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ABSTRACT

This document contains sample units for each of 21 mastery objectives in grade 3 mathematics. Each of these units includes a statement of the mastery objective, a description of what the student should be able to do as a result of completing the activities, a statement of the mathematical concept being covered, teaching suggestions, a list of materials, and text references. (DT)

Appendix D

MATHEMATICS BASELINE INSTRUCTIONAL UNITS

dallas independent school district

EXAMPLE UNIT

Mastery Objective: #1. Identify the place value of one of the digits when given a four-digit number. (A)

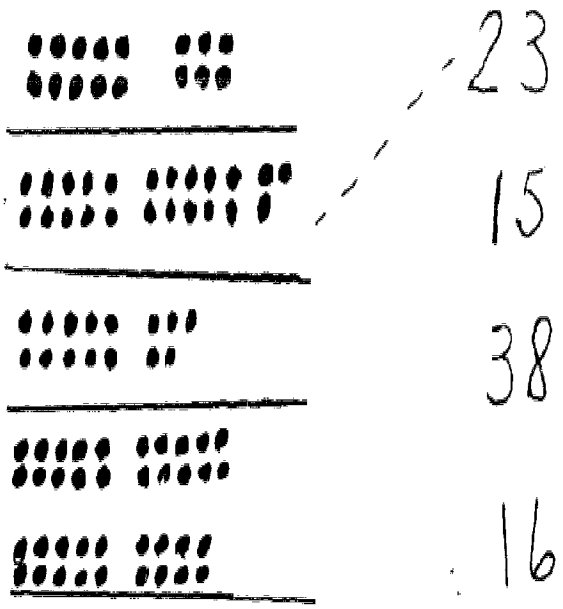
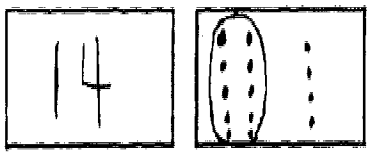
Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can name the place value of each of the digits in a four-digit number.

Focus	Ideas	Resources/Materials
Group objects in sets of ones and tens and identify the numeral that names the set	Group a set of objects according to tens and ones. Have a child tell how many groups of ten there are and how many ones there are in the set. Make a place value chart with pockets for tens and ones. Let the child find the numeral card that represents the number of ones and place it in the ones pocket. Do the same with the tens. Color code the pockets (tens - red; ones - green) and make a set of numeral cards in each color to help children distinguish between tens and ones. Explain that the numeral on the right represents the number of ones and the numeral on the left represents the number of tens.	Sets of objects Place value chart (large size and individual) Two sets of numeral cards (0-9) Worksheets Game cards (2 sets - numbers and sets) Bingo cards (with two-digit numbers) Flash cards (place value of two-digit numbers for Bingo) Bingo markers Chalk Chalkboard Pencils Flannelboard Felt cut-outs (hundred squares)

Focus	Ideas	Resources/Materials
	Worksheet: (Examples) Match the sets of dots to the correct numeral.  Enrichment: Game - Old Hat Write a one- or two-digit number on each of 12 to 24 cards. Then make a corresponding set of cards which shows by dots or bundles the equivalent of each number card. Examples:  Mix both sets of cards together, withdraw one card (leaving a card that has no matching card), and deal all of the other cards to 2 to 6 players.	Bibliography Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Company, pages 1-11. Powell, Joyce Elaine, Math Activities Handbook, DISD, page 18. Henderson, George L. and Glenn, Lowell D., Let's Play Games in Mathematics, Volume 3, National Textbook Company, pp. 11-12. Nichols, Eugene D., Holt School Mathematics, Holt, Rinehart and Winston, Inc., pp. 4-5, 11-15.

Focus	Ideas	Resources/Materials
	Each player should match cards in his hand to make books of two cards each. Each book should have a number card and the equivalent set card. Players should then take turns drawing cards from one another in an attempt to complete books which can be discarded. The player who holds the odd card at the end of the game is the "Old Hat."	
Identify the place value of either digit when given a two-digit numeral	Use a place-value chart to show two-digit numerals. Label the pockets on the chart to show "tens" and "ones." Place numeral cards in the pockets to show a two-digit number, such as 35. Ask a child to identify the ones place and the tens place on the chart. Then let him tell what number is in the ones place and in the tens place. Restate the number as 3 tens and 5 ones. Repeat this using other numerals. Let children answer questions about numbers, such as "What is the place value of 3 in 35?" and "How many tens are in 35?"	

Focus	Ideas	Resources/Materials

Worksheet: (Examples)

Write each numeral under the correct column to show the number of ones and tens.

Numeral	Tens	Ones
52		
76		
87		
31		

Enrichment:
Game - Place-Value Bingo

Make Bingo cards on tagboard or cardboard cut to 5" x 6." Mark them off into 1-inch squares. Write BINGO across the top row and FREE in the middle square. Fill in the rest of the squares with two-digit numerals. Example:

B	I	N	G	O
31	59	77	64	16
17	92	81	52	71
95	26	FREE	38	60
85	73	48	29	63
27	40	33	24	84

(Note: Cards may be made with fewer answer squares to make a shorter game. Example: 4" x 5")

Focus	Ideas	Resources/Materials
	Make flash cards which can either be read from or shown, depending on the needs of the children. They can be on any size card. Make one to correspond with each numeral used on the Bingo cards. Show the numerals in terms of tens and ones, such as 46 = 4 tens 6 ones. Examples: 3 tens 1 one | 6 tens 4 ones | 8 tens 5 ones Give each child a Bingo card and markers. The person who is calling draws a flash-card and reads it or shows it. Each child checks his card for the numeral that corresponds to the flashcard. If he has it he may place a marker on that space on his card. The first person to fill all five spaces across a row, down a column, or in a diagonal is the winner.	
Identify ten tens as one hundred	Give a child a set of objects and ask him to count out one hundred of them. Put the extra objects away. Now ask him to group the objects into sets of tens and to tell how many sets of ten he has. Help him to see that there are ten tens in one hundred. Write one hundred on the chalkboard to show what the numeral looks like.	

Focus	Ideas	Resources/Materials
Identify the place value of each digit in a three-digit numeral	Display the place value chart with the pockets labeled "hundreds," "tens," and "ones." These may be color coded to distinguish between the places. Place numeral cards, color coded to match the pocket they belong in, in the pockets. Explain the value of each numeral and use blocks to illustrate if necessary. Place other cards in the chart to represent other numbers and ask children to identify the numerals according to their value and to tell which place various numbers are in. State a number orally and ask a child to choose the numerals that represent the number and place them in the place value chart. This can be done using individual place value charts so that each student may do his own as the teacher calls the number and then show it to the teacher by holding it up. Ask children to name the place value of certain numerals. Worksheet: (Examples) Write each numeral under the correct column to show their place value.	

Numeral	Hundreds	Tens	Ones
573	5	7	3
258			
861			
342			

Focus	Ideas	Resources/Materials
	Enrichment: Place-Value Bingo may be made to correspond with three-digit numerals by writing three-digit numerals on the cards and stating them in terms of hundreds, tens, and ones on the flashcards.	
Identify ten hundreds as one thousand	Use the flannel board and felt hundred squares (squares of felt marked to show one hundred squares on each). Place 1 hundred square on the flannel board. Ask a child to tell how many squares are on the flannel board and the numeral that is represented. Continue by adding 1 hundred square at a time to the flannel board and having a chile name the numeral that is represented. When the tenth square is placed on the flannel board, let a child tell how many hundreds are represented and then explain that ten hundreds are the same as one thousand. Write 1000 on the chalkboard to show how it looks.	

Focus	Ideas	Resources/Materials
Identify the place value of each digit in a four-digit number	Use the place-value chart with the thousands place labeled. Repeat the activities for identifying place value of three-digit numbers and add the fourth digit. Worksheet: (Examples) Write each numeral under the correct column.	

Numeral	Thousands	Hundreds	Tens	Ones
3928	3	9	2	8
5641				
8907				
6437				

Enrichment:
Game: Write numerals with as many as four digits on cards. Make a corresponding set of cards that shows the same numerals in terms of ones, tens, hundreds, and thousands. Example:

6384	6 thousands 3 hundreds 8 tens 4 ones

Place one set of cards along the chalk tray. Pass the other cards out to the children. They take turns going to the chalk board to pick the card that matches the one they have. (Note: This can also be used like the "Old Hat" game for small groups of children.)

Focus	Ideas	Resources/Materials

Evaluation:
Indicate the place value of given numerals by filling in the columns with the correct numerals.

Numeral	Thousands	Hundreds	Tens	Ones
7238	7	2	3	8
5154				
2980				
4763				

Write the correct numeral:
5 thousands, 6 hundreds, 2 tens, 8 ones = _____
9 thousands, 0 hundreds, 4 tens, 8 ones = _____
4 thousands, 2 hundreds, 1 ten, 3 ones = _____

Fill in the blank with the missing numeral:
6815 = 6 thousands, 8 hundreds, ___ ten, 5 ones
9076 = ___ thousands, 0 hundreds, 7 tens, 6 ones

Put an X in the box that names the place value of each numeral. 4382 =

4

X	Thousands
	Hundreds
	Tens
	Ones

3

	Ones
	Hundreds
	Tens
	Thousands

8

	Tens
	Ones
	Hundreds
	Thousands

2

	Thousands
	Tens
	Ones
	Hundreds

Focus	Ideas	Resources/Materials
	Enrichment: Game - Write the Number One child is the caller, who stands in front of the class and says "I am thinking of a number that has 4 thousands, 6 hundreds, 3 tens, and 5 ones." He then calls on one member of the class to go to the chalkboard and write the numeral that was named (4,635). If the person responds correctly, he becomes the caller and the activity continues. If his response is incorrect, the original caller names another number and calls on someone else.	

Mastery Objective: Identify the place value of one of the digits when given a four-digit number.

Science	Health	Creative Arts	Recreative Arts
See #20 Mastery Objective. Will be in Science unit on maps, "Where Am I?" (Science mini-course), which should reinforce Math.	The student will demonstrate by discussion and example the need for the basic foods on a daily basis. The children will keep a record of a week's food intake (possibly limited to one meal--breakfast or lunch). Each day's intake will be analyzed by Basic Four food group. Allow discussion as to alternative of one food group only allowed per week and elicit responses to probable results. Place-value comparisons in food: Divide two segmented fruits (grapefruit) into parts to demonstrate. Example: 2.0 .2 .02 A good bulletin board activity: Divide board into four parts, keyed to each food group. Children place food picture on each part from recorded data.		Mark off a four-digit number on the floor. Hop to the number that represents unit. Example: 4521. ____ Start.

BIBLIOGRAPHY

PRINT MATERIALS:

Eicholz, Robert E., Elementary School Mathematics, 2nd ed., Menlo Park, California, Addison-Wesley, 1968.

Henderson, George L., Let's Play Games in Mathematics, Skokie, Illinois, National Textbook Co., 1970.

Nichols, Eugene D., Holt School Mathematics, Holt, Rinehart and Winston, Inc., 1970.

Powell, Joyce Elaine, Mathematics Activities Handbook, Dallas, DISD, 1974.

Bendick, Jeanne, Take a Number, New York, Whittlesey House, 1961.

Brain teasers, facts, and puzzles.

Waller, Leslie, A Book to Begin On, New York, Holt, Rinehart and Winston, Inc., 1960.

A good supplement to reinforce most basic concepts.

AUDIO-VISUAL MATERIALS:

Place Value (Filmstrip), Troll Associates, 1974. 13fs col. (Exploring New Math)

Includes: Introduction to Sets; Members and Sets; Mathematical Relationships; Counting Numbers and Whole Numbers; Addition; Subtraction; More Sets; Number Line; Addition and Subtraction; Fractions; Multiplication; Division.

Numbers, Numerals and Operations (Filmstrip), Eye Gate, 1974. 10fs col. (Seeing the Use of Numbers, Set V).

Contents: Addition and Subtraction of Whole Numbers; Multiplication and Division of Whole Numbers; Factors and Products; Working With Fractions; Estimating Answers; Interpreting Answers; Measures; Perimeters and Areas; Addition and Subtraction of Fractions; Fractions in Decimal Notation.

EXAMPLE UNIT

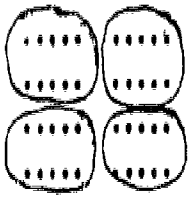
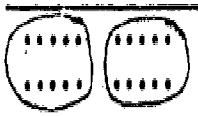
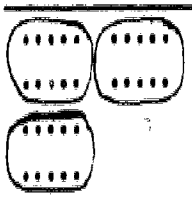
Mastery Objective: #2. Write a four-digit number in expanded form. Area: Math

(B) Learning Level: 3

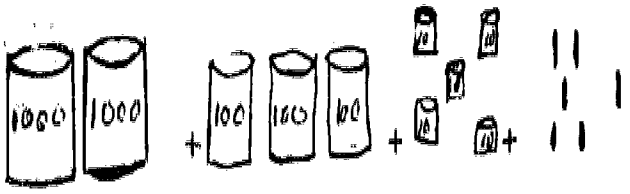
Approximate Time of Unit:

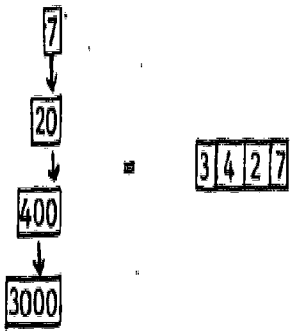
What should student say, write, or do as a result of completing activities: Student can write a four-digit number in expanded form.

Focus	Ideas	Resources/Materials
Identify the place value of each digit in a four-digit number.	See activities for Mastery Objective #1, Level 3.	Sets of objects Chalkboard Chalk Worksheets Pencils Pocket Chart Markers Cards 3" x 3" 3" x 5" 3" x 6" 3" x 9" 3" x 12" Place Value Building Set #7566, Ideal School Supply, Oak Lawn, Illinois 60654 Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Company, pp. 1-11. Henderson, George L. and Glenn, Lowell D., Let's Play Games in Mathematics, Vol. 3, National Textbook Company, pp. 39-40.

Focus	Ideas	Resources/Materials
Write the numeral that represents a given number of tens.	Display a set of objects that can be evenly divided into groups of tens. Ask a child to group the objects by tens and tell how many sets there are. Let the child write that numeral on the chalkboard. Ask another child to tell how many objects there are in all and write that numeral on the chalkboard. Repeat this activity with other groups of tens. Ask what is meant by a certain number of tens (example: 5 tens means 50). Ask a child to write the numeral on the chalkboard that represents the tens. Worksheet: (Examples) Indicate how many tens and write the numeral that represents it.  = 4 tens = 40  = ___ tens = ___  = ___ tens = ___	Nichols, Eugene D., Holt School Mathematics, Holt, Rinehart and Winston, Inc., pp. 6, 12-13, 22-27.

Focus	Ideas	Resources/Materials
Write the numeral that represents a given number of hundreds.	Repeat the above activities using hundreds instead of tens.	
Write the numeral that represents a given number of thousands.	Repeat the above activities using thousands instead of tens or hundreds.	
Write a four-digit number in expanded form	Practice writing numerals that represent given numbers of ones, tens, hundreds, and thousands by orally stating a number of ones, tens, hundreds, or thousands and letting children write the numeral that represents each on the chalkboard. (Example: "7 tens" = 70, "6 hundreds" = 600.) State a four-digit number orally and ask a child to write the component parts of the number on the chalkboard to show its expanded form. (Example: 3000 + 200 + 90 + 4) Explain that the parts are put together to make the four-digit number and that the plus (+) sign is used to show the joining.	

Focus	Ideas	Resources/Materials
	Worksheet: (Examples) Fill in the blanks with the correct numerals:  2000 + 300 + 50 + 6 = 2356 Evaluation: Fill in the blanks with the missing number: 2356 = 2000 + 300 + 50 + 6 8142 = ___ + 100 + 40 + 2 1670 = 1000 + ___ + 70 + 0 4651 = ___ + 600 + _ + 1 Write these numbers in the expanded form: 9728 = 9000 + 700 + 20 + 8 3587 = ___ + ___ + __ + _ 5201 = ___ + ___ + __ + _ 7364 = ___ + ___ + __ + _ Enrichment: Building Place Value: Make sets of cards for each place--ones, tens, hundreds, and thousands. Each set should have 9 members (1-9), (10-90), (100-900), (1000-9000).	

Focus	Ideas	Resources/Materials
	Examples: 1 10 100 1000 (Make the sizes proportionate such that the 1 card is half the size of the 10, a third of the 100, and a fourth of the 1000.) 2 20 200 2000 3 30 300 3000 Digits may be color coded by place value for clarity. Give child numerals to build and show that by placing cards on top of each other he can build a numeral that looks like the original. Example: 3427 =  Expanded Form: Materials needed include four sets of nine 3" x 3" cards, each set a different color, one set of four 3" x 3" cards, again each set a different color, and one set of 20 3" x 5" cards. Mark one set of 3" x 3" cards using the numerals 1000, 2000. . ., 9000, another using 100, 200. . ., 900, another using 10, 20. . ., 90, and the fourth using 1, 2. . .9. Mark three of the remaining cards using the "+" sign and the last using the "=" sign. On the 20 3" x 5" cards write four-digit numerals that are to be expanded, and on the back write the expanded form.	

Focus	Ideas	Resources/Materials
	Place all of the cards face up on a table. Have one pupil choose one of the 20 larger cards and place it in the pocket chart or on the chalkboard tray. Pupils take turns, each selecting one of the 3" x 3" cards, numeral or symbol, and place it in the pocket chart to form the given numeral in expanded notation. The larger card can be "reversed" to check the result. By varying the numbers on the large cards the activity can be adapted to differing pupil abilities. Illustration: 	

Mastery Objective: Write a four-digit number in expanded form.

Science	Health	Creative Arts	Recreative Arts
	We can choose what we eat from what is available to us. See attached sheet, "Shopping With Mother" (several numbering techniques practiced).		
	The student will plan a meal of several elements, combine them as needed, be able to re-separate them into their original components.		
	Given several food choices, the children (grouped by meal) will plan a balanced menu for that meal, including each food group. Foods may be combined raw or cooked by their own choices as in salads, stews, etc. Each group will present their own menu, given basic preparation guides. Each presentation must include a chart showing each dish's elements put into proper food groups.		

Shopping with Mother

The James family is home from its vacation. Irene is going to the store with her mother to help her carry the groceries. Mother is buying the food which the family will need for lunch and dinner today and breakfast tomorrow morning.

1. Irene is 9. She lives with her father and mother and younger brother.
   How many people are in the family? _____

2. First Irene and her mother buy the fruit. They will need enough so that each one will have two kinds. Irene wants oranges for breakfast and bananas for dinner.
   How many oranges will they need for breakfast? _____

3. Irene is having a friend for dinner.
   How many bananas will they need for dinner? _____

4. Next they buy the vegetables. There are many that look nice and fresh. They decide to have raw carrots for lunch and green beans for dinner. They buy 1 bunch of carrots at 15¢ a bunch, and 1 pound of green beans at 25 cents a pound.
   How much do they spend for their vegetables? _____

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5. They buy 5 pounds of potatoes. 2 pounds will be enough for dinner today. They want to save money. Most food is cheaper in large amounts.
   How many pounds will they have left for the rest of the week? _____

6. They will have egg sandwiches for lunch. Irene's mother decides to buy the small eggs. They are as fresh as the large ones and cost less. The small ones are 55 cents a dozen and the large ones are 67 cents a dozen.
   How much does Mrs. James save on one dozen? _____

7. Each one in the family eats an egg every day.
   How many eggs will they need for two days? _____

8. Irene and her mother still must buy a loaf of bread, cereal, butter or margarine, and meat.
   How many more things must they buy? _____

9. Father, mother, brother, and Irene drink 3 glasses of milk every day.
   How many glasses of milk does the whole family drink in one day? _____

BIBLIOGRAPHY

PRINT MATERIALS:

Eicholz, Robert E., Elementary School Mathematics, 2nd ed., Book 3, Menlo Park, California, Addison-Wesley, 1968.

Henderson, George L., Let's Play Games in Mathematics, Vol. 3, Skokie, Illinois, National Textbook Co., 1970.

Nichols, Eugene D., Holt School Mathematics, New York, Holt, Rinehart and Winston, Inc., 1974.

Dilson, Jesse, The Abacus: A Pocket Computer, New York, St. Martin's Press, 1968.

The use and history of the abacus.

G. B. Kalata. "Communicating Mathematics: Is It Possible?" Science 187 (February 28, 1975): 732.

AUDIO-VISUAL MATERIALS:

Place Value Building Set (Game), Ideal (n.d.), various pieces.

Place Value (Filmstrip), Troll Associates, 1974. 13 fs col. (Exploring New Math)

Contents: Introduction to Sets; Members of Sets; Mathematical Relationships; Counting Numbers and Whole Numbers; Addition; Subtraction; More Sets; Number Line; Addition and Subtraction; Fractions; Division; and Multiplication.

EXAMPLE UNIT

Mastery Objective: #3. Identify its printed form when given the word name of a number from 0 to 10,000. (C)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can identify the printed form when given the word name of a number from 0 to 10,000.

Focus	Ideas	Resources/Materials
Identify the place value of each digit in a four-digit number.		
Identify the printed forms of the numerals 0-9.		

Focus	Ideas	Resources/Materials
Identify the printed form of the multiples of ten.		
Identify the printed form of two-digit numbers.		
Identify the term "hundred."		

Focus	Ideas	Resources/Materials
Identify the printed form of three-digit numbers.		
Identify the term "thousand."		
Identify the printed form of four-digit numbers.		

EXAMPLE UNIT

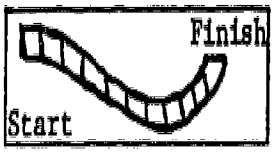
Mastery Objective: #4. Add two- and three-digit numbers (without regrouping). (D)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student should add two- and three-digit numbers without regrouping.

Focus	Ideas	Resources/Materials
Add two one-digit numbers with sums less than 10 using the plus (+) sign.	Practice the basic addition facts through games and reinforcement activities. Games: Addition Bingo. Bingo card has sums written in the squares. Caller calls basic addition facts. Child covers square if he has that sum. Race Track. Cards are supplied that have basic facts on them. Child moves according to the sum of the fact he draws.  game board	Addition Bingo Game board Markers Fact cards for addition Dimes Worksheets Felt hundred squares Flannel board Pencils "Marching Around the Number Wheel," Math Readiness Addition and Subtraction, Hap Palmer. Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Co., 1968. Nichols, Eugene D., Holt School Mathematics (3), Holt, Rinehart and Winston, Inc., 1974 (not adopted currently).

Focus	Ideas	Resources/Materials
Name the place value of each digit in a three-digit number and write its expanded form.	Let children play "Marching Around the Number Wheel." See activities for Mastery Objectives #1, #2, Level 3.	
Add two groups of tens with sums less than 100.	Place two sets of dimes on a table. Ask the child how much money is in each group and how much there is when the groups are put together. Worksheet: Find the sums. 10¢ 10¢ 10¢ + 10¢ 10¢ 10¢ = 80 10¢ 10¢ 30 + 50 = 80 30 + 20 = ____ 50 70 60 + 10 = ____ +40 +20	

Focus	Ideas	Resources/Materials
Add two groups of hundreds with sums less than 1000.	Place two groups of hundred squares on the flannel board. Have the child tell the sum of the two groups. Worksheet: 100 100 + 100 100 100 100 = 600 200 + 400 = 600 400 + 100 = ___ 200 800 +500 +100 300 + 600 = ___	
Add two- and three-digit numbers without regrouping.	Review the expanded form of each addend. Using the chalkboard, demonstrate by adding the ones and the tens and the hundreds in the expanded form and then converting to the standard form. Then show how to add by using the ones column, tens column, etc. Example: 27 = 20 + 7 +32 = 30 + 2 50 + 9 = 59 tens | ones 2 | 7 + 3 | 2 5 | 9 516 = 500 + 10 + 6 +253 = 200 + 50 + 3 700 + 60 + 9 = 769 hundreds | tens | ones 5 | 1 | 6 + 2 | 5 | 3 7 | 6 | 9	

Focus	Ideas	Resources/Materials
	Worksheet: Use problems similar to those above. Evaluation: Solve these problems. 52 65 15 328 824 573 +12 +31 +42 +661 +175 +213 Story problems: 1. Bill bought a kite that cost 63¢ and string that cost 36¢. How much money did he spend? 2. Mr. Smith drove 352 miles on Monday and 416 miles on Tuesday. How far did he drive?	

EXAMPLE UNIT

Mastery Objective: #5. Add two- or three-digit numbers (with regrouping). (E)

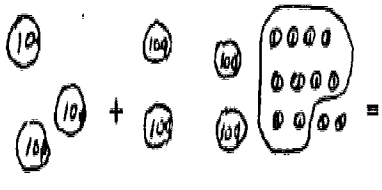
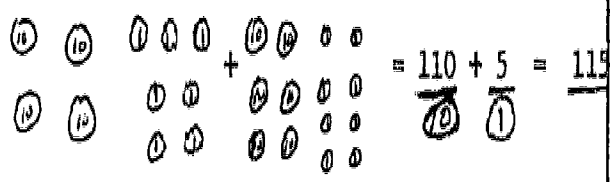
Area: Math

Learning Level: 3

Approximate Time of Unit: _____

What should student say, write, or do as a result of completing activities: Student should add two- and three-digit numbers with regrouping.

Focus	Ideas	Resources/Materials
Name the place value of each digit in a three-digit number and write its expanded form.	See activities for Mastery Objectives #1 and #2, Level 3.	Flashcards Game board Addition fact cards Markers Chalk Chalkboard Paper Pencil Worksheets Dimes Pennies Dollars
Add two one-digit numbers with sums of ten or more; know what "+" means.	Practice the basic addition facts whose sums are 10 or more and rename the sum according to tens and ones. Use flashcards or a race track-type game for practice. Solve: 7 3 6 5 2 +4 +9 +8 +5 +9	Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Company. Nichols, Eugene D., Holt School Mathematics (3), Holt, Rinehart and Winston, Inc.

Focus	Ideas	Resources/Materials
	Worksheet: (Examples)   Use expanded forms to show the addition of two two-digit numbers with regrouping. Example: 34 = 30 + 4 +17 = 10 + 7 40 + 11 = 40 + 10 + 1 = 50 + 1 = 51 Explain the process as the problem is demonstrated on the chalkboard. Show that the ones column must be renamed as tens and ones and then grouped with the other tens. When in its simplest expanded form, the numerals are joined to show the sum. Solve: Find the sums using the expanded form. 58 43 27 45 +16 +29 +36 +47 Demonstrate on the chalkboard another way to add two two-digit numbers. For example: 34 +17 11 +40 51	

Focus	Ideas	Resources/Materials
	Explain that when the sum of the ones column can be renamed as ones and tens, the ones must be represented in the ones column and the tens in the tens column. Then the two digits in the tens column are added and are written as tens. In the case where they are equal one hundred or more, the hundreds column must be utilized. The short form of this may then be introduced. Example: 34 +17 51 Solve: 26 55 86 +38 +74 +99	
Add two three-digit numbers with regrouping.	Repeat the above exercises. For the money exercise, add dollar bills. For the board demonstrate including regrouping in the hundreds column: Examples: (Expanded Form) 356 = 300 + 50 + 6 +285 = 200 + 80 + 5 500 + 130 + 11 = 500 + 100 + 30 + 10 +1 = 600 + 40 + 1 = 641 (Long Form) (Short Form) 356 11 +285 356 11 +285 130 641 500 641 Solve: 598 652 239 623 +327 +198 +584 +492	

Focus	Ideas	Resources/Materials
Add two groups of tens with sums of one hundred or more.	Use the chalkboard to show the addition of two groups of tens. Show two groups of tens and have a child tell how many there are. Let them rename the sum according to ones, tens and hundreds. Review 10 tens as being one hundred. Example: 60 +50 110 = 1 hundred, 1 ten, 0 ones Solve: 30 +90 = 120; 50 +80; 30 +70; 90 +40; 70 +60	
Add two two-digit numbers with regrouping.	Place some dimes and pennies on the table. Have the child group them according to dimes and pennies. Then let him group according to tens and ones. Show that ten pennies may be renamed as a dime. Exchange the groups of ten pennies for dimes. Then ask the child to find the sums of the ones and the tens. Repeat this using two groups, both with dimes and ten or more pennies. Ask him to group the tens and ones to find a sum. The pennies may be traded for dimes to show that all tens need to be together.	

Focus	Ideas	Resources/Materials
	Evaluation: Find the sums: 74 82 45 61 35 +28 +96 +87 +89 +28 654 827 542 376 +397 +576 +859 +982	

EXAMPLE UNIT

Mastery Objective: #6. Name the fraction which represents the shaded area when given a geometric figure divided into as many as eight parts with one or more parts shaded. (F)

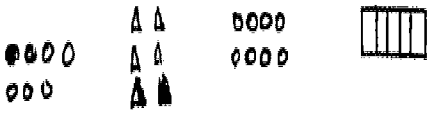
Area: Math

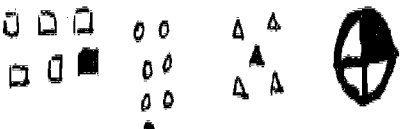
Learning Level: 3

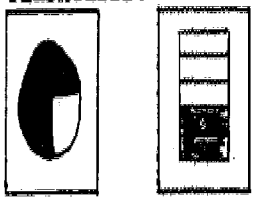
Approximate Time of Unit: _____

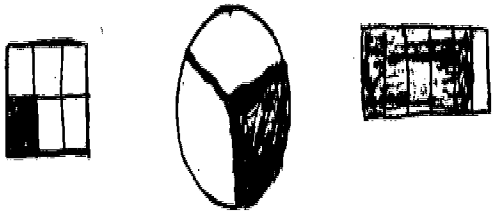
What should student say, write, or do as a result of completing activities: Student can name the fraction which represents the shaded area when given a geometric figure divided into as many as eight parts with one or more parts shaded.

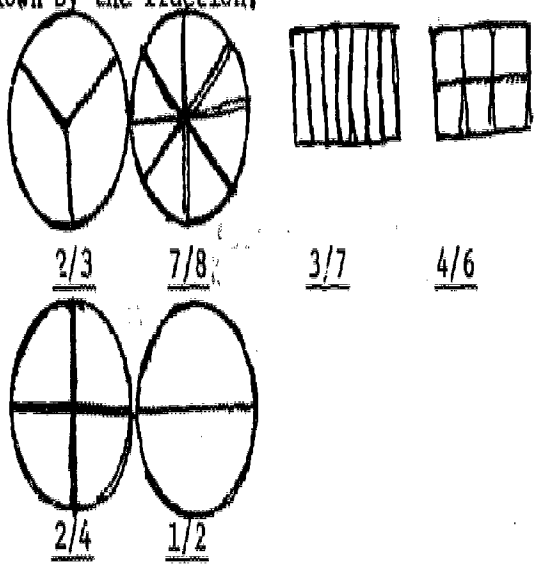
Focus	Ideas	Resources/Materials
Name and draw fractional parts of geometric figures in terms of halves, thirds, and fourths.	Use a candy bar or an apple to show their fractional parts in terms of halves, thirds, and fourths. Cut an apple in half and let a child tell you how many pieces you have. Discuss that the apple was cut into halves and that there are two pieces. Show the comparison of one part of the apple to the two parts of the whole by writing the fraction 1/2 on the chalkboard. Tell the children that one part of two is called one half. Repeat this for thirds and fourths. Illustrate that one shape can be cut into either halves or thirds or fourths and still be the same size by using paper plates (1 whole plate, 1 cut into halves, 1 cut into thirds, 1 cut into fourths). Place the whole plate on the table and ask how many halves you will need to cover it. Place the two halves on the whole plate and repeat for thirds and fourths. Label each fractional part of the plates. Help the children to see that 2/2, 3/3, and 4/4 are the same as 1, or as the whole.	Apples Candy bars Chalk Chalkboard Knife Paper plates Worksheet Pretend pies (4 c. flour 1 c. salt 1 1/2 c. water pie pan) Bingo cards (with fractions written on them) Bingo calling cards (figures with the fractional parts shaded) Markers Crayons Pencils Flannel board Felt cut outs

Focus	Ideas	Resources/Materials
	Example: Worksheet: Write the fraction for the shaded part of each geometric figure.  1/4 ___ ___ ___ Draw an orange and color 1/2 of it orange. Draw a ball and color 1/4 of it red Draw a box and color 1/2 of it green. Draw a triangle and color 1/2 of it blue.	
Name and draw fractional parts of geometric figures in terms of fifths, sixths, sevenths, and eights.	Repeat the above exercises. Provide practice in coloring in a given fractional part of a set. Worksheet: Example: Color the given fractional part of each set.  1/7 1/6 1/8 1/5	

Focus	Ideas	Resources/Materials
	What part of these sets is shaded?  1/6 ___ ___ ___	
Name fractional parts of geometric figures divided into as many as eight parts using fractions with numerators greater than one.	Make "pretend pies" (4 c. flour, 1 c. salt, 1 1/2 c. water, cut before baking) or use paper plates cut into fractional parts. Begin by using one fraction family. Example: Use a paper plate cut into thirds. Ask one child to come forward and take a piece of pie. Ask him how much of the pie he will get. Then have another child come get a piece. Ask him how much of the pie he has. Ask the two children to tell how much of the pie they have together or how many thirds they have. Repeat this exercise using the different fractions from halves to eighths with numerators greater than one.	

Focus	Ideas	Resources/Materials
	Fractional Bingo Bingo cards have fractions written in each space. Flashcards have geometric figures on them with various fractional parts shaded. Caller holds up flashcards. Child places marker on the fraction that represents the fractional part that is shaded on the card. Flashcards: 2/3 | 1/7 | 3/4 3/8 | Free | 1/2 2/5 | 1/3 | 1/8 	
Recognize equivalent fractions for geometric figures divided into as many as eight parts.	Use the paper plates that have been cut into fractional parts. Give one half to one child, two fourts to another and ask them to compare their pieces to see who has the most pie. They should see that they both are the same size. Repeat this exercise using other children and other equivalent fractions (1/3 - 2/6, 1/4 - 2/8, 1/2 - 3/6, 1/2 - 4/8, 2/3 - 4/6, 3/4, 6/8, etc.).	

Focus	Ideas	Resources/Materials
	Use the flannel board and felt cut out sets to show that sets are equivalent. Place a set of objects on the flannel board, half of which is one color and half another color. Discuss how many are one color and which fraction names them; then talk about what part of the set is one color (one half). Use other equivalent sets and do the same thing. Example: Worksheet: Match the fraction to the figure that shows it.  2/4 1/2 1/4 2/8 Evaluation: Write the fraction that is represented by the shaded area of each figure.  2/4 or 1/2 _____ _____  _____ _____ _____	

Focus	Ideas	Resources/Materials
	Color the fractional part of the figure shown by the fraction.  2/3 7/8 3/7 4/6 2/4 1/2	

Mastery Objective: Name the fraction which represents the shaded area when given a geometric figure divided into as many as eight parts with one or more parts shaded.

Science	Health	Creative Arts	Recreative Arts
		Girls make a circle with left shoulder in center and walk to a drum. One boy goes in the other direction taking two steps to a girl's one. He goes twice as fast, dividing the girl's time in half, both halves the same size. Other boys join in the circle. Now count the number of steps. Girls take four walking steps. Boys divide the beat in half. Draw a circle. Divide into quarters. Divide quarters into half again. Each piece is 1/8 of the whole circle. Boys run to eighth notes. Girls walk to quarter notes. Do this in reverse by switching roles.	

EXAMPLE UNIT

Mastery Objective: #7. Name the value of money in cents, when given an illustration of no more than five coins and/or bills whose sum is less than $10.00. (G)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities:

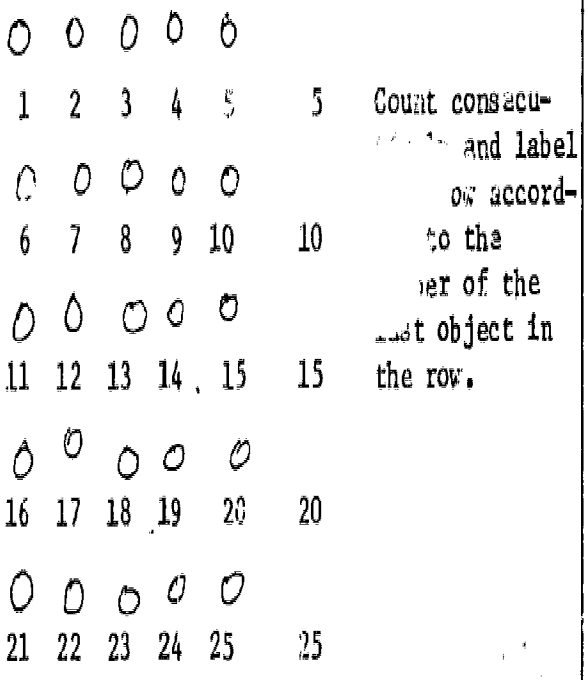
Focus	Ideas	Resources/Materials
Identify and name pennies, nickels, dimes, quarters, half dollars.	Display pennies, nickels, dimes, quarters, and half dollars. Let children point to each coin as it is named. Then let them name the coins. Give each child some coins and let him tell which coins he has.	Pennies Nickels Dimes Quarters (play or Half dollars real One dollar bills money) five dollar bills Ten dollar bills Pictures of coins and bills Objects of different values: piece of gum pencil tablet box of crayons pair of scissors Cards to label objects Objects for play store Supplemental Reading - John E. Maker, Ideas About Money.
Give the value for pennies, nickels, dimes, quarters, and half-dollars.	Display pictures of each coin. Have a child identify a penny and tell how many pennies it is. Give him four more pennies and ask him how many pennies he has in all. Have him identify a nickel and tell how many cents it is worth. Under the picture of the penny, write 1 cent and under the nickel 5 cents. repeat this for each of the other coins. Talk about how many pennies in a nickel, nickels in a dime, etc.	

Focus	Ideas	Resources/Materials
	Place five objects having different values (such as a piece of gum, a pencil, a tablet, a box of crayons, and a pair of scissors) on the table. Label each with a card marked with how many cents it costs (1 cent or 1¢, 5 cents or 5¢, 10 cents or 10¢, 25 cents or 25¢, 50 cents or 50¢). Place several coins in a box. Ask a child to choose a coin from the box that could be used to buy a specific object. For the pencil, he should choose a nickel. Continue, allowing other children to choose the coin they could use to buy the different objects. Then remove the half dollars and let a child fine the coins necessary to buy the 50¢ object. Repeat this using other combinations of coins to buy different objects. Discuss which coins have the same values. Worksheet: Write the value of each coin collection. 1. = _____ 2. = _____ 3. = _____ 4. = _____	Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Company, pp. 5, 65, 76-79, 90-91. Nichols, Eugene D., Holt School Mathematics (3), Holt, Rinehart and Winston, Inc., pp. 36-39.

Focus	Ideas	Resources/Materials
	Look at the chart. Choose two coins to buy each item and put an X in the proper columns.	

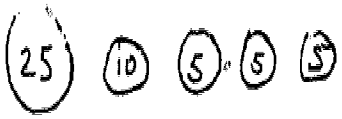
Item and Cost	Half Dollars 50¢	Quarters 25¢	Dimes 10¢	Nickels 5¢	Pennies 1¢
 30¢		X		X	
 15¢					
 55¢					

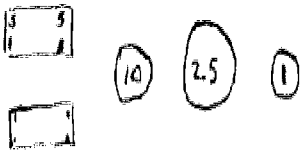
Count by ones to 100.	Place several pennies on a table and ask a child to count them. He should count each as one. Do this with sets of 5, 10, 25, 50, and 100 pennies.	

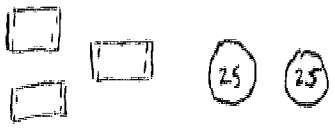
Focus	Ideas	Resources/Materials
Count by fives to 100.	Place a nickel on a table and have a child identify it. Ask how many pennies are in a nickel and place five pennies next to the nickel. Ask how many pennies there would be if there were two nickels. Place another nickel on the table. If the child needs help to respond, place five more pennies on the table to represent the nickel. Explain that each nickel is five pennies; therefore we can count by fives when we are counting nickels: one nickel = 5, 2 nickels = 10, 3 nickels = 15, etc. Use the penny-nickel equivalents for children who need more help. It can also be shown on the chalkboard by drawing circles to represent the pennies or by placing the pennies in a similar pattern. Draw the circles in each row to represent each nickel. Example:  1 2 3 4 5 — 5 6 7 8 9 10 — 10 11 12 13 14 15 — 15 16 17 18 19 20 — 20 21 22 23 24 25 — 25 Count consecutively and label the row according to the number of the last object in the row.	

Focus	Ideas	Resources/Materials
	Help children to see the pattern developed by counting by fives. Determine how many nickels it takes to make one collar as well as how many nickels in a dime, a quarter, etc.	
Count by tens to 100.	Repeat the above exercise using pennies and quarters. Determine how many quarters it takes to make one dollar.	
Count by fifties to 100.	Repeat the above exercise using pennies and half dollars. Determine how many half dollars it takes to make one dollar.	

Focus	Ideas	Resources/Materials
Count by hundreds to 1000.	Repeat the above exercise using pennies, one dollar bills, five dollar bills, and ten dollar bills. Determine how many pennies in ten dollars and how many dollars in ten dollars.	
Identify and name one dollar bills, five dollar bills, and ten dollar bills.	Display a one, a five, and a ten dollar bill. Ask a child to identify each. Display pictures of each bill and have children point to the correct bill as it is named.	
Give the value for one, five and ten dollar bills.	Explain that the number in the corners of each bill tell how many dollars that bill is worth. Let a child tell how many dollars are in a five dollar bill and in a ten dollar bill	

Focus	Ideas	Resources/Materials
Add two- and three-digit numbers with regrouping.	See activities for Mastery Objective #5, Level 3.	
Name the value of no more than five coins.	Show five coins or illustrations of five coins and ask children to determine their value. Example:  The children can find the value of like coins and then find the sums of the coins (25 + 10 + 15 = 50), or use what they know about skip counting to determine the value. Repeat using other combinations of coins.	

Focus	Ideas	Resources/Materials
Name the value of no more than five coins and bills.	Show five coins and bills or illustrations of them and ask children to determine their value. Example:  Encourage the children to determine the value of the coins first by using the best way for them. Then let them determine the value of the bills. Coins: 10 + 25 + 1 = 36 Bills: 1 dollar + 5 dollars = 6 dollars Now determine the value of both as being 6 dollars and 36 cents. To express the value in cents, the child must determine that because one dollar is 100 cents then 6 dollars is 600 cents. Add: 600 + 36 = 636 cents. Repeat, using other combinations of coins and bills. Set up a play store where children can buy objects of different values and determine how much they will need to pay for them. Evaluation: Find the value for each set of coins and bills.	

Focus	Ideas	Resources/Materials
	1. 	
	2. 	
	3. 	

EXAMPLE UNIT

Mastery Objective: #8. Subtract a one-digit number from a two- or three-digit number (without regrouping). (H)

Area: Math

Learning Level: 3

Approximate Time of Unit: _____

What should student say, write, or do as a result of completing activities: Student can subtract a one-digit number from a two- or three-digit number without regrouping.

Focus	Ideas	Resources/Materials
Subtract whole numbers less then ten; know what "-" means.	Display a set of nine or less objects. Let a child remove some of the objects and tell how many are left. Illustrate on the chalkboard how the problem is written. Example: $\begin{array}{r} 9 \\ -3 \\ \hline 6 \end{array}$ This shows how many objects you had, how many were removed, and how many are left. Repeat this several times with different problems. Use games to reinforce the basic subtraction facts. A Race Track game can be used with subtraction flash cards. Game board:  Child draws a card and moves the number of spaces indicated by the answer in the problem. Subtraction Bingo: Use Bingo cards with numbers less than 5 in each square. Flash cards for calling have subtraction facts for whole numbers less than ten. Caller can show the card or say the fact orally.	Sets of objects Game board Subtraction flash cards Markers Pennies Beans Counters Worksheet Pencils Chalkboard Chalk "Marching Around the Number Wheel," Math Readiness Addition and Subtraction, Hap Palmer. Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Company. Nichols, Eugene D., Holt School Mathematics, Holt, Rinehart and Winston, Inc.

Focus	Ideas	Resources/Materials
	Children may play "Marching Around the "Number Wheel." Worksheets: (Examples): 3 5 9 6 8 7 6 -2 -2 -4 -5 -5 -1 -3 Give children counting beads or sets of objects or counters to use as an aid in subtracting (if they need them). Word problems: (Examples) 1. John has 8 marbles. He gave 5 to Bill. How many marbles did John have left? 2. Sue had 6 dolls. She gave 2 to Sally. How many did Sue have?	
Subtract zero from any number less than ten.	Place several sets of objects on a table. Count the objects in each set. Write the number on the chalk board or on a card by the set. Have a child look at a set of objects, touch the objects, and then show that his hands are empty. Recount the objects in the set and show that since nothing was removed from the set the number of objects left is the same as the number written on the card or on the chalkboard.	

Focus	Ideas	Resources/Materials
	Have several children each hold a set of pennies. The sets should have 1, 2, 3, 4, 5, 6, 7, 8, or 9 members. Ask a child to tell how much money he has and how much he will have left if he does not spend any of it. As each problem is worked orally with a child, write it on the board. (Example: Say: If you have 7 pennies and you spend none, you will have 7 pennies left. Write: 7 -0 7 Repeat this with each child who has a set of pennies. Help them to see that they will have the same thing left as they began with when nothing has been taken away. For additional practice, use counters or beans. Tell children to make a set of a given number of counters. Tell them to take zero away from their set. Then they can tell you how many are left. These may be illustrated on the chalkboard. Worksheet: (Examples) 7 6 5 4 3 2 1 -0 -0 -0 -0 -0 -0 -0	

Focus	Ideas	Resources/Materials
Subtract a one-digit number from a two-digit number without regrouping.	Using the expanded form, show that ones are subtracted from ones and tens from tens. Example: 18 = 1 ten + 8 ones = 10 + 8 - 6 = 6 ones = 6 1 ten + 2 ones = 10 + 2 = 12 Illustrate this on the chalkboard. Explain that when there are no tens in the problem, you are really subtracting zero; therefore, that part of the answer will be the same with which you began. When the child understands this, show the short form: 18 − 6 = 12 Worksheet: (Examples) Work these problems using the expanded form. 16 = ___ tens + ___ ones = ___ + ___ - 5 = ___ ___ ones = ___ - ___ ___ tens + ___ ones 26 = ___ tens + ___ ones = ___ + ___ - 3 = ___ ___ ones = - ___ ___ tens + ___ ones 57 = ___ tens + ___ ones = ___ + ___ - 1 = ___ ___ ones = - ___ ___ tens + ___ ones = Work these problems using the short form: 38 65 12 83 77 49 - 2 - 4 - 1 - 3 - 4 - 8	

Focus	Ideas	Resources/Materials
Subtract a one-digit number from a three-digit number without regrouping.	Repeat the above exercise with the addition of the hundreds place. Explain that hundreds must be subtracted from hundreds and when there is no hundred to be subtracted the answer is the same as the number of hundreds with which you began. Example: Expanded form: 258 = 2 hundreds + 5 tens + 8 ones = 200 + 50 + 8 - 7 — 7 ones = - 7 2 hundreds + 5 tens + 1 one = 200 + 50 + 1 = 251 Short form: 258 - 7 251 Worksheet: (Examples) 389 = _ hundreds + _ tens + _ ones = __ + __ + _ - 6 — - _ ones = _ _ hundreds + _ tens + _ ones = __ + __ + _ 654 = _ hundreds + _ tens + _ ones = __ + __ + _ - 2 = - _ ones = __ + __ + _ _ hundred + _ tens + _ ones = __ + __ + _	

Focus	Ideas	Resources/Materials

Evaluation:

Solve these problems:

85	79	69	77	56	82	94	16
- 2	- 3	- 4	- 7	- 3	- 1	- 3	- 1

438	657	125	489	234	305
- 2	- 5	- 0	- 8	- 1	- 2

Word problems:

1. Mark had 95 marbles. He dropped 3 on the ground. How many did he still have in his jar?

2. Betty had 156 pennies. She spent 5 pennies at the store. How many pennies did Betty have left?

EXAMPLE UNIT

Mastery Objective: #9. Subtract a one- or two-digit number from a two-digit number (with regrouping). (I)

Area: Math

Learning Level: 3

Approximate Time of Unit: _____

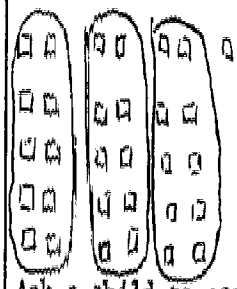
What should student say, write, or do as a result of completing activities: Student can subtract a one- or two-digit number from a two-digit number with regrouping.

Focus	Ideas	Resources/Materials
Subtract whole numbers less than ten and understand the minus (-) sign.	Use sets of objects to show subtraction of whole numbers less than ten. Place objects on the table, remove some, and ask how many are left. Make worksheets or use subtraction fact sheets to practice the basic subtraction facts. Reinforcement: Games that require subtraction of whole numbers less than 10. Subtraction Bingo Race Track game (many variations) Have You Seen My Geese? Choose a group of about six children to stand in a circle. Pin a large number on the front of each child. Teacher will be the farmer, children are the geese. Teacher goes to someone in the circle and says, "Have you seen my geese?" Child replies "No. How many have you?" Teacher replies, "Three less than you have." If child's number is 5, he must subtract 3 from 5, find the child wearing the number 2 and chase number 2 around the outside of the circle. If number 5 can catch number 2 before he gets back to his place, number 2 is out and must choose another child to take his place in the circle.	Sets of objects Worksheets Subtraction fact sheets Chalk Chalkboard Lined paper Pennies Dimes Blocks Elementary School Mathematics, Second Edition, Book 3, Addison-Wesley Publishing Co. Nichols, Eugene D., Holt School Mathematics, Holt, Rinehart and Winston, Inc.

Focus	Ideas	Resources/Materials
Subtract one-digit numbers from two- and three-digit numbers without regrouping.	Example: $\begin{array}{rrrr} 68 & 75 & 439 & 296 \\ -\,5 & -\,1 & -\,7 & -\,3 \\ \hline 63 & 74 & 432 & 293 \end{array}$ Illustrate these kinds of problems on the board. Use worksheets for practice on these kinds of problems. Examples: $\begin{array}{rrrr} 39 & 86 & 156 & 298 \\ -\,2 & -\,1 & -\,3 & -\,7 \end{array}$ Word problems: 1. There are 58 books on the shelf. Seven children got books from the shelf. How many books were left on the shelf? 2. Bill saved his pennies. He had 237 pennies. He gave 3 pennies to his sister. How many pennies did he have left?	
Subtract two-digit numbers from two- and three-digit numbers without regrouping.	Example: $\begin{array}{rrrr} 78 & 81 & 935 & 284 \\ -35 & -60 & -\,24 & -\,13 \\ \hline 43 & 21 & 911 & 271 \end{array}$ Illustrate these kinds of problems on the board. Explain that you begin subtracting in the ones column, then go to the tens and hundreds. For children who have difficulty keeping the columns straight, use lined paper that has been turned horizontally and have them write the numbers in the columns.	

Focus	Ideas	Resources/Materials
	 35 -13 22 The vertical lines will help them keep the columns straight.	
	Use worksheets and/or problems written on the board for practice on these kinds of problems. Worksheet: (Examples) 59 86 368 491 -32 -14 - 53 - 60 Word problems: 1. Tom counted 68 cookies in the cookie jar. Five of his friends came over and they ate 25 cookies. How many cookies were left? 2. Ann had 157 stamps in her stamp collection. Forty-three of the stamps were in a box. How many stamps were in her stamp book?	
Subtract one-digit numbers from two-digit numbers less than 20.	Use sets of objects to illustrate the subtraction of a number less than 10 from a two-digit number less than 20. These are basic facts that require some practice. Worksheet (or problems written on the board): Examples: 18 11 14 16 13 15 - 9 - 7 - 8 - 8 - 7 - 7	

Focus	Ideas	Resources/Materials
Identify the place value of each digit in a two-digit number and its expanded form.	Review place value for two-digit numbers. Play "Tens and Ones" game. One child is the leader who stands before the group and says, "I am thinking of a number that is two tens and 5 ones. "What is my number?" Those children who think they know raise their hands. The leader calls on one child to write the number on the board and name it. If he is correct, he becomes the leader. If not, he sits down and the leader chooses again. Repeat, using the expanded form. Worksheet: (Examples) Write the correct numeral in the blank: 1. .... = ___ tens ___ ones = ___ .... 2. .... = ___ tens ___ ones = ___ .... Fill in the blanks with the correct numeral: 23 = tens: 2, ones: 3 = 20 + 3 57 = tens: ___, ones: ___ = ___ + ___ 69 = tens: ___, ones: ___ = ___ + ___ 42 = tens: ___, ones: ___ = ___ + ___	

Focus	Ideas	Resources/Materials
Subtract one-digit numbers from two-digit numbers with regtouping.	Place a set of objects on the table to represent a two-digit number. Group these by tens and ones. Example: 32 blocks  Place pieces of string around each set of ten to show it as one unit. Ask a child to come and take away 8 blocks. The child should see that he cannot take 8 blocks without taking some from one of the groups of ten. Explain that he must take or borrow one of the groups of ten and put it with the ones before he can subtract. Let the child take one of the sets of tens, group it with the set of ones, and tell how many objects are in the new set. Now ask the child to take 8 blocks from this group. Have him tell how many he has left in the ones group, how many in the tens group, and how many left altogether. Repeat this with other problems. Use pennies and dimes to show the regrouping. Place some pennies and dimes on the table to represent a two-digit number. Example: 43¢ Ask a child to remove 6¢. He will see that he cannot take 6 pennies because there are only 3 pennies; therefore he will need to take a dime. Let him trade the dime for 10 pennies to put with the 3 pennies, making 13 pennies. Then he can take 6 pennies from 13 pennies. Let the child tell how many pennies are left and how many dimes are left.	

Focus	Ideas	Resources/Materials

Illustrate regrouping on the chalkboard.
Example:

rename		regroup	regroup
56 =	50 + 6 =	40 + 10 + 6 =	40 + 16
-9 =	- 9 =	- 9 =	- 9
			40 + 7 = 47

Discuss the problem. Let the children tell the steps as problems are worked on the board.

Once the children understand the expanded form, introduce the short form.

Example: 56 Explain each step of renaming
- 9 and subtracting as they are
47 done on the chalkboard.

Worksheet: (Examples)
Solve using the expanded form:

82 =	80 + 2 =	70 + 10 + 2 =	70 + 12	
- 7	- 7 =	- 7	- 7	
			70 + 5 = 75	

91	65	53	46	43	21
- 3	- 9	- 8	- 7	- 4	- 7

Solve using the short form:

53	81	26	32	54	90
- 6	- 6	- 9	- 8	- 5	- 2

Word problems:

1. There are 52 children in the third grade at Sue's school. Six were not at school on Monday. How many were at school?

2. Twenty-two birds were sitting on a fense. Five of the birds were red. How many of the birds were brown?

Focus	Ideas	Resources/Materials
Subtract two-digit numbers from two-digit numbers with regrouping.	Repeat the above activities substituting a two-digit numeral for the one-digit numeral being subtracted. Example: Place 32 blocks on a table and group by tens and ones. Ask a child to take away 18 blocks. Explain that he may take a set of tens away when he subtracts the ten, but he must regroup a set of tens with the ones to have enough to subtract from in the ones column. Illustrate regrouping using the expanded form on the chalkboard. Example: rename regroup regroup 56 = 50 + 6 = 40 + 10 + 6 = 40 + 16 -19 = 10 - 9 = 10 - 9 = 10 - 9 = 30 + 7 = 37 Discuss with the children as the problem is worked. Illustrate the short form of regrouping on the chalkboard. Example: 56 Explain the sets of renaming -19 and subtracting as they are 37 done. Worksheet: (Examples) Solve using the expanded form: 82 = 80 + 2 = 70 + 10 + 2 = 70 + 12 -17 = 10 - 7 = 10 - 7 = 10 - 7 60 + 5 = 65	

Focus	Ideas	Resources/Materials

$$\begin{array}{cccccc} 53 & 41 & 35 & 28 & 93 & 72 \\ -27 & -16 & -16 & -19 & -65 & -36 \end{array}$$

Solve using the short form:

$$\begin{array}{cccccc} 96 & 43 & 71 & 62 & 46 & 51 \\ -78 & -28 & -57 & -35 & -17 & -36 \\ 18 & & & & & \end{array}$$

Word problems:

1. 96 children went to the zoo. 48 children went to see the bears. How many children sent to see the bears. How many children went to see the monkeys?

2. 43 flowers were growing in the park. 17 were pink flowers. How many flowers were yellow?

Evaluation:
Solve these problems:

$$\begin{array}{cccccc} 83 & 52 & 27 & 35 & 72 & 41 \\ -7 & -6 & -9 & -16 & -68 & -18 \end{array}$$

$$\begin{array}{cccccc} 53 & 61 & 30 & 28 & 42 & 84 \\ -28 & -8 & -3 & -19 & -26 & -39 \end{array}$$

Solve these word problems:

1. Bill's class has 35 children in it. 17 of the children are boys. How many of the children are girls?

2. There were 73 books on the shelf. 9 of them are being used. How many books are still on the shelf?

EXAMPLE UNIT

Mastery Objective: #10. Recall basic multiplication facts through 9 x 9. (J)

Area: Math

Learning Level: 3

Approximate Time of Unit:

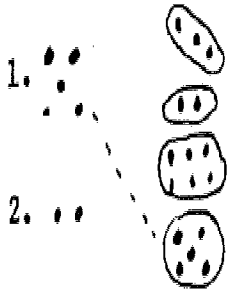
What should student say, write, or do as a result of completing activities: Student can recall the basic multiplication facts through 9 x 9.

Focus	Ideas	Resources/Materials
Recognize equivalent sets.	Pass out books or paper so that each child has one. Ask if there are the same number of books as there are children. Let one child count the number of children in the group and another count the number of books passed out. Ask each how many they counted and if they are the same number. Explain that because the sets have the same number they are known as "equivalent sets." Ask seven children to come to the front of the room and place them in two groups of two and one group of three. Ask another child to tell which two sets of children are equivalent and how he knew. Give each group a card with a numeral on it indicating how many members are in the set. When the child names the sets he thinks are equivalent, have those two groups hold up their cards. If the cards indicate that the groups have the number of members, then the child is right & the sets are equivalent. Ask the third group to show their card as a further check and comparison. Repeat this activity using other numbers for the sets and substituting sets of objects for the children.	Books Papers Sets of objects Worksheets Chalk Chalkboard Flannel board Felt cut outs Elementary School Mathematics. Holt, Rinehart and Winston, Inc.

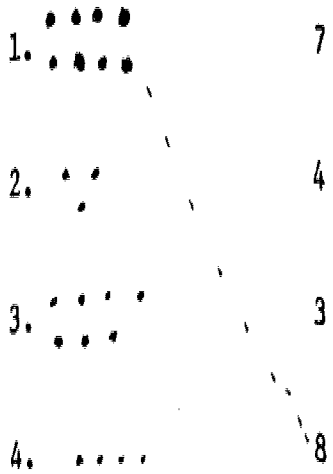
Focus	Ideas	Resources/Materials

Place a set of objects on a table and ask a child to come and make a set that is equivalent to the one made by the teacher. Repeat this as often as necessary. Then make a set and ask a child to make two sets equivalent to the original set. Repeat this, asking for three equivalent sets, four equivalent sets, etc.

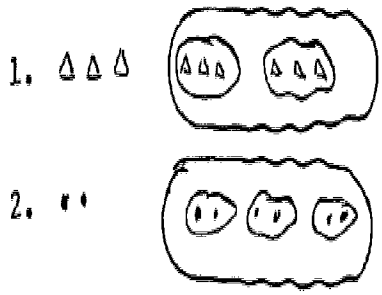
Worksheet:
Match the sets that are equivalent:

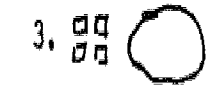
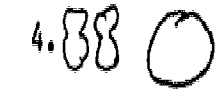


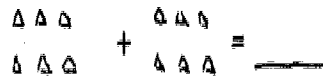
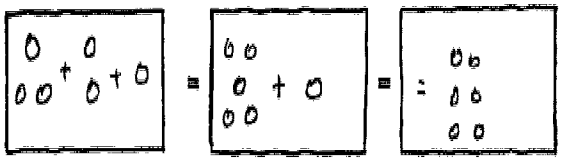
Match the set to the equivalent numeral:



Match each set with a set containing equivalent sets:



Focus	Ideas	Resources/Materials
	3. 	
	4. 	
	Make a set equivalent to the given set:	
	1. 	
	2. 	
	3. 	
	4. 	
Add two whole numbers less than 10 using the plus (+) sign.	Review the concept of putting two sets together to make another set. Use two sets of objects to show that putting two sets together yields the total of the two. Demonstrate putting two sets together. Illustrate the problems on the chalkboard. Example: 3 + 2 = 5	
	Concentrate on the addition of two equivalent sets. Place two equivalent sets on the table. Ask a child to tell how many members are in each set and how many objects there are in both sets together. Write the problem on the chalkboard.	

Focus	Ideas	Resources/Materials
	Worksheet: (Examples) Fill in the blanks. 1.  = ____ ____ ____ = ____ 2.  = ____ ____ ____ ____ 3. 5 + 5 = ____ 5. 7 + 7 = ____ 4. 3 + 3 = ____ 6. 2 + 2 = ____	
Add three or more whole numbers less than 10.	Place three sets of felt cut outs on the flannel board. Have one child tell how many are in each set and how many objects there are in all. Show that by putting two of the sets together, one set is formed which can then be joined with the third set to determine how many there are in all. Example: 	

Focus	Ideas	Resources/Materials

Write the problem on the board to show what has been done. Example:

$3 + 2 + 1 = (3 + 2) + 1 = 5 + 1 + 6$

Explain and show that the order is not important when adding. Any two numbers can be added first and the sum will remain the same.

$(3 + 2) + 1 = 6$ $\quad 1 + (2 + 3) = 6$
$3 + (2 + 0) = 6$ $\quad (2 + 1) + 3 = 6$
$(1 + 2 + 3 = 6$ $\quad 2 + (1 + 3) = 6$

Repeat this activity using four addends, five addends, six addends, seven addends, eight addends, and nine addends.

Concentrate on adding three equivalent sets. Show three equivalent sets and have a child tell how many are in each set and how many there are in all. Write problem on the chalkboard. Repeat the above activities using three equivalent sets, four, five, six, seven, eight, and nine equivalent sets.

Examples: $3 + 3 + 3 = 9$
$6 + 6 + 6 + 6 = 24$
$8 + 8 + 8 + 8 + 8 = 40$
$2 + 2 + 2 + 2 + 2 + 2 = 12$
$1 + 1 + 1 + 1 + 1 + 1 + 1 = 7$

Worksheets: (Examples)

3	6	7	2	8	5	3	1
3	6	7	2	8	5	3	1
+3	+6	7	2	+8	5	3	1
		+7	2		5	3	1
			+2		+5	+3	1
							1
							+1

Focus	Ideas	Resources/Materials
Understand what the times (x) sign means.	Draw a times (X) sign on the chalkboard. Explain that it tells to multiply.	
Relate addition and multiplication sentences.	Write several repeated addition sentences on the chalkboard. Discuss how many of each number there is in a problem. Example: 5 + 5 + 5 + 5 + 5 = There are 5 fives in this problem. "How many times do we see 5 in the problem? We see 5 times 5 or 5 x 5." Explain that 5 x 5 means 5 added 5 times and that it is read "five times five equals twenty-five." Have a child go to the chalkboard, pick out a repeated addition sentence and write the proper multiplication sentence. Then have him put the correct answer for both. Repeat this with other children so that they may all have a chance to see the concept. The array of numbers is an easy way to see addition and multiplication sentences. Show an array of dots on the chalkboard or objects on the table. Example: • • • • 4 — There are 3 rows with 4 in each row; • • • • 4 — therefore there are 3 fours or 3 x 4. • • • • +4 — Children can write addition and multiplication sentences for the arrays.	

Focus	Ideas	Resources/Materials

Worksheet:
Write addition and multiplication sentence for each array.

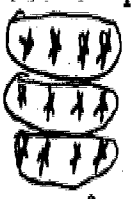
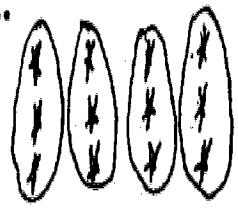
1.

2.

This can also be shown with numerals. Choose a multiplication family to work with--for example, 4 family. Illustrate on the chalkboard as shown below.

1	2	3	4	Write the counting numbers,
5	6	7	8	beginning with one, putting
9	10	11	12	the same number of numerals on
13	14	15	16	a row as you are using for
17	18	19	20	multiplying. This illustrates
21	22	23	24	the 4 family or four times any
25	26	27	28	number from 1 to 9. To find
29	30	31	32	the answer, count the number
33	34	35	36	of rows that you are multi-
				plying by. For 3 times 4, the

answer would be the right-hand numeral on row number 3. Show the child that each row has 4 numerals on it and that 3 rows would be the same as 3 times 4 or 3 x 4. Circle the answer--12. 6 x 4 = last numeral on row number 6. Remember: answer is last numeral on row. This exercise can be helpful to children as an aide to discovering answers to related addition and multiplication sentences. It can be done using any number across.

Focus	Ideas	Resources/Materials
Name the factors and the product in a multiplication sentence.	Write a multiplication sentence on the chalkboard. Example: 2 x 5 = 10. Explain that the 2 and the 5 are called factors; that the two numbers being multiplied together are factors, and that the 10 or the answer is called the product. Write several problems on the chalkboard and let children name the factors and the products.	
Understand the commutative property of multiplication.	Display an array of felt cut outs on the flannel board. Ask a child to write a multiplication sentence for the array on the chalkboard. Example: ♡ ♡ ♡ ♡ ♡ ♡ The child might write 2 x 3 for two rows of 3 or he might write 3 x 2 for three rows of 2. Whichever he writes, show that the other also represents the array. Discuss how many objects are in the array and that, therefore, both 2 x 3 and 3 x 2 are equal to 6. Worksheet: (Examples) Find the products. Complete.  3 x 4 = ___  4 x 3 = ___ 3 x 4 = 4 x ___	

Focus	Ideas	Resources/Materials
	Fill in the blanks: 1. 3 x 5 = 15 5 x 3 = ___ 3 x 5 = 5 x ___ 2. 2 x 3 = 6 3 x 2 = ___ 2 x 3 = 3 x ___	
Understand the multiplication property of 1.	Display on the flannel board one row of felt cut outs. Let a child write the multiplication sentence for the array and the product. Example: △ △ △ △ △ △ △ 7 x 1 = 7 or 1 x 7 = 7 Write several problems on the chalkboard using 1 as a factor in each. Let children name the products and write them on the chalkboard. Help them to see that when 1 is a factor the product is always the same as the other factor. Worksheet: (Examples) Solve: 3 2 1 8 9 1 6 1 x1 x1 x5 x1 x1 x6 x1 x3	

Focus	Ideas	Resources/Materials
.Understand the multiplication property of 0.	Place three empty bowls on the table and ask how many bowls of ice cream there are. The answer should be "none" or "zero," because there is no ice cream in any of the bowls. Write 3 x 0 = 0 on the chalkboard to represent the problem. Also show that 0 x 3 = 0. Write problems on the chalkboard using 0 as a factor. 0 x 0 = 0 0 x 0 = 0 0 x 1 = 0 1 x 0 = 0 0 x 2 = 0 2 x 0 = 0 0 x 3 = 0 3 x 0 = 0 Help the children to see that when 0 is a factor, the product will always be 0. Evaluation: Solve these multiplication sentences. 8 6 3 4 0 7 x3 x8 x2 x5 x9 x5 1 6 4 5 3 2 x8 x3 x1 x9 x4 x5 Complete the multiplication table:	

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

Mastery Objective: Recall basic multiplication facts through 9 x 9.

Science	Health	Creative Arts	Recreative Arts
		A student counts by 1's, accenting the even numbers. Drums play on every beat. Blocks play only on even numbers. At another time drums play on odd numbers, blocks play on even numbers. Instruments may be interchanged, substituted or added. Student later counts only even numbers aloud. Those having difficulty are helped by the instruments. A group moves in a circle in time to the beat, taking light steps on odd numbers and heavy ones on even. Later they count the accented even numbers aloud as they move in time. Something similar can be done for 3's, 4's, 5's. In counting by 5's use a strong cymbal crash every 5th beat. Students walking in time take four light steps and a jump. Another activity is moving in place. Students change places, take turns.	

EXAMPLE UNIT

Mastery Objective: #11. Multiply a three-digit number by a one-digit number (without regrouping). (K)

Area: Math

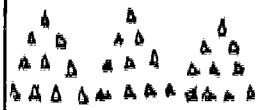
Learning Level: 3

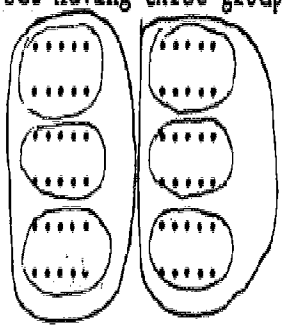
Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can multiply a three-digit number by a one-digit number without regrouping.

Focus	Ideas	Resources/Materials
Multiply two one-digit numbers.	Review the concept of multiplication as repeated addition. Place an array of objects on a table. Have a child write the addition sentence that represents the array and then write the corresponding multiplication sentence. Write simple multiplication problems on the chalkboard for the children to copy and work. Play Multiplication Bingo for reinforcement. Make Bingo cards with products written in the squares. Flash cards for calling are multiplication sentences using one-digit numbers. 8 12 64 10 15 14 18 9 21 6 20 7 5 0 32 16 3 x 1 4 x 2 Caller calls the multiplication sentence, omitting the product. Child must determine the product and place a marker on the product if it appears on his card.	

Focus	Ideas	Resources/Materials
Find the product of more than two numbers by using the grouping property of multiplication.	Give each child three cards, one with a 2 written on it, one with a 3 and one with a 4. Call out the numbers 6, 8, and 12. Ask the children to show the factors for each as they are called. Suggest that all three numbers can be multiplied together. Have the children show the factors for 6. Write the multiplication sentence (3 x 2 = 6) on the chalkboard. Now ask them to multiply 6 x 4. They should respond with 6 x 4 = 24. Now write (3 x 2) x 4 = 24 on the chalkboard. Repeat to show that (3 x 2) x 4 = 3 x (2 x 4). Remind the children that the parenthesis indicates which operation to do first. Worksheet: (Examples) Solve: 1. 6 x (3 x 1) = 6 x ___ = ___ 2. (2 x 4) x 3 = ___ x 3 = ___ 3. (2 x 2) x 8 = ___ x 8 = ___ 4. 7 x (3 x 2) = 7 x ___ = ___	

Focus	Ideas	Resources/Materials
Add two- or three-digit numbers without regrouping.	Refer to activities for Mastery Objective 4, Level 3.	
Identify multiples of 10.	Review counting by tens, both orally and written. Practice completing sequences counting by tens: 10, 20, __, 40, __, 60, 70, 80, __, __, 110, 120, __, 140, 150, 160, __. Place sets of objects on the table in groups of ten. Have a child tell how many objects are in each set, how many sets there are, and how many there are in all. Write the addition and multiplication sentences on the board to show what has been done. Example:  10 + 10 + 10 = 30 3 x 10 = 30 Discuss that 10 can be added three times or that 10 can be multiplied by 3 to find out how many. Explain the term "multiple" as meaning "many"; therefore we are finding many tems. Call on children to name multiples of ten and their factors. Write these on the chalkboard in the form of a multiplication sentence. Help the children to see the pattern that when multiplying by ten you simply place a zero to the right of the other factor.	

Focus	Ideas	Resources/Materials
	Worksheet: (Examples) Circle each multiple of 10: 7, 30, 56, 80, 5, 3, 90, 40, 23, 46, 70, 1, 134, 180, 75, 20, 100, 2 Solve the problems: 1. 4 x 10 = ____ 10 x 4 = ____ 2. 8 x 10 = ____ 10 x 8 = ____ 3. 15 x 10 = ____ 10 x 15 = ____ 4. 6 x 10 = ____ 5. 9 x 10 = ____	
Multiply multiples of 10, using the grouping property	Display sets of multiples of ten. Example: Have 2 sets of objects, each set having three groups of ten objects.  Ask how many are in each set and how many sets there are. Relate the multiplication sentence 2 x 30 and suggest they can use the grouping property to find the product.	

Focus	Ideas	Resources/Materials
	Have a child name the factors for 30. Write 3 x 10 = 30 on the chalkboard. Substitute 4 x 10 for 40 in the problem 2 x 30 = 2 x (3 x 10). Explain that it can be regrouped as (2 x 3) x 10. Have a child find the product of 2 and 3 and ten multiple 6 x 10. Example: 3 x 40 = 3 x (4 x 10) = (3 x 4) x 10 = 12 x 10 = 120 Worksheet: (Examples) Fill in the blanks to complete: 8 x 20 = 8 x (___ x 10) = (8 x ___) x 10 = ___ x 10 = ___ Multiply: 1. 4 x 80 = ___ 2. 5 x 20 = ___ 3. 9 x 20 = ___	
Name the place value of either digit in a two-digit number.	Use an abacus or place value chart to review ones and tens. Give the child a two-digit numeral and ask him to show it on the abacus or the place value chart and name the ones and the tens.	

Focus	Ideas	Resources/Materials
	Worksheet: Write each numeral under the correct heading. 83 47 62 15 Tens | Ones	
Use the multiplication-addition (distributive) principle to find products.	Example: a x (b + c) = (a + b) + (a x c) 4 x (2 + 3) = 4 x 2 + (4 x 3) = 8 + 12 = 20 Use the flannel board to show an array of objects having seven rows and 12 columns. Have a child name the multiplication problem 7 x 12 and write it on the chalkboard. Place a string between columns 5 and 6 to make two sets. Let children name the multiplication problems for each set (7 x 5), (7 x 7). Help the children to see that this is simply another way to name the array, therefore 7 x 12 = (7 x 5) + (7 x 7). Place the string between other columns to show other names for the array and other ways to find the product. Example: 7 x 12 = (7 x 10) + (7 x 2). Discuss which way is easier for finding the product. Repeat using different arrays and breaking apart the first factor also.	

Focus	Ideas	Resources/Materials
	Worksheet: (Examples) Fill in the blanks to complete: 1. 4 x 9 = 4 x (3 + 3) = (4 x ___) + (4 x ___) = ___ + ___ = ___ 2. 5 x (60) = ___ x (6 + 10) = (___ x 6) + (___ x 10) = ___ + ___ = ___	
Multiply a two-digit number by a one-digit number without regrouping.	Review renaming two-digit numbers in the expanded form (74 = 70 + 4). Write two-digit numerals on the chalkboard and have children write the expanded form on the chalkboard beside them. Next make multiplication problems of these by adding another factor. Example: 63 60 + 3 becomes 3 x 63 = 3 x (60 + 3) Illustrate how this problem can be solved. Allow children to help with their responses. 3 x 63 = 3 x (60 + 3) = (3 x 60) + (3 x 3) = 3 x (6 + 10) + (3 + 3) = (3 x 6) + (3 x 10) + (3 x 3) = 18 + 30 + 9 = 57	

Focus	Ideas	Resources/Materials

Help children to see the pattern for multiplying multiples of ten by another factor where they can multiply the numerals other than zero and then multiply that product by ten. Example:

30 x 8 =

(3 x 10) x 8 =

(3 x 8) x 10 = 24 x 10 = 24

Make eight sets of dimes with three dimes for each set. Discuss that there are 30 cents in each set; therefore there are eight thirties or 8 x 30 or 30 x 8. Help them see (3 x 8) x 10 = 24 x 10 = 240.

Show the vertical form of multiplication. Write a problem on the chalkboard and explain the steps. Let children respond if they have any ideas about what to do. Example:

```
  52
x  3
```

Explain that the factors in the ones column are multiplied first (3 x 2 = 6) and the product is written under the ones column.

Multiply Ones

```
  52
x  3
   6  (3 x 2)
```

Multiply Tens

```
  52
x  3
   6  (3 x 2)
 150  (3 x 50)
```

Then multiply the tens column. The tens must be renamed as a multiple of ten (50) and multiplied by the other factor (3). The product is written under the proper columns.

Add:

```
  52
x  3
   6  (3 x 2)
 150
 156
```

Then the two columns are added to find the correct answer.

Focus	Ideas	Resources/Materials

Multiply Tens

342
x 2
4 (2 x 2)
80 (2 x 40)

Multiply Hundreds

342
x 2
4 (2 x 2)
80 (2 x 40)
600 (2 x 300)

Add:

342
x 2
4 (2 x 2)
80
600 (2 x 300)
684

Worksheet: (Examples)
Fill in the blanks and complete:

1. 3 x 222 = 3 x (200 + 20 + 2)
= (3 x 200) + (3 x ___) + (3 x ___)
= ___ + ___ + ___
= ___

2. 231
x 3
3 (3 x ___)
90 (3 x ___)
600 (3 x ___)
693

Focus	Ideas	Resources/Materials

Worksheet: (Examples)
Fill in the blanks and complete:

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

2.
$$\begin{array}{r} 83 \\ \times\ 3 \\ \hline 9 \quad (3 \times \_\_) \\ 240 \quad (3 \times \_\_) \\ \hline 249 \end{array}$$

Solve the problems:

3. 24×2

4. 92×3

Word problem:

5. The baseball team had 16 members. They each ate two hot dogs. How many hot dogs were eaten?

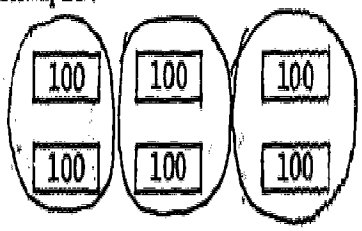
Show the short form of multiplication once the expanded form has been mastered. Explain that first you multiply the factors in the ones column and place the product in the ones column. Then work with the tens in the tens column, renaming them as tens. Multiply the one-digit factor by the number of tens and write the product on the tens column.

Example: 53 Multiply x 3 ones 9

53 Multiply x 3 tens 159

3 x 5 tens = 15 tens

Focus	Ideas	Resources/Materials
	Worksheet or problems on board: 56 34 22 43 x 1 x 2 x 4 x 3	
Identify multiples of 100.	Repeat exercises for multiples of 10, substituting hundreds for tens. Discuss how many pennies are in a dollar. Display five dollar bills. Determine how many pennies are represented by adding: 100 + 100 + 100 + 100 + 100 = 500. Show that 100 was written five times; therefore 5 x 100 = 500. Worksheet: Circle the multiples of 100. 53, 400, 8, 70, 465, 900, 36, 2, 100, 300 Solve the problems: 1. 5 x 100 = ___ 100 x 5 = ___ 2. 8 x 100 = ___ 100 x 8 = ___ 3. 4 x 100 = ___ 100 x 4 = ___ 4. 9 x 100 = ___ 5. 2 x 100 = ___	

Focus	Ideas	Resources/Materials
Multiply multiples of 100, using the grouping property.	Repeat the exercise for multiplying multiples of 10, substituting hundreds for tens. Example:  3 x 200 3 x 200 = 3 x (2 x 100) = (3 x 2) x 100 = 6 x 100 = 600 Solve: Fill in the blanks and complete: 6 x 400 = 6 x (4 x 100) = (6 x 4) x ___ = ___ x ___ = ___ Multiply: 1. 3 x 400 = ___ 2. 5 x 300 = ___ 3. 2 x 500 = ___	
Name the place value of either digit in a three-digit number.	Repeat the exercise for naming the place value of either digit in a two-digit number, adding the hundreds place. Example: Name the ones, tens and hundreds in 652.	

Focus	Ideas	Resources/Materials

Example:
Three-digit number and its expanded form:

$122 = 100 + 20 + 2$

$3 \times 122 = 3 \times (100 + 20 + 2)$
$= (3 \times 100) + (3 \times 20) + (3 \times 2)$
$= 300 + 60 + 6$
$= 366$

$4 \times 221 = 4 \times (200 + 20 + 1)$
$= (4 \times 200) + (4 \times 20) \times (4 \times 1)$
$= 800 + 80 + 4$
$+ 884$

Show that multiplying multiples of 100 by another factor is the same as multiplying the factors and then multiplying that product by 100. Example:

$4 \times 300 = 4 \times (3 \times 100)$
$= (4 \times 3) \times 100$
$= 12 \times 100$
$= 1200$

Four groups, each with three dollar bills, can be used to show this. There are 100 cents in each dollar. Each group has 3 dollars; therefore $3 \times 4 = 12$ dollars and 12×100 cents = 1200 cents.

Worksheet:
Write each numeral under the correct heading.

	Hundreds	Tens	Ones
392			
847			
613			

Focus	Ideas	Resources/Materials
Write a three-digit numeral in the expanded form.	Write a three-digit numeral on the chalkboard. Ask a child to name the hundreds in the number and write the numeral representing that on the chalkboard beside the original number. Have other children do the same for the tens and ones. Place plus signs between these and show that their sum is equal to the original number. Example: 584 = 500 + 80 + 4 Worksheet: Fill in the blanks: 738 = 700 + ___ + 8 917 = ___ + 10 + ___ 481 = ___ + ___ + ___	
Multiply a three-digit number by a one-digit number without regrouping.	Repeat the exercise for multiplying a two-digit number and add the hundreds place. Show the vertical form of multiplication as was done for multiplying two-digit numbers and add the multiplication of the multiples of 100.	

Focus	Ideas	Resources/Materials
	Show the short form and explain: Multiply 321 ones x 2 = 2 Multiply 321 tens x 2 = 42 2 x 2 tens = 4 tens Multiply 321 hundreds x 2 = 642 2 x 3 hundreds = 6 hundreds Worksheet or problems on chalkboard: 423 x 2 = ____ 213 x 3 = ____ 323 x 2 = ____ Evaluation: Multiply, using the long form: 321 x 2 = ____ 313 x 3 = ____ 114 x 2 = ____ Multiply, using the short form: 322 x 3 = ____ 143 x 2 = ____ 344 x 2 = ____ Multiply using multiplication-addition principle: 3 x 122 = 4 x 202 = 2 x 342 =	

EXAMPLE UNIT

Mastery Objective: #12. Use the properties of zero and one simplifying multiplication and division problems. (L)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can use zero and one to simplify multiplication and division problems.

Focus	Ideas	Resources/Materials
Recognize and know the value of 0. Understand the multiplication property of 0. Understand that there is no division by 0. Recognize and know the value of 1. Understand the multiplication property of 1. Understand the property of 1 in division.		

EXAMPLE UNIT

Mastery Objective: #13. Divide a two-digit number by a one-digit number (no remainder). (M)

Area: Math

Learning Level: 3

Approximate Time of Unit: _____

What should student say, write, or do as a result of completing activities: Student should divide a two-digit number by a one-digit number where there is no remainder.

Focus	Ideas	Resources/Materials
Recognize equivalent sets.	Review the concept that sets are equivalent when they each have the same number of members. See activities for recognizing equivalent sets under Mastery Objective #10, Level 3.	
Divide sets into equivalent sets.		
Multiply two one-digit numbers.		

Focus	Ideas	Resources/Materials
Relate division sentences to multiplication sentences.		
Relate division to repeated subtraction.		
Name the quotient, dividend, and divisor in a division problem.		
Use the properties of zero and one in division.		
Multiply a two-digit number by a one-digit number.		
Divide a two-digit number by a one-digit number with no remainder.		

EXAMPLE UNIT

Mastery Objective: #14. Solve mathematical sentences using repeated addition and/or subtraction facts (one-digit addends). (N)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: The student will solve mathematical sentences using repeated addition and/or subtraction facts (one-digit addends).

Focus	Ideas	Resources/Materials
Recognize one-digit numbers.		
Understand what the plus (+) sign means.		
Use the order (commutative) principle of addition.	Singing game, "Do You Know?"	
Use the grouping (associative) principle of addition to add three or more whole numbers less than 10.		
Understand what the minus (-) means.		
Subtract a one-digit number from a whole number.		
Use repeated subtraction to solve mathematical sentences.		

[illegible] UNIT

Mastery Objective: #15. Solve open sentences in [illegible] and/or subtraction by supplying the missing number. (0)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can solve open sentences for addition and/or subtraction by supplying the missing number.

Focus	Ideas	Resources/Materials
Add two whole numbers less than ten.		
Add two- and three-digit numbers without regrouping.		
Add two- and three-digit numbers with regrouping.		
Relate addition sentences to subtraction sentences.		
Find the missing number by subtracting the known addend from the sum.		
Subtract a whole number less than ten from another whole number less than ten.		
Subtract a one- or two-digit number from a two-digit number without regrouping.		

Focus	Ideas	Resources/Materials
Subtract a one- or two-digit number from a two-digit number with regrouping. Find the missing number by using subtraction or addition, as necessary.		

EXAMPLE UNIT

Mastery Objective: #16. Solve an open number sentence in multiplication and/or division by supplying the correct sign of operation. (P)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can solve an open number sentence in multiplication and/or division by supplying the correct sign of operation.

Focus	Ideas	Resources/Materials

EXAMPLE UNIT

Mastery Objective: #17. Use standard and/or nonstandard units to measure pictorial representations of objects. (Q)

Area: Math

Learning Level: 3

Approximate Time of Unit: _____

What should student say, write, or do as a result of completing activities: Student can use standard and/or nonstandard units to measure representations of objects.

Focus	Ideas	Resources/Materials

Mastery Objective: #18. Identify the drawing by name when given the picture of a ray, a line segment, parallel lines or an angle. (R)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can identify the drawing by name when given the picture of a ray, a line segment, parallel lines or an angle.

Focus	Ideas	Resources/Materials

EXAMPLE UNIT

Mastery Objective: #19. Use a calendar to answer simple questions. Area: Math

(S) Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can use a calendar to answer simple questions.

Focus	Ideas	Resources/Materials
Count consecutively from 1 to 31.	Place 31 objects on the table and ask a child to count each one. Be sure the one-to-one concept is understood so that each object has only one number.	
Recognize and use ordinal numbers to describe sets.	Ask six children to form a line in front of the class. Say, "Will the first person in the line please raise your hand?" Ask the other children to name the first person. Repeat this for the second, third, fourth, fifth and sixth persons in line. Hold up cards that have the names of the ordinal numbers on them. Read each card and hand it to the child who occupies that position in the line. Ask another group to go to the front of the classroom. Mix up the cards with the ordinal	

Focus	Ideas	Resources/Materials
	numbers on them. Read each card and hand it to the child who occupies that position in the line. Ask another group to go to the front of the classroom. Mix up the cards with the ordinal number names on them. Pass them out to the children and ask them to get in line according to the cards. Worksheet: (Examples) 1. Circle the first square:  2. Circle the sixth ball:  3. Draw a circle in the third box: 	
Understand the concept of "day."	Ask the children to tell what a day is and lead the discussion to a definition of day as a 24-hour period in which a person employs somewhat of a routine that is repeated at certain intervals. A child's day may consist of getting up, eating breakfast, getting dressed, going to school, going to lunch, going home, playing, eating dinner, watching TV, going to bed.	

Focus	Ideas	Resources/Materials
Name the days of the week.	Ask a child what day it is. Display a card with the day's name on it in a pocket chart. Ask if someone knows what day comes next or tomorrow. Place the name card in the pocket chart below the first one. Ask for the day that came before and place its name in the row above. Repeat the procedure until all seven days are represented. Go in an order that allows Sunday to be at the top. Read each card as it is placed in the pocket chart. Make a wall chart with a column for each day. List, with the children's help, things that are done on each day at school. Let children write the names of the days of the week for practice in recognizing them and spelling them.	

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Art			Swim		

Focus	Ideas	Resources/Materials
Understand the concept of "week."	Explain that the cards in the pocket chart represent a week. Each card represents a day and they all represent a week. Ask how many days there are in a week. Let children take turns naming the days in a week. Explain that a week begins with Sunday and continues through Saturday. Discuss the timespan of a week and what is done in a week at school. Let children answer questions, such as: How many days a week do we go to school? How many Tuesdays are in a week? Talk about routines that occur once a week, such as going swimming, going to music or art, etc.	
Understand the concept of "month."	Display a calendar for the current month. Explain that it represents a month. Have a child tell how many days are in that month. Explain that not all months have the same number of days--some have 30 days, some 31, and one has only 28. Let another child read the names of the days at the top of the calendar. Explain that each day has a column; therefore, there are more than one of each day in a month. Have a child show a week on the calendar. Count to see how many weeks there are in the month. Look at calendars for the other months. Talk about how many days there are, how many weeks, which day the month begins on, etc.	

Focus	Ideas	Resources/Materials
Name the months.	Let children take turns naming the month in which they were born. Write each month's name on the chalkboard. Make a birthday chart. Write each child's name under the month of his birthday. Let him identify the word on the chalkboard that names the month of his birthday, if he can. Example:	

Our Birthdays

January	February	March	April	May
Gail	David			
June	**July**	**August**	**September**	**October**
Sally	Jim			
November	**December**			
Mark	Vickey			

Talk about months in relation to holidays: Christmas - December, Thanksgiving - November, etc.

Focus	Ideas	Resources/Materials
Understand the concept of "year."	Display cards for each month in a pocket chart. Let children identify the months. Explain that the months represent a year. Let a child count how many months are in a year. Display a calendar for the current year. Ask a child to determine how many days are in the year, either by adding the days in each month or counting all of the days. Discuss that some things occur only once a year, such as birthdays, Christmas, the fourth of July, etc. Explain that the order of the months always remains the same, with January coming first and December last. Briefly explain that every four years we have "Leap Year" and that we have one more day in February. Explain that the earth rotates around the sun every year. This rotation takes a little more than 365 days; therefore we add an extra day every four years. Explain that each year is named by a counting number. This is 1975, next year will be 1976. Recite the poem, "Thirty Days Hath September." Thirty days hath September, April, June, and November. All the rest have thirty-one, Excepting February alone, Which has just four and twenty-four 'Til Leap Year gives it one day more.	

Focus	Ideas	Resources/Materials
	Let each child fill in his own calendar for each month. He can illustrate each month and place all of the months in a folder to show the whole year. Evaluation: Answer these questions about the calendar. 1. How many months are in a year. 2. What month is fifth? 3. How many days in a week? 4. What is the third day of the week? 5. How many days are in a year? 6. What year is it? Write the days of the week in the correct order. 1. Sunday 2. 3. 4. 5. 6. 7. Write the names of the months in the correct order beginning with January. 1. January 7. 2. 8. 3. 9. 4. 10. 5. 11. 6. 12.	

Focus	Ideas	Resources/Materials

Circle the second Tuesday in this month on the calendar.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Write the dates of Fridays. What day is the fifteenth? How many Sundays are in this month?

EXAMPLE UNIT

Mastery Objective: #20. Extend and compare English and metric units of measure. (T)

Area: Math

Learning Level: 3

Approximate Time of Unit: _____

What should student say, write, or do as a result of completing activities: Student can extend and compare English and metric units of measure.

Focus	Ideas	Resources/Materials

EXAMPLE UNIT

Mastery Objective: #21. Use the number line to show multiples of 1, 2, 3 and 5. (U)

Area: Math

Learning Level: 3

Approximate Time of Unit:

What should student say, write, or do as a result of completing activities: Student can use the number line to show multiples of 1, 2, 3 and 5.

Focus	Ideas	Resources/Materials