FOCUS in Mathematics

Second Edition (Nemeth)

Catalog No. 7-08280-01

⚠ **WARNING: CHOKING HAZARD – Small parts. Not intended for children ages 5 and under without adult supervision.**

A revision of FOCUS in Mathematics by Frank L. Franks, Sandra Albrecht, Tuck Tinsley III, and Anthony Evancic produced by APH in 1984.

American Printing House for the Blind
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Credits

Project Leaders:
Burt Boyer and Jeanette Wicker

Contributors:
Darlene Donhoff, Frank Hayden, David McGee, and Ann Travis

Expert Reviewers:
Leslie Durst, Dr. Gaylen Kapperman, Susan Osterhaus, Shannon Pruitt, Dr. Derrick Smith, and Dr. Tuck Tinsley III

Table of Contents

Foreword

The original *Fundamental Mathematics Concepts (FOCUS)* program was developed with funding from the National Science Foundation to prepare materials for improving mathematics instruction for legally blind students. The curriculum-based diagnostic and prescriptive program targeted concepts critical to understanding basic mathematics. Its purpose was to facilitate mathematics instruction of young blind students and to remediate deficiencies of older blind students.

The original program was developed at the Florida School for the Blind by Frank L. Franks, the Project Director; Tuck Tinsley III, Principal; Sandra Albrecht, Early Childhood Specialist; and Anthony Evancic, Educational Supervisor, West Pennsylvania School for the Blind, Pittsburgh in 1984.

Much of their early work is reflected in the FOCUS in Mathematics, Second Edition.

Introduction

The *FOCUS in Mathematics* program has been used widely in math instruction for students with visual impairments since 1984. The importance of the program has been the attention that it gave to determining knowledge and skills required of students in order to begin mathematics study. Educators have used the program for assessment, diagnosis and prescription, and for remediation.

FOCUS in Mathematics, Second Edition continues the basic premise of the original program. *FOCUS in Mathematics, Second Edition* provides for self-pacing, presents activities sequentially in small easily assimilated steps, involves active student participation, and affords immediate reinforcement through performance feedback.

Objectives have been updated to meet the *Principles and Standards for School Mathematics,* National Council of Teachers of Mathematics, 2000. In addition, *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence,* National Councils of Teachers of Mathematics, 2006 was used to determine many of the objectives.

The activities are designed for students who are functioning at Prekindergarten, Kindergarten, and First Grade Levels. The activities are organized under the themes: Algebra, Data Analysis, Geometry, Measurement, and Numbers and Operations.

The manipulatives have been updated to include many items that provide for hands-on-activities, flexibility in instruction, introduction of Nemeth Code, and modification of materials found in many elementary classrooms.

An Assessment Checklist is provided for each theme by grade level to assist the teacher in monitoring progress and determining new goals for the student's Individual Education

Plan. The Assessment Checklists may be reproduced from the manual or printed for each student from the CD accompanying the manual.

A rubric for student performance is suggested on each assessment page. You may use this rubric or choose one of your own.

1 = Beginning level of performance - Student demonstrates an understanding of concepts and implements appropriate strategies some of the time.

2 = Developing level of performance - Student demonstrates an understanding of concepts and implements appropriate strategies most of the time.

3 = Accomplished/Mastery Level of Performance - Student demonstrates a comprehensive understanding of concepts and consistently implements appropriate strategies.

How to Begin

1. Read the activity before presenting it to the student to identify terms/vocabulary which may be unfamiliar to the student. A preliminary read-through also is helpful in identifying the materials in the kit which will be required.
2. Review the vocabulary used. Students with a low vocabulary comprehension may require additional instruction in the use of some mathematical terms in order to perform an activity successfully.
3. Allow for manipulation and exploration time with materials which are unfamiliar to the student. The student may wish to know their names and their uses.
4. Encourage the student, to the extent of his/her ability to verbalize, explain, or demonstrate what he/she has done ("How do you know?"). Encourage the student to reflect on previous activities ("What did you do?"). When appropriate, extend his/her thinking on new tasks ("What do you think will happen?") and follow up upon completion of each activity ("What did happen?").

Algebra

Prekindergarten

Activity 1:

The student recognizes simple sequential patterns.

Place three identical sets of two different shapes in a row on the Storyboard (e.g., square-circle; square-circle; square-circle). Help the student examine and name the shapes in the series.

"What is the pattern in this row of shapes?" Repeat using two different shapes. Shapes may differ in texture, size, or shape.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 2:

The student recognizes and duplicates simple sequential patterns.

Provide the student with a selection of shapes in the Work-Play Tray. Place two identical sets of two different shapes in a row on the Storyboard (e.g., square-circle; square-circle).

"I have placed a set of shapes that make a pattern on the Storyboard. What is the pattern? What shapes come next in the pattern?" When the student has successfully identified the pattern, ask the student to add the next set of shapes to the series. Repeat using two different shapes. Shapes may differ in texture, size, or shape.

Materials:
Pac G - Work-Play Tray and Dividers
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Kindergarten

Activity 1:

The student recognizes sequential patterns.

Place two sets of three different shapes in a row on the Storyboard (e.g., square-circle-triangle; square-circle-triangle).

"I have placed a set of shapes that make a pattern on the Storyboard. Look at the shapes. What is the pattern?" Repeat using different shapes.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 2:

The student recognizes and duplicates sequential patterns.

Place two identical sets of three different shapes in a row on the Storyboard (e.g., square-circle-triangle; square-circle-triangle). Provide the student a selection of shapes in the Work-Play Tray.

"I have placed a set of shapes that make a pattern on the Storyboard. Look at the shapes. Choose some shapes from the tray to make the next set in the pattern." Repeat using different shapes.

If the student is having difficulty using the small Velcro® backed shapes and the Storyboard, substitute the large Geometric Shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Pac D - Geometric Shapes

Activity 3:

The student duplicates patterns using numbers.

"Listen to these numbers: five-seven; five-seven; five-seven. What is the pattern? What numbers come next in the pattern?" (Student repeats pattern: five-seven.) Repeat the activity using two other numbers. Increase difficulty by using patterns of three numbers.

Materials:
None

APPLICATIONS:

Extending the Concept into Daily Living

Encourage the student to look for numerous things in the environment which are arranged in patterns. Direct him to continue investigating patterns using pegs/peg boards, beads, shapes, etc.

Activity 4:

The student identifies the object that does not belong in a simple pattern of two or three objects.

Set up matching patterns with two shapes on the Storyboard (e.g., circle-square-circle; circle-square-circle). Have the student identify the objects in the pattern. Set up a third pattern replacing the square with a triangle. Have the child review the first two patterns and then tell which object in the third pattern is incorrect. Repeat using various shapes.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 5:

The student creates a simple pattern of two or three objects repeated at least two times.

Provide the student with a selection of shapes in the Work-Play Tray. Have the student create a simple repeating pattern of at least two shapes on the Storyboard (e.g., circle-square; circle-square). Have the student create a simple repeating pattern of three shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Grade 1

Activity 1:

The student recognizes growing patterns.

Using the Storyboard and the Geometric Shapes, provide the student with an example of a growing pattern. Set up a pattern such as circle-square; circle-circle-square-square; circle-circle-circle-square-square-square. Allow the student to examine the series. "What is the pattern? What changes in each series?"

Repeat using a different growing pattern.

For larger patterns use the Tactile Tokens and develop the pattern using the smooth yellow side and the soft blue side to make different combinations.

Repeat using a different growing pattern.

Materials:
Pac V - Tactile Tokens
Pac L - Storyboard
Pac W - Diagramming Strips and Geometric Shapes

Activity 2:

The student recognizes and extends growing patterns.

Provide the student with an example of a growing pattern such as: circle-triangle; circle-triangle-triangle; circle-triangle-triangle-triangle on the Storyboard. Place a selection of geometric shapes in the Work-Play Tray. Allow the student to examine the series.

"What shapes would come next in the pattern? Place the next set of shapes that would be needed to continue the pattern on the Storyboard. Use the shapes in the Work-Play Tray to extend the pattern."

Repeat using different shapes and patterns.

Materials:
Pac G - Work-Play Tray
Pac L - Storyboard
Pac W - Diagramming Strips and Geometric Shapes

Activity 3:

The student recognizes numbers as odd or even.

Ask the student to pretend that he/she is to share everything equally with a sibling. If there is candy, they are to get an equal number of pieces. If there is money, they are to get an equal amount of cash. If the item cannot be divided equally the student is to put the extra amount or the leftovers in the Work-Play Tray.

Provide the student with two counters representing pieces of candy. Ask the student to divide the counters into equal shares. Have the student count the pieces and divide the pieces into two equal shares. When the student has finished the task, note that the number two can be divided equally. List the numbers that can be divided equally on one sheet of paper and those that have leftovers on another sheet of paper.

Continue to provide the student with different amounts of counters asking the student to divide the counters into equal shares and listing the numbers.

Examine the lists with the student and note to the student that the numbers that can be divided equally are called even numbers. Those with leftovers are called odd numbers. Choose a number on one of the lists. "Is this an even number? Is this an odd number?"

Ask the student to share any observations about the numbers on the chart. Select a number not on the list and ask the student to predict on which list the number will belong.

Materials:
Pac V - Tactile Tokens

Assessment Checklist

Use the following rating scale to indicate the student's current level of performance of each objective:

1 = Beginning level of performance
2 = Developing level of performance
3 = Accomplished/Mastery level of performance

Objective	Date/Rating Notes
Prekindergarten - Algebra	
Activity 1: The student recognizes simple sequential patterns.	
Activity 2: The student recognizes and duplicates simple sequential patterns.	
Kindergarten - Algebra	
Activity 1: The student recognizes sequential patterns.	
Activity 2: The student recognizes and duplicates sequential patterns.	
Activity 3: The student duplicates patterns using numbers.	

Activity 4: The student identifies the object that does not belong in a simple pattern of two or three objects.	
Activity 5: The student creates a simple pattern of two or three objects repeated at least two times.	
Grade 1 - Algebra	
Activity 1: The student recognizes growing patterns.	
Activity 2: The student recognizes and extends growing patterns.	
Activity 3: The student recognizes numbers as odd or even.	

Data Analysis

Prekindergarten

Activity 1:

The student identifies objects that are the same and different.

Select three pairs of assorted objects from the materials included in the kit. Hand the student two identical objects at a time (e.g., two corks, two red caps) or two objects at a time that are different (e.g., one block and one ball).

"Here are two things. Are these two things the same or different?"

Repeat for each pair of objects.

Materials:
Pac A - Assorted Items
Pac B - Nuts, bolts, & washers
Pac C - Knives, forks, & spoons
Pac F - Blocks

Activity 2:

The student identifies the one that is different in a set of objects.

Select four objects, three identical (e.g., three small corks, three small blocks, or three small balls) and one different, from the materials included in the kit.

"I have placed four things in the Work-Play Tray in front of you. Hand me the one that is different." Repeat using various objects.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items

Activity 3:

The student matches a sample object to an identical object in a set.

Place a ball, a block, and a geometric shape in the Work-Play Tray. Hand the student another ball.

"There are three things in the tray. Find the one that is the same as this ball." Repeat using various objects.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items
Pac D - Geometric Shapes
Pac F - Blocks

APPLICATIONS:

Extending the Concept into Daily Living

Distinguish between same and different objects using clothing, coins, colors (if vision is present), tools, and foods.

Activity 4:

The student matches objects that are the same.

Place three sets of identical objects (e.g. two balls, two corks, or two shapes) in the Work-Play Tray. Hand the student a matching object. Allow the student to examine the object.

"Look at the objects in the Work-Play Tray. Find all of the objects that are the same as the one I handed you." Return all the objects to the tray and repeat the activity with a different object.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items
Pac D - Geometric Shapes

Activity 5:

The student matches identical shapes.

Select two identical circle shapes and two identical square shapes. Place one square shape and one circle shape in the Work-Play Tray in front of the student. Hand the student a square shape.

"Here is a shape. Find the shape that is the same as this one." Repeat using the circle shape.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 6:

The student names large objects and small objects.

Place two large blocks and two large corks and two small blocks and two small corks in the Work-Play Tray.

"There are some corks and blocks in the Work-Play Tray. Look at all of the shapes in the tray. Some are large and some are small." Make sure the student has had an opportunity to examine all of the pieces. "Pick up one at a time and tell me if it is large or small."

Materials:
Pac G - Work-Play Tray and Dividers

Pac A - Assorted Items
Pac F - Blocks

Activity 7:

The student matches identical sizes.

Place one large, one medium, and one small circle of the same texture and color in the Work-Play Tray. Hand the student the small circle.

"Here is a circle. Find the circle that is the same size as this one." Repeat using large and medium circles.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

Provide common objects and ask the student to tell the size—large or small—of each object: shoes (children and adults), spoons (teaspoons and tablespoons), coins (dimes and quarters), clothes (doll's and student's), pots and pans.

Activity 8:

The student matches samples to objects of identical size.

Place a set of three blocks of different sizes in the Work-Play Tray.

"Look at the three blocks in the tray. Here is another block. Can you find one that is the same size as this one?" Repeat using other samples.

Materials:
Pac G - Work-Play Tray and Dividers
Pac F - Blocks

Activity 9:

The student sorts objects according to size.

Place three small Geometric Shapes and three large Geometric Shapes in the Work-Play Tray.

"I have placed some shapes in the Work-Play Tray. Some of the shapes are small and some of the shapes are large. Sort the shapes into two groups. Put all of the small shapes together in one group and put all of the large shapes together in another group."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 10:

The student identifies rough surfaces and smooth surfaces.

Place a square with a rough surface and a square with a smooth surface in the Work-Play Tray.

"I have placed two shapes in the tray. One is a square with a rough surface and the other is square with a smooth surface. Find the square shape that is rough. Find the square shape that is smooth."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 11:

The student sorts objects according to color or texture.

Place four shapes that are yellow/rough and four shapes that are red/smooth in the Work-Play Tray. Use the description that meets your student's visual functioning.

"I have placed some shapes in the Work-Play Tray. Some of the objects are yellow *or* rough. Some of the shapes are red *or* smooth. Sort the shapes into two groups. Put all of the yellow *or* rough shapes into one group. Put all of the red *or* smooth shapes into another group."

Repeat using the soft/blue shapes and the red/smooth shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 12:

The student identifies sets of objects with the largest number of members.

Place two groups of Geometric Shapes in the Work-Play Tray with the two section divider. Use groupings of objects that are very different in quantity.

"I have placed a group of shapes on one side of the tray and another group of shapes on the other side of the tray. Look at the two groups of shapes. Which group has more pieces?" Repeat using various groupings.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Kindergarten

Activity 1:

The student sorts objects used for specific purposes.

Place the objects (e.g., nuts, bolts, and washers; forks, knives, and spoons; toys from Pac A) used for specific purposes in the Work-Play Tray.

"Look at the things in the tray. Hand me the things used for eating." Repeat requesting objects for play and objects for work.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items
Pac B - Nuts, bolts, & washers
Pac C - Knives, forks, & spoons

APPLICATIONS:

Extending the Concept into Daily Living

A. Simple identity or naming activities and sorting are recommended. Suggested activities are:
    - Unloading grocery sacks and placing refrigerated items in the refrigerator
    - Sorting fruits and vegetables
    - Sorting silverware into silverware compartments
    - Sorting shapes into specific containers
    - Sorting small tools into appropriate containers
B. Larger identity sorting includes classifying objects by their use. Assemble articles found in a child's room:
    - "Put all of the toys in the toy chest."
    - "Put all of the things you read on the bookshelf."

- "Put all the things you wear in the dresser."

C. Larger identity sorting includes classifying objects by their use. Assemble articles for grooming and bathing:

- "Put all the things together that you need to brush your hair."
- "Put all the things together that you need to have with you when you take a bath."
- "Put all the things together that you need to clean your teeth."

Activity 2:

The student locates large shapes and small shapes.

Place two large and two small basic shapes in the Work-Play Tray.

"Look at the large shapes and the small shapes that I have placed in the tray. Find each shape that I name: a large circle ... small triangle ... large square ... small circle." Repeat using different shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 3:

The student identifies objects made of different materials.

Select a number of objects made of wood, metal, and plastic and place them in a Work-Play Tray.

"I have placed some objects in the tray. Find all the objects that are made of wood. Find all of the objects made of metal. Find all of the objects made of plastic." Replace the objects after each question.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items
Pac B - Nuts, bolts, & washers
Pac C - Knives, forks, & spoons

Activity 4:

The student classifies objects by name and by size.

Place a large cork, a small cork, a large block, and a small block in the Work-Play Tray.

"Look at the objects in the tray. Find the blocks. Find the corks. Find the large things. Find the small things." Replace the objects after each question.

Materials:
Pac G - Work-Play Tray and Dividers
Pac A - Assorted Items
Pac F - Blocks

Activity 5:

The student classifies basic shapes by name and by size.

Place a large circle, a small circle, a large square, a small square, a large triangle, and a small triangle of the same texture and color in the Work-Play Tray.

"Look at these shapes. Find the large shapes. Find the small shapes. Find the squares. Find the circles. Find the triangles." Replace the objects after each question.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

A. Assemble large and small object collections (e.g., cars, toys, coins, shapes). Ask the student to find all of the large things (e.g., large cars, large toys, large coins, and large shapes). Replace the objects. Ask the student to find all of the small things (e.g., small cars, small toys, small coins, and small shapes). Replace the objects. Ask the student to find all of the cars, all of the toys, all of the coins, and all of the shapes.
B. Select objects from the classroom made of wood, metal, and plastic for the student to identify.

Activity 6:

The student classifies shapes by name and by thickness.

Place the following objects in the Work-Play Tray: one thick blue triangle, one thick blue square, one thin red triangle, and one thin red square.

"Look at the objects in the tray. Show me the thick objects. Now find the thin objects. Show me the triangles. Show me the squares." Replace the objects after each question.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

A. Use objects such as books, pencils, and coins to illustrate thick and thin. Ask students to identify the thick pencil, the thin coin, the thin book.
B. Repeat the above activity with the student identifying by name the thick and thin objects as he picks them up.
C. Use classification across two attributes: shape and thickness or size and thickness. Ask the student to select all of the large thick shapes, all of the small thin shapes, etc.

Activity 7:

The student classifies shapes by size and by texture.

Place two large smooth and two large rough shapes and two small smooth and two small rough shapes in the Work-Play Tray.

"I have placed some shapes in the tray. Some of the shapes are rough and some are smooth. Some are small and some are large. Find the large rough shapes. Find the small smooth shapes. Find the large smooth shapes. Find the small rough shapes." Replace the objects after each question.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

A. Select materials with rough surfaces (e.g., sandpaper, burlap, and cross-grained surfaces) and materials with smooth surfaces (e.g., satin, chrome, and mirror). Ask the student to identify the surfaces as rough or smooth. Have students reclassify objects using size and texture.
B. Identify common objects in the environment and ask the student to reclassify as many as possible by their distinctive composition: wood, metal, or plastic.

Grade 1

Activity 1:

The student sorts objects by size.

Place a selection of Geometric Shapes that includes all three sizes in the Work-Play Tray.

"I have placed some shapes in the tray. Sort the shapes according to size: small, medium, or large."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 2:

The student sorts objects by shape.

Place a selection of shapes that includes all three shapes in the Work-Play Tray.

"I have placed some Geometric Shapes in the tray. Sort them according to their shape: circle, triangle, or square."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 3:

The student sorts objects by texture or color.

Place a selection of Geometric Shapes that includes all three colors/textures in the Work-Play Tray.

Choose one of the following set of directions based on your student's visual functioning.

"I have placed some shapes in the tray. Sort them according to color: red, blue, or yellow."

and/or

"I have placed some shapes in the tray. Sort them according to texture: smooth, rough, or soft."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 4:

The student sorts and resorts shapes by a given attribute.

Place the following shapes in the Work-Play Tray:

Two medium size soft blue squares, two medium size rough yellow squares, two medium size soft blue circles, two medium size rough yellow circles, two small soft blue squares, two small rough yellow squares, two small soft blue circles, two small rough yellow circles

Students may sort the shapes by color or texture based on their visual functioning.

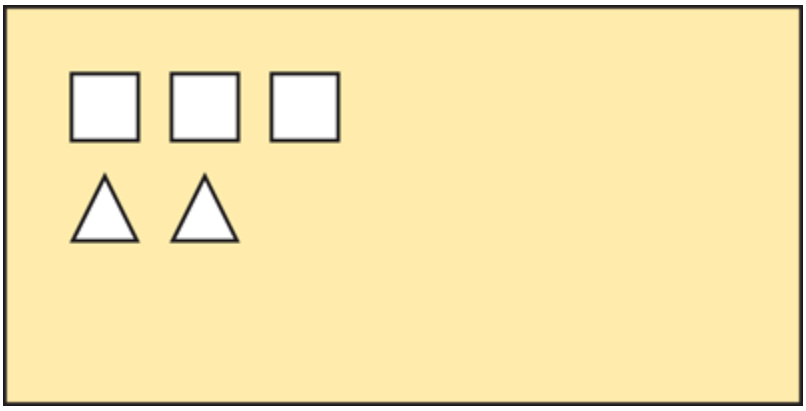
"I have placed some shapes in the Work-Play Tray. Some are soft *or* blue and some are rough *or* yellow. Sort the shapes into two groups by color *or* texture." Return the shapes to the tray. "Now sort the group of objects by shape." Return the shapes to the tray. "Now sort the group of objects by size."

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 5:

The student analyses and compares data in a pictograph.

Use the felt Storyboard and the Velcro backed Geometric Shapes to build simple pictographs like the one pictured below. Review with the student what the symbols in each row represent. Ask the student to count and compare the data represented in the pictograph.



A. Favorite seasons - Use Geometric Shapes to represent summer and winter. Identify the first row as a representation of the number of people who like summer best. Identify the second row as a representation of the number of people who like winter best. Ask the student to count each row and determine if summer or winter is the favorite season.
B. Favorite Ice Cream - Use a different number of Geometric Shapes to represent chocolate ice cream and strawberry ice cream. Identify the first row as a representation of the number of people who like chocolate ice cream. Identify the second row as a representation of the number of people who like strawberry ice cream. Ask the student to count each row and determine if chocolate or strawberry is the favorite ice cream.
C. Favorite Color - Use a different number of Geometric Shapes to represent the colors red, blue, and yellow. Identify the first row as a representation of the number of people who like red. Identify the second row as a representation of the number of people who like blue. Identify the third row as a representation of the number of people who like yellow. Ask the student to count each row and determine if red, blue, or yellow is the favorite color.
D. Activity Sheet 1 - Provide the student with Activity Sheet 1. Have the student identify the favorite pet on the graph. Ask the student to name the student's favorite pet.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 1

Assessment Checklist

Use the following rating scale to indicate the student's current level of performance of each objective:

1 = Beginning level of performance
2 = Developing level of performance
3 = Accomplished/Mastery level of performance

Objective	Date/Rating Notes
Prekindergarten - Data Analysis	
Activity 1: The student identifies objects that are the same and different.	
Activity 2: The student identifies the one that is different in a set of objects.	
Activity 3: The student matches a sample object to an identical object in a set.	
Activity 4: The student matches objects that are the same.	
Activity 5: The student matches identical shapes.	

Activity 6: The student names large objects and small objects.	
Activity 7: The student matches identical sizes.	
Activity 8: The student matches samples to objects of identical size.	
Activity 9: The student sorts objects according to size.	
Activity 10: The student identifies rough surfaces and smooth surfaces.	
Activity 11: The student sorts objects according to color or texture.	
Activity 12: The student identifies sets of objects with the largest number of members.	
Kindergarten - Data Analysis	
Activity 1: The student sorts objects used for specific purposes.	
Activity 2: The student locates large shapes and small shapes.	
Activity 3: The student identifies objects made of different materials.	

Activity 4: The student classifies objects by name and by size.	
Activity 5: The student classifies basic shapes by name and by size.	
Activity 6: The student classifies shapes by name and by thickness.	
Activity 7: The student classifies shapes by size and by texture.	
Grade 1 - Data Analysis	
Activity 1: The student sorts objects by size.	
Activity 2: The student sorts objects by shape.	
Activity 3: The student sorts objects by texture or color.	
Activity 4: The student sorts and resorts shapes by a given attribute.	
Activity 5: The student analyses and compares data in a pictograph.	

Geometry

Prekindergarten

Activity 1:

The student matches basic shapes: circle, square, and triangle.

Place a circle, a square, and a triangle in the Work-Play Tray. Hand the student a matching shape.

"Look at the shapes in the tray. Find the one that is shaped like this one: a circle." Repeat using the other shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

A. Assemble groups of two or three objects (e.g., crackers in basic shapes, puzzle pieces of basic shapes, or attribute blocks). Give the student a sample shape. Ask the student to find another one that is the same shape as the sample. Return the identified object back to the group. Repeat with each shape until the student attains mastery.
B. Find shapes (e.g., boxes, balls) in the environment and have the student match them using the procedures in Activity 1.

Activity 2:

The student matches irregular shapes.

Place one of each of the three pairs of irregular shapes (puzzle shapes) in the Work-Play Tray. Hand the student one piece at a time.

"Find another puzzle piece that is the same as this one." Replace the shape in the tray and repeat with the other two shapes.

Materials:
Pac G - Work-Play Tray and Dividers
New Pac E - Irregular shape puzzle

APPLICATIONS:

Extending the Concept into Daily Living

Find irregular shapes (e.g., pretzels, crackers) in the environment and have the student match them using the procedures in Activity 2.

Activity 3:

The student determines which piece will fit into a space in a puzzle.

Assemble all of the irregular shapes together in the puzzle tray. Have the student examine the completed puzzle. Remove one piece from the puzzle. Hand the student the piece.

"Place this puzzle piece into the puzzle." Repeat using other pieces from the puzzle.

Materials:
Pac E - Irregular shape puzzle

Activity 4:

The student determines whether a given figure is located above, below, or next to a second figure.

Place a large square and a large circle in front of the student. Discuss and demonstrate the positional words above, below, and next to using the two figures.

"Is the circle above, below, or next to the square?" Repeat placing the figures in different positions.

Materials:
Pac D - Geometric Shapes

Activity 5:

The student determines whether a given point is located inside of, on, or outside of a figure.

Build a simple rectangle, square, circle, or triangle using the Diagramming Strips and the Storyboard. Allow the student to examine the figure. Place a small Velcro backed circle inside of or outside of the figure. Have the student determine where the circle is located. Repeat the activity using different figures made from the Diagramming Strips.

Then introduce the concept of the point on the figure. Have the student determine that the shape is on the figure.

"Is the point inside of, on, or outside of this shape?" Repeat using different shapes.

Provide the student Activity Sheet 2. Have the student identify the point as inside of, on, or outside of the shape.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 2

Activity 6:

The student builds pictures and designs using various shapes.

Provide the student with the Storyboard and the Diagramming Strips. Have the student build different figures or shapes. Have the student identify the shape or design.

Discuss with the student shapes found in the environment. Discuss the shape of a house. Provide the student with a triangle and square of the same size. Have the student "build a house" using the two shapes. Use the square as the base of the house and the triangle for the roof.

Repeat the activity using three circles of various sizes to build a snowman. Use a small square and a large triangle to build a Christmas tree.

Please note that this activity is not appropriate for students who do not have any usable vision.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Pac D - Geometric Shapes

Activity 7:

The student develops spatial reasoning by working from two perspectives.

Have the student explore different items in the classroom environment from two different perspectives. Have the student describe the shape of the object when explored from the top. Have the student describe the shape when explored from the side. Examples could include:

- the top and the side of the teacher's desk
- the top and side of a rectangular box - such as a shoe box

- the side and the front of the classroom door
- the top and the side of a soda can
- the top and the side of a milk carton

Materials:
Materials provided by the teacher

Kindergarten

Activity 1:

The student identifies straight lines and curved lines.

Place a Diagramming Strip on the Storyboard.

"Is this line a straight line or a curved line?" Repeat using different strips and different combinations of strips.

Provide the student Activity Sheet 3. Have the student identify the lines as straight lines or curved lines.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 3

Activity 2:

The student identifies open shapes and closed shapes.

Construct a figure on the Storyboard using curved and straight strips.

"Is this shape open or closed?" Repeat using different combinations of strips.

Provide the student Activity Sheet 4. Have the student identify the shapes as open or closed.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 4

APPLICATIONS:

Extending the Concepts into Daily Living

A. Ask the student to find shapes in the environment with curved lines and shapes with straight lines.
B. Draw shapes using the DRAFTSMAN Tactile Drawing Board. Have the student determine if the shape uses straight lines or curved lines.

Activity 3:

The student locates basic shapes (circle, square, and triangle) when they are named.

Place a circle, a square, and a triangle in the Work-Play Tray.

"Look at the shapes in the tray. Find the circle." Repeat using the other shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 4:

The student matches the basic shapes (circles, triangles, and squares) with their corresponding plane shapes.

Place Activity Sheet 5 with the raised line figures of shapes in front of the student. Hand the student one of the basic shapes.

"Look at the sheet with different shapes on it. Find the shape on the sheet that is the same shape as this one." Repeat using all of the shapes.

Materials:
Pac D - Geometric Shapes
Activity Sheet 5

Activity 5:

The student names basic shapes.

Hand the student the basic shapes (circle, square, and triangle) one at a time and ask:

"What is this shape?"

Materials:
Pac D - Geometric Shapes

APPLICATIONS:

Extending the Concept into Daily Living

A. Present the student with Activity Sheet 5. Ask the student to identify the shapes by name.
B. Provide the student food or familiar objects from the environment. Ask the student to name the shapes of foods or familiar objects from the environment.

Grade 1

Activity 1:

The student identifies the common geometric shapes: square and triangle, according to the number of sides and corners.

Provide the student with a large square and a large triangle. Introduce the terms sides and corners (vertices). Help the student locate the sides and corners (vertices) of each of the shapes.

"How many sides are there on a square? How many corners (vertices) are there on a square?" Repeat for the triangle.

Materials:
Pac D - Geometric Shapes

Activity 2:

The student identifies similarities and differences between the basic shapes: square, circle, and triangle.

Provide the student with a large circle, square, and triangle. Allow the student to examine the shapes. Ask the following questions:

Which shapes have straight sides?
Which shapes have curved sides?
Which shapes have corners (vertices)?
Which shapes have three sides?
Which shapes have four sides?
Which shapes have sides that are equal?
Which shapes have the most corners (vertices)?

Materials:
Pac D - Geometric Shapes

Activity 3:

The student identifies figures that are symmetrical.

Introduce the term symmetrical and the definition of symmetrical as an object or illustration that is equal in size and form on opposite sides. Discuss the human body as a symmetrical figure. Explain that the human body has two eyes, two arms, two legs, etc., one on each side of the body.

Provide the student with Geometric Shapes: circle, square, and triangle. Using a Wikki Stix, place a dividing line on each shape to separate the figure into two equal/symmetrical parts. Ask the student to explore the shape and the division of the shape. "Is this shape symmetrical?"

Provide the student with the irregular puzzle shapes from Pac E. Using a Wikki Stix, place a dividing line on each shape to separate the figure into two parts. Ask the student to explore the shape and the division of the shape. "Is this shape symmetrical?"

Materials:
Pac D - Geometric Shapes
Pac E - Irregular Shape Puzzle

APPLICATIONS:

Extending the Concepts into Daily Living

A. Have the student find shapes in the environment that are symmetrical.
B. Have the student find shapes in the environment that are not symmetrical (asymmetrical).

Activity 4:

The student composes plane and solid figures to make new shapes.

Provide the student with an assortment of squares and triangles. Have the student build new shapes:

Use two triangles to make a diamond. (Join triangles on short edge/side.)

Use a medium square and a large triangle to make an arrow.

Use two squares to make a rectangle.

Have the student compose new shapes or designs using the Geometric Shapes.

Materials:
Pac D - Geometric Shapes

Activity 5:

The student uses basic 3-D shapes and spatial reasoning to model objects in the environment.

Provide the student with a cylinder, a wooden cube, and a ball. Have the student choose the shape that is most like a figure from the environment. Provide the student the object from the environment if needed.

"Which shape is most like a soda can?"
"Which shape is most like a box?"
"Which shape is most like a globe?"
"Which shape is most like a roll of paper towels?"
"Which shape is most like a basketball?"

Materials:
Pac K - Weighted Containers
Pac F - Blocks
Pac A - Assorted Items

Activity 6:

The student uses basic shapes and spatial reasoning to model objects in the environment.

Provide the student with a square, circle, and triangle. Have the student choose the basic shape that could represent a figure from the environment. Provide the student with the object from the environment if needed.

"Which shape is most like a box?"
"Which shape is most like a ball?"
"Which shape is most like a clock?"
"Which shape is most like a book?"
"Which shape is most like a door?"
"Which shape is most like the top of a milk carton?"

Materials:
Pac D - Geometric Shapes

Assessment Checklist

Use the following rating scale to indicate the student's current level of performance of each objective:

1 = Beginning level of performance
2 = Developing level of performance
3 = Accomplished/Mastery level of performance

Objective	Date/Rating Notes
Prekindergarten - Geometry	
Activity 1: The student matches basic shapes: circle, square, and triangle.	
Activity 2: The student matches irregular shapes.	
Activity 3: The student determines which piece will fit into a space in a puzzle.	
Activity 4: The student determines whether a given figure is located above, below, or next to a second figure.	
Activity 5: The student determines whether a given point is located inside of, on, or outside of a figure.	

Activity 6: The student builds pictures and designs using various shapes.	
Activity 7: The student develops spatial reasoning by working from two perspectives.	
Kindergarten - Geometry	
Activity 1: The student identifies straight lines and curved lines.	
Activity 2: The student identifies open shapes and closed shapes.	
Activity 3: The student locates basic shapes (circle, square, and triangle) when they are named.	
Activity 4: The student matches the basic shapes (circles, triangles, and squares) with their corresponding plane shapes.	
Activity 5: The student names basic shapes.	
Grade 1 - Geometry	
Activity 1: The student identifies the common geometric shapes: square and triangle, according to the number of sides and corners.	

Activity 2: The student identifies similarities and differences between the basic shapes: square, circle, and triangle.	
Activity 3: The student identifies figures that are symmetrical.	
Activity 4: The student composes plane and solid figures to make new shapes.	
Activity 5: The student uses basic 3-D shapes and spatial reasoning to model objects in the environment.	
Activity 6: The student uses basic shapes and spatial reasoning to model objects in the environment.	

Measurement

Prekindergarten

Activity 1:

The student identifies thick shapes and thin shapes.

Hand one thick blue triangle and one thin red triangle to the student.

"Here are two objects that are the same shape. Show me the thick one. Show me the thin one." Repeat using different shapes.

Provide the students objects from the environment such as a thick book and a thin book. Have the student identify the thick object and the thin object.

Materials:
Pac D - Geometric Shapes

Activity 2:

The student names thick shapes and thin shapes.

Place one thick blue square and one thin red square in the Work-Play Tray.

"I have placed two objects in the tray. Look at them. Pick up one. Did you pick up the thick object or the thin object? Look at the other object. Is it thick or thin?" Repeat using different shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac D - Geometric Shapes

Activity 3:

The student matches samples of sticks grossly different in length.

Place a long stick and a short stick in the Work-Play Tray. Hand the student a long stick.

"Look at the sticks in the Work-Play Tray. Here is a stick. Find the stick in the tray that is the same length as this one." Replace the stick in the tray and give the student the short stick. "Find the stick that is the same length as this one."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

Activity 4:

The student matches sticks with a small difference in length.

Place a short and a medium length stick in the Work-Play Tray. Hand the student a medium length stick.

"Look at the sticks in the tray. Here is another stick. Find one that is the same length as this stick." Replace the stick and give the student a short stick. "Find the stick that is the same length as this one."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

Activity 5:

The student identifies a longer stick and a shorter stick as each is named.

Place a long stick and a short stick in the Work-Play Tray.

"Look at the two sticks in the tray. Show me the shorter stick. Show me the longer stick."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

APPLICATIONS:

Extending the Concept into Daily Living

A. Select long objects and short objects (e.g., crayons, pencils, chalk). Give the student a sample and ask the student to find the one that is the same length as the sample.
B. Use objects similar to those above but with less difference in length and ask the student to match each with a sample.
C. Use the objects from Activity A above and ask the student to compare pairs of objects using the words "longer" and "shorter."
D. Identify objects in the classroom that are easily classified using length or thickness.

Activity 6:

The student matches samples to cylinders grossly different in height.

Place a tall cylinder and a short cylinder side by side in the Work-Play Tray. (The teacher initially may need to support the cylinders to keep the student from knocking them over.)

"There are two cylinders in the tray. Look at them carefully." Allow practice time for exploration and manipulation, if needed. "Here is another cylinder. Find the cylinder that is the same height as this one."

Replace the cylinder that was selected. Hand the student another sample cylinder. "Here is another cylinder. Find the cylinder that is the same height as this one."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 7:

The student matches samples to cylinders with less difference in height.

Place one short cylinder and one medium cylinder side by side in the Work-Play Tray. Hand the student a short cylinder.

"There are two cylinders in the tray. Here is another cylinder. Find the cylinder in the tray that is the same height as the one I gave you."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 8:

The student identifies the taller cylinder and the shorter cylinder.

Place the tall cylinder and the short cylinder in the Work-Play Tray.

"Look at the cylinders in the tray. Hand me the shorter cylinder." Replace the cylinder. "Hand me the taller cylinder."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 9:

The student names the taller cylinder and the shorter cylinder.

Place the tall cylinder and the short cylinder in the Work-Play Tray.

"Look at the two cylinders in the tray. Hand me one of the cylinders. Is this the taller or the shorter cylinder?"

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect two tall pairs, two medium pairs, and two short pairs of objects (e.g., cups, glasses, cans) identical except for height. Have the student match objects when the objects are grossly different in height.

B. Discuss the terms horizontal and vertical with the student. Demonstrate the terms using the cylinders from Pac I.
C. Place two cylinders horizontally and ask the student to find the "longer" cylinder and the "shorter" cylinder.
D. Place two cylinders vertically and ask the student to find the "taller" cylinder and the "shorter" cylinder.

Activity 10:

The student matches samples to bars grossly different in width.

Place a wide bar and a narrow bar in the Work-Play Tray. Hand the student a wide bar.

"Look at the two bars in the tray. Are they the same width? Here is another bar. Find the bar in the tray that is the same width as this one." Replace the bar in the tray and hand the student the narrow bar. "Here is another bar. Find the bar in the tray that is the same width as this bar."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 11:

The student matches samples to bars with less difference in width.

Place a narrow bar and a medium width bar in the Work-Play Tray. Hand the student a medium width bar.

"Look at the two bars in the tray. Here is a bar. Find the bar that is the same width as this bar."

Replace the bar in the tray and hand the student the narrow bar. "Here is another bar. Find the bar that is the same width as this one."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 12:

The student identifies wide bars and narrow bars. Place a wide bar and a narrow bar in the Work-Play Tray.

"Look at the two bars in the tray. Hand me the bar that is wider." Return the bar to the tray. "Now, hand me the bar that is narrower."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 13:

The student names wide bars and narrow bars.

Place a wide bar and a narrow bar in the Work-Play Tray.

"Look at the two bars in the tray. Hand me one of them. Is this a wide bar or a narrow bar? Now, hand me the other bar. Is it wide or narrow?"

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 14:

The student matches samples to containers grossly different in weight.

Place one of the heaviest containers and one of the lightest containers in the Work-Play Tray.

"Pick up the containers in the tray - one in each hand. Now, put them down." Hand the student a third container similar in weight to the heavier one. "Which of the two containers in the tray is the same weight as this container?" Replace the container. Now hand the student the lightest container. "Find the one that is the same weight as this container."

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weighted Containers

Activity 15:

The student matches samples to containers with less difference in weight.

Place a light-weight container and a medium-weight container in the Work-Play Tray.

"Pick up the two containers in the tray - one in each hand. Now, put them down." Hand the student another medium-weight container. "Here is a container. Which of the two containers in the tray is the same weight as this one?" Replace the container and hand the student another light-weight container. "Find the container in the tray that is the same weight as this one."

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weighted Containers

Activity 16:

The student identifies heavy containers and light containers.

Place a light container and a heavy container in the Work-Play Tray.

"Look at the containers in the tray. Hand me the heavy one." Replace the container. "Hand me the light container."

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weighted Containers

Activity 17:

The student names heavy containers and light containers.

Place a heavy container and a light container in the Work-Play Tray.

"Look at the two containers in the tray. Hand me one of them. Is this the heavy or the light one? Now, hand me the other one. Is this the heavy or the light container?"

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weighted Containers

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect sets of six (same size) containers (e.g., milk or juice cartons, margarine containers, plastic containers with lids). Fill two with sand, half fill two, and leave two empty. Have the student match containers using light and heavy weights.
B. Repeat using the medium-weight containers.
C. Use the heavy and light containers with the student identifying those that are light and those that are heavy.
D. Ask the student to identify the heavier and lighter containers by name as he picks up each one.

Kindergarten

Activity 1:

The student identifies the largest object and the smallest object in a set.

Place three blocks of different sizes in the Work-Play Tray.

"Look at the three blocks I have placed in the tray. Show me the largest block. Now, show me the smallest block."

Materials:
Pac G - Work-Play Tray and Dividers
Pac F - Blocks

Activity 2:

The student orders three objects according to size.

Place three blocks of different sizes in the Work-Play Tray.

"I have placed three blocks in the tray. Order them according to size. Place the largest block first and the smallest block last." (Note use of the terms first and last.)

Materials:
Pac G - Work-Play Tray and Dividers
Pac F - Blocks

Activity 3:

The student orders five objects according to size.

Place a set of five blocks of different sizes in front of the student.

"Here are five blocks. Order them from the largest to smallest. Place the largest block first and the smallest block last."

Materials:
Pac F - Blocks

APPLICATIONS:

Extending the Concept into Daily Living

A. Select two sets of three objects that are graduated in size: two large, two medium, and two small (e.g., milk cartons, glasses, coins). Give the student a sample to match with the one that is the same size. Repeat using all combinations.
B. Select a set of three objects that are graduated in size. Ask the student to identify the largest object and the smallest object.
C. Using the objects above, ask the student to order the objects from largest to smallest.

Activity 4:

The student identifies the longer object and the shorter object.

Place two sticks, identical except for length, in the Work-Play Tray.

"Look at the two sticks in the tray. Show me the shorter stick. Show me the longer stick."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

Activity 5:

The student identifies the longest object and the shortest object.

Place three sticks, identical except for length, in the Work-Play Tray.

"Look at the three sticks in the tray. Find the longest stick. Find the shortest stick."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

Activity 6:

The student orders three objects according to length.

Place three sticks, identical except for length, in the Work-Play Tray.

"Order these three sticks according to length. Place the longest stick first and the shortest stick last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

Activity 7:

The student orders five objects according to length.

Place five sticks, identical except for length, in the Work-Play Tray.

"Look at the five sticks in the tray. Order them from longest to shortest. Place the longest stick first and the shortest stick last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac H - Length Sticks

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect long and short pairs of objects (e.g., spoons, pencils, belts). Ask the student to find the longest and the shortest of each pair.
B. Collect sets of three objects of different lengths. Ask the student to find the longest and the shortest of each set.
C. Using the above objects, ask the student to order them from longest to shortest.
D. Find objects of five different lengths. Ask the student to order them from longest to shortest.

Activity 8:

The student identifies the taller object and the shorter object.

Place two cylinders, identical except for height, in the Work-Play Tray.

"I have placed two cylinders side by side in the tray. Show me the taller cylinder. Show me the shorter cylinder." (The teacher initially may need to support the cylinders to keep the student from knocking them over.)

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 9:

The student identifies the tallest object and the shortest object.

Place three cylinders, identical except for height, in the Work-Play Tray.

"Look at the three cylinders standing in the tray. Show me the tallest cylinder. Now, show me the shortest cylinder."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 10:

The student orders three objects according to height.

Place three cylinders, identical except for height, in the Work-Play Tray.

"Look at the three cylinders in the tray. Order them from tallest to shortest. Place them in a line with the tallest first and the shortest last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

Activity 11:

The student orders five objects according to height.

Place five cylinders, identical except for height, in the Work-Play Tray.

"Look at the five cylinders in the tray. Order them from tallest to shortest. Place them in a line with the tallest first and the shortest last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac I - Height Cylinders

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect tall and short pairs of objects which are identical (e.g., glasses, cans) except for height. Ask the student to identify the taller and the shorter object in each pair.
B. Collect sets of three objects that are identical except for height. Ask the student to identify the tallest and the shortest objects.
C. Ask the student to order the above objects from tallest to shortest.

Activity 12:

The student identifies the wider object and narrower object.

Place two bars, identical except for width, in the Work-Play Tray.

"I have placed two bars in the tray. Show me the narrower bar. Now, show me the wider bar."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 13:

The student identifies the widest object and the narrowest object.

Place three bars, identical except for width, in the Work-Play Tray.

"Look at the three bars in the tray. Find the widest bar. Find the narrowest bar."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 14:

The student orders three objects according to width.

Place three bars, identical except for width, in the Work-Play Tray.

"Order the three bars according to width. Place the widest bar first and the narrowest bar last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

Activity 15:

The student orders five objects according to width.

Place five bars, identical except for width, in the Work-Play Tray.

"Look at the five bars in the tray. Order them by width, Place the widest bar first and the narrowest bar last."

Materials:
Pac G - Work-Play Tray and Dividers
Pac J - Width Bars

APPLICATIONS:

Extending the Concept into Daily Living

A. Wide and narrow bars, identical except for width, can be cut from a variety of materials, wood, or heavy paper. Provide two bars and ask the student to identify the wider one and the narrower one.
B. Add a third object and ask the student to identify the widest object and the narrowest object.
C. Have the student order the above objects according to width, beginning with the widest object.
D. Increase the number to five objects with different widths. Ask the student to order the objects from widest to narrowest.

Activity 16:

The student identifies the heavier object and the lighter object.

Place two containers, identical except for weight, in the Work-Play Tray.

"Lift the two containers in the tray, one in each hand. Hand me the heavier container. Hand me the lighter container."

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weight Containers

Activity 17:

The student identifies the heaviest object and the lightest object.

Place three containers, identical except for weight, in the Work-Play Tray.

"Lift each of the containers in the tray, one at a time. Which is the lightest? Which is the heaviest?"

Materials:
Pac G - Work-Play Tray and Dividers
Pac K - Weighted Containers

Activity 18:

The student orders three objects according to weight.

Place three containers, identical except for weight, in front of the student. "Lift each of the containers, one at a time. Order them from heaviest to lightest."

Materials:
Pac K - Weighted Containers

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect sets of identical containers with lids that can be sealed and resealed. Fill one container with sand, half fill one, and leave one empty. Ask the student to find the heaviest container and then to find the lightest container.
B. Ask the student to order the containers by weight from heaviest to lightest.

Activity 19:

The student sorts like coins into groups.

Place a mixture of pennies, nickels, dimes, and quarters in the Work-Play Tray. (Coins are not included in the kit.)

"There are four different types of coins in the tray. Sort these coins into four groups so that each group contains only one kind of coin."

Materials:
Pac G - Work-Play Tray and Dividers
Money provided by the teacher

Activity 20:

The student identifies pennies, nickels, dimes, and quarters.

Place a mixture of pennies, nickels, dimes, and quarters in the Work-Play Tray. (Coins are not included in the kit.) Hand the student a penny.

"Here is a penny. Look at the coins in the tray. Find all of the pennies in the tray." Return the pennies to the tray. "Here is a nickel. Find all of the nickels in the tray." Return the nickels to the tray. "Here is a dime. Find all of the dimes in the tray." Return the dimes to the tray. "Here is a quarter. Find all of the quarters in the tray."

Materials:
Pac G - Work-Play Tray and Dividers
Money provided by the teacher

Activity 21:

The student relates specific times such as morning, noon, afternoon, and night to activities.

"I am going to name an event. I want you to tell me if it happens in the morning, at noon, in the afternoon, or at night."

"I eat breakfast."
"I ride the bus home from school."
"I go to bed."
"I eat lunch."
"I get out of bed."
"I go to school."
"I play with my friends after school."
"I kiss my parents good-night."
"I eat dinner."

Materials:
None

Activity 22:

The student compares situations or objects according to relative temperature.

"I am going to name two things and I want you to tell me if the first object is hotter or colder than the second one."

"Is ice cream hotter or colder than soup?"
"Is a hamburger hotter or colder than ice cream?"
"Is winter hotter or colder than summer?"
"Is a ice hotter or colder than hot chocolate?"
"Is your bath hotter or colder than the water in the swimming pool?"
"Is wearing a coat hotter or colder than wearing a swimming suit?"
"Is a refrigerator hotter or colder than a stove?"

Materials:
None

Grade 1

Activity 1:

The student orders three or more events according to duration of time.

"I am going to name three things. I want you to put them in order starting with the thing that takes the least amount of time and ending with the thing that takes the most time."

"A movie, a commercial, a cartoon"
"An hour, a minute, a week"
"A day at school, recess, summer vacation"
"A month, a year, a day"
"Cleaning your room, cleaning the school, cleaning your house"

Materials:
None

Activity 2:

The student tells time on the hour.

Place an appropriate clock (analog, digital, or talking clock) in front of the student. (Clocks are not included in the kit.)

Introduce/review with the student the clock face of the analog clock, the long hand, and the short hand. Review the location of the numbers on the face of the clock. Set the clock to show time at different intervals such as 3:00 or 5:00. "What time does the clock show?"

Introduce/review with the student the digital clock and how to read the numbers on the clock. Set the clock to show time at different intervals such as 1:00 or 4:00. "What time does the clock show?"

Introduce/review with the student the talking clock and the different function buttons. Set the clock to show time at different intervals such as 12:00 or 8:00. "What time does the clock show?"

Materials:
Clocks provided by the teacher

Activity 3:

The student tells time on the half-hour.

Place an appropriate clock (analog, digital, or talking clock) in front of the student. (Clocks are not included in the kit.)

Introduce/review with the student the clock face of the analog clock, the long hand, and the short hand. Review the location of the numbers on the face of the clock. Set the clock to show time at different half-hour intervals such as 1:30 or 4:30. "What time does the clock show?"

Introduce/review with the student the digital clock and how to read the numbers on the clock. Set the clock to show time at different half-hour intervals such as 3:30 or 5:30. "What time does the clock show?"

Introduce/review with the student the talking clock and the different function buttons. Set the clock to show time at different half-hour intervals such as 12:30 or 8:30. "What time does the clock show?"

Materials:
Clocks provided by the teacher

Activity 4:

The student identifies days, weeks, and months on a calendar.

Provide the student Activity Sheet 6 - Print or Activity Sheet 7 - Braille. Introduce this calendar page to the student. Identify the units of days, weeks, and months on the calendar page. Identify the number of days on the calendar, the number of weeks on the calendar, and the number of months on a calendar page.

"Show me a day on the calendar. Show me a week on the calendar. How many months are shown on this page?"

Materials:
Activity Sheet 6 - Print
Activity Sheet 7 - Braille

Activity 5:

The student identifies today, tomorrow, and yesterday on a calendar.

Provide the student Activity Sheet 6 - Print, Activity Sheet 7 - Braille or use your classroom calendar. Begin by asking the student to name the current date. Have the student note that Activity Sheet 6 may not be the current month.

Help the student locate June 11th on the calendar. "If today is June 11th, what is the date tomorrow? What was the date yesterday?" Repeat using different dates.

Review the days of the week using the calendar page. "If today is Wednesday, what was yesterday? What day will it be tomorrow?" Repeat using different days of the week.

Materials:
Activity Sheet 6 - Print
Activity Sheet 7 - Braille

Activity 6:

The student demonstrates awareness of relative lengths of time — minute, hour, day, week, month, and year.

"I am going to name an event. I want you to tell me if it will take a minute/s or an hour/s to complete the event."

"Wash my hands"
"Watch a movie"
"Play at recess"
"Clean the house"
"Open a present"
"Sing a song"

"I am going to name an event. I want you to tell me if it will take a day/s or a week/s to complete the event."

"Visit the zoo"
"Christmas vacation"
"Field trip at school"
"Read a thick book"

"I am going to name an event. I want you to tell me if it will take a month/s or a year/s to complete the event."

"Summer vacation from school"
"Graduate from high school"
"Build a house"
"Grow as tall as my dad/mom"
"Grow flowers in a garden"

Materials:
None

Activity 7:

The student names the days of the week in order.

"Name the days of the week in order. Begin with Sunday."

Materials:
None

Activity 8:

The student recognizes a penny, a nickel, and a dime.

Place a penny, a nickel, and a dime in the Work-Play Tray. (Coins are not included in the kit.)

"Find the penny." Return the penny to the tray. Repeat for the nickel and the dime.

Materials:
Pac G - Work-Play Tray and Dividers
Money provided by the teacher

Activity 9:

The student states the value of a penny, a nickel, and a dime.

Hand the student a penny, a nickel, and a dime, one at a time. (Coins are not included in the kit.)

"How many cents does this coin equal?" Repeat with each of the coins named above.

Materials:
Money provided by the teacher

Activity 10:

The student recognizes quarters, half-dollars, and one dollar bills.

Place a quarter, a half-dollar, and a dollar bill in the Work-Play Tray. (Money is not included in the kit.)

"Find the half-dollar." Return the half-dollar to the tray. Repeat for the quarter and the dollar bill.

Materials:
Pac G - Work-Play Tray and Dividers
Money provided by the teacher

Activity 11:

The student states the value of a quarter, a half-dollar, and a dollar bill.

Hand the student a quarter, a half-dollar, and a dollar bill, one at a time. (Money is not included in the kit.)

"How many cents are there in a quarter ... in a half-dollar ... in a dollar?"

Materials:
Money provided by the teacher

APPLICATIONS:

Extending the Concept into Daily Living

A. Improve visual and tactual recognition of coins through repetition in various uses and games with coins.
B. Encourage the student to spend coins when he goes to the store or in "token systems" activities in the classroom.

Activity 12:

The student matches equivalent collections of coins to selected coins.

Use **real coins** to show the equivalency of coins. Use the following sequence to show the equivalency of coins. (Coins are not included in the kit.) Place 10 pennies, 5 nickels, and 5 dimes in the Work-Play Tray. Show the student, one at a time, a penny, a nickel, and a dime.

"Look at the coins in the tray. Show me how many pennies make a nickel. Show me how many pennies make a dime."

Have the student make combinations of smaller coins that equal a larger coin and state the value of the coins.

5 pennies = 1 nickel = 5 cents
10 pennies = 1 dime = 10 cents
1 nickel + 5 pennies = 10 cents
2 nickels = 1 dime = 10 cents

Materials:
Pac G - Work-Play Tray and Dividers
Money provided by the teacher

Activity 13:

The student measures an object by laying multiple copies of a non-standard unit end to end along the object and then counting the non-standard units.

"Here is a length stick. I would like for you to measure the length stick by using these small strips to measure the stick."

Demonstrate for the student how to measure the length stick using multiple small, 1" strips and laying them end to end along the length stick on the Storyboard. Then count in unison the number of strips needed to measure the length of the stick. Provide the student several opportunities to measure different length sticks using the small strips.

Materials:
Pac L - Storyboard
Pac H - Length Sticks
Pac W - Diagramming Strips & Geometric Shapes

Assessment Checklist

Use the following rating scale to indicate the student's current level of performance of each objective:

1 = Beginning level of performance
2 = Developing level of performance
3 = Accomplished/Mastery level of performance

Objective	Date/Rating Notes
Prekindergarten - Measurement	
Activity 1: The student identifies thick shapes and thin shapes.	
Activity 2: The student names thick shapes and thin shapes.	
Activity 3: The student matches samples of sticks grossly different in length.	
Activity 4: The student matches sticks with a small difference in length.	
Activity 5: The student identifies a longer stick and a shorter stick as each is named.	

Activity 6: The student matches samples to cylinders grossly different in height.	
Activity 7: The student matches samples to cylinders with less difference in height.	
Activity 8: The student identifies the taller cylinder and the shorter cylinder.	
Activity 9: The student names the taller cylinder and the shorter cylinder.	
Activity 10: The student matches samples to bars grossly different in width.	
Activity 11: The student matches samples to bars with less difference in width.	
Activity 12: The student identifies wide bars and narrow bars.	
Activity 13: The student names wide bars and narrow bars.	
Activity 14: The student matches samples to containers grossly different in weight.	
Activity 15: The student matches samples to containers with less difference in weight.	

Activity 16: The student identifies heavy containers and light containers.	
Activity 17: The student names heavy containers and light containers.	
Kindergarten - Measurement	
Activity 1: The student identifies the largest object and the smallest object in a set.	
Activity 2: The student orders three objects according to size.	
Activity 3: The student orders five objects according to size.	
Activity 4: The student identifies the longer object and the shorter object.	
Activity 5: The student identifies the longest object and the shortest object.	
Activity 6: The student orders three objects according to length.	
Activity 7: The student orders five objects according to length.	

Activity 8: The student identifies the taller object and the shorter object.	
Activity 9: The student identifies the tallest object and the shortest object.	
Activity 10: The student orders three objects according to height.	
Activity 11: The student orders five objects according to height.	
Activity 12: The student identifies the wider object and narrower object.	
Activity 13: The student identifies the widest object and the narrowest object.	
Activity 14: The student orders three objects according to width.	
Activity 15: The student orders five objects according to width.	
Activity 16: The student identifies the heavier object and the lighter object.	
Activity 17: The student identifies the heaviest object and the lightest object.	

Activity 18: The student orders three objects according to weight.	
Activity 19: The student sorts like coins into groups.	
Activity 20: The student identifies pennies, nickels, dimes, and quarters.	
Activity 21: The student relates specific times such as morning, noon, afternoon, and night to activities.	
Activity 22: The student compares situations or objects according to relative temperature.	
Grade 1 - Measurement	
Activity 1: The student orders three or more events according to duration of time.	
Activity 2: The student tells time on the hour.	
Activity 3: The student tells time on the half-hour.	
Activity 4: The student identifies days, weeks, and months on a calendar.	

Activity 5: The student identifies today, tomorrow, and yesterday on a calendar.	
Activity 6: The student demonstrates awareness of relative lengths of time - minute, hour, day, week, month, and year.	
Activity 7: The student names the days of the week in order.	
Activity 8: The student recognizes a penny, a nickel, and a dime.	
Activity 9: The student states the value of a penny, a nickel, and a dime.	
Activity 10: The student recognizes quarters, half-dollars, and one dollar bills.	
Activity 11: The student states the value of a quarter, a half-dollar, and a dollar bill.	
Activity 12: The student matches equivalent collections of coins to selected coins.	
Activity 13: The student measures an object by laying multiple copies of a non-standard unit end to end along the object and then counting the non-standard units.	

Numbers and Operations

Prekindergarten

Activity 1:

The student identifies the quantity of one.

Provide the student the opportunity to practice identifying the quantity of one using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 2:

The student identifies quantities to two.

Provide the student the opportunity to practice identifying quantities to two using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 3:

The student identifies quantities to three.

Provide the student the opportunity to practice identifying quantities to three using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards

Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 4:

The student identifies quantities to four.

Provide the student the opportunity to practice identifying quantities to four using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 5:

The student identifies quantities to five.

Provide the student the opportunity to practice identifying quantities to five using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 6:

The student recites numbers to five in order.

No materials are needed. The student rote counts or names the numbers one to five.

"Count to five."

Materials:
None

Activity 7:

The student counts tokens with quantities to five. Give the student a quantity of identical tokens.

"Here are some tokens. Hold them in your hand. Count the tokens. Put each one down in the Work-Play Tray as you count it." Repeat using all of the numbers one to five randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens

Activity 8:

The student produces sets for any given number to five. Place a number of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. I will name a number. Take out the number of tokens that matches the number I have named. Show me the tokens." Repeat using varying numbers to five.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens

Activity 9:

The student counts fixed ordered shapes to five.

Place a quantity of Velcro backed shapes in a row on the Storyboard.

"Look at the Storyboard. Count the shapes on the board. How many shapes are there?" Repeat using all of the numbers one to five randomly.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 10:

The student counts fixed unordered shapes to five.

Place a quantity of Velcro backed shapes in random order on the Storyboard.

"Look at the Storyboard. Count the shapes on the board. How many shapes are there?" Repeat using all numbers one to five randomly.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 11:

The student identifies sets of objects with quantities to five.

Place five Raised Shape Counting Cards containing one to five shapes in the Work-Play Tray.

"Here are cards with raised shapes on them. Look at the cards. Find the card with one shape." Repeat using all the numbers one to five randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 12:

The student sorts Raised Shape Counting Cards for quantities to five.

Place an assortment of cards having one, two, or three shapes in front of the student. Use the Work-Play Tray with three dividers.

"Here are some cards with shapes. Put all of the cards with one shape in the first section of the tray. Put all of the cards with two shapes in the middle section. Put all of the cards with three shapes in the last section."

Remove the divider with three sections and replace with the divider that has two sections. Repeat the activity using cards with four and five shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Ask the student to rote count to five. Use nursery rhymes, songs, fingers, steps, and other items to count up to five.
B. Ask the student to count common identical items to five. Request the student to put down one item or object for each number counted.
C. Count items in a row (e.g., steps, fingers, toes).

Activity 13:

The student names zero as the cardinal number of the empty set.

Give the student six Raised Shape Counting Cards containing fixed sets of shapes zero to five. Present the cards in descending order (the zero card has no shape).

Each time say: "Name the number which tells how many shapes are on this card."

Materials:
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Use the cards from Activity 13. Ask the student to count the raised shapes on the cards and to hold up the card that matches the quantity you name (e.g., "Hold up the card with four shapes").
B. Talk about zero and the blank card.

Activity 14:

The student identifies quantities to six.

Provide the student the opportunity to practice identifying quantities to six using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 15:

The student identifies quantities to seven.

Provide the student the opportunity to practice identifying quantities to seven using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 16:

The student identifies quantities to eight.

Provide the student the opportunity to practice identifying quantities to eight using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 17:

The student identifies quantities to nine.

Provide the student the opportunity to practice identifying quantities to nine using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 18:

The student identifies quantities to ten.

Provide the student the opportunity to practice identifying quantities to ten using the Raised Shape Counting Cards, Tactile Tokens, Pop Cubes, the appropriate number of fingers, or other tactile objects. Have the student say the number aloud as each object is counted.

Materials:
Pac X - Raised Shape Counting Cards
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 19:

The student recites numbers to ten in order.

No materials are needed.

"Count to ten."

Materials:
None

Activity 20:

The student counts tokens with quantities to ten.

Place a quantity of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. Count the tokens. Remove each token as you count it. How many tokens are there?" Repeat using all numbers one to ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens

Activity 21:

The student counts quantities from six through ten.

Place a quantity of Tactile Tokens in the Work-Play Tray in front of the student.

"I have placed some tokens in the tray. Hand me six tokens." Repeat using all numbers seven to ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens

Activity 22:

The student counts fixed ordered shapes to ten.

Place a quantity of Velcro backed shapes in a row on the Storyboard.

"Look at the Storyboard. Count the shapes on the board. How many shapes are there?" Repeat using all of the numbers one to ten randomly.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 23:

The student counts fixed unordered objects to ten.

Place a quantity of Velcro backed shapes in random order on the Storyboard.

"Look at the Storyboard. Count the shapes on the board. How many shapes are there?" Repeat using all numbers one to ten randomly.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 24:

The student identifies quantities from zero to ten.

Place a set of cards with shapes, zero to ten, in the Work-Play Tray.

"The cards in the tray have different numbers of shapes on them. Find the card with three shapes." Repeat using all numbers zero to ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 25:

The student sorts Raised Shape Counting Cards for quantities from six to ten.

Place an assortment of cards having six, seven, or eight shapes in front of the student. Use the Work-Play Tray with three dividers.

"Here are some cards with shapes. Put all of the cards with six shapes in the first section of the tray. Put all of the cards with seven shapes in the middle section. Put all of the cards with eight shapes in the last section." Remove the divider with three sections and replace with the divider that has two sections. Repeat using cards with nine and ten shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Direct the student to rote count to ten. Use nursery rhymes, songs, fingers, steps.
B. Ask the student to count ten objects one-by-one as each object is removed from the set.

C. Encourage the student to count to ten from a line of immovable objects (e.g., steps, stair, or porch rail supports) in the environment.
D. Ask the student to count ten fixed objects which are not in a row or straight line. Use objects in the environment if available.

Activity 26:

The student compares collections that have the same number of members.

Place three knives and three forks in parallel rows in front of the student.

"Compare the set of knives and the set of forks. Are there the same numbers of knives as forks? Are there the same numbers of forks as knives? How do you know?"

Materials:
Pac C - Knives, forks, & spoons

Activity 27:

The student compares a set that has more members with a set that has fewer members.

Place two knives and three forks in parallel rows in front of the student.

"Compare the set of knives and the set of forks. Is there a knife for each fork? Which set has more, the set of knives or the set of forks? Which set has less?"

Materials:
Pac C - Knives, forks, & spoons

APPLICATIONS:

Extending the Concept into Daily Living

A. Collect unequal groups of objects that seem to go together (e.g., cups and saucers, pennies and piggy-banks, forks and spoons). Align the collections in parallel rows. Ask the student to compare them one-to-one.
B. Use the same or similar pairs of objects as above, but the collections should have the same number of members. Align the collections in parallel rows. Ask the student to compare them one-to-one.

Activity 28:

The student identifies fixed collections that have the same number of members by matching.

Place two rows with the same number of Velcro backed shapes on the Storyboard in front of the student. Provide a quantity of tokens for one-to-one pairing with the shapes in each row of shapes.

"Look at the board. Use these tokens to match the shapes on the first row." (Assist the student in making one-to-one pairing, if necessary.) "Now, use the same tokens to match the shapes on the second row. Are there the same numbers of shapes in each row? How do you know?"

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Pac V - Tactile Tokens

Activity 29:

The student identifies fixed sets that have the same number of members by counting.

Place two rows with the same number of Velcro backed shapes on the Storyboard in front of the student.

"Look at the board. Each row has a set of shapes. Are there as many shapes in the first row as in the second row? Are there more or fewer shapes on one row than on the other? How do you know?"

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 30:

The student compares sets that have different numbers of members.

Place two rows with a grossly different number of Velcro backed shapes on the Storyboard in front of the student.

"Look at the board. Each row has a set of shapes. Are there as many shapes on the first row as there are on the other? Are there more shapes on one row than on the other? How do you know?"

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 31:

The student matches a sample set to an identical set.

Place Raised Shapes Counting Cards with one, two, and three shapes in the Work-Play Tray. Select a second card with one, two, or three shapes.

"Look at the cards in the tray. Each card has a set of shapes." Hand the student the second card. "Find another card that has just as many shapes as this one." Repeat using all cards with one, two, and three shapes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 32:

The student identifies one set that has a different number of members than each of two other sets.

Place three rows of shapes on the Storyboard, two with the same number of shapes and one with a grossly different number of shapes.

"Look at the board. Each row has a set of shapes. Is there the same number of shapes in each row? Which row does not have as many shapes as the others?"

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 33:

The student compares fixed ordered dissimilar sets that have the same or different numbers of members.

Place two Raised Shape Counting Cards with dissimilar numbers of objects in the Work-Play Tray.

"Look at these cards. Each card has a set of shapes. Is there the same number of shapes on each card? Does one card have more or fewer shapes than the other? How do you know?"

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Prepare two sets of cards with one to five objects or shapes on each (e.g., glued-on buttons, paper clips, or glue dots). Repeat the procedures followed in Activity 33, using common objects. Other materials which can be used are: large textured dominoes or braille playing cards.
B. Using sets similar to those above, the student compares sets which are different in number. Ask the student to identify the one that has more and the one that has less.
C. Using two sets which are alike and one that is grossly different in number, ask the student to identify the one that does not have as many shapes as the others.
D. Use button, shape, or braille cards with quantities of one to five. Show the student three cards of different quantities and a sample card having the same quantity as one of the three cards. Ask the student to match a sample card to one of the same quantity.

Activity 34:

The student compares a fixed set of objects that has more members with a fixed set that has fewer members, where the sets differ grossly in quantity.

Place two Raised Shape Counting Cards grossly differing in the number of shapes in the Work-Play Tray.

"Look at the two cards in the tray. Each card contains a set of shapes. Which card has more shapes? Which card has fewer shapes?" Repeat using different cards.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 35:

The student compares a fixed set of objects that has more members with a fixed set of objects that has fewer members, where the sets have a small difference in quantity.

Place two Raised Shape Counting Cards differing slightly in the number of shapes in the Work-Play Tray.

"Look at the two cards in the tray. Each card contains a set of shapes. Which card has more shapes? Which has fewer shapes?" Repeat using different cards.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 36:

The student identifies the fixed set with the most members and the fixed set with the least members, where the sets differ grossly in quantity.

Place three Raised Shape Counting Cards that are grossly different in number of members in the Work-Play Tray.

"Look at these cards. Each card contains a set of shapes. Which card has the most shapes? Which card has the fewest?" Repeat using different cards.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 37:

The student identifies the fixed set with the most members and the fixed set with the least members, where the sets have a small difference in quantity.

Place three Raised Shape Counting Cards with a small difference in number of members in the Work-Play Tray.

"Look at the three cards in the tray. Each card contains a set of shapes. Find the card with the least number of shapes. Find the card with the most number of shapes." Repeat using different cards.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Show the student two cards containing sets of shapes which differ grossly in the number of members, two at a time, and ask the student which card has more and which card has fewer shapes.
B. Show the student two cards containing sets which differ slightly in number of members and ask the student which card has more and which has fewer shapes.
C. Give the student three cards and ask him to order them or "make a train" from the card with the least to the card with the most shapes.
D. Use meaning of numbers to respond to practical situations, such as getting just enough napkins for a group.

Activity 38:

The student orders sets of objects zero to five according to quantity.

Place the Raised Shape Counting Cards containing zero shapes to five shapes in the Work-Play Tray.

"There are some cards with shapes on them in the tray. Put the cards in order from the smallest to the largest. Begin with the card that has zero shapes."

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 39:

The student orders sets of objects zero to ten according to quantity.

Place the Raised Shape Counting Cards containing zero shapes to ten shapes in the Work-Play Tray.

"There are some cards with shapes on them in the tray. Put the cards in order from the smallest to the largest. Begin with the card that has zero shapes."

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Activity 40:

The student orders three fixed sets of objects according to quantity.

Place three Raised Shape Counting Cards varying in the number of shapes in the Work-Play Tray.

"Look at the cards in the tray. Each card contains a set of shapes. Order the cards beginning with the card that has the least number of shapes." Repeat using different cards.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards

Kindergarten

Activity 1:

The student rote counts to five.

"Count to five."

Materials:
None

Activity 2:

The student counts objects with quantities to five.

Place a number of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. Count the tokens. How many are there?" Repeat using varying quantities to five.

To provide additional practice in counting, repeat the activity using Pop Cubes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 3:

The student produces sets for any given number to five.

Place a number of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. I will name a number. Take out the number of tokens that matches the number I have named. Show me the tokens." Repeat using varying numbers to five.

To provide additional practice in counting, repeat the activity using Pop Cubes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 4:

The student reads the numbers zero to five.

Give the student Raised Shape Number Cards, zero to five, one at a time in random order.

If the braille student is not familiar with the numeric indicator, introduce the numeric indicator and discuss its use with the student.

"I will give you one card at a time. Tell me the number name or numeral on each card. Here is the first card." If the student is having difficulty, allow the student to count the number of shapes on the card. Repeat presenting cards with numbers zero to five randomly.

Materials:
Pac Y - Raised Shape Number Cards

Activity 5:

The student matches the written numbers zero to five with sets containing zero to five members.

Place the Number Cards, zero to five, in front of the student. Hand the student one Raised Shape Counting Card at a time randomly.

"Find the card with the numeral that goes with the number of shapes on this card." Repeat using all cards randomly.

Materials:
Pac M - Number and Math Sign Cards
Pac X - Raised Shape Counting Cards

Activity 6:

The student compares the written numbers zero to five with sets containing zero to five members to determine which is more or less.

Present the student with a Number Card and a Raised Shape Counting Card (numbers zero to five, quantities not to exceed five).

"I will give you two cards at a time. One card will have a number and the other card will have shapes to count. Here are two cards. Does the number on this card name the number of shapes on the other card? Which card shows the largest number?" Repeat until all cards are used.

Materials:
Pac M - Number and Math Sign Cards
Pac X - Raised Shape Counting Cards

Activity 7:

The student identifies which of two numbers is greater and which of two numbers is lesser.

Give the student two cards at a time with numbers, zero to five.

"I will show you two numeral cards at a time. Tell me which numeral names the greater number and which numeral names the lesser number."

Materials:
Pac M - Number and Math Sign Cards

Activity 8:

The student orders the written numbers zero to five.

Place the Number Cards, zero to five, in the Work-Play Tray.

"I have placed the number cards from zero to five in the Work-Play Tray. Put them in order beginning with zero and ending with five."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 9:

The student writes the numbers zero to five.

Provide the student appropriate writing materials.

"Write the number I say." If the student is having difficulty writing the numbers, allow the student to use the Raised Shape Number Cards or the Number Cards as a model. Make sure the braille student understands how to braille the numeric indicator.

Materials:
Writing materials provided by the teacher
Pac Y - Raised Shape Number Cards
Pac M - Number and Math Sign Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Braille students and print students learn number recognition by repetition. Make up a quantity of 20 to 30 numeral cards with five or six of each numeral, zero to five. Ask the student to play games naming the numbers or sorting all of the ones, the twos, etc. as you call out a number.
B. Make up sheets of random numbers one to five. Ask the student to circle or point to all the threes, the twos, etc. as you call out a number.
C. Direct the student to find objects in the environment which correspond to numbers on the numeral cards (e.g., fingers/toes, wheels on a car, etc.).
D. Make up sets of zero to five objects (e.g., paper clips, buttons, etc.). Ask the student to compare numeral cards with the sets to determine if the numeral names the number of objects, names a number less than the number of the objects, or names a number greater than the number of the objects.
E. Ask the student to order or make a train using the numeral cards. Repeat using corresponding groups of collected objects.

Activity 10:

The student rote counts to ten.

"Count to ten."

Materials:
None

Activity 11:

The student counts objects with quantities to ten. Place a number of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. Count the tokens. How many are there?" Repeat using varying quantities to ten.

To provide additional practice in counting, repeat the activity using Pop Cubes.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 12:

The student produces sets for any given number to ten. Place a number of Tactile Tokens in the Work-Play Tray.

"I have placed some tokens in the tray. I will name a number. Take out the number of tokens that matches the number I have named. Show me the tokens." Repeat using varying numbers to ten.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens

Activity 13:

The student reads numbers six to ten.

Place the cards with the numbers six to ten in the Work-Play Tray.

"I have placed some cards with the numbers six to ten in the tray. Find the six." Repeat using all numbers randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 14:

The student matches the written numbers six to ten with sets containing six to ten members.

Place the Number Cards, six to ten, in the Work-Play Tray. Hand the student a Raised Shape Counting Card.

"Here is a Raised Shape Counting Card. Count the number of shapes on the card. Find the card in the tray that has the number that represents the number of shapes on this card." Repeat using all numbers six to ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards
Pac M - Number and Math Sign Cards

Activity 15:

The student identifies which of two sets has one more or one less member than the other.

Hand the student cards containing sets of shapes two at a time. The number of shapes in the sets should differ by one.

"Here are two cards with shapes on them. Count the shapes on each card. Which card has one more shape than the other card? Which card has one less shape than the other card?" Repeat using different cards.

Materials:
Pac X - Raised Shape Counting Cards

Activity 16:

The student compares the written numbers zero to ten with sets containing zero to ten members to determine which has more or less.

Use the Raised Shape Counting Cards and the Number and Math Sign Cards zero to ten.

"Here are two cards. One has shapes to count and one has a numeral on it. Which represents the number that is more? Which represents the number that is less?" Use several of the combinations of numeral and quantity cards, zero to ten, randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac X - Raised Shape Counting Cards
Pac M - Number and Math Sign Cards

Activity 17:

The student identifies which of two numbers between zero and ten is greater and which is lesser.

Place the Number and Math Sign Cards, zero to ten, in the Work-Play Tray.

"I will call out two numbers. Find the cards that match the numbers I say. Which represents the number that is more? Which represents the number that is less?" Repeat using all combinations between zero and ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 18:

The student identifies a number which is greater than and a number which is less than a given number, one to nine.

Place a Number Card between one and nine in front of the tray. Place the Number Cards 0 to ten in the tray.

"Look at the number card in front of the tray. There are other number cards in the tray. Place a number card on the left side which names a number less than this card. Place a number card on the right which names a number greater than this card." Repeat using several numbers between one and ten randomly.

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 19:

The student orders the numbers zero to ten.

Place the cards with the numbers zero to ten in the Work-Play Tray.

"I have placed some cards with the numbers zero to ten in the tray. Put the numbers in order. Begin with zero."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 20:

The student writes the numbers zero to ten.

Supply the student with appropriate writing materials.

"Write the numbers zero to ten." Remind the braille student to use the numeric indicator.

Materials:
Writing materials provided by the teacher

Activity 21:

The student identifies the numbers zero to ten on a number line.

Provide the student a number line with the numbers zero to ten in the appropriate reading medium. Allow the student to explore the number line and locate the numbers on the line.

"I will say a number between zero and ten. Find the number I say on the number line." Use all numbers between zero and ten randomly.

Materials:
Pac P - Consumable Number Lines

Activity 22:

The student locates the number that comes after any number, zero to nine, on a number line.

Provide the student a number line with the numbers zero to ten in the appropriate reading medium.

"I will say a number between zero and nine. Find the number on the number line. Find and name the number that comes after the number I said." Use all numbers between zero and nine randomly.

Materials:
Pac P - Consumable Number Lines

Activity 23:

The student states the number that comes before any number, one to ten, on a number line.

Provide the student a number line with the numbers zero to ten in the appropriate reading medium.

"I will say a number between one and ten. Find the number on the number line. Find and name the number that comes before the number that I say." Use all numbers between one and ten randomly.

Materials:
Pac P - Consumable Number Lines

Activity 24:

The student counts back from ten to zero.

Provide the student a number line with the numbers zero to ten in the appropriate reading medium.

"Find the number ten on the number line. Read the numbers counting down from ten. Can you count back from ten without the number line?"

Materials:
Pac P - Consumable Number Lines

APPLICATIONS:

Extending the Concept into Daily Living

A. As an oral game activity or drill, ask the student to name the next number after the number you call. Use all numbers between zero and nine.
B. Continue the activity above. This time have the student name the number that comes before the number that you call. Use all numbers between one and ten.

Activity 25:

The student combines objects in preparation for addition.

Use the Work-Play Tray with three dividers. Place two tokens in the first section and three tokens in the second section.

"I have placed some tokens in the Work-Play Tray. How many tokens are in the first section? (2) How many are in the second section? (3) How many are in the third section? (0)"

Have the student combine all the tokens and place them in the third section. "Now, how many are there all together? (5) Count the tokens for me." Repeat using other combinations which total ten or less.

Repeat the above activity using the Pop Cubes. Place two connected Pop Cubes in the first section. Place three connected Pop Cubes in the second section. "How many cubes are in the first section? (2) How many cubes are in the second section?" (3) Have the student combine the two groups of Pop Cubes into one length. "Now, how many are there all together? (5) Count the cubes for me." Repeat using other combinations which total ten or less.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 26:

The student finds the sum of the objects on two cards.

Place two Raised Shape Counting Cards in front of the student.

"Look at the two cards in front of you. How many shapes are there on the first card? How many shapes are on the second card? How many shapes are there altogether? How do you know?" Repeat using other combinations which total ten or less.

Materials:
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Direct the student to combine subsets of objects and find their sums in preparation for addition.
B. Ask the student to combine the numbers of fixed sets of objects using cards from Raised Shape Counting Cards and to find their sums in preparation for addition.

Activity 27:

The student removes objects from a set in preparation for subtraction.

Place a quantity of tokens in the Work-Play Tray.

"Count the tokens in the tray. How many are there? Give me one token. How many are left?" Repeat using other combinations to ten.

Repeat the above activity using the Pop Cubes. Place a quantity of connected cubes in the Work-Play Tray.

"Count the cubes. How many are there? Give me one cube. How many are left?" Repeat using other combinations to ten.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 28:

The student partitions from a set in preparation for subtraction.

Place a Raised Shape Counting Card in front of the student.

"Look at this card. How many shapes are there? Cover two with your hand. How many are left? How do you know?" Repeat using different cards.

Materials:
Pac X - Raised Shape Counting Cards

APPLICATIONS:

Extending the Concept into Daily Living

A. Involve the student in an activity using minus or "take away" as several, one, or no objects are removed.
B. Repeat covering up/partitioning some of a set of fixed objects as in Activity 28.

Activity 29:

The student identifies first, second, third, fourth, and fifth.

Place five diagramming strips in a row on the Storyboard. "Here are some bars. Find the third bar... the first bar...the second bar...the fourth bar...the fifth bar."

Place Activity Sheet 8 with five bars in front of the student.

"Here is a sheet with some bars on it. Find the second bar ... the fifth bar ... the third bar ... the first bar ... the fourth bar."

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 8

Activity 30:

The student recites numbers in order to 20.

"Count to 20."

Materials:
None

Activity 31:

The student reads numbers from 10 to 20.

Place the cards with the numbers from 10 to 20 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac M - Number and Math Sign Cards

Activity 32:

The student writes the numerals from 10 to 20.

Provide the student with appropriate writing materials. Name a number from 10 to 20.

"Write each number that I name."

Materials:
Materials provided by the teacher

Activity 33:

The student identifies the numbers 10 to 20 on a number line.

Provide the student a number line with the numbers 0 to 20 in the appropriate reading medium. Allow the student to explore the number line and locate the numbers on the line.

"I will say a number between 10 and 20. Find the number I say on the number line." Use all numbers between 10 and 20 randomly.

Materials:
Pac P - Consumable Number Lines

Activity 34:

The student locates the number that comes after any random number, 10 to 19, on a number line.

Provide the student a number line with the numbers 0 to 20 in the appropriate reading medium.

"I will say a number between 10 and 20. Find the number on the number line. Find and name the number that comes after the number I said." Use all numbers between 10 and 19 randomly.

Materials:
Pac P - Consumable Number Lines

Activity 35:

The student states the number that comes before any random number, 11 to 20, on a number line.

Provide the student a number line with the numbers 0 to 20 in the appropriate reading medium.

"I will say a number between 10 and 20. Find the number on the number line. Find and name the number that comes before the number that I say." Use all numbers between 11 and 20 randomly.

Materials:
Pac P - Consumable Number Lines

Activity 36:

The student counts back from 20 to 0.

Provide the student a number line with the numbers 0 to 20 in the appropriate reading medium.

"Find the number 20 on the number line. Read the numbers counting down from 20 to 0. Can you count back from 20 without the number line?"

Materials:
Pac P - Consumable Number Lines

Activity 37:

The student recites numbers in order to 30.

"Count to 30."

Materials:
None

Activity 38:

The student reads numbers from 20 to 30.

Place the cards with numbers from 20 to 30 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac M - Number and Math Sign Cards

Activity 39:

The student writes the numerals from 20 to 30.

Provide the student with appropriate writing materials. Name a number from 20 to 30.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

APPLICATIONS:

Extending the Concept into Daily Living

A. Review ordinal counting to "fifth" with the student using objects in the environment.
B. Ask the student to rote count to 30. Count steps as the student walks. Count beads on a bead frame.

Activity 40:

The student identifies sixth, seventh, eighth, ninth, and tenth.

Place ten diagramming strips in a row on the Storyboard. "Here are some bars. Find the eighth bar... the second bar...the ninth bar...the sixth bar...the fifth bar."

Place Activity Sheet 9 in front of the student.

"Here is a sheet with some bars on it. Find the seventh bar ... the tenth bar ... the eighth bar ... the sixth bar ... the ninth bar."

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Activity Sheet 9

Activity 41:

The student identifies half objects and whole objects.

Place two apples of equal size in front of the student. Discuss with the student how two people might share one apple. With the student observing, cut one apple into two equal sized pieces. Allow the student to examine the new pieces. "Are the two pieces of apple equal in size? What would you call each of the new pieces?"

"Look at the apples in front of you. Show me the whole apple. Show me the half apple."

Materials:
Apples provided by the teacher

Activity 42:

The student uses a model to identify half objects and whole objects.

Provide the student with the Fractional Parts of Wholes Set. Use the whole circle and half circles.

"Here is a circle. Is this a whole circle? If I were to divide the circle in half, where would I divide the circle? How many parts would I make? Here are two parts that can make a circle. Put them together to make a whole circle. How many parts are there? What do we call each part?"

Materials:
Pac Q - Fractional Parts of Wholes Set

Grade 1

Please Note: While the abacus is an important tool for computation skills, the use of the abacus is not addressed in this unit as there are several excellent resources that provide explicit instruction in the use of the abacus. Please refer to these resources as you provide instruction in the use of the abacus.

Activity 1:

The student uses manipulatives to find the sum for addition facts to five.

Place a quantity of Tactile Tokens in the Work-Play Tray. Have the student use the tokens to represent the number of items in a number sentence.

"There are two children on the playground. Choose a number of tokens to represent the children. One more child comes to the playground. Choose a number of tokens to represent how many more children came out to play. How many children are on the playground now?" Repeat using different word problems and numbers of addends.

Provide the student an opportunity to use the Pop Cubes to solve the same type of problems.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 2:

The student uses manipulatives to find the difference for subtraction facts to five.

Place a quantity of Tactile Tokens in the Work-Play Tray. Have the student use the tokens to represent the number of items in a number sentence.

"There are two children on the playground. Choose a number of tokens to represent the children. One child goes home. Remove a number of tokens to represent how many children went home. How many children are on the playground now?" Repeat using different word problems and numbers.

Provide the student an opportunity to use the Pop Cubes to solve the same type of problems.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac R - Pop Cubes

Activity 3:

The student solves addition problems with zero as an addend.

Provide the student with three tokens.

"Here are some tokens. How many tokens do you have? Now I am going to give you zero tokens to put with the three tokens. How many tokens do you have now? How many tokens did I give you?"

Repeat using different amounts of tokens. Help the student understand that if you add zero to a number, the sum of the two numbers is always the original number.

Materials:
Pac V - Tactile Tokens

Activity 4:

The student solves subtraction problems with zero as the subtrahend.

Provide the student with three tokens.

"Here are some tokens. How many tokens do you have? Now I am going to take zero tokens away from you. How many tokens do you have now? How many tokens did I take from you?"

Repeat using different amounts of tokens. Help the student understand that if you take zero away from a number, the difference between the two numbers is always the original number.

Materials:
Pac V - Tactile Tokens

Activity 5:

The student identifies the "+" (plus or addition) sign.

Show the student the "+" sign in print or braille.

"Look at this sign carefully. What sign is it? What does this sign mean?"

"Which braille dots are used to make the addition sign?" (Dots 3, 4, 6)

Materials:
Pac M - Number and Math Sign Cards

Activity 6:

The student identifies the "=" (equal) sign.

Show the student the "=" sign in print or braille.

"Look at this sign carefully. What sign is it? What does this sign mean?"

"How many cells are used to make the equal sign? Which braille dots are used to make an equal sign?" (Two cells - dots 4, 6 and dots 1, 3)

Materials:
Pac M - Number and Math Sign Cards

Activity 7:

The student constructs an addition equation.

Have available the cards containing the numbers zero to five, the plus sign, and the equals sign. Place two tokens in the first section and three tokens in the second section of the Work-Play Tray. Leave the third section empty.

"The first two sections of the tray have tokens in them. The third section of the tray is empty. How many tokens are in the first section? (2) How many tokens are in the second section? (3) Here are some cards containing numbers and math signs. Which card should we use to show the number of tokens in the first section of the tray? Which card should we use to represent the number of tokens in the second section of the tray?"

"Now combine the tokens from each section into the empty section. How many tokens are there all together? (5) Which number shows how many tokens there are all together? Which math signs would we use to show that we combined the two numbers to get a new number? (+) Which math sign should we use to show that the expressions

(numbers) on either side have the same value? (=) Read the equation we have built." (e.g., 2 + 3 = 5)

Repeat with various combinations to five. Have the student choose the correct cards and arrange them to show what the student has done with the tokens. Have the student read the equation.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac M - Number and Math Sign Cards

Activity 8:

The student writes an addition equation.

Using the addition problem in Activity 7, have the student write the problem.

Review the braille addition sign (Dots 3, 4, 6) and the equal sign (Two cells - dots 4, 6 and dots 1, 3).

Provide the student several opportunities to practice writing addition problems. If the student is having difficulty, allow the student to use selected addition cards as a model.

Materials:
Writing materials provided by the teacher
Pac N - Addition Cards

Activity 9:

The student identifies the "−" (minus or subtraction) sign.

Show the student the "−" in print or in braille.

"Look at this sign carefully. What sign is it? What does this sign mean?"

"What are the braille dots used to make the minus sign?" (Dots 3, 6)

Materials:
Pac M - Number and Math Sign Cards

Activity 10:

The student constructs subtraction equations.

Have available the cards containing the numbers zero to five, the minus sign, and the equal sign. Place five tokens in the Work-Play Tray.

"I have placed some tokens in the tray. How many tokens are in the tray? Give me three of the tokens. How many tokens are left?"

"Here are some cards containing numbers and math signs. Which card should we use to show the number of tokens that were in the tray in the beginning? (5) Which card should we use to represent the number of tokens you gave me? (3) Which number shows how many tokens are left in the tray? (2) Which math signs would we use to show that you took away some of the tokens? (−) Which math sign should we use to show that the expressions (numbers) on either side have the same value? (=) Read the equation we have built." (e.g., 5 − 3 = 2)

Repeat with various subtraction facts to five. Have the student choose the correct cards and arrange them to show what the student has done with the tokens.

Materials:
Pac G - Work-Play Tray and Dividers
Pac V - Tactile Tokens
Pac M - Number and Math Sign Cards

Activity 11:

The student writes a subtraction problem.

Using the subtraction problem in Activity 10, have the student write the problem.

Review the braille subtraction sign (Dots 3, 6) and the equal sign (Two cells - dots 4, 6 and dots 1, 3).

Provide the student several opportunities to practice writing subtraction problems. If the student is having difficulty, allow the student to use selected subtraction cards as a model.

Materials:
Writing materials provided by the teacher
Pac O - Subtraction Cards

Activity 12:

The student identifies the commutative property of addition.

Place a group of three circles on one side of the Storyboard and a group of two circles on the other side of the Storyboard.

"I have placed some shapes on the Storyboard. If I had three circles and added two circles, how many circles would there be in all?" Allow the student to explore the Storyboard and the shapes to determine the answer. Have the student name the numbers and the sum (e.g., 3 + 2 = 5).

Rotate the Storyboard so that you now have a group of two circles and a group of three circles. Have the student examine the Storyboard and the shapes to determine the answer to the "new" problem. Have the student name the numbers and the sum (e.g., 2 + 3 = 5).

Repeat using different combinations of shapes. Help the student understand that the numbers can be added in any sequence and the answer will remain the same.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 13:

The student uses the commutative property of addition to write a related equation.

Provide a selection of addition cards with the answer side up.

"I will give you an addition equation on a card. Read each addition equation. Using the same three numbers, write a related equation" (e.g., the student reads 2 + 3 = 5 and writes 3 + 2 = 5).

Materials:
Pac N - Addition Cards

Activity 14:

The student uses manipulatives to create a vertical addition equation.

Place a group of three circles on the Storyboard and a group of two squares immediately below the circles.

"I have placed some shapes on the Storyboard. If I had three circles and added two squares, how many shapes would there be in all?" Allow the student to explore the Storyboard and the shapes to determine the answer. Have the student name the numbers and the sum (e.g., 3 + 2 = 5).

Repeat using different combinations of shapes. Help the student understand that the numbers can be added horizontally or vertically and the answer will remain the same.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes

Activity 15:

The student constructs a vertical addition equation.

Have available the cards containing the numbers zero to five, the plus sign, the equal sign, and a Diagramming Strip.

Place a group of three circles on the Storyboard and a group of two squares immediately below the circles as you did in Activity 14. Review the number of tokens in each row. "Which number shows how many circles are in the first row? (3) Place the number beside the circles. Which number shows how many squares are in the second row? (2) Place the number beside the squares. How many shapes are there altogether? (5) Place the number below the number two."

"Which math signs would we use to show that we combined the two numbers to get a new number? (+) Which math sign should we use to show that the expressions (numbers) on either side have the same value?" (=) Explain to the student that when we build a vertical addition problem we use a separation line or a vertical equal sign. Use the Diagramming Strip to separate the addends from the sum. "Read the equation we have built." e.g.,

$$\begin{array}{r} 2 \\ +3 \\ \hline 5 \end{array}$$

Repeat with various combinations to five. Have the student choose the correct cards and arrange them to show what the student has done with the tokens. Have the student read the equation.

Materials:
Pac L - Storyboard
Pac W - Diagramming Strips & Geometric Shapes
Pac M - Number and Math Sign Cards

Activity 16:

The student writes a vertical addition problem.

Using the addition problem in Activity 15, have the student write the problem.

Review the braille addition sign (Dots 3, 4, 6). Introduce the braille separation line (Dots 2, 5). Help the student line up the numbers and signs to correctly write the problem.

Provide the student several opportunities to practice writing addition problems.

Materials:
Writing materials provided by the teacher

Activity 17:

The student writes a vertical subtraction problem.

Explain to the student that subtraction problems can also be written in a vertical format.

Using the subtraction problem 5 − 3 = 2, have the student write the subtraction problem in a vertical format.

Review the braille subtraction sign (Dots 3, 6) and the braille separation line (Dots 2, 5). Help the student line up the numbers and signs to correctly write the problem.

Provide the student several opportunities to practice writing subtraction problems in a vertical format.

Materials:
Writing materials provided by the teacher

Activity 18:

The student uses manipulatives to find the sum for addition facts to ten.

Provide the student a quantity of Tactile Tokens. Have the student use these tokens to represent the number of items in a number sentence. Use the yellow/smooth side to represent one addend. Use the blue/soft side to represent the other addend.

Have the student solve the problem: 3 + 6. Use three tokens with the yellow/smooth side up to represent the first addend. Use six soft/blue tokens to represent the second addend. Have the student combine the sets of tokens and determine the total number of tokens. Repeat using different addition facts.

Provide the student an opportunity to use the Pop Cubes to solve the same type of problems.

The student should also have practice in reading and writing the problems in horizontal and vertical formats.

Materials:
Pac V - Tactile Tokens
Pac R - Pop Cubes
Pac N - Addition Cards
Writing materials provided by the teacher

Activity 19:

The student finds the sum for addition problems (with sums to ten) using a number line.

Provide the student a consumable number line in the appropriate reading medium. "Use the number line to find the answer to this problem: 3 + 2. Find the number three on the number line, now count up two. Read the number. What is the answer to the problem 3 + 2?" Repeat using addition problems with sums to ten. Help the student understand the connection between counting up and the operations of addition.

Materials:
Pac P - Consumable Number Line

Activity 20:

The student uses manipulatives to find the difference for subtraction facts to ten.

Provide the student a quantity of Tactile Tokens. Have the student use these tokens to represent the number of items in a number sentence. Use the yellow/smooth side to represent the minuend. Use the blue/soft side to represent the subtrahend.

Have the student solve the problem: 9 − 3. Use nine tokens with the yellow/smooth side up to represent the minuend. Have the student turn over three of the yellow/smooth tokens to represent the number subtracted. Have the student count the number of yellow/smooth tokens remaining to determine the answer to the problem. Repeat using different subtraction facts.

Provide the student an opportunity to use the Pop Cubes to solve the same type of problems.

The student should also have practice in reading and writing the problems in horizontal and vertical formats.

Materials:
Pac V - Tactile Tokens
Pac R - Pop Cubes
Pac O - Subtraction Cards
Writing materials provided by the teacher

Activity 21:

The student solves simple subtraction problems (with minuends to ten) using a number line.

Provide the student a consumable number line in the appropriate reading medium. "Use the number line to find the answer to this problem: 5 − 2. Find the number five on the number line, now count down two. Read the number. What is the answer to the problem 5 − 2?" Repeat using subtraction problems with minuends to ten. Help the student understand the connection between counting down and the operations of subtraction.

Materials:
Pac P - Consumable Number Line

Activity 22:

The student explores groupings by ten.

Place a quantity (less than ten) of Pop Cubes in the Work-Play Tray. Have the student count and connect the cubes.

Place a quantity (from 10 to 20) of Pop Cubes in the Work-Play Tray. Have the student count the cubes. Have the student group the cubes in as many tens as possible. Repeat using different quantities, having the student group the cubes in as many tens as possible.

Materials:
Pac G - Work-Play Tray and Dividers
Pac R - Pop Cubes

Activity 23:

The student explores the concept of place value of a digit.

Introduce the ones (units) and tens (rods) models; explain that the rods already have the ones joined into units of ten. Allow the student to examine the rods and determine that there are ten units in each rod.

Give the student a number such as 23. Have the student begin to count out the units that will equal 23. Have the student exchange a group of ten units for a rod of ten. The student should complete the exercise with two rods and three units.

Introduce Activity Sheet 10. Allow the student to examine the chart noting the ones place and the tens place. Have the student place the three units in the ones column and the rods in the tens column. "What number does this show? How many units are in the ones place? How many rods are in the tens place?" Repeat using numbers to 30.

Reverse the procedure and place units and rods on Activity Sheet 10 and have the student name the number represented. Repeat using numbers to 30.

Digi-blocks may be used as an alternate manipulative for students who continue to have difficulty with place value.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 24:

The student recites numbers in order to 40.

"Count to 40."

Materials:
None

Activity 25:

The student reads numbers from 30 to 40.

Place the cards with numbers from 30 to 40 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 26:

The student writes the numerals from 30 to 40.

Provide the student with appropriate writing materials. Name a number from 30 to 40.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 27:

The student explores the concept of place value for numbers from 30 to 40.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you name between 30 and 40. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 30 to 40 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10

Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 28:

The student recites numbers in order to 50.

"Count to 50."

Materials:
None

Activity 29:

The student reads numbers from 40 to 50.

Place the cards with numbers from 40 to 50 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 30:

The student writes the numerals from 40 to 50.

Provide the student with appropriate writing materials. Name a number from 40 to 50.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 31:

The student explores the concept of place value for numbers from 40 to 50.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you name between 40 and 50. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 40 to 50 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 32:

The student recites numbers in order to 60.

"Count to 60."

Materials:
None

Activity 33:

The student reads numbers from 50 to 60.

Place the cards with numbers from 50 to 60 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 34:

The student writes the numerals from 50 to 60.

Provide the student with appropriate writing materials. Name a number from 50 to 60.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 35:

The student explores the concept of place value for numbers from 50 to 60.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you name between 50 and 60. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 50 to 60 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 36:

The student recites numbers in order to 70.

"Count to 70."

Materials: None

Activity 37:

The student reads numbers from 60 to 70.

Place the cards with numbers from 60 to 70 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 38:

The student writes the numerals from 60 to 70.

Provide the student with appropriate writing materials. Name a number from 60 to 70.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 39:

The student explores the concept of place value for numbers from 60 to 70.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you name between 60 and 70. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 60 to 70 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 40:

The student recites numbers in order to 80.

"Count to 80."

Materials:
None

Activity 41:

The student reads numbers from 70 to 80.

Place the cards with numbers from 70 to 80 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 42:

The student writes the numerals from 70 to 80.

Provide the student with appropriate writing materials. Name a number from 70 to 80.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 43:

The student explores the concept of place value for numbers from 70 to 80.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you

name between 70 and 80. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 70 to 80 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 44:

The student recites numbers in order to 90.

"Count to 90."

Materials:
None

Activity 45:

The student reads numbers from 80 to 90.

Place the cards with numbers from 80 to 90 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 46:

The student writes the numerals from 80 to 90.

Provide the student with appropriate writing materials. Name a number from 80 to 90.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 47:

The student explores the concept of place value for numbers from 80 to 90.

Provide the student with Activity Sheet 10. Review the ones and tens place on the sheet. Using the Base Ten Units and Base Ten Rods, have the student show the numbers you name between 80 and 90. "What number is in the ones column? What number is in the tens column?"

Reverse the procedure and demonstrate a number from 80 to 90 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 10
Pac S - Base Ten Units
Pac T - Base Ten Rods

Activity 48:

The student recites numbers in order to 100.

"Count to 100."

Materials:
None

Activity 49:

The student reads numbers from 90 to 100.

Place the cards with numbers from 90 to 100 in the Work-Play Tray.

"I have placed some number cards in the tray. Read the numbers."

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 50:

The student writes the numerals from 90 to 100.

Provide the student with appropriate writing materials. Name a number from 90 to 100.

"Write each number that I name."

Materials:
Writing materials provided by the teacher

Activity 51:

The student explores the concept of place value for numbers from 90 to 100.

Provide the student with Activity Sheet 11. Review the ones and tens place on the sheet. Introduce the hundreds column. "What do you think will go in this column?" Introduce the Base Ten Flat. Help the student to explore the Flat and estimate how many units are on a Flat.

Using the Base Ten Units, Base Ten Rods, and Base Ten Flats have the student show the numbers you name between 90 and 100. "What number is in the ones column? What number is in the tens column? What number is in the hundreds column?"

Reverse the procedure and demonstrate a number from 90 to 100 on the Activity Sheet. Have the student name the number you represented.

Materials:
Activity Sheet 11
Pac S - Base Ten Units
Pac T - Base Ten Rods
Pac U - Base Ten Flats

Activity 52:

The student locates numbers on a Hundreds Chart.

Provide the student with Activity Sheet 12 - Print or Activity Sheet 13 - Braille. Help the student locate each horizontal row of numbers. Have the student read the first horizontal row of numbers aloud. "How does each row of numbers change? What patterns do you see?" Have the student read other selected horizontal rows on the Hundreds Chart.

Help the student locate each vertical row of numbers. Have the student read a vertical row of numbers aloud. "How does each row of numbers change? What patterns do you see?" Have the student read other selected vertical rows on the Hundreds Chart.

Materials:
Activity Sheet 12 - Print
Activity Sheet 13 - Braille

Activity 53:

The student states the number that comes after any number between 1 and 99.

Provide the student with Activity Sheet 12 - Print or Activity Sheet 13 - Braille, the Hundreds Chart, as a reference if needed. "What number comes after the number I say?" Name one number at a time: 43, 27, 65, 92, 88, 16....

Materials:
Activity Sheet 12 - Print
Activity Sheet 13 - Braille

Activity 54:

The student states the number that comes before any number between 1 and 100.

Provide the student with the Activity Sheet 12 - Print or Activity Sheet 13 - Braille, the Hundreds Chart, as a reference if needed. "What number comes before the number I say?" Name one number at a time: 47, 75, 32, 54, 67, 29.

Materials:
Activity Sheet 12 - Print
Activity Sheet 13 - Braille

Activity 55:

The student names the number that comes between any two numbers from 0 through 99.

Provide the student with Activity Sheet 12 - Print or Activity Sheet 13 - Braille, the Hundreds Chart, as a reference if needed. "Tell me the number that comes between each of the following pairs of numbers. What number comes between: 65 and 67; 46 and 48; 5 and 7; 93 and 95; 58 and 60; 18 and 20; 82 and 84; 18 and 20; 67 and 69."

Materials:
Activity Sheet 12 - Print
Activity Sheet 13 - Braille

Activity 56:

The student orders the numerals from 1 through 100.

Place five Number Cards at a time in the Work-Play Tray in front of the student. Begin with consecutive numbers and move to random numbers as the student becomes more proficient.

"Put these Number Cards in order. Begin with the smallest number and end with the largest number." Repeat several orderings.

Materials:
Pac G - Work-Play Tray and Dividers
Pac M - Number and Math Sign Cards

Activity 57:

The student compares two numbers from 1 to 100 using the terms greater than, less than, or equal to.

Ask the student to respond orally to the following by answering "is greater than," "is less than," or "is equal to" as you pause for the blanks between each number pair.

"I will read two numbers to you. Tell me if the first number is greater than, less than, or equal to the second number? I will repeat the numbers."

"8___7"

"44___44"

"57___57"

"88___80"

"68___43"

"18___33"

"19___91"

"62___21"

"22___32"

Materials:
None

Activity 58:

The student compares two numbers from 0 to 99 using the symbols for greater than, less than, or equal to.

Using the Number and Math Sign Cards review/introduce the symbols for greater than, less than, and equal to.

"How many cells are used to make the sign for greater than? Which dots are used to make the sign for greater than?" (Two cells - dots 4, 6 and dot 2)

"How many cells are used to make the sign for less than? Which dots are used to make the sign for less than?" (Two cells - dot 5 and dots 1, 3)

"How many cells are used to make the equal sign? Which dots are used to make the equal sign?" (Two cells - dots 4, 6 and dots 1, 3)

"I will place two number cards in front of you. Read the cards and keep them in order. Place the cards for greater than, less than, or equal to between the two numbers to make a true statement."

Materials:
Pac M - Number and Math Sign Cards

Activity 59:

The student writes random numerals from 1 through 99 expressed in expanded notation.

Provide the student with appropriate writing materials. Provide the student the Base Ten Units, Base Ten Rods, and Activity Sheet 10 as a reference if needed.

"I will read some numbers to you. Write the numerals for these numbers, one at a time: two tens, nine tens and one, six tens and seven, one ten and two, five tens and six, seven tens and three, nine tens and five, eight tens and eight."

Materials:
Writing materials provided by the teacher
Pac S - Base Ten Units
Pac T - Base Ten Rods
Activity Sheet 10

Activity 60:

The student analyzes word problems in deciding whether to add or to subtract.

Read each of the following word problems to the student. (The correct answer is given in parentheses.)

"I will read some word problems to you. For each problem, tell me if you will add or subtract to find the answer."

A. Susan fed peanuts to 12 birds in the park. Three more flew in to eat peanuts. How many birds did Susan feed in all? (Add)
B. Mr. Jones planted 100 potato plants in the spring. Fifteen died from a late frost. How many living plants were left? (Subtract)
C. Charles had $2.00 to spend at the bowling alley. He paid $1.10 to bowl. How much money did he have left to spend? (Subtract)
D. Cheryl wants to buy some school supplies: a pencil case, which costs $.75; a notebook for $1.25; and an eraser for $.25. How much money will she need to buy these supplies? (Add)

Materials:
None

Activity 61:

The student states whether addition or subtraction is necessary to solve one step word problems involving addition and subtraction of money.

Read each of the following five word problems dealing with money. The student decides whether to add or subtract. The correct answer is given in parentheses.

"I will read some word problems to you. For each problem, tell me if you will add or subtract to find the answer."

A. Darren worked five days. On Monday he earned $2.75, Tuesday $3.20, Wednesday $2.05, Thursday $1.00, and Friday $4.00. How much money did he earn in all? (Add)
B. Barbara took $10.00 to the movies. She bought a ticket for $4.00; popcorn for $2.00; and a drink for $1.5O. How much money did she spend in all? (Add)
C. How much money did Barbara have left from the $10.00? (Subtract)
D. Father spent $57.00 each for four new tires. How much did he spend for all four tires? (Add)
E. Auto tags for a car cost $23.50, and tags for a camper cost $48.50. How much more do tags for a camper cost than tags for a car? (Subtract)

Materials:
None

Activity 62:

The student selects the correct number sentence to represent a word problem.

Read each of the following five word problems to the student. The student decides which of the number sentences is correct for each word problem. "I will read some word problems. Tell me the correct number sentence for each word problem I read." The correct answer is underlined.

A. Marie bought a bag of 12 apples. Two were rotten. How many good apples were there? [(12−2) or (12+0)]
B. Tommy counted two dozen eggs in the basket. How many eggs were there in all? [(12+12) or (12−12)]
C. Mr. Parks drives 46 miles to work and 46 miles back home again each day. How many miles a day does he drive? [(46−46) or (46+46)]
D. For Valentine's Day Nicole received 48 pink candy hearts and 25 red candy hearts. How many did she get in all? [(48−25) or (48+25)]
E. How many more pink candy hearts did Nicole have than red hearts? [(48−25) or (48+25)]

Materials:
None

Activity 63:

The student recognizes 1/2, 1/3, and 1/4 of a whole figure.

Place the shapes from the Fractional Parts of Wholes Set in front of the student. "Find the shape that shows 1/2. Find the shape that shows 1/3. Find the shape that shows 1/4."

"How many 1/2 parts does it take to make a whole? How many 1/3 parts does it take to make a whole? How many 1/4 parts does it take to make a whole?"

Materials:
Pac Q - Fractional Parts of Wholes Set

Activity 64:

The student recognizes 1/2, 1/3, and 1/4 of a quantity.

Provide the student with six Tactile Tokens. "Show me 1/2 of this collection. Show me 1/3."

Provide the student with eight Tactile Tokens. "Show me 1/2 of this collection. Show me 1/4."

Materials:
Pac V - Tactile Tokens

APPLICATIONS:

Extending the Concept into Daily Living

Explore the environment in search of examples of whole objects, plane and solid, that can be divided into halves. Use cookies, crackers, apples, oranges, candy bars, and other foods as examples.

Assessment Checklist

Use the following rating scale to indicate the student's current level of performance of each objective:

1 = Beginning level of performance
2 = Developing level of performance
3 = Accomplished/Mastery level of performance

Objective	Date/Rating Notes
Prekindergarten - Numbers and Operations	
Activity 1: The student identifies the quantity of one.	
Activity 2: The student identifies quantities to two.	
Activity 3: The student identifies quantities to three.	
Activity 4: The student identifies quantities to four.	
Activity 5: The student identifies quantities to five.	
Activity 6: The student recites numbers to five in order.	
Activity 7: The student counts tokens with quantities to five.	
Activity 8: The student produces sets for any given number to five.	
Activity 9: The student counts fixed ordered shapes to five.	
Activity 10: The student counts fixed unordered shapes to five.	

Activity 11: The student identifies sets of objects with quantities to five.	
Activity 12: The student sorts Raised Shape Counting Cards for quantities to five.	
Activity 13: The student names zero as the cardinal number of the empty set.	
Activity 14: The student identifies quantities to six.	
Activity 15: The student identifies quantities to seven.	
Activity 16: The student identifies quantities to eight.	
Activity 17: The student identifies quantities to nine.	
Activity 18: The student identifies quantities to ten.	
Activity 19: The student recites numbers to ten in order.	
Activity 20: The student counts tokens with quantities to ten.	
Activity 21: The student counts quantities from six through ten.	

Activity 22: The student counts fixed ordered shapes to ten.	
Activity 23: The student counts fixed unordered objects to ten.	
Activity 24: The student identifies quantities from zero to ten.	
Activity 25: The student sorts Raised Shape Counting Cards for quantities from six to ten.	
Activity 26: The student compares collections that have the same number of members.	
Activity 27: The student compares a set that has more members with a set that has fewer members.	
Activity 28: The student identifies fixed collections that have the same number of members by matching.	
Activity 29: The student identifies fixed collections that have the same number of members by counting.	
Activity 30: The student compares collections that have different numbers of members.	
Activity 31: The student matches a sample set to an identical set.	

Activity 32: The student identifies one collection that has a different number of members than each of two other collections.	
Activity 33: The student compares fixed ordered dissimilar sets that have the same or different numbers of members.	
Activity 34: The student compares a fixed set of objects that has more members with a fixed set that has fewer members, where the sets differ grossly in quantity.	
Activity 35: The student compares a fixed set of objects that has more members with a fixed set of objects that has fewer members, where the sets have a small difference in quantity.	
Activity 36: The student identifies the fixed set with the most members and the fixed set with the least members, where the sets differ grossly in quantity.	
Activity 37: The student identifies the fixed set with the most members and the fixed set with the least members, where the sets have a small difference in quantity.	
Activity 38: The student orders sets of objects zero to five according to quantity.	
Activity 39: The student orders sets of objects zero to ten according to quantity.	
Activity 40: The student orders three fixed sets of objects according to quantity.	

Kindergarten - Numbers and Operations	
Activity 1: The student rote counts to five.	
Activity 2: The student counts objects with quantities to five.	
Activity 3: The student produces sets for any given number to five.	
Activity 4: The student reads the numbers zero to five.	
Activity 5: The student matches the written numbers zero to five with sets containing zero to five members.	
Activity 6: The student compares the written numbers zero to five with sets containing zero to five members to determine which is more or less.	
Activity 7: The student identifies which of two numbers is greater and which of two numbers is less.	
Activity 8: The student orders the written numbers zero to five.	
Activity 9: The student writes the numbers zero to five.	
Activity 10: The student rote counts to ten.	

Activity 11: The student counts objects with quantities to ten.	
Activity 12: The student produces sets for any given number to ten.	
Activity 13: The student reads numbers six to ten.	
Activity 14: The student matches the written numbers six to ten with sets containing six to ten members.	
Activity 15: The student identifies which of two sets has one more or one less member than the other.	
Activity 16: The student compares the written numbers zero to ten with sets containing zero to ten members to determine which has more or less.	
Activity 17: The student identifies which of two numbers between zero and ten is greater and which is lesser.	
Activity 18: The student identifies a number which is greater than and a number which is less than a given number, one to nine.	
Activity 19: The student orders the numbers zero to ten.	
Activity 20: The student writes the numbers zero to ten.	

Activity 21: The student identifies the numbers zero to ten on a number line.	
Activity 22: The student locates the number that comes after any number, zero to nine, on a number line.	
Activity 23: The student states the number that comes before any number, one to ten, on a number line.	
Activity 24: The student counts back from ten to zero.	
Activity 25: The student combines objects in preparation for addition.	
Activity 26: The student finds the sum of the objects on two cards.	
Activity 27: The student removes objects from a set in preparation for subtraction.	
Activity 28: The student partitions from a set in preparation for subtraction.	
Activity 29: The student identifies first, second, third, fourth, and fifth.	
Activity 30: The student recites numbers in order to 20.	

Activity 31: The student reads numbers from 10 to 20.	
Activity 32: The student writes the numerals from 10 to 20.	
Activity 33: The student identifies the numbers 10 to 20 on a number line.	
Activity 34: The student locates the number that comes after any random number, 10 to 19, on a number line.	
Activity 35: The student states the number that comes before any random number, 11 to 20, on a number line.	
Activity 36: The student counts back from 20 to 0.	
Activity 37: The student recites numbers in order to 30.	
Activity 38: The student reads numbers from 20 to 30.	
Activity 39: The student writes the numerals from 20 to 30.	
Activity 40: The student identifies sixth, seventh, eighth, ninth, and tenth.	
Activity 41: The student identifies half objects and whole objects.	

Activity 42: The student uses a model to identify half objects and whole objects.	
Grade 1 - Numbers and Operations	
Activity 1: The student uses manipulatives to find the sum for addition facts to five.	
Activity 2: The student uses manipulatives to find the difference for subtraction facts to five.	
Activity 3: The student solves addition problems with zero as an addend.	
Activity 4: The student solves subtraction problems with zero as the subtrahend.	
Activity 5: The student identifies the "+" (plus or addition) sign.	
Activity 6: The student identifies the "=" (equal) sign.	
Activity 7: The student constructs an addition equation.	
Activity 8: The student writes an addition equation.	

Activity 9: The student identifies the "−" (minus or subtraction) sign.	
Activity 10: The student constructs subtraction equations.	
Activity 11: The student writes a subtraction problem.	
Activity 12: The student identifies the commutative property of addition.	
Activity 13: The student uses the commutative property of addition to write a related equation.	
Activity 14: The student uses manipulatives to create a vertical addition equation.	
Activity 15: The student constructs a vertical addition equation.	
Activity 16: The student writes a vertical addition problem.	
Activity 17: The student writes a vertical subtraction problem.	
Activity 18: The student uses manipulatives to find the sum for addition facts to ten.	

Activity 19: The student finds the sum for addition problems (with sums to ten) using a number line.	
Activity 20: The student uses manipulatives to find the difference for subtraction facts to ten.	
Activity 21: The student solves simple subtraction problems (with minuends to ten) using a number line.	
Activity 22: The student explores groupings by ten.	
Activity 23: The student explores the concept of place value of a digit.	
Activity 24: The student recites numbers in order to 40.	
Activity 25: The student reads numbers from 30 to 40.	
Activity 26: The student writes the numerals from 30 to 40.	
Activity 27: The student explores the concept of place value for numbers from 30 to 40.	
Activity 28: The student recites numbers in order to 50.	
Activity 29: The student reads numbers from 40 to 50.	

Activity 30: The student writes the numerals from 40 to 50.	
Activity 31: The student explores the concept of place value for numbers from 40 to 50.	
Activity 32: The student recites numbers in order to 60.	
Activity 33: The student reads numbers from 50 to 60.	
Activity 34: The student writes the numerals from 50 to 60.	
Activity 35: The student explores the concept of place value for numbers from 50 to 60.	
Activity 36: The student recites numbers in order to 70.	
Activity 37: The student reads numbers from 60 to 70.	
Activity 38: The student writes the numerals from 60 to 70.	
Activity 39: The student explores the concept of place value for numbers from 60 to 70.	
Activity 40: The student recites numbers in order to 80.	

Activity 41: The student reads numbers from 70 to 80.	
Activity 42: The student writes the numerals from 70 to 80.	
Activity 43: The student explores the concept of place value for numbers from 70 to 80.	
Activity 44: The student recites numbers in order to 90.	
Activity 45: The student reads numbers from 80 to 90.	
Activity 46: The student writes the numerals from 80 to 90.	
Activity 47: The student explores the concept of place value for numbers from 80 to 90.	
Activity 48: The student recites numbers in order to 100.	
Activity 49: The student reads numbers from 90 to 100.	
Activity 50: The student writes the numerals from 90 to 100.	
Activity 51: The student explores the concept of place value for numbers from 90 to 100.	

Activity 52: The student locates numbers on a Hundreds Chart.	
Activity 53: The student states the number that comes after any number between 1 and 99.	
Activity 54: The student states the number that comes before any number between 1 and 100.	
Activity 55: The student names the number that comes between any two numbers from 0 through 99.	
Activity 56: The student orders the numerals from 1 through 100.	
Activity 57: The student compares two numbers from 1 to 100 using the terms greater than, less than, or equal to.	
Activity 58: The student compares two numbers from 0 to 99 using the symbols for greater than, less than, or equal to.	
Activity 59: The student writes random numerals from 1 through 99 expressed in expanded notation.	
Activity 60: The student analyzes word problems in deciding whether to add or to subtract.	
Activity 61: The student states whether addition or subtraction is necessary to solve one step word problems involving addition and subtraction of money.	

Activity 62: The student selects the correct number sentence to represent a word problem.	
Activity 63: The student recognizes 1/2, 1/3, and 1/4 of a whole figure.	
Activity 64: The student recognizes 1/2, 1/3, and 1/4 of a quantity.	

Appendix

Activity Sheet 1 - Data Analysis, Grade 1, Activity 5

Activity Sheet 2 - Geometry, Pre Kindergarten, Activity 5

Activity Sheet 3 - Geometry, Kindergarten, Activity 1

Activity Sheet 4 - Geometry, Kindergarten, Activity 2

Activity Sheet 5 - Geometry, Kindergarten, Activity 4

Activity Sheet 6 - Measurement, Grade 1, Activity 4, 5

Activity Sheet 7 - Measurement, Grade 1, Activity 4, 5

Activity Sheet 8 - Numbers and Operations, Kindergarten, Activity 29

Activity Sheet 9 - Numbers and Operations, Kindergarten, Activity 40

Activity Sheet 10 - Numbers and Operations, Grade 1, Activity 23, 27, 31, 35, 39, 43, 47, 59

Activity Sheet 11 - Numbers and Operations, Grade 1, Activity 51

Activity Sheet 12 - Numbers and Operations, Grade 1, Activity 52, 53, 54, 55

Activity Sheet 13 - Numbers and Operations, Grade 1, Activity 52, 53, 54, 55

Pac A - Assorted Items

Data Analysis, Pre Kindergarten, Activity 1, 2, 3, 4, 6
Data Analysis, Kindergarten, Activity 1, 3, 4, 5

Pac B - Nuts, bolts, & washers

Data Analysis, Pre Kindergarten, Activity 1
Data Analysis, Kindergarten, Activity 1, 3

Pac C - Knives, forks, & spoons

Data Analysis, Pre Kindergarten, Activity 1
Data Analysis, Kindergarten, Activity 1, 3,
Numbers and Operations, Pre Kindergarten, Activity 26, 27

Pac D - Geometric Shapes

Algebra, Kindergarten, Activity 2
Data Analysis, Pre Kindergarten, Activity 3, 4, 5, 7, 9, 10, 11, 12
Data Analysis, Kindergarten, Activity 2, 5, 6, 7
Data Analysis, Grade 1, Activity 1, 2, 3, 4
Geometry, Pre Kindergarten, Activity 1, 4, 6
Geometry, Kindergarten, Activity 3, 4, 5
Geometry, Grade 1, Activity 1, 2, 3, 4, 6
Measurement, Pre Kindergarten, Activity 1, 2

Pac E - Irregular shape puzzle

Geometry, Pre Kindergarten, Activity 2, 3
Geometry, Grade 1, Activity 3

Pac F - Blocks

Data Analysis, Pre Kindergarten, Activity 1, 3, 6, 8
Data Analysis, Kindergarten, Activity 4
Geometry, Grade 1, Activity 5
Measurement, Kindergarten, Activity 1, 2, 3

Pac G - Work-Play Tray and Dividers

Algebra, Pre Kindergarten, Activity 2
Algebra, Kindergarten, Activity 2, 5
Algebra, Grade 1, Activity 2
Data Analysis, Pre Kindergarten, Activity 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Data Analysis, Kindergarten, Activity 1, 2, 3, 4, 5, 6, 7
Data Analysis, Grade 1, Activity 1, 2, 3, 4
Geometry, Pre Kindergarten, Activity 1, 2, 3

Measurement, Pre Kindergarten, Activity 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
Measurement, Kindergarten, Activity 1, 2, 4, 5, 6,7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20
Measurement, Grade 1, Activity 8, 10, 12
Numbers and Operations, Pre Kindergarten, Activity 7, 8, 11, 12, 20, 21, 24, 25, 31, 33, 34, 35, 36, 37, 38, 39, 40
Numbers and Operations, Kindergarten, Activity 2, 3, 8, 11, 12, 13, 14, 16, 17, 18, 19, 25, 27
Numbers and Operations, Grade 1, Activity 1, 2, 7, 10, 22, 25, 29, 33, 37, 41, 45, 49, 56

Pac H - Length Sticks

Measurement, Pre Kindergarten, Activity 3, 4, 5
Measurement, Kindergarten, Activity 4, 5, 6, 7
Measurement, Grade 1, Activity 13

Pac I - Height Cylinders

Measurement, Pre Kindergarten, Activity 6, 7, 8, 9
Measurement, Kindergarten, Activity 8, 9, 10, 11

Pac J - Width Bars

Measurement, Pre Kindergarten, Activity 10, 11, 12, 13
Measurement, Kindergarten, Activity 12, 13, 14, 15

Pac K - Weighted Containers

Geometry, Grade 1, Activity 5
Measurement, Pre Kindergarten, Activity 14, 15, 16, 17
Measurement, Kindergarten, Activity 16, 17, 18

Pac L - Storyboard

Algebra, Pre Kindergarten, Activity 1, 2
Algebra, Kindergarten, Activity 1, 2, 4, 5
Algebra, Grade 1, Activity 1, 2
Data Analysis, Grade 1, Activity 5
Geometry, Pre Kindergarten, Activity 5, 6
Geometry, Kindergarten, Activity 1, 2
Measurement, Grade 1, Activity 13
Numbers and Operations, Pre Kindergarten, Activity 9, 10, 22, 23, 28, 29, 30, 32
Numbers and Operations, Kindergarten, Activity 29, 40
Numbers and Operations, Grade 1, Activity 12, 14, 15

Pac M - Number and Math Sign Cards

Numbers and Operations, Kindergarten, Activity 5, 6, 7, 8, 9 13, 14, 16, 17, 18, 19, 31, 38
Numbers and Operations, Grade 1, Activity 5, 6, 7, 9, 10, 15, 25, 29, 33, 37, 41, 45, 49, 56, 58

Pac N - Addition Cards

Numbers and Operations, Grade 1, Activity 8, 13, 18

Pac O - Subtraction Cards

Numbers and Operations, Grade 1, Activity 11, 20

Pac P - Consumable Number Lines

Numbers and Operations, Kindergarten, Activity 21, 22, 23, 24, 33, 34, 35, 36
Numbers and Operations, Grade 1, Activity 19, 21

Pac Q - Fractional Parts of Wholes Set

Numbers and Operations, Kindergarten, Activity 42
Numbers and Operations, Grade 1, Activity 63

Pac R - Pop Cubes

Numbers and Operations, Pre Kindergarten, Activity 1, 2, 3, 4, 5, 14, 15, 16, 17, 18
Numbers and Operations, Kindergarten, Activity 2, 3, 11, 25, 27
Numbers and Operations, Grade 1, Activity 1, 2, 18, 20, 22

Pac S - Base Ten Units

Numbers and Operations, Grade 1, Activity 23, 27, 31, 35, 39, 43, 47, 51, 59

Pac T - Base Ten Rods

Numbers and Operations, Grade 1, Activity 23, 27, 31, 35, 39, 43, 47, 51, 59

Pac U - Base Ten Flats

Numbers and Operations, Grade 1, Activity 51

Pac V - Tactile Tokens

Algebra, Grade 1, Activity 1, 3
Numbers and Operations, Pre Kindergarten, Activity 1, 2, 3, 4, 5, 7, 8, 14, 15, 16, 17, 18, 20, 21, 28

Numbers and Operations, Kindergarten, Activity 2, 3, 11, 12, 25, 27
Numbers and Operations, Grade 1, Activity 1, 2, 3, 4, 7, 10, 18, 20, 64

Pac W - Diagramming Strips and Geometric Shapes

Algebra, Pre Kindergarten, Activity 1, 2
Algebra, Kindergarten, Activity 1, 2, 4, 5
Algebra, Grade 1, Activity 1, 2, 5
Geometry, Pre Kindergarten, Activity 5, 6
Geometry, Kindergarten, Activity 1, 2
Measurement, Grade 1, Activity 13
Numbers and Operations, Pre Kindergarten, Activity 9, 10, 22, 23, 28, 29, 30, 32
Numbers and Operations, Kindergarten, 29, 40
Numbers and Operations, Grade 1, Activity 12, 14, 15

Pac X - Raised Shape Counting Cards

Numbers and Operations, Pre Kindergarten, Activity 1, 2, 3, 4, 5, 11, 12, 13, 14, 15, 16, 17, 18, 24, 25, 31, 33, 34, 35, 36, 37, 38, 39, 40
Numbers and Operations, Kindergarten, Activity 5, 6, 14, 15, 16, 26, 28

Pac Y - Raised Shape Number Cards

Numbers and Operations, Kindergarten, Activity 4, 9

1839 Frankfort Avenue
Louisville, KY 40206
502-895-2405 • 800-223-1839
aph.org • info@aph.org

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