjoy it as much as they do.

Lesson 5

Concepts:

Counting by fives, place value, tally marks, ordinal numbers, before and after by fives, sets, and one-to-one correspondence

Objectives:

1. The student shall be able to count out loud by fives to 100.
2. The student shall be able to write the correct number for a given set of place value blocks made of hundreds, tens, and ones.
3. The student shall be able to draw a line to match a given set of tally marks with their corresponding numbers.
4. The student shall be able to write the abbreviated form for the given ordinal numbers.
5. The student shall be able to write the numbers that come before and after a given number when counting by fives.
6. The student shall be able to draw an object a given number of times.

Teaching Tips:

1. If *place value materials* are not available for activity 3, you may use several groups of ten *straws* with *rubber bands* around them for tens. For the one hundreds, take ten groups of ten and put a large *rubber band* around them. Use single *straws* for the ones.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts, tally marks, and ordinal numbers
2. Place value materials
3. Number chart 0–99
4. Straws and rubber bands

Activities:

1. Count out loud with the student(s) by fives to 100 without using the *number chart*.

2. Using *flashcards for addition facts*, drill sums 1–18 with the answers showing to give the student(s) an accurate review. This is the last lesson the drill will be done with the answers showing.

3. Illustrate a three-digit number (364) using *place value materials* for hundreds, tens, and ones. Have the student(s) tell the number that has been illustrated by counting the hundreds by 100's, counting the tens by 10's, and counting the ones by 1's (e.g., 100, 200, 300, 310, 320, 330, 340, 350, 360, 361, 362, 363, 364). Do several illustrations of three-digit numbers in this manner. With the student(s), write the value of the first set of place value blocks in ***Student Activity One***. Allow them to complete the remaining sets of place value blocks on their own.

4. Using several different combinations of *tally mark flashcards* (e.g., the ten card, the five card, and the three card to represent 18), have the student(s) count by fives and ones to determine the number corresponding to the tally marks (count 5, 10, 15, 16, 17, 18). Count the first three sets of tally marks in ***Student Activity Two*** together and have the student(s) match the tally marks to the correct numbers. The student(s) should be able to count and match the remaining tally marks by themselves.

5. Show the student(s) the *ordinal number flashcards* and have them write the shortened form (abbreviation) for each number on a sheet of paper. Turn the *flashcards* over to enable the student(s) to check their answers. ***Student Activity Three*** should be completed by the student(s) without further help.

6. Using the *number chart*, point to several multiples of five. Have the student(s) tell the number that is five less and the number that is five more than each number. Remind them that "before" and "after" means to subtract and to add. The student(s) should be able to complete ***Student Activity Four*** independently using *Worksheet 1* if needed.

7. After reading the directions together, the student(s) should be able to complete ***Student Activity Five*** on their own.

Worksheets:

1. *Worksheet 3* – Place value

2. *Worksheet 1* – Number chart 0–99

Lesson 6

Concepts:

Counting by fives, place value, before and after by fives, and tally marks

Objectives:

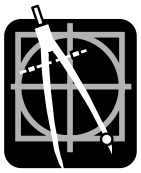
1. The student shall be able to count out loud by fives to 100.
2. The student shall be able to write the value of a given number of ones, tens, and hundreds.
3. When given three numbers, the student shall be able to circle the number that is greatest.
4. The student shall be able to write the number that is five more or five less than a given number.
5. The student shall be able to write the correct number for a given set of tally marks.
6. The student shall be able to correctly arrange a given set of numbers in the proper sequence.

Teaching Tips:

1. When doing activity 1, have the student(s) fill in the missing numbers on *Worksheet 4* and circle the numbers used when counting by fives. Tell them to write the numbers used in counting by fives in sequence at the bottom of the worksheet.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts and tally marks
2. Place value materials
3. Number chart 0–99



Activities:

1. Count out loud with the student(s) by fives to 100 without using the *number chart*.
2. Using *flashcards for addition facts*, drill sums 1–18 without the answers showing. The addition facts will be drilled for five lessons without the answers showing. Then the drill will be done using drill sheets from the worksheets.
3. Using *place value materials*, demonstrate for the student(s) that 4 tens equal 10 + 10 + 10 + 10. To find the value of 4 tens, count 10, 20, 30, 40. 4 tens equal 40. Ask the student(s) what 6 tens equal, 3 tens, 8 tens, etc. Follow the same procedure for 5 hundreds (5 hundreds equal 100 + 100 + 100 + 100 + 100). Have the student(s) tell the first answer of each column in ***Student Activity One*** together. They should be able to complete the activity alone.
4. Write several sets of three numbers (26, 28, 24) on the board. Ask the student(s) to choose the number that is the largest and the number that is the smallest. Then have them arrange the three numbers in sequence. Read the directions for ***Student Activity Two*** with the student(s). They should be able to complete the activity by themselves.
5. Point to several multiples of five on the *number chart* and have the student(s) tell the number that is five less and five more. Allow the student(s) to use a *number chart* if necessary when completing ***Student Activity Three*** and ***Four***.
6. Using several different combinations of *tally mark flashcards*, have the student(s) count by fives and ones to determine the number corresponding to the tally marks. After counting the first set of tally marks in ***Student Activity Five*** with the student(s), they should be able to complete the activity independently.
7. Ask the student(s) to read the directions and look at the first row of numbers in ***Student Activity Six***. They need to find the smallest number, put an "X" on it and write the number on the first blank. Now the student(s) need to choose the next smallest number listed, make an "X" on that number, and write the number on the second blank. Continue with the same procedure until the student(s) can proceed on their own.
8. The student(s) should be able to complete ***Student Activity Seven*** without assistance.

Worksheet:

1. *Worksheet 4* – Blank number chart

Lesson 7

Concepts:

Counting by tens, place value, tally marks, before and after by tens, and addition

Objectives:

1. The student shall be able to count out loud by tens to 100.
2. The student shall be able to write the value of a given number of hundreds, tens, and ones as a sum and the number it represents.
3. The student shall be able to write the correct tally marks for each given number.
4. The student shall be able to write the numbers that come before and after a given number when counting by tens.
5. The student shall be able to write the correct letter above a corresponding number that is the answer to an addition fact.
6. When given three numbers, the student shall be able to circle the number that is greatest.
7. The student shall be able to correctly arrange a given set of numbers in the proper sequence.

Teaching Tips:

1. Here are instructions for making *Place Value Pockets* for activity 3. On a heavy piece of 20" x 10" burlap or denim, sew three rows of three pockets each using three 5" x 10" strips of material (hemmed on one 10" side). Leave the extra length at the top to fold over a *hanger* or *½" wooden dowel* and stitch. Hem the other three edges. Label the first column of three pockets on the left "hundreds," the next "tens," and the right hand column "ones." Use single *craft sticks* or *straws* in the pockets for ones, ten *rubber banded* together for tens, and ten groups of ten *rubber banded* together for hundreds. This aid may also be used when teaching carrying and borrowing.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts and tally marks
2. Place value materials
3. Number chart 0–99
4. Place Value Pockets – cloth material 35" x 10", hanger or ½" wooden dowel, craft sticks or straws, and rubber bands

Activities:

1. Count out loud with the student(s) by tens to 100 using the *number chart*.

2. Using *flashcards for addition facts*, drill sums 1–18 without the answers showing. The addition facts will be drilled for three more lessons without the answers showing. Then the drill will be done using drill sheets from the worksheets.

3. Write "3 hundreds + 8 tens + 6 ones = ____ + ____ + ____ + = _____" on the board. Use *place value materials* to aid the student(s) as they tell the value of each place and the number represented (300 + 80 + 6 = 386). Do this for several other groups of hundreds, tens, and ones. As the student(s) complete ***Student Activity One***, check to see that they are not making any repetitious mistakes.

4. Have the student(s) choose the necessary *tally mark flashcards* needed to represent several given numbers. If the first number is 27 guide them in choosing the twenty, five, and two cards (count by fives to the largest number without going over 27 and then count by ones). Use the *number chart* as an aid for the student(s) to see that 27 is two more than 25. Complete the first two numbers in ***Student Activity Two*** with the student(s) before allowing them to finish on their own.

5. Point to several multiples of ten on the *number chart* as you discuss the meaning of "the number that comes before by tens" (ten less, ten taken away, or ten subtracted) and "the number that comes after by tens" (ten more, plus ten, or ten added). With the aid of the *number chart*, the student(s) should be able to complete ***Student Activity Three*** independently.

6. To decode the message in ***Student Activity Four***, the student(s) must solve the addition fact and put the letter associated with the fact on the blank that has the sum beneath it. Have the student(s) look at the first addition fact (3 + 5) and write the sum beside it (8). Ask them what letter they will put on the blank above the number 8 (N). Then ask them what (7 + 6) equals and write the sum beside it (13). Have the student(s) tell what letter they will put on the blank above the number 13 (E). Allow them to complete the activity on their own if they are capable.

7. The student(s) should be able to complete ***Student Activity Five*** and ***Six*** independently.

Lesson 8

Concepts:

Counting by tens, place value, before and after by tens, and addition

Objectives:

1. The student shall be able to count out loud by tens to 100.
2. The student shall be able to write the number of hundreds, tens, and ones in a given number and write their value as a sum.
3. The student shall be able to write the numbers that come before and after a given number when counting by tens.
4. When given three numbers, the student shall be able to circle the number that is least.
5. When given three digits, the student shall be able to write the smallest triple-digit number possible.
6. The student shall be able to write the correct answer for addition problems of two single-digit numbers.

Teaching Tips:

1. For variety when introducing ***Student Activity One***, write "638 = 6 _____ + 3 _____ + 8 _____" on the board. Have the student(s) tell where to write the words "hundreds," "tens," and "ones." Then have them tell the value of 6 hundreds, 3 tens, and 8 ones. Discuss with them what digit is in the hundreds' place, tens' place, and ones' place. Then name the digit and have the student(s) tell if it is in the hundreds', tens', or ones' place.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts
2. Number chart 0–99

Activities:

1. Count out loud with the student(s) by tens to 100 without using the *number chart*.

2. Using *flashcards for addition facts*, drill sums 1–18 without the answers showing. The addition facts will be drilled on a daily basis for two more lessons without the answers showing. Then the drill will be done using drill sheets on the worksheets and flashcards.

3. Write "473 = ___ hundreds + ___ tens + ___ ones = ___ + ___ + ___" on the board. Ask the student(s) how many hundreds, tens, and ones are in 473. Write the numbers in the blanks. Then ask them what the value of the hundreds', tens', and ones' digit is. Do several more examples like this on the board. The student(s) should then be able to complete ***Student Activity One*** on their own after they do the first set of blanks together.

4. Using the *number chart*, point to several multiples of ten. Have the student(s) tell the number that is ten less and ten more than each number. Remind them that "before" and "after" means to subtract and to add. The student(s) should be able to do ***Student Activity Two*** independently using *Worksheet 1* if needed.

5. Write several sets of three double-digit numbers (43, 47, 41) on the board. Ask the student(s) to choose the number that is the greatest and the number that is the least. Explain that the number that is least is the number that is smallest. Then have them arrange the three numbers in sequence. Read the directions for ***Student Activity Three*** with the student(s). They should be able to complete the activity by themselves.

6. Write three single-digit numbers on the board (4, 2, 7). Ask the student(s) to see how many different three-digit numbers they can make from the given numbers (427, 472, 274, 247, 724, 742). Have them choose the smallest number (247). Discuss the relationship of the value of each digit (smallest to largest). Ask "How do you find the smallest number possible using the three digits?" (Arrange the digits smallest to largest.) Put several other sets of three single-digit numbers on the board (include the zero which must be the second digit not the first) and allow the student(s) to tell the smallest three-digit number they can make. After finding the first two numbers in ***Student Activity Four***, allow the student(s) to finish without any further help.

7. Use ***Student Activity Five*** as a quick check to see which student(s) have not mastered their addition facts and may need some further drill on an individual basis.

Worksheet:

1. *Worksheet 1* – Number chart 0–99

Lesson 9

Concepts:

Counting by tens, place value, before and after by tens, and addition (horizontal to vertical)

Objectives:

1. The student shall be able to count out loud by tens to 100.

2. The student shall be able to write the correct number when given the value of the digits in the hundreds', tens', and ones' place.

3. The student shall be able to write the number that is ten more or ten less than a given number.

4. When given three numbers, the student shall be able to circle the number that is least.

5. The student shall be able to write the missing numbers when counting by tens.

6. The student shall be able to write the correct sum of a horizontal addition problem rewritten vertically.

Teaching Tips:

1. When doing activity 5, suggest that the student(s) look at the digit in the tens' place when comparing three double-digit numbers. The smallest digit in the tens' place is the smallest number. The largest digit in the tens' place is the greatest number. If two numbers have the same digit in the tens' place, then they must compare the numbers in the ones' place.

Materials, Supplies, & Equipment:

1. Flashcards for addition facts

2. Number chart 0–99

Activities:

1. Count out loud with the student(s) by tens to 100 without using the *number chart*.

2. Using *flashcards for addition facts*, drill sums 1–18 without the answers showing. The addition facts will be drilled on a daily basis for one more lesson without the answers showing. Then the drill will be done using drill sheets from the worksheets and with flashcards.

3. Write several problems on the board similar to those in ***Student Activity One*** (e.g., 400 + 60 + 3 = ___, 700 + 20 + 0 = ___, etc.). Have the student(s) tell what number is represented by asking what digit will go in the hundreds', tens', and ones' place and write the digits on the corresponding blanks. Have the student(s) do the first two problems in ***Student Activity One*** together and finish the remaining ones by themselves.

4. Point to several multiples of ten on the *number chart* and have the student(s) tell the number that is ten less and ten more. Allow the student(s) to use a *number chart* if necessary when completing ***Student Activity Two*** and ***Three***.

5. Write several sets of three double-digit numbers (e.g., 52, 38, 29) on the board. Ask the student(s) to choose the number that is the greatest and the number that is the least. Explain that the number that is least is the same as the number that is smallest. Then have them arrange the three numbers in sequence (least to greatest). Have the student(s) read the directions carefully before starting ***Student Activity Four***.

6. The student(s) should be able to complete ***Student Activity Five*** on their own.

7. Write a horizontal double-digit addition problem on the board. Discuss with the student(s) how to write this problem vertically. Write the first double-digit number by itself. Underneath it, write the second double-digit number being careful to place the tens and ones in their corresponding columns. Write the answer by first adding the ones' column and then adding the tens' column. Write "57 + 8" on the board. Discuss the placing of the number "8" in the ones' column (under the "7" of 57) when the problem is written vertically. Work the first two problems in ***Student Activity Six*** together and then let them do the remaining ones independently.

Worksheet:

1. *Worksheet 5* – Number ladder

Lesson 10

Concepts:

Counting by twos, place value, before and after by twos, and addition

Objectives:

1. The student shall be able to count out loud by twos to 100.
2. The student shall be able to write the correct digit in the hundreds', tens', or ones' place in a given number.
3. The student shall be able to write the missing numbers when counting by twos.
4. The student shall be able to write the numbers that come before and after a given number when counting by twos.
5. When given three digits, the student shall be able to write the smallest triple-digit number possible.
6. The student shall be able to write the correct sum of two triple-digit numbers.

Teaching Tips:

1. When doing activity 3, do a careful check with the student(s) to determine which ones have not mastered their addition facts by using the *flashcards for addition facts*. Make provisions for those who still need drill time. Student(s) could drill student(s), teacher drill student(s), brother/sister drill student(s), or parent drill student(s). Those who still need it should make a practice of drilling 10 minutes extra each day.

Materials, Supplies, & Equipment:

1. Number chart 0–99
2. Flashcards for addition facts
3. Posterboard

Activities:

1. Administer ***Test 1***. There is no time limit for the tests. If you choose, you may administer the test one day and complete the lesson the following day. If you plan to give the test and complete the lesson on the same day, make sure to plan for sufficient time.
2. Count out loud with the student(s) by twos to 100 using the *number chart*.
3. Using *flashcards for addition facts*, drill sums 1–18 without the answers showing. This is the last day for daily drill of the addition facts using flashcards. In the next lesson, the drill will be done using drill sheets from the worksheets and flashcards.
4. Write several three-digit numbers on the board. Ask the student(s) what digit is in the tens', the hundreds', and the ones' place changing the order each time. In ***Student Activity One***, do the first three sentences together to be sure that the student(s) understand the directions. Let them finish the activity on their own.
5. Using the *number chart*, show the student(s) how counting by twos is adding two to the number each time. On the number chart, they count over two numbers to find the next number each time. Some student(s) may need to use the *number chart* when doing ***Student Activity Two***.
6. Point to several multiples of two on the *number chart* as you discuss the meaning of "the number that comes before by twos" (two less, taken away, or subtracted) and "the number that comes after by twos" (two more, plus two, or two added). Using the *number chart*, they should be able to complete ***Student Activity Three*** independently.
7. Write several sets of three single-digit numbers on the board. Ask the student(s) to tell how they write the smallest number possible using the three digits (arrange the digits smallest to largest). On a sheet of paper, have the student(s) write the answers for the sets written on the board. Let the student(s) say the answers as you write them on the board. Give help if needed as the student(s) do ***Student Activity Four***.
8. As the student(s) begin ***Student Activity Five***, remind them to add the ones' column first, then the tens' column, and last the hundreds' column. Check the procedure the student(s) use.
9. Guide the student(s) through each step of ***Student Activity Six***. Be sure they understand the concepts of "across" and "down." Have them point to the "1" on the puzzle and tell how many boxes are going across (2) and down (3). Using a sheet of *posterboard* or the board, draw the number puzzle large enough to show the student(s) how to write the answers in the boxes.