

MNOP

Mathematics **N**umeracy
for **O**akland **P**upils

Grades 1-2

An assessment of basic math skills



OaklandSchools

Learning Services
2100 Pontiac Lake Road
Waterford, MI 48328-2735
248.209.2292
www.oakland.k12.mi.us

Primary Assessment Overview

Mathematic Numeracy for Oakland Pupils

M.N.O.P.

Mathematics/Numeracy for Oakland Pupils (MNOP) was created to assess basic mathematics skills of students in the latter half of the first and second grades. The Revised School Code requires that every district assess students to determine basic literacy and mathematics skills. The Michigan Literacy Progress Profile was named in the law as a measure that might be used to assess literacy. No similar measure was made available to assess basic mathematics skills.

Many local districts felt they had elements of a quality mathematics assessment available but had not put the parts together to create an assessment in which they had confidence. Section 22b of the State School Act requires districts to offer summer school for students in grade 3 who have achieved less than satisfactory results on a mathematics assessment. While the law does not require summer school for students in grades 1 and 2, many districts asked if an assessment could be created that:

- is aligned with the content standards and benchmarks of the Michigan Curriculum Framework.
- meets the Standards for Appropriate Assessment of Young Children of the Michigan State Board of Education in 1989.
- measures:
 - number sense and operations,
 - data analysis and probability,
 - geometry and measurement,
 - pattern and algebraic ideas .
- has demonstrated psychometric quality.
- has been reviewed in relation to the Assessment of Authentic Achievement Standards from the Michigan Curriculum Framework.

Districts are not required to assess students at every grade level on all of the strands listed in point 3 above. They must assess all seven strands at some point between grade 1 and grade 5. *In order to provide alignment with local district curriculum, whole sections of the MNOP may be dropped and/or new sections added.*

A small committee of educators met in December 2000 and January 2001 to create the MNOP. Members of the committee had extensive experience with the development of the MLPP, or with mathematics curriculum development and teacher training, or with early childhood education, or with educational measurement. Teachers in local districts created some assessment samples which have been incorporated into the MNOP. The overall assessment is intended to supplement daily teacher observation in the classroom. The assessment is intended to align, not only with Michigan content standards and benchmarks, but the day-to-day instruction in the classroom.

The content validity of the MNOP is of paramount importance. The primary question users of the MNOP should ask is “Does this measure the mathematics skills we believe students must possess in these grade levels?” We hope many will concur. However, other psychometric qualities of the test are largely unknown. The MNOP is intended to meet a very specific need for assessment data for the spring of 2001. Its use after that time will depend upon the availability of a statewide assessment with similar intent.

Ease of administration is also of paramount consideration. Very little time is available for training of administrators of the MNOP. The developers attempted to balance enough directions to make the tasks clear yet allow teachers the latitude to determine the appropriate difficulty level of the assessment to their situation. To that end, throughout the assessment, teachers are invited to substitute more difficult content if they already have evidence students are well beyond a task provided on the assessment.

The time it takes to administer assessments is a very important factor. The MNOP does not have to be administered to all students or at one time. The MNOP may be used to record teacher observation of students’ demonstrating their mathematical abilities. The demonstrations may occur at activity centers or work stations, or other small group instructional activities. *The MNOP, like the MLPP, is intended to be an assessment that is embedded in regular classroom activities, not as a major assessment event.* Teachers

are cautioned not to assume that because they have not observed a student achieve a task, the student does not have that particular skill. If they have not observed the child on a skill, that part of the assessment should be administered to that child.

A summary sheet for the MNOP has been provided to help teachers determine the extent to which they should ask probing questions in determining a student's understanding of a concept. Districts are encouraged to add or delete content to assure that the assessment aligns with district curriculum and instructional practice. The summary sheet for the MNOP can be used beyond the summer school assessment. It can be an ongoing record of student progress and might follow the student to summer school and/or the next grade. The information can be most useful to subsequent teachers.

If districts intend to use the assessment as part of the identification process for inviting students to participate in summer school, they should conduct standards setting sessions to determine how the results of the assessment will be used. The MNOP Summary Sheet accommodates recording of the accuracy of student's responses to the individual items. A total score for each of the major strands can be easily created. Teachers and administrators need to meet and discuss the distributions of results for each item, for each score, and for overall performance on the set of tasks. Local districts must set their own criteria for "basic mathematics skills." Individual schools should not set their own criteria.

While "cut-score setting" can be done without actual student achievement data, it is much more interesting for teachers when actual student performance data are available. The process of examining the relationship between a priori standards and actual student performance can help teachers and administrators develop a common language to improve mathematics education by sharpening their focus on the curriculum benchmarks and standards. The assessment is intended to measure a student's development of skills in relation to a standard, not in relation to other students' performances. Economic realities may lead some districts to offer a summer school intervention to, for example, the lowest twenty percent of its students. Other, less costly interventions may be made available to every student who does not meet the district's standards. Additional guidance on the

development of scores and their use may become available as the instrument is piloted in local school districts.

No test should be used without a context created by other knowledge of the strengths and weaknesses of the individual learner. The MNOP is no exception. Teacher's observations, other assessments, and daily work should also be taken into consideration when interpreting the results of the MNOP.

Our thanks to the professionals who helped on this project:

Ernie Bauer, Oakland Schools
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Joan Lessen-Firestone, Oakland Schools
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Jennifer Irwin, Oakland Schools

Teacher Materials

First/Second Primary Mathematics Assessment Teacher's Manual

Materials

Collect:

- 10 index cards
- 100 chart
- Base 10 blocks
- Small paper bags and ten objects of two colors
- Unifix cubes or other counting objects (beans, counters, chips, Teddy bears, etc.)
- Color tiles
- Pattern blocks
- Geometric solids
- Coins in denominations of penny, nickel, dime, quarter (five of each denomination)
- Centimeter ruler
- A gear driven clock (if desired)
- A straw

Prepare:

- Eight index cards labeled 7, 36, 23, 15, 143, 105, 267 and 672
- Two paper bags with two color objects inside (see Probability task, see page 11)
- Plane shapes (square, rectangle, triangle, diamond, hexagon, circle and oval)
- Geometric solids (cylinder, rectangular prism, sphere, pyramid, cone, cube)
- Paper with 15 cm line (see Measurement task, see page 16)

Copies of all student sheets:

- Story problem page (one per student)
- Computation page (one per student)
- Fraction page (one per student)
- Pattern page (one per student)
- Graph pages (one set of two pages per class)
- Geometric plane shapes page (one per class)
- Geometric solid shapes page (one per class)
- Symmetry page (one per class)
- Time page (one per class)

General Directions

This assessment may be used to confirm other assessments of the students in your classroom. These assessments might include other tests, teacher observation, or daily work. In each area of the standards, tasks are presented in a developmental hierarchy. The tasks are presented in a continuum that spans both first and second grade. The entire assessment tool may not need to be administered to every child. Depending on your knowledge of the child's abilities please start each task at an appropriate level.

Each school and district will need to determine benchmarks for summer school at first and second grade.

Many parts of this assessment can be done through teacher observation and work with small groups. It may not be necessary to assess each child individually on all tasks. However, it can be most enlightening to interview children to really determine their mathematical understanding. Parts of the assessment might be done as part of a small group center or committee tasks. However, Michigan Department of Education guidelines, as well as standards from the National Association for the Education of Young Children (NAEYC), advise **against** whole group testing of primary students.

Section I. Number Sense

Materials

- Index cards labeled with the numbers 7, 36, 23, 15, 143, 105, 267 and 672.
- 10 index cards
- Collect 30 or more of the manipulative you will be working with (color tiles, Unifix cubes, beans, etc.). Have these available on the table as you work with the student.

Directions

The purpose of these tasks is to determine whether students have a sense of the base ten number system, what numbers mean, and how they relate to one another.

In each of these tasks, the beginning number can be adjusted based on your knowledge of the student and district expectations. Begin with a number you feel is appropriate for the student and adjust higher or lower as you believe is necessary to determine the student's ability. In all cases, ask the student to explain their thinking as they work through the tasks.

It is a good strategy to let the child experience success on the first few tasks in an assessment. If you feel the first tasks below will be too hard for the student and cause early frustration consider the following strategy. Before beginning the tasks below ask the child to count out 12 objects. Then ask the child to count 20 objects. When you feel the child is comfortable, begin the assessment.

Section I. Number Sense

Item	Concept	Teacher Prompt	Student Response
1.	Constructing Numbers	<p>Ask the child to build the number 23 in tens and ones using Unifix cubes (or other manipulative).</p> <p>In the second grade ask the child to build 136 in tens and ones using base 10 materials.</p>	<p>Child is able to create two sets of ten and one set of three ones.</p> <p>Child is able to create one set of 100, one set of three tens, and one set of six ones.</p>
2.	Place Value	<p>Show the number 23 on an index card. Ask the child to name how many tens and ones are in the numeral.</p> <p>Show the number 136 on an index card. Ask the child to name how many hundreds, tens, and ones are in the numeral.</p>	<p>Child is able to name the value of the digits by saying, "Two tens and three ones."</p> <p>Child is able to name the value of the digits by saying, "One hundred, three tens, and six ones."</p>
3.	Ordering Numbers	<p>Show the first four number cards with the numbers less than 100 and ask the child to put them in order from least to greatest.</p> <p>Show the next four number cards with the numbers greater than 100 and ask the child to put them in order from least to greatest.</p>	Child is able to put the numbers in order from least to greatest
4.	Number Recognition	Ask the child to read each numeral on the four cards.	Child is able to read the number correctly.
5.	Internalizing the order of numbers	Ask the child to count backwards from 12 to zero. (For larger numbers ask the child to count backwards over a landmark number, such as from 63 to 57.)	Child is able to count backwards over a landmark number (e.g., 10, 20, 30, etc).
6.	Skip Counting	<p>Ask the child to count by 2's. First grade might begin with 2. Second grade might begin with 17.</p> <p>Ask the child to count by tens. First grade might begin with ten. Second grade might begin with 17.</p> <p>Ask the child to count by 5's. First grade might begin with 5. Second grade might begin with 17.</p>	<p>Child is able to count by twos's from 2. Child is able to count by 2's from 17.</p> <p>Child is able to count by tens from 10. Child is able to count by tens from 17.</p> <p>Child is able to count by fives from 5. Child is able to count by five's from 17.</p>
7.	Basic Facts	Each district will determine the level of arithmetic facts they wish students to achieve at grade level. This determination may involve flash cards, timed drills, work sheets, etc. There should be at least five addition and five subtraction facts assessed. Basic facts are single digit addition or subtraction problems that students should commit to memory as foundational knowledge in arithmetic.	As determined by district.

Section II. Number Operations

Materials

- 100 chart
- Unifix cubes or other counting object (beans, counters, chips, Teddy bears, etc.)
- Color tiles
- Base ten blocks
- Copy one for each student:
 - Story problem pages (page 23 in student materials section)
 - Computation page (page 24 in student materials section)

Directions

The purpose of these tasks is to determine whether the student can choose relevant information from a problem and perform the correct operation. These tasks also assess the student's ability to compute with regrouping and renaming. Provide the student with a written version of the questions, allow the student to read silently, and then read the question aloud to the child. Allow the student to use base ten blocks, Unifix cubes, 100 grids, pencil and paper, or other concrete objects to model and solve the operation.

Item	Concept	Teacher Prompt	Student Response
1.	Addition and Subtraction in Context	Give the child the page of story problems. Allow the student to read silently, and then read the question aloud to the child. Ask the child to solve the problems.	Carefully observe the children as they work. Record what strategies children used. Record what manipulatives, if any, were used. Record whether the child labels the answer to the story problems (e.g., 13 pets). Record whether the child is aware of the operation necessary to solve the problem.
2.	Computation (with and without regrouping)	Give the child the one page of addition and subtraction problems. Ask the child to solve the problems.	For both parts of this section districts will need to determine the cut score for what is considered demonstration of competency in number operations.

Section III. Fractions

Materials

Directions

- Chips, counters, tiles
- Copy one per class:
 - Fraction page (page 25 in student materials section)

The purpose of these tasks is to determine the student’s ability to recognize fractional relationships, identify fractional portions, and correctly write fractions. Give the child the paper labeled Fractions.

Item	Concept	Teacher Prompt	Student Response
1.	Fractional Portions (1/2) Context	Say: “Look at the three squares. Point to the picture that has 1/2 shaded.” Record their answer. Then point to another and ask, “Why did you not pick this one?”	The child is able to choose the correct picture of 1/2. The child is able to explain using the terms “equal parts, fair share, same size, etc.”
2.	Fractional Portions (1/4)	Say: “Look at the three circles. Point to the picture that has 1/4 shaded.” Record their answer. Then point to another picture and ask, “Why did you not pick this one?”	The child is able to choose the correct picture of 1/4. The child is able to explain using the terms “equal parts, fair share, same size, etc.”
3.	Writing Fractions	Point to the bottom of the fraction page and say, “Write one fourth.”	The child is able to write 1/4 correctly.
4.	Fractional Portion (sets)	Give the child six chips, color tiles, counting objects, etc. Say, “Give me one third of the objects.”	Child is able to identify two objects as one third of six.

Section IV. Patterns

Materials

- Plane shape manipulatives or pattern blocks
- Copy one per class:
 - Pattern page (page 26 in student materials section)

Directions

The purpose of these tasks is to determine whether the student can recognize and extend patterns using both pictorial and number representation. Ask the student to explain their thinking as they work through the tasks.

Item	Concept	Teacher Prompt	Student Response
1.	Pictorial Patterns	Give the child the pattern page. Ask the child to continue the pattern through two more terms. Ask them to explain their thinking. Note: Pattern blocks or other plane shape manipulatives may be used by the child to extend the pattern.	The child is able to continue the pictorial patterns through two terms and explain their thinking.
2.	Number Patterns	Ask the child to continue the pattern through two more numbers, except in the missing number pattern where one number will be replaced.	The child is able to extend the number pattern for two more numbers and find the missing number.

Section V. Probability

Materials

- Two paper bags
- 10 objects of two colors (color tiles, Teddy bears, etc)

Directions

The purpose of this task is to determine whether students have early probability concepts regarding outcomes that are most likely and can compare probability models.

Item	Concept	Teacher Prompt	Student Response
1.	Most likely from one set	With the child watching place one object of one color in a bag. Then in the same bag place four objects of a different color (e.g., one red and four blue). Say, “Which color is most likely to get picked from the bag?” Ask the child to explain their reasoning.	The child is able to name the correct color and explain their thinking.
2.	Comparing probability of two sets	With the child watching place one object of one color in the second bag. Then place four objects of a different color in the bag. This time reverse the colors (e.g., one blue and four red). Say, “If I wanted to pick the color red, which bag would be better to choose from?” Ask the child to explain their thinking.	The child is able to name the correct bag and explain their thinking.

Section VI. Data Analysis and Statistics

Materials

Directions

- Copy one per class:
 - Graph pages (pages 27 and 28 in student materials section)

The purpose of these tasks is to determine whether the student is able to analyze data on pictorial and symbolic graphs. Have the graphs of animals at the zoo and hair color ready for the child to view.

Item	Concept	Teacher Prompt	Student Response
1.	Pictorial Graph	Say, "Look at the graph showing animals at the children's zoo. Tell me: Which animal does the zoo have the most of? Which animal does the zoo have the least of? Which animal does the zoo have the same number of?"	Student correctly identifies: Most-lamb Least-goat Same-pony and calf It is acceptable for the child to point to the answer if unable to read or say the names.
2.	Bar Graph	Say, "Look at the graph of hair color. Tell me: Which hair color is there the most of? Which hair color is there the least of? Which hair color is there the same number of?"	Student correctly identifies: Most-black Least-red Same-brown and blonde

Section VII. Geometry and Measurement

Geometry

Materials

- Pattern blocks
- Geometric solids
- A straw or long pencil
- Copy one per class:
 - Geometric Plane shapes page (page 29 in student materials packet)
 - Geometric solids page (page 30 in student packet)
 - Symmetry page (page 31 in student materials packet)

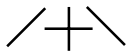
Directions

The purpose of these tasks is to see whether the student has learned basic geometric plane shapes, geometric solids, and how they relate. Students are also assessed on whether they are able to classify shapes and explain their reasoning. Students will also demonstrate whether they have a basic understanding of symmetry. **If at all possible** use concrete plane shapes and geometric solids manipulatives. These concrete materials are more appropriate for primary students. Prepare the three geometry pages for students if you are unable to locate the plane and solid shape manipulatives.

Section VII. Geometry and Measurement

Item	Concept	Teacher Prompt	Student Response
1.	Plane Shapes - Circle	Put the plane shapes on the table or show the student the page of plane shapes. Point to the circle and ask the student, "What is this shape?"	Child is able to identify circle (ball is not correct).
2.	Plane Shapes - Square	Put the plane shapes on the table or show the student the page of plane shapes. Point to the square and ask the student, "What is this shape?"	Child is able to identify square (box is not correct).
3.	Plane Shapes - Triangle	Put the plane shapes on the table or show the student the page of plane shapes. Point to the triangle and ask the student, "What is this shape?"	Child is able to identify triangle.
4.	Plane Shapes - Rectangle	Put the plane shapes on the table or show the student the page of plane shapes. Point to the rectangle and ask the student, "What is this shape?"	Child is able to identify rectangle (oblong is acceptable).
5.	Plane Shapes - Hexagon	Put the plane shapes on the table or show the student the page of plane shapes. Point to the hexagon and ask the student, "What is this shape?"	Child is able to identify hexagon.
6.	Plane Shapes - Rhombus	Put the plane shapes on the table or show the student the page of plane shapes. Point to the rhombus and ask the student, "What is this shape?"	Child is able to identify rhombus (diamond is correct, kite is not correct).
7.	Plane Shapes - Oval	Put the plane shapes on the table or show the student the page of plane shapes. Point to the oval and ask the student, "What is this shape?"	Child is able to identify oval (egg is not correct).
8.	Reasoning with Plane Shapes	Ask the child to sort the plane shapes into two groups. Then ask the child to explain their reasoning for how they grouped the plane shapes. Note: If the child sorts by color ask them to sort in another way.	Child is able to explain their reasoning for how they sorted the plane shapes using geometric terms (e.g., edges, sides, faces, points, corners, curves, etc).

Section VII. Geometry and Measurement

Item	Concept	Teacher Prompt	Student Response
9.	Solid Shapes - Cube	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the cube and ask the student, "What is this shape?"	Child is able to identify cube.
10.	Solid Shapes - Rectangular Prism	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the rectangular prism and ask the student, "What is this shape?"	Child is able to identify rectangular prism or rectangular solid (box is acceptable).
11.	Solid Shapes - Cone	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the cone and ask the student, "What is this shape?"	Child is able to identify cone.
12.	Solid Shapes - Sphere	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the sphere and ask the student, "What is this shape?"	Child is able to identify sphere (ball is acceptable).
13.	Solid Shapes - Pyramid	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the pyramid and ask the student, "What is this shape?"	Child is able to identify pyramid.
14.	Solid Shapes - Cylinder	Put the geometric solids on the table or show the student the page of geometric solid shapes. Point to the cylinder and ask the student, "What is this shape?"	Child is able to identify cylinder.
15.	Reasoning with Solid Shapes	Ask the child to sort the solid shapes into two groups. Then ask the child to explain their reasoning for how they grouped the solid shapes. Note: If the child sorts by color ask them to sort in another way.	Child is able to explain their reasoning for how they sorted the solid shapes using geometric terms (e.g., edges, sides, faces, points, corners, curves, etc).
16.	Symmetry	Show the student the symmetry graphic. Hand the student a straw. Ask the student to lay the straw on the graphic so that the image is symmetrical.	There are four possible solutions. 
17.	Symmetry Reasoning	Ask the student to explain their reasoning for where they put the straw.	Child reasoning should encompass: "one half folds on the other" "it is the same on both sides of the straw" "both sides are equal"

Section VII. Geometry and Measurement

Measurement

Materials

- Several objects to measure with (paper clips, color tiles, Unifix cubes, etc.)
- Coins in denominations of penny, nickel, dime, quarter (five of each denomination)
- A gear driven clock (if desired)
- Paper with a 15 cm line
- Centimeter ruler
- Copy one per class:
 - Time page (page 32 in student materials packet)

Directions

The purpose of these tasks is to determine whether students can measure using non-standard and standard tools and whether students can use tools to draw a designated length. Also, to determine whether the student knows the value of the basic coins and combine coins to make a total. Finally, the measurement assessment tasks will determine whether the student knows time to the hour, half hour, and quarter hour.

Item	Concept	Teacher Prompt	Student Response
1.	Nonstandard Measurement	Show the student the page with the 15 cm line. Provide the student with several objects of the same length to measure with (e.g., paper clips, color tiles, Unifix cubes, toothpicks, etc.). Ask the student to measure the line.	The measurement is correct to the nearest object.
2.	Standard Measurement	Provide the student with a centimeter ruler. Say, "Measure the line in centimeters." If inches are on one side of the ruler and centimeters on the other side the teacher may indicate which side to use.	The measurement is correct within one centimeter. Observe to see that the student begins measuring with zero on the ruler.
3.	Using measurement tools	Ask the student to draw a ten centimeter line using the centimeter ruler.	The line is correct within one centimeter.
4.	Value of Coins	For these tasks use the coins penny, nickel, dime, and quarter. Ask the child to name the coins and state the value of each.	Child is able to name the value of a penny, nickel, dime, and quarter.
5.	Comparing Coins	Show the child a nickel and a dime next to each other. Ask, "Which coin is worth more?"	Child is able to identify the dime as having more value.
6.	Combining Coins	Ask, "Which coins make 48 cents?" Then say, "Show me another way to make 48 cents."	Child is able to combine coins in two ways to make 48 cents.
7.	Recognizing time to the hour	Use a gear driven clock, a teacher made clock, or the attached copy of analog clocks for this task. Ask the child to identify time to the hour.	Child is able to identify time to the hour.
8.	Recognizing time to the half hour and quarter hour	Use a gear driven clock, a teacher made clock, or the attached copy of analog clocks for this task. Ask the child to identify time to the half hour and quarter hour.	Child is able to identify time to the half hour. Child is able to identify time to the quarter hour.

Student Summary

MNOP Student Summary Sheet

Name _____ Teacher (Gr. 1) _____
 Teacher (Gr. 2) _____

Section I. Number Sense

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Constructing Numbers		(23)	(136)
2.	Place Value		(23)	(136)
3.	Ordering Numbers			
4.	Number Recognition			
5.	Internalizing the order of numbers			
6.	Skip Counting			
7.	Basic Facts			

Section II. Number Operations

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Addition in Context			
	Subtraction in Context			
2.	Computation without regrouping			
	Computation with regrouping			

Section III. Fractions

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Fractional Portions (1/2)			
2.	Fractional Portions (1/4)			
3.	Writing Fractions			
4.	Fractional Portion (sets)			

Section IV. Patterns

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Pictorial Patterns			
2.	Number Patterns			

Section V. Probability

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Most Likely from one set			
2.	Comparing probability of two sets			

Section VI. Data Analysis and Statistics

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Pictorial Graph			
2.	Bar Graph			

Section VII. Geometry and Measurement

Geometry

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Plane Shapes- Circle			
2.	Plane Shapes- Square			
3.	Plane Shapes- Triangle			
4.	Plane Shapes- Rectangle			
5.	Plane Shapes- Hexagon			
6.	Plane Shapes- Rhombus			
7.	Plane Shapes- Oval			
8.	Reasoning with Plane Shapes			
9.	Solid Shapes- Cube			
10.	Solid Shapes- Rec. Prism			
11.	Solid Shapes- Cone			
12.	Solid Shapes- Sphere			
13.	Solid Shapes- Pyramid			
14.	Solid Shapes- Cylinder			
15.	Reasoning with Solid Shapes			
16.	Symmetry			
17.	Symmetrical Reasoning			

Section VII. Geometry and Measurement**Measurement**

			Date Achieved	Date Achieved
Item	Concept	Anecdotal Record	Gr. 1	Gr. 2
1.	Nonstandard measurement			
2.	Standard measurement			
3.	Using measurement tools			
4.	Value of coins			
5.	Comparing coins			
6.	Combining coins			
7.	Recognizing time to the hour			
8.	Recognizing time to the half hour and quarter hour			

Student Materials

Name: _____

Story Problems

Ann has 5 stuffed animals. Mom gave her 4 more. How many does she have now?

Jan has 8 apples. She ate 3 of them. How many does she have left?

Tom has 7 cats and 6 dogs. How many pets does he have altogether?

Robert has 24 pet worms. Maria has 10 pet worms. How many fewer worms does Maria have?

Sarah found 21 chocolate eggs. She also found 4 chocolate rabbits. How many chocolates did Sarah find in all?

Eric has 17 toy trucks and 13 toy cars. How many does he have in all?

Emily has some gumdrops. Brad took 11 of them. There were 19 left. How many gumdrops did Emily start with?

Name: _____

Directions: Solve the addition and subtraction problems below. Watch the signs!

$12 + 4 = \underline{\quad}$

$26 - 2 = \underline{\quad}$

$17 + 8 = \underline{\quad}$

$22 - 5 = \underline{\quad}$

$19 + 3 = \underline{\quad}$

$$\begin{array}{r} 16 \\ +15 \\ \hline \square \end{array}$$

$$\begin{array}{r} 42 \\ +29 \\ \hline \square \end{array}$$

$$\begin{array}{r} 35 \\ -17 \\ \hline \square \end{array}$$

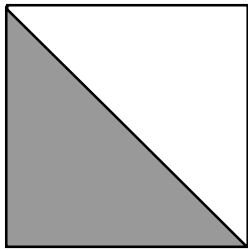
$$\begin{array}{r} 28 \\ -9 \\ \hline \square \end{array}$$

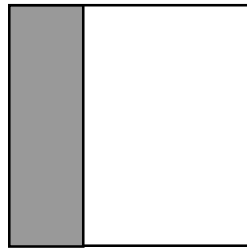
$$\begin{array}{r} 30 \\ -11 \\ \hline \square \end{array}$$

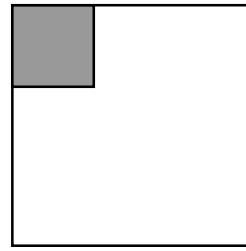
Name: _____

Fractions

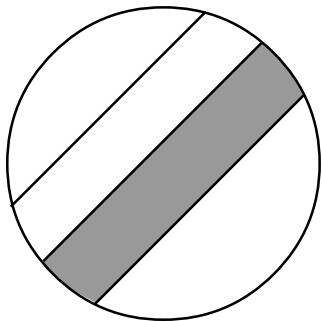
Which figure shows one half ($1/2$)?

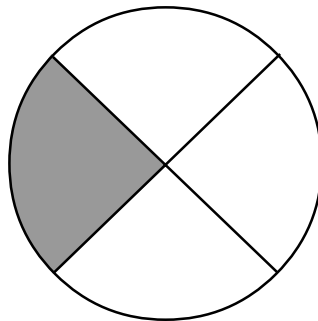


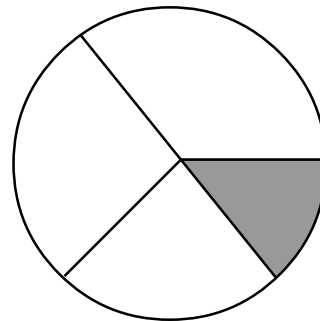




Which picture shows one fourth ($1/4$) of the circle?





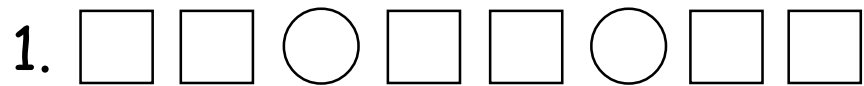


(say orally)

"Write one fourth"

Patterns

Finish the pattern:



Finish the pattern:

Number pattern: 2, 5, 8, 11, _____

Skip counting: 4, 8, 12, 16, _____

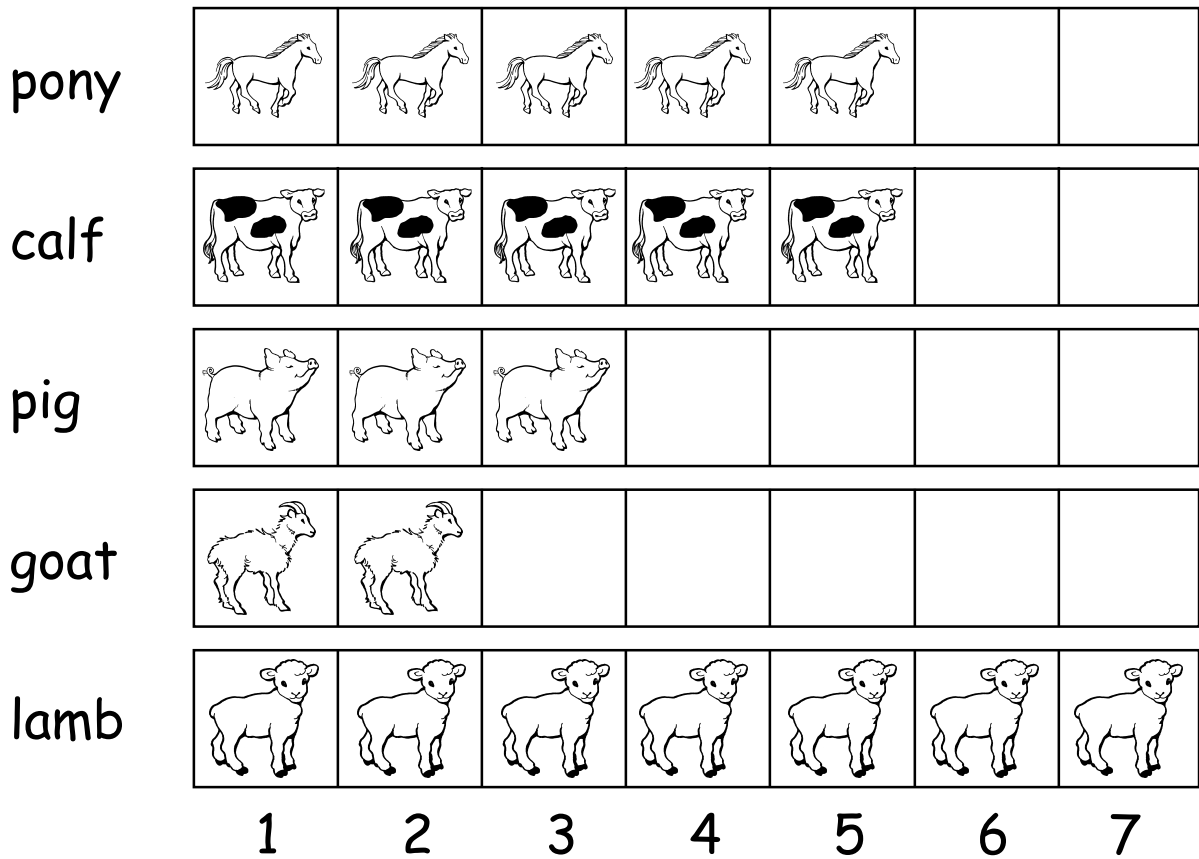
Missing number pattern: 1, 6, _____, 16, 21

Pictorial Graph

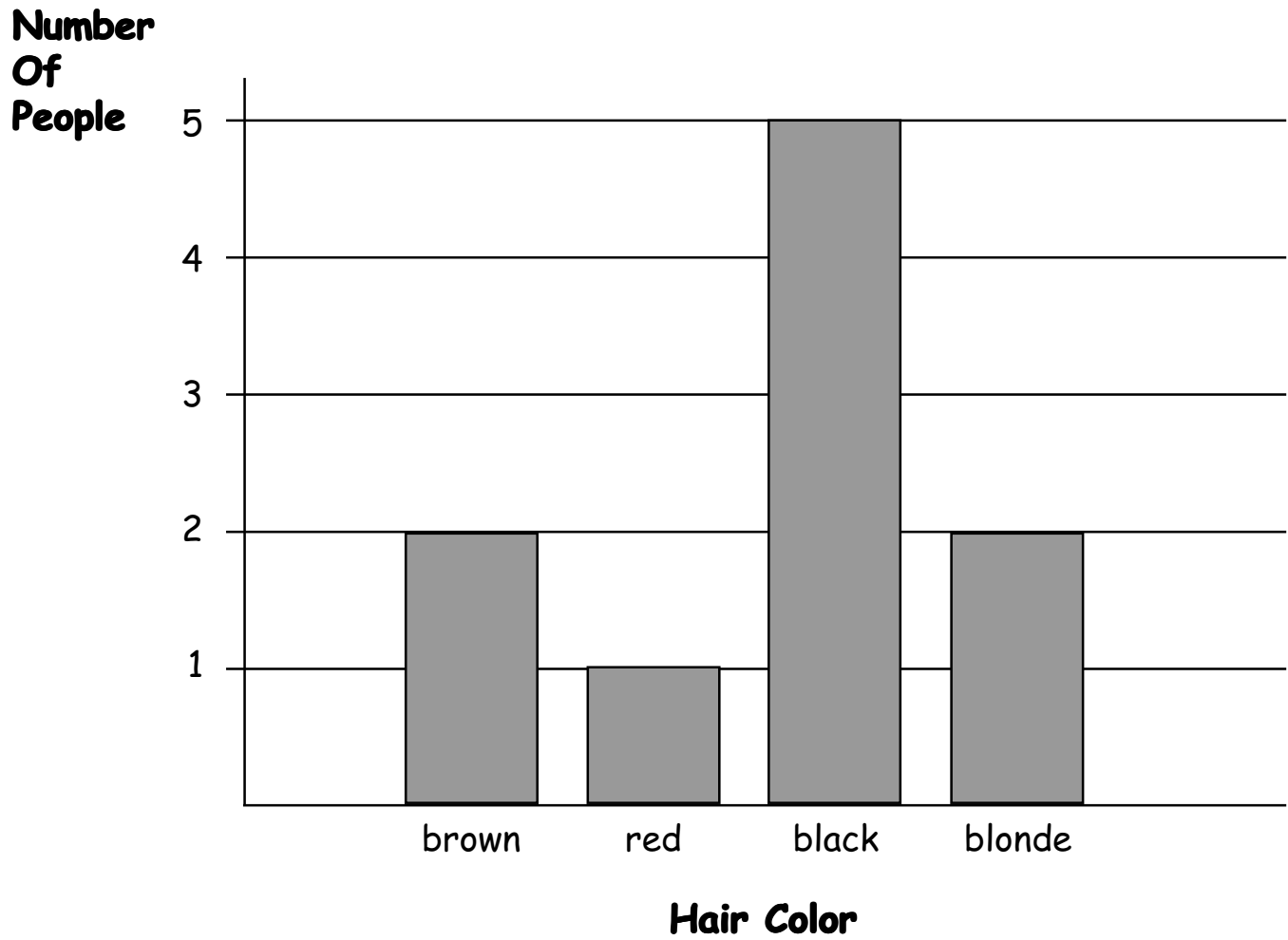
Probability/Statistics:

Look at the graph.

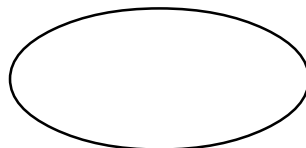
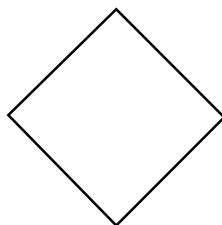
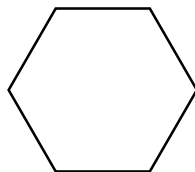
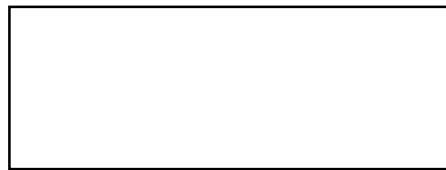
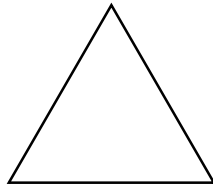
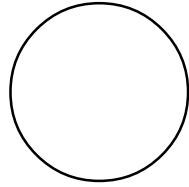
Animals at the Children's Zoo



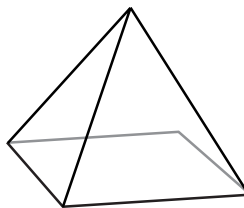
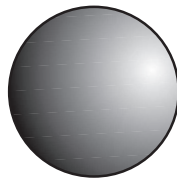
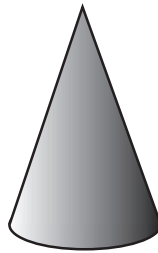
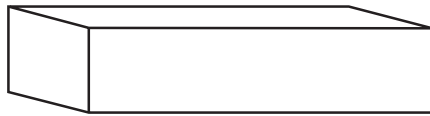
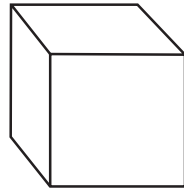
Bar Graph



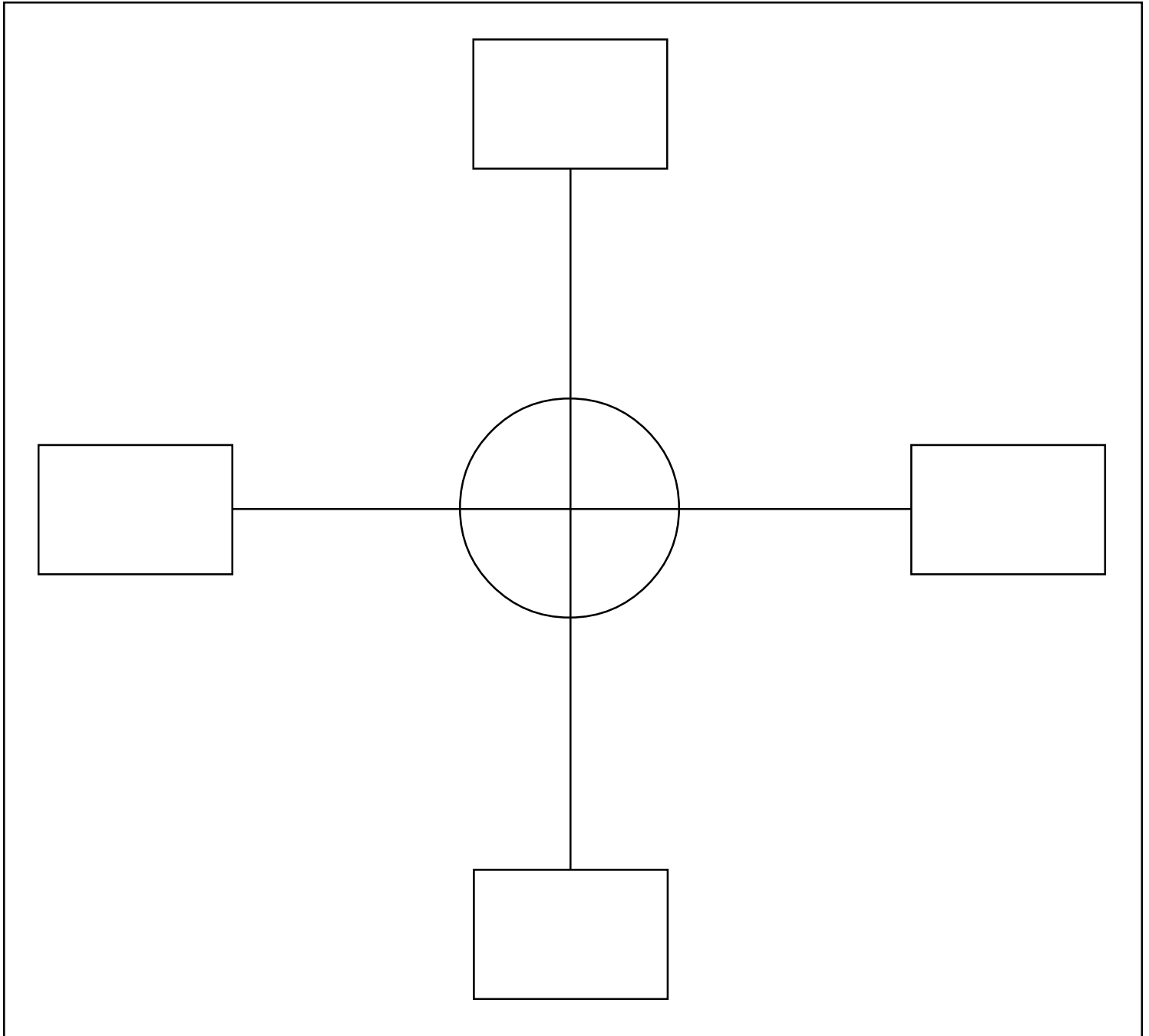
Plane Shapes



Geometric Solids



Symmetry Page



Time

