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ABSTRACT

This program is designed to enable students to master the competencies and skills which reflect the learning goals and objectives developed by the Illinois State Board of Education. This document lists the learning objectives by grade level and reporting period for kindergarten through grade three. Topics included are arithmetic, measurement, geometric concepts, algebraic concepts, data analysis, and application. Each objective is accompanied by examples of activities which illustrate that skill. Also discussed are program design, special programs, implementation procedures, time distribution, homework, assessment, problem solving, calculators, language acquisition, management and monitoring, and parent involvement. (CW)

IMPLEMENTATION HANDBOOK FOR THE COMPREHENSIVE MATHEMATICS PROGRAM

KINDERGARTEN - GRADE 3

CHICAGO PUBLIC SCHOOLS
Manford Byrd, Jr.
General Superintendent of Schools

IMPLEMENTATION HANDBOOK
FOR THE COMPREHENSIVE MATHEMATICS PROGRAM
OF THE CHICAGO PUBLIC SCHOOLS
KINDERGARTEN - GRADE 3

MANFORD BYRD, JR.

General Superintendent of Schools

BOARD OF EDUCATION
CITY OF CHICAGO

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PREFACE

The Comprehensive Mathematics Program of the Chicago Public Schools is a mathematics program for all students in kindergarten through grade 8. It is designed to serve as the basis for the implementation of the general mathematics program for all students, including limited-English-proficient students, students in special education programs, and students in ECIA Chapter 1, and other funded programs. For each grade, the instructional program is defined in seven areas of learning with related objectives and accompanying examples.

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Chicago Public Schools

District	School
1	Prussing Elementary School
2	Swift Elementary School
3	Blaine Elementary School
4	Dever Elementary School
5	Stowe Elementary School
6	Chopin Elementary School
7	Melody Elementary School
8	Gunsaulus Scholastic Academy
9	Riis Elementary School
10	Lawndale Community Academy
11	Healy Elementary School
12	Bontemps Elementary School
13	Beasley Academic Center
14	Dumas Elementary School
15	Eberhart Elementary School
16	Wentworth Elementary School
17	Dixon Elementary School
18	Esmond Elementary School
19	Perry Elementary School
20	Kohn Elementary School

INTRODUCTION

The Comprehensive Mathematics Program of the Chicago Public Schools is designed to enable students to master those competencies and skills which reflect the learning goals and objectives developed by the Illinois State Board of Education as prescribed in Senate Bill 730 and House Bill 1070 (enacted in July 1985) and which meet the requirements of Public Act 84-126, effective August 1, 1985.

Public Act 84-126 states:

> The State Board of Education must establish goals consistent with the primary purpose of schooling.
>
> The local school districts must establish student learning objectives which are consistent with the primary purpose of schooling and which meet or exceed goals established by the State Board.
>
> The school districts must also establish local goals for excellence in education.
>
> The State Board must establish assessment procedures for local school districts.
>
> The school districts must assess student learning to determine the degree to which local goals and objectives are being met.[1]

Initial mathematics assessment of students in grades 3, 6, and 8 will begin in April 1989 and continue annually thereafter.

The Chicago Public Schools Comprehensive Mathematics Program focuses on seven areas of learning:

Arithmetic
Quantitative Relationships
Measurement
Algebraic Concepts
Geometric Concepts
Data Analysis
Applications

[1] Illinois State Board of Education, Department of School Improvement Services, State Goals for Learning and Sample Learning Objectives: Mathematics, Grades 3, 6, 8, 10, 12 (Springfield: the State, n.d.), iii.

The program allows for teacher-directed whole-group instruction, small-group instruction, peer-group interaction, oral drills, and independent study.

The intent of the Comprehensive Mathematics Program is to provide instruction for students at the level of their grade placement. Program components include

Stated areas of learning with related objectives upon which teachers can base student expectations

Grade-level instruction

Supportive instructional strategies

Assessment of student progress

Parental involvement

PROGRAM DESCRIPTION

The goal of the Comprehensive Mathematics Program of the Chicago Public Schools is to provide all students with a program of instruction to ensure the acquisition of mathematics skills and strategies.

Design

The Comprehensive Mathematics Program is based upon the development of seven areas of learning through grade-level instruction.

Areas of Learning

The seven areas of the Comprehensive Mathematics Program of the Chicago Public Schools correspond to the State of Illinois Goals for Learning. (See chart on page 4.) Four of the seven areas are addressed in each reporting period. At the end of each reporting period, criterion-referenced tests are administered to evaluate each student's achievement.

Specific concepts, computations, and problem-solving skills related to each area of learning are defined by objectives and have been patterned after the State Goals for Learning. Each objective is accompanied by an example that clarifies the meaning of the objective and models the level of proficiency expected. The examples should be viewed as resource material for the teacher and not as test items for the students. If the examples are used with the students, the teacher may certainly modify the wording in order to explain the examples. Generally, except in kindergarten where the answers are obvious, solutions to the examples are given. If multiple solutions are possible, the term Sample Answer is used.

The importance of the Applications area of learning should be evident by its inclusion in each reporting period of every grade. The problem-solving objectives in the Applications area are repeated in succeeding grades and reflect increasing levels of mathematical understanding of and competence in computational skills.

Within each reporting period, the objectives need not be taught in sequential order. They may be grouped or integrated to encourage the development of multiple skills.

GOALS FOR LEARNING/AREAS OF LEARNING

Kindergarten - Grade 8

STATE OF ILLINOIS GOALS FOR LEARNING[2]	CHICAGO PUBLIC SCHOOLS AREAS OF LEARNING
Perform the computations of addition, subtraction, multiplication, and division, using whole numbers, fractions, decimals, and integers.	Arithmetic
Use ratios and percentages.	Quantitative Relationships
Use measurement, including area and volume.	Measurement
Identify, analyze, and solve problems using algebraic equations, inequalities, and functions and their graphs.	Algebraic Concepts
Apply geometric concepts and relations in a variety of forms.	Geometric Concepts
Use methods of data collection and analysis, including tables and charts.	Data Analysis
Use mathematical skills to estimate, approximate, and predict outcomes and to judge reasonableness of results.	Applications

[2] State Goals for Learning and Sample Learning Objectives, p. 3.

Grade-Level Instruction

The concept of grade-level instruction means that the students will receive instruction at the level of their grade placement in school. Mathematics skills are taught through an instructional sequence at each grade. Previously taught skills are reviewed and used to introduce new and higher-level skills. An instructional sequence for concepts and skills begins at the entry level and moves sequentially to the level of difficulty appropriate for the grade. Students are expected to demonstrate achievement of the objectives for each grade in order to meet the criteria for promotion from one grade to the next as well as the criteria for graduation from elementary school.

Special Programs

The Comprehensive Mathematics Program is intended for all students, including those enrolled in special education, bilingual education, ECIA Chapter 1, and other funded programs.

Mathematics Program for Students in Special Education Programs

Students in special education programs have the same educational, personal, and social needs as other students. However, modifications of the Comprehensive Mathematics Program may be necessary or required to meet the needs of these students. Each student should be taught and evaluated in accordance with the student's Individual Education Program (IEP).

Mathematics Program for Limited-English-Proficient Students in Bilingual Education Programs

The Comprehensive Mathematics Program is appropriate for the grade-level instruction of limited-English-proficient students. Instruction for students in categories A and B is given in the native language. Category C students receive mathematics instruction in English. When needed, category C students are given native language assistance in clarifying mathematics concepts, in performing mathematics operations, and in solving word problems. Oral drills designed for the mathematics program can be used to support a student's efforts to learn English through instruction in the use of particular words, terms, and expressions related to mathematics.

Teachers of pullout bilingual classes maintain ongoing communication with the regular classroom teachers regarding the mathematics instructional program.

ECIA Chapter 1 Programs

Students enrolled in ECIA Chapter 1 programs participate in the Comprehensive Mathematics Program as well as in the supplementary instruction prescribed by federal and state rules and regulations. Students assigned to an ECIA Chapter 1 self-contained activity receive additional teacher-directed or student-directed independent mathematics instruction utilizing the supplementary materials purchased under ECIA Chapter 1. Students enrolled in pullout and other ECIA Chapter 1 activities receive their supplementary instruction in addition to the Comprehensive Mathematics Program.

The ECIA Chapter 1 supplementary mathematics activities support the Comprehensive Mathematics Program. There is ongoing communication between the ECIA Chapter 1 pullout teacher and the regular classroom teacher relative to the supplementary activities that are being provided for participating children.

IMPLEMENTATION PROCEDURES

To implement the Comprehensive Mathematics Program, certain procedures are followed. They pertain to the model for instruction, the assignment of homework, the monitoring and assessment of student progress, and the system for program management.

Instructional Model

The components of the instructional model are grade-level instruction, a specified time allotment, and a recommended sequence.

Grade-Level Skill Development

For grade-level instruction to be successful, it is necessary that mathematics instruction be perceived as a continuum rather than as a disconnected group of separate activities. The sequence for grade-level skill development begins with clarifying the skill to be taught by reviewing previously acquired skills and by relating those skills to the new skill being introduced. By so doing, students have an opportunity to understand how one concept or skill is related to another and how new materials expand on what has already been learned. The sequence continues with the introduction of the new skill at the appropriate introductory level and culminates with the student demonstrating not only mastery of the skill on that grade level but also the ability to use the skill in problem solving and in practical situations.

The diagnosis and remediation of deficiencies in prerequisite skills are major factors in making grade-level instruction successful. After teachers diagnose individual student deficiencies, they implement a plan for remediation. Remediation is accomplished through individualized instruction as well as through small-group instruction. Small-group instruction also gives teachers an opportunity to provide enrichment activities for those students who have demonstrated mastery of the skill or concept being taught.

Time Allotment

Students must receive grade-level mathematics instruction every day. Kindergarten has no specific time allotment, since a flexible schedule is followed at this level. For grades 1 through 5, the time allotment in mathematics is 240 minutes per week. For grades 6 through 8, the time allotment is 265 minutes per week. (See Suggested Elementary School Weekly Time Distribution chart on page 9.)

CHICAGO PUBLIC SCHOOLS

SUGGESTED ELEMENTARY SCHOOL WEEKLY TIME DISTRIBUTION

SUBJECT AREA	WEEKLY TIME DISTRIBUTION IN MINUTES								
	Kg*	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
LANGUAGE ARTS (Listening, Speaking, Reading, Writing, Spelling, Handwriting)		820	800	720	645	605	515	515	515
MATHEMATICS		240	240	240	240	240	265	265	265
SOCIAL STUDIES		80	100	140	175	175	200	200	200
SCIENCE		75	75	120	120	160	200	200	200
ART		65	65	60	60	60	60	60	60
MUSIC		60	60	60	60	60	60	60	60
PHYSICAL EDUCATION		60	60	60	80	80	80	80	80
HEALTH AND SAFETY EDUCATION		40	40	40	40	40	40	40	40
LIBRARY SCIENCE		60	60	60	80	80	80	80	80

This time schedule provides time allotments to implement the citywide instructional program contained in the curriculum guides for each subject area. Subdivisions of the subjects listed above and detailed descriptions of the content to be taught are found in the curriculum guides. The suggested time allotments are to be used as a guide to plan schedules which make it possible to develop a program of instruction which meets the needs of the students in each class.

*Kindergarten has no specific time allotment, since a flexible schedule is followed at this level. The school instructional program should focus on basic skills development in language arts and mathematics, with a minimum of 45 minutes per day in reading-related instruction. An appropriate emphasis on social studies and science concepts should be included. Music and art activities are an integral part of kindergarten instruction. Also important are activities designed to enhance physical development, social-emotional development, and self-help skills as well as personal health and safety.

Instructional Sequence

Instruction in mathematics includes four kinds of activities: oral drills, whole-group instruction, small-group instruction, and peer-group interaction.

Introductory Oral Drills. Oral drills can be used at the beginning of each mathematics period in grades 1-8 to increase each student's ability to quickly recall basic facts and to build a foundation for higher-level mathematics concepts. As students participate in oral drills, they increase their understanding of the place-value system and strengthen their ability to use addition, subtraction, multiplication, and division facts; to rename whole numbers, fractions, and decimals; and to perform repeated additions, subtractions, multiplications, and divisions. Each drill should be presented to the students in a challenging way so that all students become involved.

Whole-Group Instruction. The entire class receives grade-level instruction in skill development. Appropriate instructional materials should be used to introduce a concept or skill. The presentation should involve the use of concrete materials, representations of concrete materials, and abstract symbols. The teacher should model the skill and should lead the entire class through several sample problems.

Small-Group Instruction. Diagnosis and, ultimately, the remediation of deficiencies in prerequisite skills are major factors in making grade-level instruction successful. Small-group instruction allows teachers the opportunity to diagnose individual student deficiencies and to implement a plan for remediation of those deficiencies. Small-group instruction also gives teachers an opportunity to provide enrichment activities for those students who have demonstrated mastery of the skill or concept being taught.

Peer-Group Interaction. Students can support each other as they work together in cooperative groups. For example, a set of problems requiring the use of the skill introduced through the whole-group instruction can be assigned to each cooperative group. Group members should

- discuss each problem as a group
- agree upon a plan for solving each problem
- ensure that all members of the group understand each solution as well as the strategies involved in arriving at each solution

design a strategy for communicating their collective solution(s) to the total class

A member from each group can be selected by the teacher to explain the group's solution to one of the problems assigned. Oral group reports provide opportuni ies for mathematics language development and communication as students model and describe solutions to the mathematics problem.

Culminating Oral Drills. At the end of each mathematic: class, an oral drill can be used to conclude the activities. The oral drill should be related to and reinforce the day's lesson.

Homework

Homework is required by Chicago Board of Education policy (Board Report No. 86-0514-ED7, May 14, 1986). Homework should be assigned

To provide students with situations for applying the concept introduced or developed during a mathematics lesson

To provide the drill and practice necessary to achieve or maintain mastery

To provide a vehicle for expanding a student's problem-solving capabilities by assigning challenging problems that call for creative solutions

Assessment

Students are expected to achieve the objectives of the four areas of learning specified for each reporting period. Those students who do not demonstrate achievement on a set of objectives are given teacher-selected correctives. Then, in accordance with the concept of grade-level instruction, students progress to the objectives identified for the next reporting period.

The achievement of objectives is determined by citywide criterion-referenced tests developed by the Department of Curriculum in cooperation with the Department of Research and Evaluation. These tests are administered by the classroom teacher prior to the end of each reporting period. Minimum performance as assessed through these tests is 80% success. The goal should be 100% success.

Program Thrusts

Emphasis is placed upon instruction to promote the mastery of computational skills, the development of problem-solving strategies, the use of the calculator, and the acquisition of the language of mathematics that is based upon understanding.

Mastery of Computational Skills

The mastery of computational skills has always been and remains a vital element in mathematics education. The Comprehensive Mathematics Program establishes an approach designed to ensure mastery of the computational skills and an understanding of the related concepts and applications. One of the major focuses of the program is mastery of the skills in the arithmetic strand, which is the primary strand for computational skills development. While use of the calculator is encouraged, at no time is it encouraged to the exclusion of or substitution for the mastery of computational skills.

Problem Solving

Instruction in problem solving is provided in all seven areas of learning and the related objectives which focus on essential problem-solving skills that are applicable to a wide range of scientific disciplines, business activities, and everyday situations. The objectives require the use of mathematical skills and strategies to estimate, approximate, predict, and compute answers as well as to judge the reasonableness of results. The objectives that deal with applications involve problem solving and are appropriately distributed throughout the four reporting periods.

The problem-solving objectives should be taught within the framework of a problem-solving process which includes

Understanding the problem by
- identifying the question or task
- identifying the information given
- determining what information is needed
- drawing a picture, if necessary

Planning the solution by
- restating the problem
- analyzing and organizing the information
- determining if the problem is related to a familiar or simpler problem

Carrying out the plan by
predicting outcomes
selecting appropriate problem-solving skills such as
using equations, trial and error, or drawing graphs
solving the problem

Examining the solution obtained by
determining the reasonableness of the solution
validating results

Use of the Calculator

The Comprehensive Mathematics Program of the Chicago Public Schools integrates the calculator into the regular instructional program by identifying appropriate places to use and not to use the calculator as an instructional tool. The calculator is not used to replace the memorization and retention of arithmetic facts. The use of the calculator contributes to the development of conceptual, reasoning, thinking, and problem-solving skills at higher levels than the student's computational skills achievement level and facilitates the expansion of mathematics instruction beyond the limitations of paper-and-pencil activities. The emphasis on using the calculator in the classroom follows the policy on calculators established by the Illinois State Board of Education.

> Students should be able to perform some skills mentally, do some with paper and pencil, and do some using the appropriate technology.[3]

Students enter school with higher-level reasoning, thinking, and problem-solving skills that far exceed their formal achievement levels in computational skills. The logic of the calculator and the logical processes involved in using the calculator encourage the development of these higher-order thinking skills. Additionally, the calculator can support and encourage continual growth of these skills as students gain facility with the manipulations and the abstractions involved in computations.

The calculator allows the student to focus attention on problem-solving strategies and processes rather than on computations. This opens the door to solving a broader spectrum of problems of varying difficulties. With the calculator available to perform difficult time-consuming computations, students are supported as they experiment with mathematics through such techniques as trial and error and pattern examination without being discouraged by the amount of time involved in paper-and-pencil computations.

[3] State Goals for Learning and Sample Learning Objectives, p. 5.

Calculators can be used to motivate students to learn more mathematics. More difficult concepts can be developed and instruction in problem solving can be given at a higher level than is possible when computations must be limited to paper-and-pencil activities appropriate to the grade.

The Acquisition of the Language of Mathematics. Based upon Understanding

Mathematics has its own language and the acquisition of the specialized vocabulary and language patterns is crucial to a full understanding and appreciation of the subject. Therefore, in the Comprehensive Mathematics Program, a concerted effort is made to begin the development of the students' mathematics language as early as possible. Although the vocabulary and language patterns are frequently incorporated in the objectives, it is in the use of the examples that the language development is deliberately emphasized. Students are encouraged to listen to and then to use the mathematics language correctly and whenever applicable. Goals of the language development process are to enable the students to internalize the language of mathematics and to begin to think and communicate in a precise manner.

Management and Monitoring System

The management and monitoring system of the mathematics program includes a Student Mathematics Record Profile which is maintained by the teacher for each student. It provides a profile of individual student progress and is to be forwarded as part of the student's record as the student moves from one classroom to another, transfers to another Chicago public school, or graduates from elementary school. Directions for completing the Student Mathematics Record Profile are printed on the reverse side of the form. This side of the form should be completed at the end of the school year or when a student transfers or graduates. (See pages 15 and 16.)

CHICAGO PUBLIC SCHOOLS

STUDENT MATHEMATICS RECORD PROFILE

Student Name _____ **I.D. No.** _____ **School Name** _____

Place a check (✓) in each coded box to indicate achievement of areas of learning
Use the blank space under each grade for repeated grades (See reverse side for directions)

Code	
Ar	Arithmetic
Q	Quantitative Relationships
M	Measurement
Alg	Algebraic Concepts
G	Geometric Concepts
D	Data Analysis
Ap	Applications

	AREAS OF LEARNING															
	1st Reporting Period				2nd Reporting Period				3rd Reporting Period				4th Reporting Period			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Kindergarten	Ar	M	G	Ap	Ar	Alg	G	Ap	Ar	M	D	Ap	Ar	M	Alg	Ap
Grade 1	Ar	Alg	Ap	M	M	Ar	Alg	Ap	G	Ar	Ap	Alg	D	M	Ar	Ap
Grade 2	Ar	Alg	Ap	G	M	Ar	Ap	Alg	Ar	M	Alg	Ap	D	M	Ar	Ap
Grade 3	Ar	M	Alg	Ap	M	Ar	Ap	D	Alg	Ar	Ap	G	M		Ar	Ap
Grade 4	M	Ar	Ap	Alg	Alg	Ar	Ap	M	M	Ar	G	Ap	M	D	Ar	Ap
Grade 5	Ar	Alg	Ap	M	M	Ar	Alg	Ap	M	Q	Ar	Ap	Ar	G	D	Ap
Grade 6	Alg	Ar	Ap	M	M	G	Ar	Ap	M	Ar	Q	Ap	D	Ap	Ar	Alg
Grade 7	Ar	Alg	Ap	M	M	Ar	Alg	Ap	G	Q	D	Ap	G	Ar	D	Ap
Grade 8	Alg	Ar	Ap	Q	M	Ap	Alg	Ar	M	Alg	G	Ap	Ar	G	D	Ap

Student Name _____ I.D No. _____

MATHEMATICS SUMMARY PROFILE

School	School Year	Homeroom	Assigned Grade	Standardized G.E. Mathematics Score*	Date of Test	Net Gain or Loss
	86-87					

*The initial entry should be the spring ITBS test score or the most recent standardized test score.

DIRECTIONS

1. On the reverse side, place a check in the coded box to show the student's achievement of areas of learning.

   Sample:

Grade 2																
											Alg				Ar	Ap

   If the student repeats a grade, indicate achievement by placing a check in the blank box immediately below the previous record.

   Sample:

Grade 2		Alg	Ap	G	M		Ap			M	Alg		D			Ap
		✓	✓	✓	✓		✓			✓	✓		✓			✓

2. For each student, complete the information on the Mathematics Summary Profile at the end of the school year or when a student transfe. or graduates. Write the grade equivalent in the box marked Standardized G.E. Mathematics Score and the date of the test in the next box. Compute the net gain or loss. Mark it in the box, using a plus to show gain or a minus to show loss.

   Sample:

MATHEMATICS SUMMARY PROFILE

School	School Year	Homeroom	Assigned Grade	Standardized G.E. Mathematics Score*	Date of Test	Net Gain or Loss
ALLENDALE	86-87			2.4	4/87	
	87-88	212	3	3.1	4/88	+.7
	88-89	301	4	4.1	4/89	+1.0
	89-90	210	5	5.1	4/90	+1.0

Comments: _____

PARENT INVOLVEMENT

The Comprehensive Mathematics Program actively seeks to form a partnership between the mathematics classroom and the home. School-home partnerships give parents and other family members a chance to actively participate in the education of children. Research has shown that effective parental involvement can have a significant impact on improving student achievement. Informed partners are effective partners.

For parents to be effective, they need to know

- what the program is
- how it works
- what objectives the student is to master each reporting period
- how the calculator fits into the program
- how much and what kind of homework the student is likely to receive
- how the homework relates to the report card mark
- how to help the student organize a time and an environment for studying
- how to handle problems the students may have with homework

Information about the program can be shared with parents through meetings, conferences, newsletters, and bulletins. In addition, schools can develop mathematics learning activities and ideas for parents to use with their children. These materials might include studying and tutoring tips as well as fun ways to use everyday experiences in the home and community to reinforce mathematics skills.

SUMMARY

The Comprehensive Mathematics Program reflects the recommendations of the following state and national reports in mathematics, science, and technology: the National Science Board Report, Educating Americans for the 21st Century; the National Council of Teachers of Mathematics, Agenda for Action; the National Council of Supervisors of Mathematics, "Position Paper on Basic Skills"; the College Board Reports, Academic Preparation for College: What Students Need to Know and Be Able to Do and Academic Preparation for the World of Work; and the Illinois State Board of Education, "New Thrust in Illinois School Mathematics."

The mathematics program presented requires adherence to the identified implementation procedures. These procedures embrace a specific instructional model through which students can develop an understanding of the concepts and acquire the skills designated for each grade. Upon graduation from elementary school, the students must be prepared to participate in regular, honors, or advanced high school mathematics courses.

In today's world, it is obvious that mathematics skills are essential for daily living and for employment and career advancement. Institutions of higher education are increasing their admissions requirements to include additional mathematics courses. Therefore, the acquisition of a sound mathematics background during the years in the elementary school is the first step in building for success throughout life.

KINDERGARTEN

KINDERGARTEN

First Reporting Period

1. Arithmetic
2. Measurement
3. Geometric Concepts
4. Applications

Objective	Example
K-1-a Count orally from 1 through 10.	1, 2, 3, . . . , 10
K-1-b Recognize numbers through 5 and match them with a corresponding group.	Take the number card that tells how many blocks are on the table.
K-1-c Order numbers from 1 through 5.	Put the number cards in order on the chalkboard ledge.

KINDERGARTEN

First Reporting Period

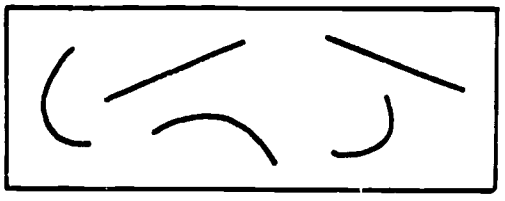
1. Arithmetic
2. Measurement
3. Geometric Concepts
4. Applications

Objective	Example
K-2-a Compare the size of objects: length, height, and weight.	Perform the activities. a) Look at the two pencils on the desk. Pick up the longer one. b) Look at the two glasses on the table. Pick up the taller glass. c) Look at the ball and the feather on the floor. Pick up the heavier object.

KINDERGARTEN

First Reporting Period

1. Arithmetic
2. Measurement
3. Geometric Concepts
4. Applications

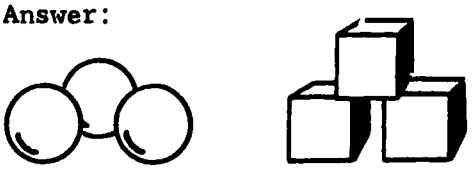
Objective	Example
K-3-a Identify the position or location of an object: top, middle, bottom, left, and right.	Look at the books on the bookcase shelves. a) Remove a book from the top shelf. b) Remove a book from the bottom shelf. c) Remove a book from the middle of a shelf. d) Place a book on the right side of a bookcase shelf. e) Place a book on the left side of a bookcase shelf.
K-3-b Identify straight and curved lines.	Point to the straight (or curved) lines made with yarn on the flannel board. 

Objective	Example
K-3-c Identify a circle, a square, a triangle, and a rectangle.	Name and point to the shapes on the flannel board.  Answer: Circle, square, triangle, rectangle

KINDERGARTEN

First Reporting Period

1. Arithmetic
2. Measurement
3. Geometric Concepts
4. Applications

Objective	Example
K-4-a Classify and sort objects by common attributes.	Place the blocks in one group and the balls in another group.  Answer: 

KINDERGARTEN

Second Reporting Period

5. **Arithmetic**
6. **Algebraic Concepts**
7. **Geometric Concepts**
8. **Applications**

Objective	Example
K-5-a Count orally from 1 through 20.	1, 2, 3, . . . , 20
K-5-b Recognize numbers through 10 and match them with a corresponding group.	Take the number card that shows how many books are on the table.
K-5-c Order numbers from 0 through 10.	Put the number cards in order on the chalkboard ledge. Begin with 0.
K-5-d Identify ordinal positions from first through fourth.	Look at the four children who are waiting in line at the door. Shake hands with the second child in the line.
K-5-e Trace and write numbers through 5.	1 2 3 4 5

Objective	Example
K-5-f Combine two groups to make a new group having 5 members or less.	Count the blocks in each group on the table. Combine them and tell how many blocks there are in all.

KINDERGARTEN

Second Reporting Period

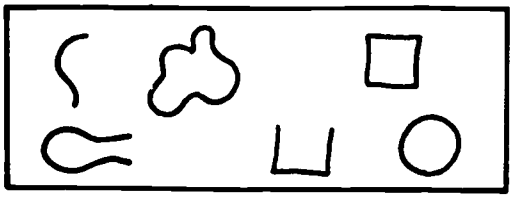
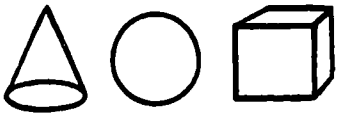
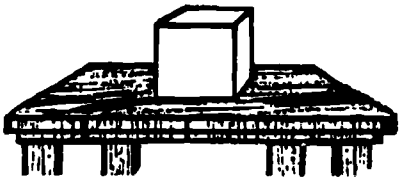
5. Arithmetic
6. Algebraic Concepts
7. Geometric Concepts
8. Applications

Objective	Example
K-6-a Identify equal groups that have 6 or less members.	Look at the three groups of crayons on the table. Pick up the two groups of crayons that are equal in number.
K-6-b Identify unequal groups that have 6 or less members.	Look at the two boxes of pencils on the table. a) Point to the box that has more pencils. b) Point to the box that has less pencils.

KINDERGARTEN

Second Reporting Period

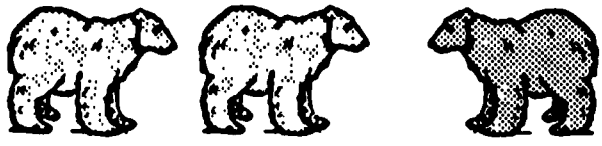
5. Arithmetic
6. Algebraic Concepts
7. Geometric Concepts
8. Applications

Objective	Example
K-7-a Identify open and closed shapes.	Look at the shapes made with yarn on the flannel board. a) Point to the open shapes. b) Point to the closed shapes. 
K-7-b Identify a cone, a sphere, and a cube.	Choose a cube and place it on the table.  Answer: 

KINDERGARTEN

Second Reporting Period

5. Arithmetic
6. Algebraic Concepts
7. Geometric Concepts
8. Applications

Objective	Example
K-8-a Recognize patterns.	Draw the next shape in the pattern. 
K-8-b Make up addition stories to match picture problems.	Tell a story about putting the bears together.  Sample Answer: A bear met two other bears. Then there were three bears altogether.

KINDERGARTEN

Third Reporting Period

9. Arithmetic
10. Measurement
11. Data Analysis
12. Applications

Objective	Example
K-9-a Trace and write numbers through 10.	
K-9-b Count orally from 1 through 31.	1, 2, 3, 4, . . . , 31
K-9-c Recognize numbers through 20 and match them with a corresponding group	Choose the number card that tells how many blocks are on the floor.
K-9-d Separate a group with 5 or less objects into two groups and tell how many objects are in each new group.	Separate the group of blocks on the floor into two groups. Tell how many blocks are in each new group. Tell how the blocks can be separated into two groups in a different way.

KINDERGARTEN

Third Reporting Period

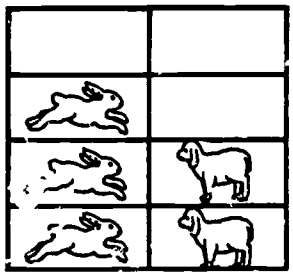
9. Arithmetic
10. Measurement
11. Data Analysis
12. Applications

Objective	Example
K-10-a Tell which activity takes more time and which takes less time.	Think of these two everyday activities: Drinking a glass of water Eating dinner a) Which usually takes more time? b) Which usually takes less time? Answer: a) Eating dinner b) Drinking a glass of water
K-10-b Identify a penny and a nickel, and tell the value of each.	Look at the two coins on the table. a) Which is a penny? b) Which is a nickel? c) How many pennies is the nickel worth? Answer: c) 5

KINDERGARTEN

Third Reporting Period

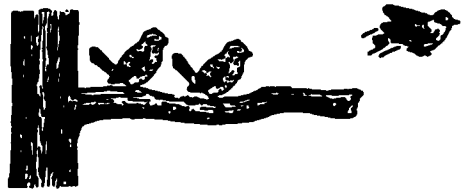
9. Arithmetic
10. Measurement
11. Data Analysis
12. Applications

Objective	Example
K-11-a Record data by using tally marks.	Record the number of children in the class who are wearing something red by making tally marks.
K-11-b Obtain data from a picture graph.	Use the picture graph to answer the questions.  a) How many rabbits are on this graph? b) How many sheep are on this graph? c) Are there more rabbits or sheep?

KINDERGARTEN

Third Reporting Period

9. Arithmetic
10. Measurement
11. Data Analysis
12. Applications

Objective	Example
K-12-a Make up subtraction stories to match picture problems.	Tell a story about the picture.  Sample Answer: Three birds were sitting on a branch. One flew away. Only two birds were left.

KINDERGARTEN

Fourth Reporting Period

13. Arithmetic
14. Measurement
15. Algebraic Concepts
16. Applications

Objective	Example
K-13-a Identify fractional parts of a whole as one out of two equal parts of a whole, one out of three equal parts of a whole, and one out of four equal parts of a whole.	Divide a graham cracker into 2, 3, or 4 equal parts. Name the equal parts. Note: Some graham crackers are sectioned in threes and others are sectioned in fours.
K-13-b Order numbers from 0 through 20.	Arrange the number cards in order on the chalkboard ledge. Begin with 0.
K-13-c Trace and write numbers through 20.	0 1 2 3 ... 20

Objective	Example
K-13-d Combine and separate objects corresponding to sums through 6.	Use blocks to show combinations and separations such as 2 + 1 5 - 2 Answer:  
K-13-e Count orally from 1 through 50.	1, 2, 3, 4, . . . , 50

KINDERGARTEN

Fourth Reporting Period

13. Arithmetic
14. Measurement
15. Algebraic Concepts
16. Applications

Objective	Example
K-14-a Tell time to the hour on traditional and digital clocks.	Perform the activities. a) Look at the demonstration clock. Move the hands to show 9:00. Answer:  b) Look at the demonstration digital clock. Read the time.  Answer: 3 o'clock c) Look at the classroom clock. Read the time. Answer: Answers will vary according to the time of day.

Objective	Example
K-14-b Measure length by using nonstandard units.	Use new crayons to measure the length of a table.
K-14-c Tell the number of days in a week.	Use a calendar to count the number of days in a week.

KINDERGARTEN

Fourth Reporting Period

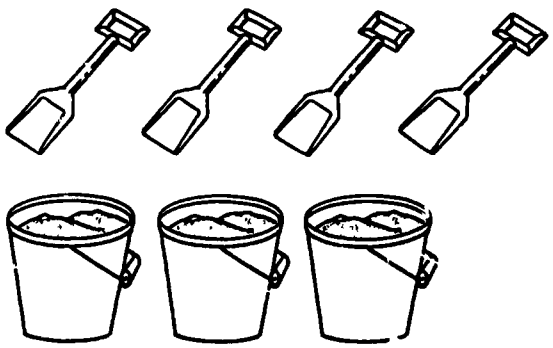
13. Arithmetic
14. Measurement
15. Algebraic Concepts
16. Applications

Objective	Example
K-15-a Identify unequal groups that have 9 or less members.	Draw a ring around the group that has more stars.  Draw a ring around the group that has less stars. 

KINDERGARTEN

Fourth Reporting Period

13. Arithmetic
14. Measurement
15. Algebraic Concepts
16. Applications

Objective	Example
K-16-a Use one-to-one correspondence to solve a number problem.	Match the buckets with the shovels.  a) Are there more shovels or buckets? b) How many more shovels are there?

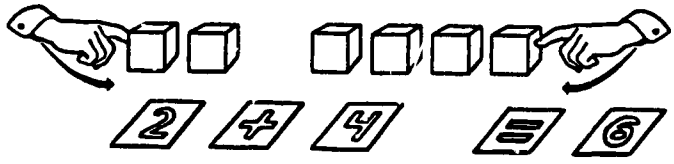
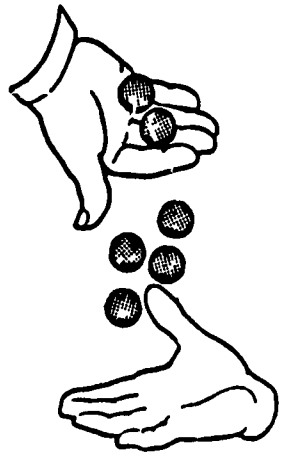
GRADE ONE

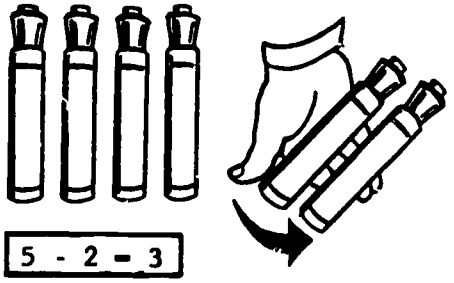
GRADE ONE

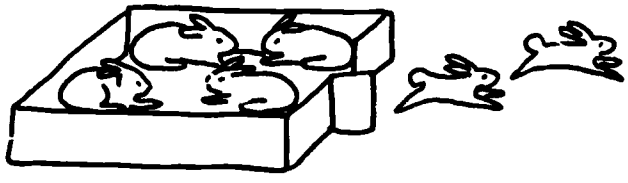
First Reporting Period

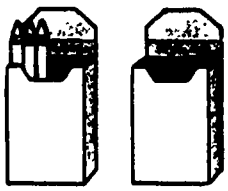
1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Measurement

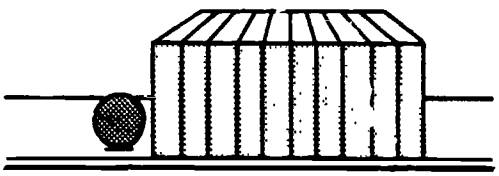
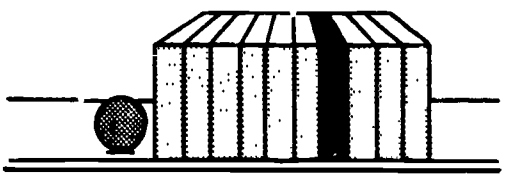
Objective	Example
1-1-a Count backwards orally from 10 through 1.	10, 9, 8, . . . , 1
1-1-b Relate a point on a number line to a whole number that is ten or less.	Fill in the missing number.  Answer: 
1-1-c Read and write numbers through 20.	Read the number shown on the number card or on a calculator.  Oral Answer: Eighteen Listen to the number and write it. fifteen Answer: 15

Objective	Example
1-1-d Use concrete objects to show addition and subtraction number sentences for facts through 6 as well as the appropriate use of the mathematics symbols (+, -, =).	Use blocks and number cards to show 2 + 4 = 6 Answer:  Use marbles and then write the number sentence on the chalkboard to show Six minus four is two. Answer:  

Objective	Example
1-1-e Match addition and subtraction number sentences with number pictures that show sums through six.	Match the number sentence card with the number picture.  3 + 3 = 6 3 + 2 = 5 3 - 2 = 1 Answer: 3 + 2 = 5
	Match the number sentence card with the number picture.  5 - 2 = 3 2 - 2 = 0 6 - 2 = 4 Answer: 6 - 2 = 4

Objective	Example
1-1-f Draw pictures and tell stories to represent addition and subtraction number facts having sums through ten.	Draw a picture and tell a story for the addition number fact. 3 + 2 = 5 Sample Answer:  Stories will vary. Draw a picture and tell a story for the subtraction number fact. 6 - 2 = 4 Sample Answer:  Stories will vary.

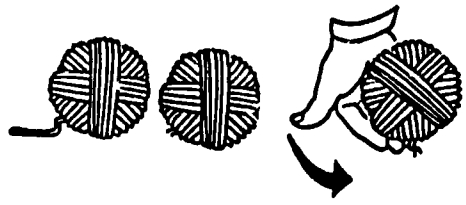
Objective	Example
1-1-g **Apply the identity property of zero in the addition and subtraction of whole numbers.**	Name the number that will make the number sentence true.  3 + □ = 3 Answer: 0 Listen to the story. James had five apples yesterday. He has the same five apples today. How many of these apples did he eat? Name the number that will make the number sentence true. 5 - □ = 5 Answer: 0

Objective	Example
1-1-h Recall the addition facts and the corresponding subtraction facts for sums through 6.	Find the sum. $2 + 3 = \square$ Answer: 5 Subtract. $\begin{array}{r} 5 \\ -\ 2 \\ \hline \end{array}$ Answer: 3
1-1-i Identify ordinal positions from first through tenth.	Perform the activities. a) Go to the bookcase and point to the top shelf. Take the seventh book from the left. b) Color the seventh book from the ball in the picture.  Answer: 

GRADE ONE

First Reporting Period

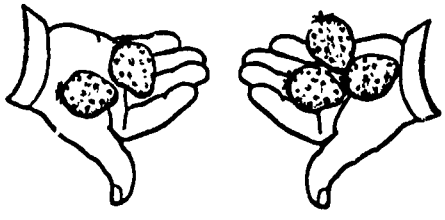
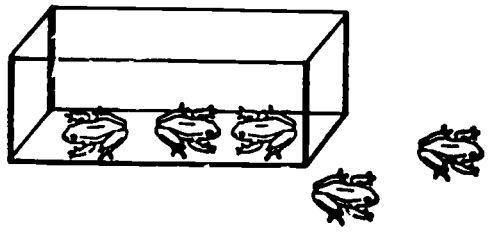
1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Measurement

Objective	Example
1-2-a Write an addition number sentence to describe number pictures that show sums through six.	Write a number sentence for the picture.  ____ + ____ = ____ Answer: 2 + 3 = 5
1-2-b Write a subtraction number sentence to describe number pictures corresponding to basic facts through six.	Write a number sentence for the picture.  ____ - ____ = ____ Answer: 3 - 1 = 2

GRADE ONE

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Measurement

Objective	Example
1-3-a Draw pictures and write number sentences for addition and subtraction story problems for number facts having sums through ten.	Listen to the story. Draw a picture and write a number sentence. Nick had 2 strawberries and his friend gave him 3 more. How many strawberries did Nick have altogether? Answer:  2 + 3 = 5 Draw a picture and write a number sentence for the story. Sam had 5 frogs. Two hopped away. How many frogs did he have left? Answer:  5 - 2 = 3

GRADE ONE

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Measurement

Objective	Example
1-4-a Estimate and measure the length of an object by using nonstandard units.	Guess how long a crayon is by using a paper clip to represent 1 unit. Then measure the crayon by using paper clips. How long is the crayon? Answer: Answers will vary.
1-4-b Estimate and measure the length of the sides of an object by using nonstandard units.	Estimate and then use paper clips to measure the length of each side of a book. What is the length of each side? Answer: Estimates and measurements will vary.

GRADE ONE

Second Reporting Period

5. **Measurement**
6. **Arithmetic**
7. **Algebraic Concepts**
8. **Applications**

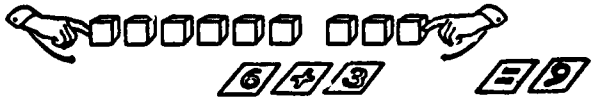
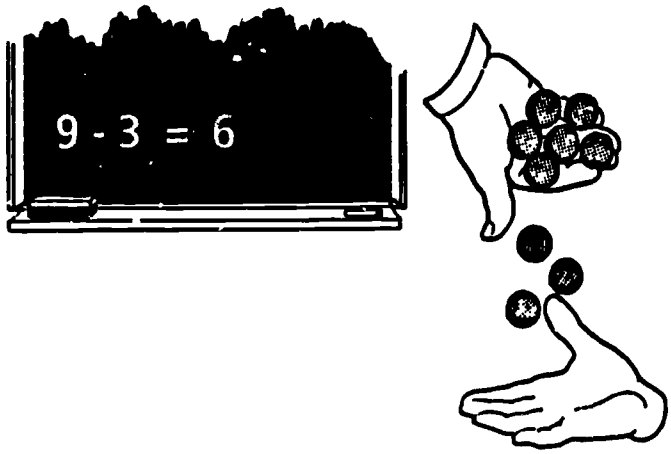
Objective	Example
1-5-a Identify a penny, a nickel, and a quarter, and tell the value of each.	Look at the four coins on the table. a) Which is a penny? b) Which is a nickel? c) Which is a dime? d) Which is a quarter? e) How many pennies is the nickel worth? f) How many pennies is the dime worth? g) How many pennies is the quarter worth? Answer: e) 5 f) 10 g) 25

GRADE ONE

Second Reporting Period

5. Measurement
6. Arithmetic
7. Algebraic Concepts
8. Applications

Objective	Example
1-6-a Count orally from 1 through 100.	1, 2, 3, . . . , 100
1-6-b Read and write numbers through 50.	Read the number shown on the number card or on a calculator.  Oral Answer: Forty-two Listen to the number and write it. thirty-eight Answer: 38
1-6-c Count backwards orally from 20 through 1.	20, 19, 18, . . . , 1

Objective	Example
1-6-d Write the numbers in order from 1 through 20.	1, 2, 3, . . . , 20
1-6-e Use concrete objects to show addition and subtraction number sentences for facts through 10.	Use blocks and number cards to show 6 + 3 = 9 Answer: 
	Use marbles and then write the number sentence on the chalkboard to show Nine minus three is six. Answer: 

Objective	Example
1-6-f Recall the addition facts and the corresponding subtraction facts for sums through 10.	Find the sum. $\begin{array}{r} 5 \\ +\ 3 \\ \hline \end{array}$ Answer: 8 Subtract. $5 - 3 = \square$ Answer: 2

GRADE ONE

Second Reporting Period

5. Measurement
6. Arithmetic
7. Algebraic Concepts
8. Applications

Objective	Example
1-7-a Complete a number sentence.	Use a number card to show the number that will make the sentence true.  Answer: 12 Use a number card to show the number that will make the sentence true.  Answer: 7

GRADE ONE

Second Reporting Period

5. **Measurement**
6. **Arithmetic**
7. **Algebraic Concepts**
8. **Applications**

Objective	Example
1-8-a Choose the appropriate operation to solve a story problem.	Listen to the story problem and answer the question. Sam has 6 stamps. Belinda has 2 stamps. Should Sam and Belinda add or subtract to find how many stamps they have altogether? Oral Answer: Add
1-8-b Write a number sentence to solve a story problem.	Listen to the story problem. Write a number sentence to solve it. Carl bought 9 pencils. Some were red; some were blue. Five pencils were red. How many pencils were blue? Answer: 9 - 5 = 4 Four pencils were blue.

GRADE ONE

Third Reporting Period

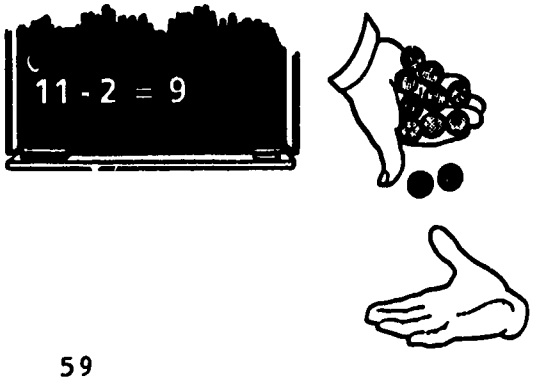
9. Geometric Concepts
10. Arithmetic
11. Applications
12. Algebraic Concepts

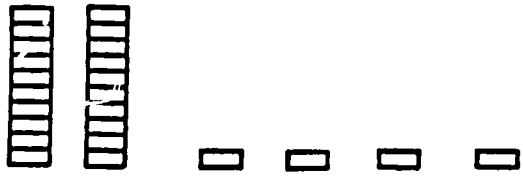
Objective	Example
1-9-a Identify cubes, spheres, cylinders, and cones.	Match models of a cube, a sphere, a cylinder, and a cone with objects in the classroom. Sample Answer: A wastebasket might be shaped like a cylinder. A globe is shaped like a sphere. Answers will vary.

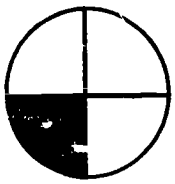
GRADE ONE

Third Reporting Period

9. Geometric Concepts
10. Arithmetic
11. Applications
12. Algebraic Concepts

Objective	Example
1-10-a Write the numbers in order from 1 to 50.	Write the numbers 21 through 30 in order. Answer: 21, 22, 23, . . . , 30
1-10-b Use concrete objects to show addition and subtraction number sentences for facts through 12.	Use blocks and number cards to show 9 + 2 = 11 Answer:  Use marbles and then write the number sentence on the chalkboard to show Eleven minus two is nine. Answer: 

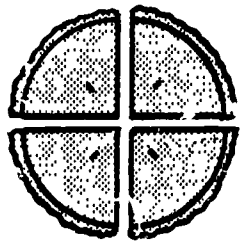
Objective	Example
1-10-c Recall the addition facts and the corresponding subtraction facts for sums through 12.	Find the sum. $9 + 3 = \square$ Answer: 12 Subtract. $\begin{array}{r} 12 \\ -\ 3 \\ \hline \end{array}$ Answer: 9
1-10-d Name the tens and ones shown in a picture and write the number in standard form.	Write the number of tens and ones shown in the picture and write the number in standard form.  ____ tens ____ ones Answer: 2 tens and 4 ones 24

Objective	Example
1-10-e Identify the value of the digits in numbers through 99.	Tell the value of 7 in 71. Answer: 7 tens or 70 ones
1-10-f Identify a fraction for a shaded part of a whole and name it as a fraction: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$.	Look at the fraction wheel. Name the shaded part of a whole as a fraction.  Answer: 1 out of 4 parts $\frac{1}{4}$

GRADE ONE

Third Reporting Period

9. Geometric Concepts
10. Arithmetic
11. Applications
12. Algebraic Concepts

Objective	Example
1-11-a Tell which numbers precede and follow a given number.	Tell which number comes before 6 and which number comes after 6 on the number line.  Answer: 5 and 7
1-11-b Solve story problems.	Listen to the story problem and solve it. Mother baked a pie and she wanted to give each of her four children a piece. Show how to divide the pie so that each child will get an equal piece. Answer: 

GRADE ONE

Third Reporting Period

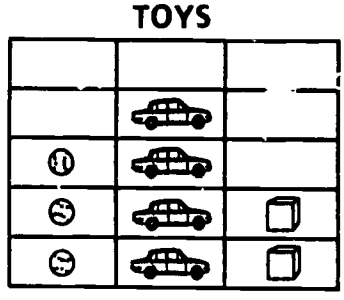
9. Geometric Concepts
10. Arithmetic
11. Applications
12. Algebraic Concepts

Objective	Example
1-12-a Write a number sentence for a story problem given orally.	Listen to the story problem and write a number sentence for it. Marguerita and Kim were jumping rope. Marguerita made 6 jumps. Kim made 4 jumps. How many jumps did they make in all? Answer: 6 + 4 = 10

GRADE ONE

Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

Objective	Example
1-13-a Obtain information from a picture graph.	Read the picture graph. a) Tell how many cars are shown. b) How many more cars than blocks are there?  Answer: a) 4 b) 2
1-13-b Record data by using tally marks and analyze the information.	Count orally and tally the number of boys and girls in class. Count the tally marks to see how many boys are present. Count the tally marks to see how many girls are present. Are there more girls or boys? Answer: Answers will vary.

Objective	Example
1-13-c Collect, record, and interpret information.	Join with your classmates and name your birthday months. Come to the chart and place a cake sticker next to your birthday month. After your classmates have done this, tell which month has the most birthdays. Sample Answer: **OUR BIRTHDAYS** January has the most birthdays.

Months	Birthdays
January	6
February	3
March	2
April	1
May	3
June	2
July	2
August	2
September	1
October	5
November	2
December	4

GRADE ONE

Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

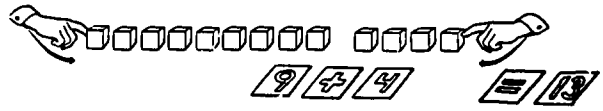
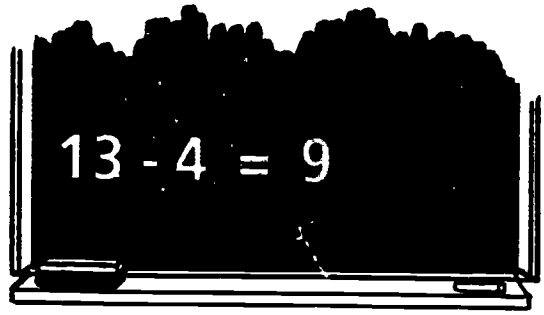
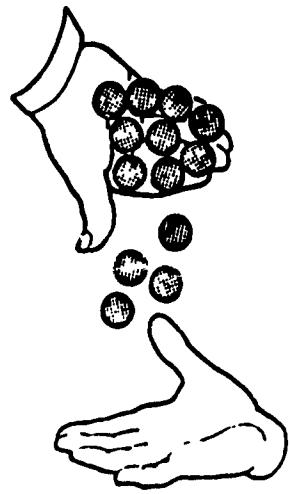
Objective	Example
1-14-a Read time to the half hour on traditional and digital clocks.	Perform the activities. a) Look at the demonstration clock. Move the hands to show 12:30. Answer:  b) Look at the demonstration digital clock. Read the time.  Answer: 30 minutes past 8 c) Look at the classroom clock. Read the time. Answer: Answers will vary according to the time of day.

GRADE ONE

Fourth Reporting Period

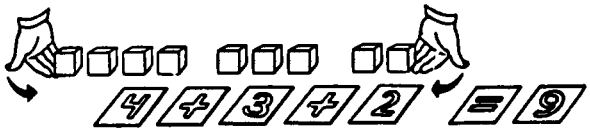
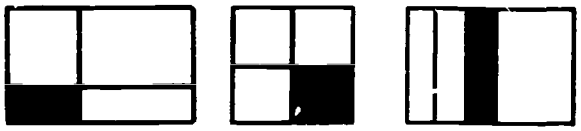
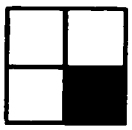
13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

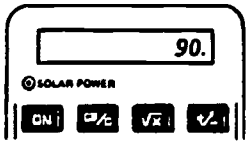
Objective	Example
1-15-a Read and write numbers through 99.	Read the number shown on the number card or on a calculator.  Oral Answer: Seventy-eight Listen to the number and write it. ninety-nine Answer: 99

Objective	Example
1-15-b Use concrete objects to show addition and subtraction sentences for facts through 18.	Use objects and number cards to show 9 + 4 = 13 Answer:  Use marbles and then write the number sentence on the chalkboard to show Thirteen minus four is nine. Answer:  

Objective	Example
1-15-c Recall the addition facts and the corresponding subtraction facts for sums through 18.	Find the sum. $\begin{array}{r} 8 \\ +\ 9 \\ \hline \end{array}$ Answer: 17 Subtract. $17 - 9 = \square$ Answer: 8
1-15-d Add and subtract two-digit multiples of ten.	Find the sum. $40 + 20 = \square$ Answer: 60 Subtract. $\begin{array}{r} 50 \\ -\ 10 \\ \hline \end{array}$ Answer: 40

Objective	Example
1-15-e Add two numbers that have as many as two digits, without renaming.	Use counting sticks in bundles of ten. Add to find the sums. a) Tens | Ones 3 | 2 + | 6 b) 24 + 52 = ☐ Answer: a) 38 b) 76
1-15-f Subtract two numbers that have as many as two digits, without renaming.	Use counting sticks in bundles of ten. Subtract to find the answers. a) 28 - 7 = ☐ b) Tens | Ones 3 | 5 - 1 | 2 Answer: a) 21 b) 23

Objective	Example
1-15-g Add 3 one-digit numbers.	Use blocks and complete the number sentence to show 4 + 3 + 2 = ☐ Answer:  4 + 3 + 2 = 9
1-15-h Identify fractional parts: $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{10}$.	Look at the following shapes on the flannel board. Point to the shape that shows 1/4 of the whole in a different color.  Answer: 

Objective	Example
1-15-i Demonstrate the use of a calculator to solve story problems involving the addition or subtraction of whole numbers having as many as two digits.	Listen to the story problem and answer the question. Scott's family went on vacation. They started in Chicago and traveled 40 miles to Great America. Then they went 50 miles to Milwaukee. How far did they travel in all? The answer is 90 miles. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: C 4 0 + 5 0 = 

GRADE ONE

Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

Objective	Example
1-16-a Determine whether enough information is given to arrive at a conclusion.	Listen to the story problem. Can this problem be solved? If not, what information is needed to find the answer? Sarah has 5 balls. Maria gave her more balls. How many balls does Sarah have now? Answer: The problem cannot be solved because it does not tell enough. We need to know how many balls Maria gave Sarah.
1-16-b Match subtraction number sentences with story problems giving sums through 18.	Tell which number sentence describes the story problem. Martha had a set of 12 glasses. Four glasses broke. How many glasses did Martha have left? a) 12 + 4 = 16 b) 12 - 4 = 8 c) 1 + 2 + 4 = 7 Answer: b) 12 - 4 = 8

Objective	Example
1-16-c Use guess-and-check as a problem-solving strategy.	Guess the number of stars on the flannel board. Then count to see how close you came to your guess.  Answer: Estimates will vary. There are 14 stars.

GRADE TWO

GRADE TWO

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Geometric Concepts

Objective	Example
2-1-a Recall the addition and subtraction facts corresponding to sums through 18.	Find the sum. 9 + 8 Answer: 17 Subtract. 17 - 8 = □ Answer: 9

Objective	Example
2-1-b Write related addition and subtraction facts for given whole numbers.	Write four related addition and subtraction facts for the numbers 9, 8, and 17. Answer: 9 + 8 = 17 8 + 9 = 17 17 - 8 = 9 17 - 9 = 8
2-1-c Order whole numbers through 99.	Order the numbers from least to greatest. 34 64 61 9 15 43 75 91 86 7 Answer: 7 9 15 34 43 61 64 75 86 91

GRADE TWO

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Geometric Concepts

Objective	Example
2-2-a Write an addition or subtraction number sentence that corresponds to a picture.	Write an addition or subtraction number sentence for the picture.  Answer: 8 - 2 = 6
2-2-b Write a problem from an oral description.	Listen to a number sentence and then write it. Seven plus eight equals fifteen. Answer: 7 + 8 = 15

Objective	Example
2-2-c Complete number sentences illustrating the commutative (order) property.	Use counters to show that the order in which numbers are added does not change their sum. Then complete the number sentences. a) 6 + 3 = 3 + ☐ b) ☐ + 9 = 9 + 7 Answer: a) 6 b) 7

GRADE TWO

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Geometric Concepts

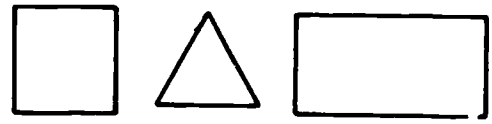
Objective	Example
2-3-a Choose the appropriate operation to solve addition and subtraction story problems.	Listen to the story. Carmen has 9 dolls. Barbara has 6 dolls. How many dolls do Carmen and Barbara have altogether? Which operation would be used to find how many dolls Carmen and Barbara have altogether? Answer: Addition Which operation would be used to find how many more dolls Carmen has than Barbara? Answer: Subtraction

GRADE TWO

First Reporting Period

1. Arithmetic
2. Algebraic Concepts
3. Applications
4. Geometric Concepts

Objective	Example
2-4-a Identify congruent figures.	Look at the cut-out shapes. Place one shape over each of the other shapes and compare them. Choose the figure that is the same size and shape as:  a)  b)  c)  Answer: b)

Objective	Example
2-4-b Name the shape that has 3 sides and the shapes that have 4 sides.	Look at the cut-out shapes. Point to the sides of each shape and count them.  a) What is the name of a shape with 3 sides? b) What are the names of shapes with 4 sides? Sample Answer: a) Triangle b) Square Rectangle
2-4-c Draw circles, squares, triangles, and rectangles.	Draw a circle, a square, a triangle, and a rectangle. Answer: 

GRADE TWO

Second Reporting Period

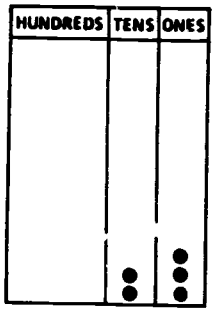
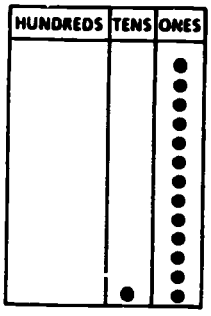
5. Measurement
6. Arithmetic
7. Applications
8. Algebraic Concepts

Objective	Example
2-5-a Measure lengths to the nearest inch and centimeter.	Estimate and then measure the length of a pencil to the nearest inch. Estimate and then measure the length of the same pencil to the nearest centimeter. Answer: Estimates and measurements will vary.

GRADE TWO

Second Reporting Period

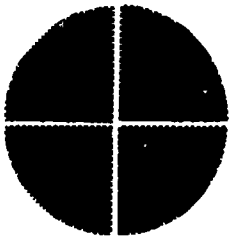
5. Measurement
6. Arithmetic
7. Applications
8. Algebraic Concepts

Objective	Example
2-6-a Rename numbers through 99 in different ways.	Use a place-value board to rename 23 as a sum of tens and ones. Then write 23 as a sum of tens and ones in different ways. Sample Answer:  2 tens + 3 ones 20 + 3  1 ten + 13 ones 10 + 13
2-6-b Add numbers having as many as two digits and involving renaming.	Find the sums. a) $\begin{array}{r} 53 \\ +\ 8 \\ \hline \end{array}$ b) 48 + 34 = ☐ Answer: a) 61 b) 82

Objective	Example
2-6-c Add and subtract values of money through 99 cents.	Find the sum. 43¢ + 45¢ Answer: 88¢ Subtract. 99¢ - 40¢ = ☐ Answer: 59¢

Objective	Example
2-6-d Relate addition situations involving whole numbers to number expressions or sentences.	Read the number sentence. 8 + 5 = ☐ The answer is 13. Tell a story about putting things together to match the number sentence. Sample Answer: Bob ate 8 cookies. Sarah ate 5 cookies. How many cookies did Sarah and Bob eat altogether? Read the story problem and solve it. Rochelle has 9 toy trucks. Her sister has 7. How many trucks do the sisters have altogether? The answer is 16 trucks. Write a number sentence to match the story problem. Answer: 9 + 7 = ☐ 9 + 7 = 16

Objective	Example
2-6-d (continued) Relate addition situations involving whole numbers to number expressions or number sentences.	Read the number sentence. $52 + 3 = \square$ The answer is 55. Tell a story about adding something to an object to match the number sentence. Sample Answer: At the beginning of the year, Susie's plant was 52 inches tall. Seven months later it had grown 3 inches. How tall was the plant then? Read the story problem and solve it. Last year Kenny was 92 cm tall. He grew 5 cm in height since then. How tall is Kenny now? The answer is 97 cm. Write a number sentence to match the story problem. Answer: $92 + 5 = \square$ $92 + 5 = 97$

Objective	Example
2-6-e Identify a part of a unit whole or a part of a group as a unit fraction.	Choose four felt pieces and arrange them into a circle on the flannel board. Name each piece as a fraction of the circle.  Answer: Each piece is 1 out of 4 equal parts. $\frac{1}{4}$ Draw a group of six flowers. Color one flower red. Tell what part of the group was colored red. Answer: 1 out of 6 $\frac{1}{6}$

GRADE TWO

Second Reporting Period

5. Measurement
6. Arithmetic
7. Applications
8. Algebraic Concepts

Objective	Example
2-7-a Choose the appropriate operation and write a number sentence that would solve a story problem.	Read the story problem. Juanita ate 13 raisins. Tony ate 4 raisins. How many raisins did Juanita and Tony eat altogether? Which operation would be used to find how many raisins Juanita and Tony ate? Write a number sentence that shows how many raisins Juanita and Tony ate. Answer: Addition 13 + 4 = ☐ Which operation would be used to find how many more raisins Juanita ate than Tony? Write a number sentence that shows how many more raisins Juanita ate than Tony. Answer: Subtraction 13 - 4 = ☐

GRADE TWO

Second Reporting Period

5. **Measurement**
6. **Arithmetic**
7. **Applications**
8. **Algebraic Concepts**

Objective	Example
2-8-a Solve addition or subtraction number sentences that involve basic facts.	Choose the number that will make this number sentence true. 9 + ☐ = 16 a) 7 b) 9 c) 8 Answer: a) 7 Choose the number that will make this number sentence true. 15 - ☐ = 8 a) 8 b) 7 c) 9 Answer: b) 7

GRADE TWO

Third Reporting Period

9. Arithmetic
10. Measurement
11. Algebraic Concepts
12. Applications

Objective	Example
2-9-a Identify the value of the digits in numbers through 999.	Identify the digit in the hundreds place in the number 394. Answer: 3 Tell the value of the digit 7 in 471. Answer: 7 tens or 70
2-9-b Read and write numbers through 999.	Look at the chalkboard and read the number aloud. 608 Answer: Six hundred eight Listen to the number and write it. four hundred seventy-one Answer: 471

Objective	Example
2-9-c Order whole numbers through 999.	Order the numbers from least to greatest. 250 989 205 53 991 785 857 Answer: 53 205 250 785 857 989 991
2-9-d Add three or more numbers having as many as two digits and involving renaming.	Find the sum. 45 31 28 + 52 Answer: 156
2-9-e Subtract two numbers having as many as two digits and involving renaming.	Subtract. a) 46 - 7 = □ b) 31 - 18 Answer: a) 39 b) 13

Objective	Example
2-9-f Relate subtraction situations involving whole numbers to number expressions or sentences.	Read the number sentence. 29 - 17 = ☐ The answer is 12. Tell a story about taking away something to match the number sentence. Sample Answer: Twenty-nine children went to the park. Seventeen children bought ice cream. How many children did not buy ice cream? Read the story problem. Mary weighed 91 pounds. She lost 12 pounds. How much does Mary weigh now? The answer is 79 pounds. Write a number sentence to match the story problem. Answer: 91 - 12 = ☐ 91 - 12 = 79

Objective	Example
2-9-f (continued) Relate subtraction situations involving whole numbers to number expressions or sentences.	Read the number sentence. 28 - 19 = ☐ The answer is 9. Tell a story about comparing things to match the number sentence. Sample Answer: Shiree caught 28 fish. Tyrone caught 19 fish. How many more fish did Shiree catch than Tyrone? Read the story problem. Stan is 58 inches tall. Elena is 44 inches tall. How much taller is Stan than Susan? The answer is 14 inches. Write a number sentence to match the story problem. Answer: 58 - 44 = ☐ 58 - 44 = 14

Objective	Example
2-9-f (continued) Relate subtraction situations involving whole numbers to number expressions or sentences.	Read the number sentence. 35 - 17 = ☐ The answer is 18. Tell a story about comparing parts of a group to the whole group to match the number sentence. Sample Answer: There were 35 children playing in the schoolyard. Seventeen of those children were girls. How many were boys? Read the story problem. Mike has 48 marbles. Twenty-three of the marbles are red. The rest are blue. How many marbles are blue? The answer is 25 blue marbles. Write a number sentence to match the story problem. Answer: 48 - 23 = ☐ 48 - 23 = 25

GRADE TWO

Third Reporting Period

9. Arithmetic
10. Measurement
11. Algebraic Concepts
12. Applications

Objective	Example
2-10-a Read time to the quarter hour and to five-minute periods.	Perform the activities. a) Look at the demonstration clock. Move the hands to show 3:55. Answer:  b) Look at the demonstration digital clock. Read the time.  Answer: 15 minutes past 3 c) Look at the classroom clo Read the time. Answer: Answers will vary according to the time of day.

GRADE TWO

Third Reporting Period

9. Arithmetic
10. Measurement
11. Algebraic Concepts
12. Applications

Objective	Example
2-11-a Give an oral description of an addition or subtraction problem.	Listen to the problem. 326 minus 237 What is another way of saying this problem? Sample Answer: Subtract 237 from 326.
2-11-b Select the symbol (= or ≠) that will make a number sentence true.	Choose = or ≠ to make the number sentence true. 235 + 306 ◯ 306 + 239 Answer: 235 + 306 (≠) 306 + 239

GRADE TWO

Third Reporting Period

9. Arithmetic
10. Measurement
11. Algebraic Concepts
12. Applications

Objective	Example
2-12-a Choose the appropriate operation, write the correct number sentence, and solve the problem.	Listen to the story and answer the question. Alfreda had 23 toy cars. Suzanne had 14 toy cars. They put the toy cars together. Would Alfreda and Suzanne add or subtract to find out how many toy cars they had altogether? Write the number sentence and solve the problem. Answer: Add 23 + 14 = □ 23 + 14 = 37 There are 37 toy cars altogether.
2-12-b Formulate reasonable questions from given information.	Listen to the story. Cynthia has $7. Carla has $3. What questions can be asked by using this information? Sample Answer: How much money do the girls have altogether? How much more money does Cynthia have than Carla?

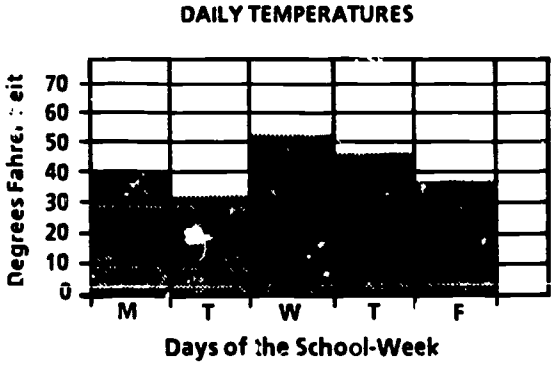
Objective	Example
2-12-c Determine whether enough information is given to arrive at a conclusion.	Read the story problem. Can this problem be solved? If not, what information is needed to find the answer? Tom had 43 stickers. He gave some to Susie. How many stickers does Tom have now? Answer: No. The problem cannot be solved. We need to know how many stickers Tom gave to Susie.

GRADE TWO

Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

Objective	Example
2-13-a Obtain information from bar graphs.	Read the graph and name the warmest day shown.



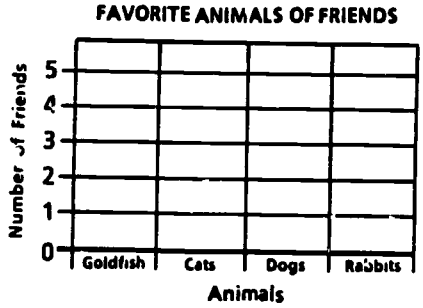
Answer:
Wednesday

Objective

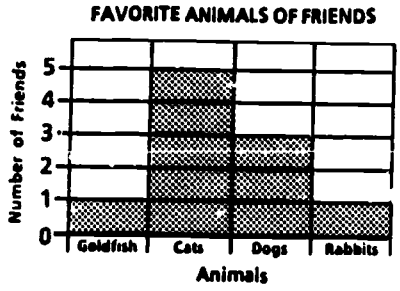
2-13-b
Collect, record, and interpret data.

Example

Ask ten friends to name their favorite animal. Fill in a bar graph and ask some questions about the information pictured.



Sample Answer:



Questions:
a) How many friends like cats?
b) How many friends like dogs?
c) How many friends like goldfish?
d) How many friends like rabbits?
e) Which animal is liked the most?
f) How many more friends liked cats than dogs? Write a number sentence.

Answer:
a) 5
b) 3
c) 1
d) 1
e) Cats
f) 2
5 - 3 = 2

GRADE TWO

Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

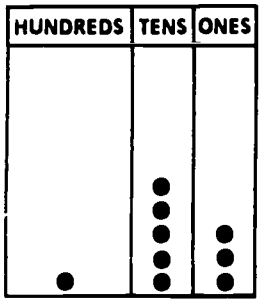
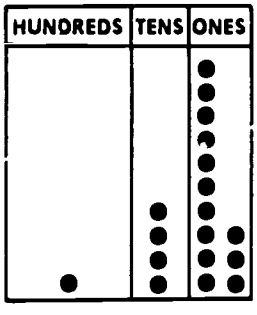
Objective	Example
2-14-a Relate closely associated units of time: days, weeks, months, and years.	Tell how many months are in one year. Answer: 12 months
2-14-b Make change for a purchase costing less than $1.00.	Read the problem and solve it. A goldfish costs 35 cents. How much change would Tommie get from a one-dollar bill? Answer: 65 cents

Objective	Example
2-14-c Use a Celsius or Fahrenheit thermometer to read in multiples of ten the temperatures above zero.	Use classroom or demonstration thermometers to read the following temperatures to the nearest ten degrees in both Celsius and Fahrenheit degrees: a) The air in the classroom b) The air outside the classroom window c) Cold water in a glass d) Warm water in a glass e) Ice water in a glass Answer: Answers will vary.

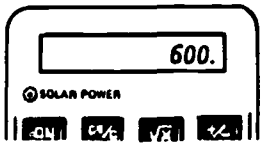
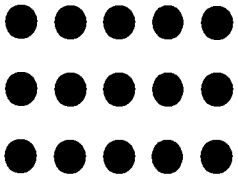
GRADE TWO

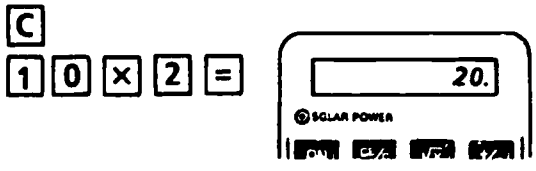
Fourth Reporting Period

13. Data Analysis
14. Measurement
15. Arithmetic
16. Applications

Objective	Example
2-15-a Rename numbers through 999 in different ways.	Use a place-value board to rename 153 in different ways. Then write 153 in different ways. Sample Answer:  1 hundred + 5 tens + 3 ones 100 + 50 + 3  1 hundred + 4 tens + 13 ones 100 + 40 + 13

Objective	Example
2-15-b Relate two-step situations involving the use of any combination of addition and subtraction to number sentences.	Read the number sentences. a) \$1.49 + \$2.29 = ☐ b) \$5.00 - \$3.78 = ☐ The answers are a) \$3.78 b) \$1.22 Tell a story problem to match the number sentences. Sample Answer: Anna bought a bag of apples costing \$1.49 and a bag of oranges costing \$2.29. She paid for both bags of fruit with a five-dollar bill. How much change did she receive? Read the story problem. Ben found 13 shells. Erika found 18 shells. Sue found 43 shells. How many more shells does Sue have than both Ben and Erika? The answer is 12 shells. Write the number sentences that match the story problem. Answer: 18 + 13 = 31 43 - 31 = 12

Objective	Example
2-15-c Demonstrate the use of a calculator to solve story problems involving addition or subtraction of whole numbers having as many as three digits.	Read the story problem. Each child in the Adams family saved pennies. Steven had 300 pennies. Martha had 250 pennies. Patrick had 100 pennies but he spent 50 of them. How many pennies do the children now have? The answer is 600 pennies. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: C 3 0 0 + 2 5 0 + 1 0 0 - 5 0 = 
2-15-d Use concrete objects to show multiplication facts that have factors of 2, factors of 5, and factors of 10.	Use counters to show three groups of 5. How many counters are there in three groups of 5? Answer:  Three rows (groups) of 5 each 3 x 5 = 15

Objective	Example
2-15-e Count the first ten multiples of 2, 3. 4, 5, and 10.	Count by twos through twenty, beginning with 2. Answer: 2, 4, 6, 8, . . . , 20
2-15-f Recall the multiplication facts involving factors of 2, factors of 5, and factors of 10.	Find the product of 2 and the numbers through 10. Sample Answer: 2 x 9 = 18
2-15-g Demonstrate the use of a calculator to solve story problems by multiplying a number by 2, 5, or 10.	Read the story problem. One hot summer day 10 persons went to the beach. Each person bought 2 ice-cream bars. How many bars were bought? The answer is 20 ice-cream bars. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: 

GRADE TWO

Fourth Reporting Period

13. **Data Analysis**
14. **Measurement**
15. **Arithmetic**
16. **Applications**

Objective	Example
2-16-a Tell which number is between two other numbers.	Write the number that is between 79 and 81. 79, __, 81 Answer: 80
2-16-b Choose appropriate operations to solve a given multistep problem, write the correct number sentences, and solve the problem.	Read and solve the story problem. Mui has 26 marbles, Ralph has 53 marbles, and Marguerite has 96 marbles. What two operations could be used to tell how many more marbles Marguerite has than Mui and Ralph together. Answer: Addition Subtraction Write the number sentences. Answer: 26 + 53 = □ 26 + 53 = 79 96 - 79 = □ 96 - 79 = 17

Objective	Example
2-16-c Identify irrelevant information in solving story problems.	Read the story problem. What information is not needed to find the solution? José got up at 8 a.m. to go to the store. He bought milk for $1.90 and bread for $1.00. How much money did he spend? Answer: The time he got up is not needed.
2-16-d Use guess-and-check as a problem- olving procedure.	Listen to the facts. A book is open and the sum of the two pages that can be seen is 45. Use guess-and-check to find what the two pages are. Record guesses on the chalkboard. One person guessed that the two pages were 20 and 21. Should the next guess involve larger or smaller numbers? Answer: Larger. The page numbers are 22 and 23.

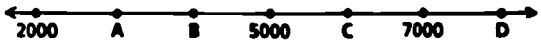
GRADE THREE

GRADE THREE

First Reporting Period

1. Arithmetic
2. Measurement
3. Algebraic Concepts
4. Applications

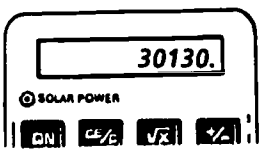
Objective	Example
3-1-a Read and write words for whole numbers through 9,999.	Read the number aloud and write it in words. 3,421 Answer: Three thousand, four hundred twenty-one
3-1-b Identify the value of the digits in numbers through 9,999.	Look at the number. What is the value of the digit 4 in this number? 4,835 Answer: 4 thousands or 4,000
3-1-c Order whole numbers through 9,999.	Order the numbers from least to greatest. 5,643 5,809 964 Answer: 964 5,643 5,809

Objective	Example
3-1-d Relate points on a number line to four-digit whole numbers.	Look at the number line. Assign appropriate numbers to points A, B, C, and D.  Answer: A 3,000 B 4,000 C 6,000 D 8,000
3-1-e Apply the associative (grouping) property to addition problems.	Solve the problem in an easier way by changing the grouping of the addends. 16 + (4 + 7) = ☐ Answer: (16 + 4) + 7 = 20 + 7 = 27
3-1-f Mentally add and subtract two-digit multiples of ten.	Find the sum without using paper and pencil. 40 + 20 + 30 = ☐ Answer: 90 Subtract without using paper and pencil. 70 - 30 = ☐ Answer: 40

Objective	Example
3-1-g Relate word sentences for addition and subtraction operations to their appropriate numbers and mathematics symbols.	Write a number sentence for the word sentence. Nine chips plus eighteen chips is twenty-seven chips. Answer: 9 + 18 = 27 Write a word sentence for the number sentence. 36 - 17 = 19 Answer: Thirty-six toy cars minus seventeen toy cars is nineteen toy cars.
3-1-h Write related addition and subtraction statements that include given whole numbers.	Write four related addition and subtraction number sentences by using only these numbers: 36 64 100 Answer: 36 + 64 = 100 64 + 36 = 100 100 - 36 = 64 100 - 64 = 36

Objective	Example
3-1-i Add and subtract two numbers having as many as three digits and involving renaming in the ones place and in the tens place.	Find the sum. 371 + 429 Answer: 800 Subtract. 434 - 67 = ☐ Answer: 367
3-1-j Add three numbers having as many as three digits and involving renaming.	Find the sum. 502 + 96 + 483 = ☐ Answer: 1,081
3-1-k Use related addition and subtraction problems to check computations involving whole numbers.	Write the addition problem needed to check this subtraction problem. 453 - 264 189 Answer: 189 +264 453

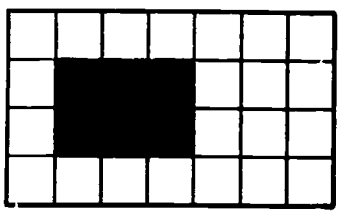
Objective	Example
3-1-1 Add and subtract values of money through $9.99.	Find the sum. $0.43 3.45 + 5.54 Answer: $9.42 Subtract. $4.24 - $1.12 = ☐ Answer: $3.12
3-1-m Determine whether items can be bought for a given amount less than $5.00.	Read the problem and solve it. Willie has $4.50. Will he be able to buy a hamburger for $1.75, fries for $0.75, and milk for $0.80? Answer: Yes

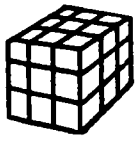
Objective	Example
3-1-n Demonstrate the use of a calculator to solve story problems involving addition or subtraction of whole numbers having as many as six digits.	Read the story problem. Crowds totaling 100,000 attended baseball games over a three-day holiday weekend. On Friday night 35,490 people were in attendance and on Saturday night there were 34,380. How many people went to the baseball game on Sunday afternoon? The answer is 30,130 people. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: C 1 0 0 0 0 0 − 3 5 4 9 0 − 3 4 3 8 0 = 

GRADE THREE

First Reporting Period

1. Arithmetic
2. Measurement
3. Algebraic Concepts
4. Applications

Objective	Example
3-2-a Estimate and measure the length of an object by using a given unit.	Choose an object on your desk to measure. First estimate its length in centimeters. Then measure its length in centimeters. Answer: Estimates and measurements will vary.
3-2-b Estimate and measure the length of the sides of an object to determine its perimeter.	Estimate and then measure the sides of your desk in centimeters and in inches to determine its perimeter. Answer: Estimates and measurements will vary.
3-2-c Determine the area of a figure drawn on grid paper.	Find the area of the shaded figure.  Answer: 6 square units

Objective	Example
3-2-d Determine the volume and capacity by counting units.	Construct a shape by using unit cubes. Count the cubes. What is the volume of the shape? Answer: Answers will vary with the shape. Find the volume of the cube in the picture.  Answer: 27 cubic units Use a plastic measuring cup, a quart container, and a gallon container. Fill the quart container with cups of water. Count the number of cups that are contained in the quart. Repeat the activity and count the number of quarts that are contained in a gallon. Answer: 4 cups fill a quart. 4 quarts fill a gallon.

GRADE THREE

First Reporting Period

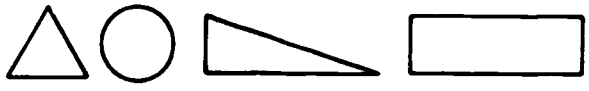
1. **Arithmetic**
2. **Measurement**
3. **Algebraic Concepts**
4. **Applications**

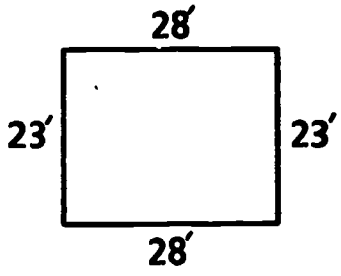
Objective	Example
3-3-a Use the correct symbol, greater than (>) or less than (<), to complete a number sentence.	Write > or < to make the number sentence true. 3 + 4 ◯ 7 + 2 Answer: 3 + 4 (<) 7 + 2
3-3-b Write number sentences for story problems involving addition and subtraction.	Read the story problem and write number sentences for it. James has 125 blue marbles and 107 red marbles. How many marbles does James have altogether? Answer: 125 + 107 = □ How many more blue marbles than red marbles does James have? Answer: 125 - 107 = □

GRADE THREE

First Reporting Period

1. Arithmetic
2. Measurement
3. Algebraic Concepts
4. Applications

Objective	Example
3-4-a Apply the words all, some, and exactly.	Look at these shapes:  Choose one of these words to complete each sentence: SOME EXACTLY ALL a) ____ of the objects are shapes. b) ____ of the objects are triangles. c) There is ____ one object that is a circle. Answer: a) ALL b) SOME c) EXACTLY
3-4-b Round whole numbers to the nearest 10 and to the nearest 100.	Round the numbers to the nearest ten. 43 58 85 Answer: 40 60 90 Round the numbers to the nearest hundred. 436 783 328 Answer: 400 800 300

Objective	Example
3-4-c Estimate results of whole-number operations.	Name two numbers that would be added without using paper and pencil to estimate the sum to the nearest hundred. What is the estimated sum? 219 + 388 = □ Answer: 200 + 400 600
3-4-d Solve word problems by using estimation.	Estimate the perimeter of a rectangular room that measures 28 feet long and 23 feet wide.  Answer: 30 + 20 + 30 + 20 = 100 100 feet

GRADE THREE

Second Reporting Period

5. Measurement
6. Arithmetic
7. Applications
8. Data Analysis

Objective	Example
3-5-a Read time to the nearest minute on traditional and digital clocks.	Perform the activities. a) Look at the demonstration clock. Move the hands to show 6:47. Answer:  b) Look at the digital clock. Read the time.  Answer: 12 minutes past 8 c) Look at the classroom clock. Read the time. Answer: Answers will vary according to the time of day.

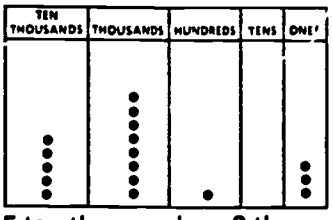
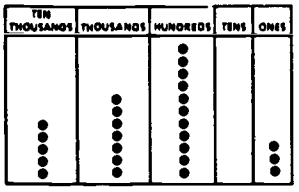
Objective	Example
3-5-b Relate closely associated units of time: seconds, minutes, hours, days, weeks, months, and years.	Tell how many minutes there are in two hours. Answer: 120 minutes
3-5-c Use appropriate symbols for money.	Write 28 cents in two different ways. Sample Answer: $0.28 28¢
3-5-d Find an equivalent value of money for amounts through $9.99.	Complete the chart to show different ways to make $4.25. Answer: Answers will vary.

DOLLARS	QUARTERS	DIMES	NICKELS	PENNIES	TOTAL
3	5				$4.25
		40		25	$4.25
4		2	1		$4.25

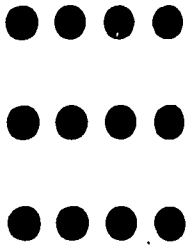
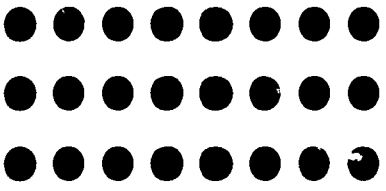
GRADE THREE

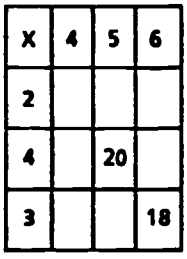
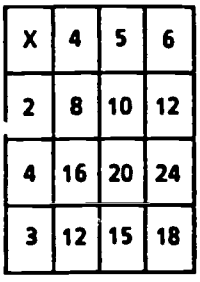
Second Reporting Period

5. Measurement
6. Arithmetic
7. Applications
8. Data Analysis

Objective	Example
3-6-a Read numbers through 9,999,999.	Look at the number on the chalkboard. Read the number aloud. 3,053,401 Answer: Three million, fifty-three thousand, four hundred one
3-6-b Rename whole numbers through 99,999 in different ways.	Use a place-value board to rename 58,103 in different ways. Then write 58,103 in different ways. Sample Answer:  5 ten thousands + 8 thousands + 1 hundred + 3 ones 50,000 + 8,000 + 100 + 3  5 ten thousands + 7 thousands + 11 hundreds + 3 ones 50,000 + 7,000 + 1,100 + 3

Objective	Example
3-6-c Determine whether a whole number is even or odd.	Look at the digit in the ones place in each of these numbers. Draw a ring around the even numbers and underline the odd numbers. 31 32 33 34 35 36 37 38 39 40 Answer: 31 (32) 33 (34) 35 (36) 37 (38) 39 (40)
3-6-d Give a missing number in an increasing or decreasing sequence of whole numbers that have a common difference.	Identify the missing number in the sequence. 2, 5, ____ , 11, 14 Answer: 8 Identify the missing number in the sequence. 27, 22, ____ , 12, 7 Answer: 17
3-6-e Relate a multiplication problem to a problem involving repeated addition of like addends.	Show the multiplication problem as a repeated addition problem. 5 x 2 = 10 Answer: 2 + 2 + 2 + 2 + 2 = 10

Objective	Example
3-6-f Use concrete objects to show multiplication facts involving factors of 0, factors of 1, factors of 2, factors of 3, factors of 4, and factors of 5.	Show how many counters there are in three groups of 4. Answer:  3 rows (groups) of 4 each 3 x 4 = 12
3-6-g Apply the commutative (order) property to the multiplication of whole numbers.	Look at the array that shows 3 x 8 = 24  Determine which problem also gives a product of 24. a) 3 x 6 = ☐ b) 8 x 3 = ☐ c) 23 x 1 = ☐ Answer: b) 8 x 3 = ☐

Objective	Example
3-6-h Recall all of the multiplication facts involving factors of 0, factors of 1, factors of 2, factors of 3, factors of 4, and factors of 5.	Complete the sample chart.  Answer: 
3-6-i Apply the identity property of one to the multiplication of whole numbers.	Name the number that will make the number sentence true. 2 x ☐ = 2 Answer: 2 x 1 = 2
3-6-j Determine whether items can be bought for a given amount less than $10.00.	Read the story problem and answer the question. Lucia has $7.8[illegible]. Can she buy all 3 of these toys: a doll for $3.46, a boat for $1.69, and a ball for $2.41? Answer: Yes

GRADE THREE

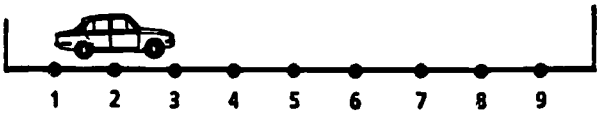
Second Reporting Period

5. Measurement
6. Arithmetic
7. Applications
8. Data Analysis

Objective	Example
3-7-a Choose the appropriate operation and solve a given problem.	Choose the correct operatio and use it to solve the problem. Juan bought 4 pencils at 10¢ each. What is the total cost of the pencils? Answer: Add 10¢ four times or multiply 10¢ by four. 40¢
3-7-b Estimate answers to story problems.	Listen to the story problem. Maria has 39 cents. Tamika has 53 cents. About how much money do the girls have altogether? What two numbers would be added to estimate how much money Maria and Tamika have altogether? What is your estimate? Answer: 40 and 50 Maria and Tamika have about 90 cents.

Objective	Example
3-7-c Use trial and error as a problem-solving procedure.	Use trial and error and suggest possible solutions. Identify combinations of quarters, dimes, and nickels that equal 50¢. Make a chart to enter and check your combinations. Sample Answer:

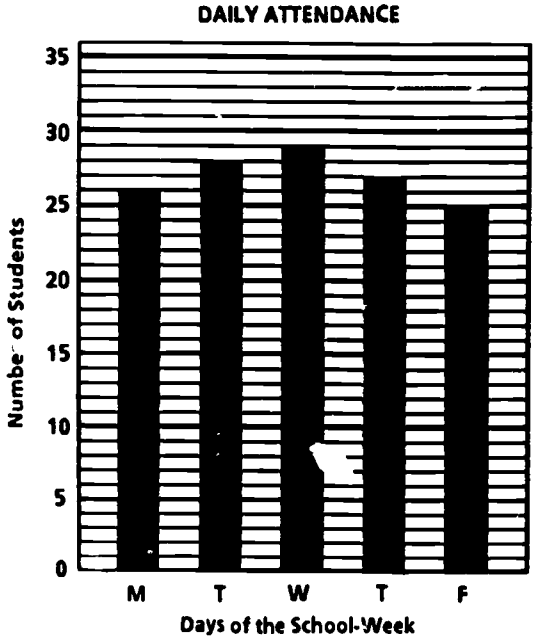
Quarters	Dimes	Nickels	Total Value
2	0	0	50¢
1	2	1	50¢
1	1	3	50¢
0	5	0	50¢
0	4	2	50¢
0	3	4	50¢
0	2	6	50¢
0	1	8	50¢
0	0	10	50¢

Objective	Example
3-7-d Use smaller numbers to solve or to suggest a solution to a given problem.	Change the numbers in this problem to smaller ones to help decide the proper operation. The Smith family lives in New York. They are planning a 3,215-mile trip to California. After traveling 851 miles, they will stop in Chicago. How many more miles will they need to travel to finish their trip? Sample Answer: Picture an easier problem. The Smith family planned a 9-mile trip to visit friends. They stopped after 3 miles.  How many more miles will they have to travel to get to their friends' home? Count them. Think: What is the relationship of 9, 3, and 6? What operation on 9 and 3 gives us 6? The solution is 9 - 3 = 6 for the easier problem. The operation used is subtraction. The solution to the original problem is 3,215 - 851 = 2,364. The Smith family must travel 2,364 miles to finish their trip.

GRADE THREE

Second Reporting Period

5. **Measurement**
6. **Arithmetic**
7. **Applications**
8. **Data Analysis**

Objective	Example
3-8-a Collect and record observations over a period of time and summarize them on a simple graph.	Use a bar graph to record the number of students in attendance each day for a week. Discuss the graph. Sample Answer:  a) On which day was attendance the greatest? b) Did attendance increase or decrease from Monday through Wednesday? Answer: a) Wednesday b) Increase

GRADE THREE

Third Reporting Period

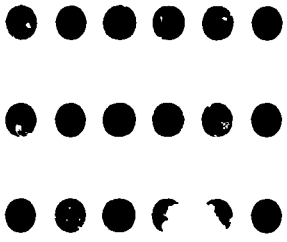
9. **Algebraic Concepts**
10. **Arithmetic**
11. **Applications**
12. **Geometric Concepts**

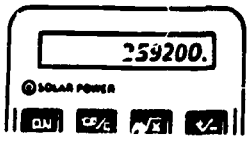
Objective	Example
3-9-a Use the correct symbol (<, >, =, ≠) to complete number sentences involving whole numbers.	Choose one or more of these symbols to make the number sentence true: < > = ≠ 18 + 35 ☐ 35 + 81 Answer: 18 + 35 (<) 35 + 81 or 18 + 35 (≠) 35 + 81

GRADE THREE

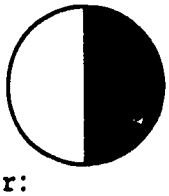
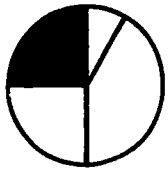
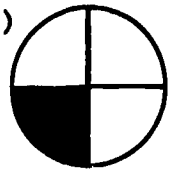
Third Reporting Period

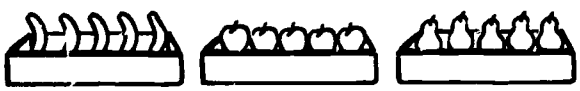
9. Algebraic Concepts
10. Arithmetic
11. Applications
12. Geometric Concepts

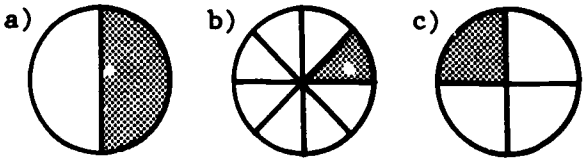
Objective	Example
3-10-a Use concrete objects to show multiplication facts involving factors of 6, factors of 7, factors of 8, and factors of 9.	Show how many counters there are in three groups of 6. Answer:  3 rows (groups) of 6 each 3 × 6 = 18
3-10-b Recall the multiplication facts involving factors of 0 through 10.	Find the product. 4 x 9 = ☐ Answer: 36

Objective	Example
3-10-c Multiply a two-digit number that is a multiple of ten by a one-digit number.	Find the product. $7 \times 60 = \square$ Answer: 420
3-10-d Multiply a two-digit number by a one-digit number.	Find the product. $\begin{array}{r} 14 \\ \times\ 3 \\ \hline \end{array}$ Answer: 42
3-10-e Demonstrate the use of a calculator to solve word problems involving the multiplication of two numbers having a product of six digits.	Read the story problem. The baseball stadium can seat 43,200 people. One week all of the tickets were sold for all of the games. If six games were played, how many tickets were sold? The answer is 259,200 people. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: C 4 3 2 0 0 × 6 = 

Objective	Example
3-10-f Relate a division problem to a problem involving repeated subtraction.	Show the division problem as repeated subtraction. 10 ÷ 2 = 5 Answer: 10 - 2 = 8 (first subtraction) 8 - 2 = 6 (second subtraction) 6 - 2 = 4 (third subtraction) 4 - 2 = 2 (fourth subtraction) 2 - 2 = 0 (fifth subtraction)
3-10-g Use concrete objects to show division facts involving divisors of 1, 2, 3, 4, 5, and 10.	Show how many groups of 5 can be made from 15 counters. Answer:  3 groups of 5 counters 15 ÷ 5 = 3
3-10-h Use concrete objects to show division facts involving divisors of 6, 7, 8, and 9.	Show how many groups of 6 can be made from 18 counters. Answer:  3 groups of 6 counters 18 ÷ 6 = 3

Objective	Example
3-10-i Recall division facts using divisors of 1 through 10.	Find the quotient. $32 \div 4 = \square$ Answer: 8
3-10-j Translate unit fractions from words to symbols.	Write the fraction <u>one-fourth</u>. Answer: $\frac{1}{4}$
3-10-k Show that the denominator of a fraction indicates the number of equal parts.	Identify the denominators that should be written for these pictures. a)  b)  c)  Answer: a) 2 b) There can be no denominator because all the parts are not equal. c) 4

Objective	Example
3-10-1 Identify a part of a unit whole or a part of a group as a fraction.	Tell what part of the whole is shaded.  Answer: $\frac{2}{4}$ Tell what part of the group of telephones is white.  Answer: $\frac{3}{5}$
3-10-m Solve problems involving unit fractions as a part of a group.	Read the story problem and solve it. One-third of the fruits on the counter are apples. If there are 15 pieces of fruit altogether, how many apples are there? $\frac{1}{3}$ of 15 = $\square$  Answer: 5

Objective	Example
3-10-n Order unit fractions.	Order the shaded units of the circles from smallest to largest.  Answer: b) $\frac{1}{8}$ c) $\frac{1}{4}$ a) $\frac{1}{2}$ Order the fractions from smallest to largest. $\frac{1}{8}$ $\frac{1}{2}$ $\frac{1}{16}$ Answer: $\frac{1}{16}$ $\frac{1}{8}$ $\frac{1}{2}$

GRADE THREE

Third Reporting Period

9. Algebraic Concepts
10. Arithmetic
11. Applications
12. Geometric Concepts

Objective	Example
3-11-a Choose the appropriate operation to solve a given problem.	Choose whether to multiply or divide. Mr. Adams, the teacher-librarian, has 30 books to share equally with 5 teachers. How many books should each of the 5 teachers receive? Will Mr. Adams multiply or divide to solve the problem? Answer: Divide. Each teacher should get 6 books.
3-11-b Identify information that is irrelevant to a given question.	Read the story problem. Find the information that is not needed and then solve the problem. For 15 minutes each day, Laura read 5 pages of her book. How many pages did she read in 7 days? Answer: The information that is not needed to solve the problem is the number of minutes that Laura read each day. Laura read 35 pages.

Objective	Example
3-11-c Determine whether enough information is presented to solve a story problem and, if not, tell what additional information is needed.	Read the story problem. Can the problem be solved? If not, what information is needed to solve the problem? A cat eats a can of food every day. How much does it cost to feed the cat for a period of seven days? Answer: There is not enough information to solve the problem. The cost of one can of cat food is needed.

GRADE THREE

Third Reporting Period

9. Algebraic Concepts
10. Arithmetic
11. Applications
12. Geometric Concepts

Objective	Example
3-12-a Identify and draw lines of symmetry.	Draw the line of symmetry on the valentine heart.  Answer: 
3-12-b Name the polygons that have 3, 4, 5, 6, and 8 sides.	Look at the cut-out shapes on the bulletin board. Point to the polygons. a) Name the polygon that has 8 sides. b) How many sides does a quadrilateral have? Answer: a) Octagon b) 4

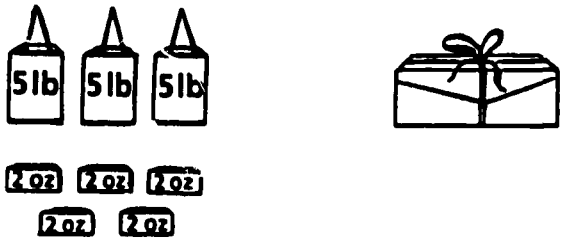
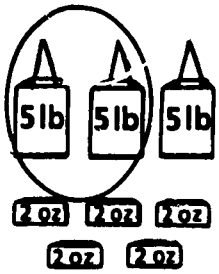
Objective	Example
3-12-c Determine the number of faces, edges, and vertices of solid figures.	Look at the model of a cube. a) How many faces does a cube have? b) How many edges does a cube have? c) How many vertices does a cube have? Answer: a) 6 b) 12 c) 8

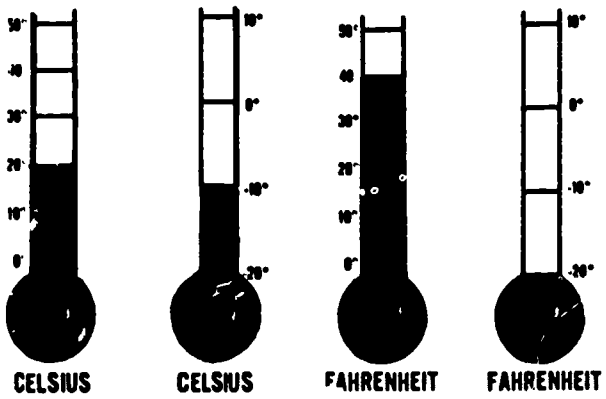
GRADE THREE

Fourth Reporting Period

13. Measurement
14. Data Analysis
15. Arithmetic
16. Applications

Objective	Example
3-13-a Read dials and scales to determine weight or mass.	Perform the following activities: a) Use the bathroom scale to weigh various books. b) Use the bathroom scale to weigh yourself. c) What is the mass of the package in the picture?  Answer: a) Answers will vary. b) Answers will vary. c) 15 kilograms

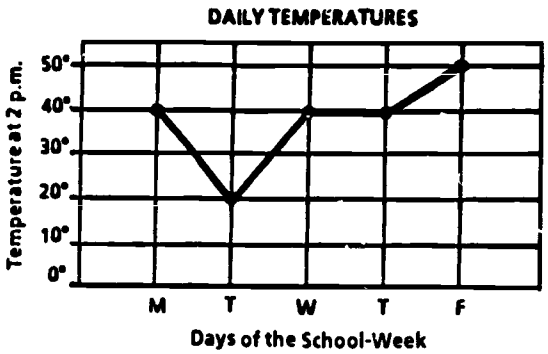
Objective	Example
3-Z3-b Use appropriate units for measuring on a balance scale.	Perform the following activities: a) Place an object on the balance scale. Find its weight or mass by using the appropriate units. b) Look at the picture. Which weights need to be put on the scale to balance a ten-pound package?  Answer: a) Answers will vary. b) 2 five-pound weights 

Objective	Example
3-13-c Use a Celsius or Fahrenheit thermometer and read in multiples of ten the temperatures above and below zero.	Use classroom thermometers to read the following temperatures to the nearest ten degrees above and below zero in both Celsius and Fahrenheit degrees: a) The air in the room b) The air outside the classroom window c) Cold water in a glass d) Warm water in a glass e) Ice water in a glass Answer: Answers will vary. Read the temperatures that are shown on these demonstration thermometers. a) b) c) d)  Answer: a) 20° C b) -10° C c) 40° F d) -20° F

GRADE THREE

Fourth Reporting Period

13. **Measurement**
14. **Data Analysis**
15. **Arithmetic**
16. **Applications**

Objective	Example
3-14-a Interpret information on a line graph.	Look at the line graph and answer the questions.  a) Which is the hottest day? b) On which day might it snow and not melt? c) Did the temperatures increase or decrease after Tuesday? Answer: a) Friday b) Tuesday c) Increase

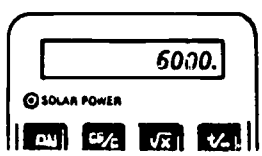
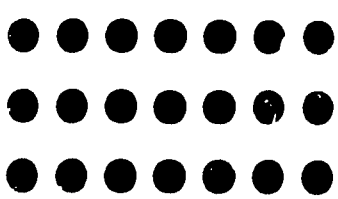
Objective	Example
3-14-b Read a schedule.	Read the train schedule. Eureka Eastbound Platteville Leave Arrive 6:00 a.m. 6:30 a.m. 6:20 a.m. 6:55 a.m. 6:40 a.m. 7:20 a.m. 7:00 a.m. 7:45 a.m. 7:15 a.m. 8:00 a.m. 7:30 a.m. 8:15 a.m. 7:45 a.m. 8:30 a.m. 8:00 a.m. 8:35 a.m. 9:00 a.m. 9:30 a.m. 10:00 a.m. 10:30 a.m. In order to arrive in Platteville at 7:45 a.m., what time would someone have to leave Eureka? Answer: 7:00 a.m.
3-14-c Collect and record data from an experiment that uses coins, dice, or spinners.	Flip a coin ten times and record the results on a chart. Sample Answer: Heads | / / / / / / Tails | / / / /
3-14-d List possible outcomes of various situations.	Listen to the problem. I am thinking of an even number between 1 and 9. What could it be? Answer: 2, 4, 6, or 8

GRADE THREE

Fourth Reporting Period

13. Measurement
14. Data Analysis
15. Arithmetic
16. Applications

Objective	Example
3-15-a Apply the identity property of one to the division of whole numbers.	Name the number that will make the number sentence true. $2 \div \square = 2$ Answer: $2 \div \boxed{1} = 2$
3-15-b Divide a two-digit number by a one-digit divisor that yields no remainder.	Find the quotient. $39 \div 3 = \square$ Answer: 13

Objective	Example
3-15-c **Demonstrate the use of a calculator to solve story problems involving the division of a six-digit dividend by a three-digit divisor and having no remainder.**	Read the story problem. The total prize in the contest is $600,000. One hundred people are winners, and the prize must be equally divided. How much money should each winner receive? The answer is $6,000 for each winner. Demonstrate a key sequence that could be used on a calculator to arrive at the answer. Sample Answer: [C] [6] [0] [0] [0] [0] [0] [÷] [1] [0] [0] [=] 
3-15-d **Write multiplication facts related to a given division fact involving whole numbers.**	Write two multiplication facts for the number sentence. Show the number sentences by using counters in an array. 21 ÷ 7 = 3 Answer: 3 x 7 = 21 7 x 3 = 21 

Objective	Example
3-15-e Write division facts related to a given multiplication fact involving whole numbers.	Write two division facts for the number sentence. 5 x 4 = 20 Answer: 20 ÷ 4 = 5 20 ÷ 5 = 4
3-15-f Solve related multiplication and division problems in order to check computations involving whole numbers.	Explain how to check the answer to this problem. 45 ÷ 5 = 9 Answer: Multiply. 5 x 9 = 45

GRADE THREE

Fourth Reporting Period

13. **Measurement**
14. **Data Analysis**
15. **Arithmetic**
16. **Applications**

Objective	Example
3-16-a Tell which number is between two other numbers.	Write the number that is between the numbers 233 and 235. Answer: 234
3-16-b Choose the appropriate operation to solve a given problem.	Read the problem. Select the appropriate operation and solve. Marty's dad agreed to buy Marty 10 marbles this week. Each week his dad will double the number of marbles. Find out how many marbles Marty will receive in the tenth week. Answer: Multiplication

WEEK	1	2	3	4	5	6	7	8	9	10
MARBLES	10	20	40	80	160	320	640	1280	2560	5120

5,120 marbles

Objective	Example
3-16-c Formulate a question from given information.	Determine the questions that can be asked about the problem. Mother bought a bag of 34 marbles for her 4 children. She wanted to divide the marbles equally among them. Sample Answer: Can each child get an equal number of marbles? Will any marbles be left over? If yes, how many marbles will be left over? How many marbles will each child get?