



ALPHA PLUS

TEACHER'S GUIDE

Math 1



SAMPLE FOR REVIEW

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SUCCESS **OAS**
with

Oklahoma Academic Standards

TEACHER'S GUIDE

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Math 1

Ensuring Student Success

with

**Oklahoma Academic
Standards**

*Written by Oklahoma Teachers for
Oklahoma Teachers*

Jessica Miller



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SUCCESS *with* OAS

Math 1 by Jessica Miller

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FOREWORD

Adopted in 2016 by the State Board of Education, the Oklahoma Academic Standards (OAS) mathematics objectives are measurably more rigorous in content and different in terms of vertical alignment than previous curriculum frameworks.

Immediately, Alpha Plus Educational Systems sought highly qualified teachers to develop a teaching and learning resource specifically aligned to the new standards. CEO Jan Barrick also enlisted my help and that of Dr. Frank Wang, President of the Oklahoma School of Science and Mathematics (OSSM), who is a nationally known, accomplished mathematics educator and an experienced textbook publisher. It has been my pleasure to help ensure the content is of high quality and will provide a solid mathematical foundation.

Written by Oklahoma teachers for Oklahoma teachers, the *Success with OAS: Alpha Plus Mathematics* series provides a robust set of resources relating mathematical skills to the real world of Oklahoma students.

-- Edna McDuffie Manning, *EdD.*, *Mathematics*
Founder and President Emerita, Oklahoma School of Science and Mathematics

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## INTRODUCTION

The *Success with OAS: Alpha Plus Mathematics* framework for instruction, independent student work, and continuous review will prepare students for comprehensive assessments at each grade level. Following is a summary addressing the most effective way to use each element.

### Teacher's Guide

**Objective Statement:** At the beginning of each lesson, the OAS objective is stated as adopted. This is helpful when writing lesson plans and understanding the focus of the lesson.

**Real-World Connections:** Students must be engaged and must relate the concept to their daily lives. Connecting to a real-world application taps into students' prior knowledge and shows the practicality behind the concept. It is suggested that the teacher start with a relevant, age-appropriate game, class discussion, website or video, role-play, or other group activity. This will illustrate the need to learn the skill so that students can use it in their daily lives.

**Vocabulary:** A list of vocabulary words critical to each OAS Objective is provided, particularly those used in the state's *Test and Item Specifications*. A complete vocabulary definition can be found in the student workbook and in the comprehensive Glossary at the end of the book.

**Modeling:** The Modeling section provides step-by-step instructions for one or more ways to teach the objective and the skills related to the lesson. Teachers may use this to direct students and add more examples or details as needed for the teachers' lesson plans.

Extension Activities: This is a list of possible resources to enhance the objective lesson. Every author provided links to tools they use in class, to online content available at no charge for teacher use, and to other lesson-planning resources.

Answer Key: Every Teacher's Guide includes a complete Answer Key for each assessment item in the student workbook. The Answer Key for the Continuous Review designates what objectives are assessed.

Comprehensive Examination: A Comprehensive Examination was developed to resemble the state assessment and encompasses every objective taught. It can be used as a pre-test and post-test for the school year to better prepare students for state-mandated tests. The Answer Key provides the answers with objective numbers.

### **Student Workbook**

Objective Statement: At the beginning of each student lesson is the objective statement. It clearly defines the focus of the lesson.

Real-World Connections: Written in age-appropriate language, this section reminds students of prior knowledge they have on the topic and how they might use this skill in their daily lives. Relevance is essential to student engagement in the lesson. Teachers can highlight this scenario for the students with a game, role-play, or other group activity.

Vocabulary: Each lesson includes a vocabulary list with definitions for the words the students will encounter on state assessments. Students should also learn to use the Glossary in the back of the book.

Guided Practice: Every objective lesson includes a Guided Practice, which is a set of items available for use in class as part of, or after, instruction. The ten practice problems reflect every skill students will use when they work independently.

Independent Practice: The Independent Practice is a series of twenty questions and activities the student may do independently, either in the classroom or for homework. The Independent Practice can also be used for reinforcement or review as needed.

Continuous Review: At the end of each lesson, there is a Continuous Review with ten questions covering objectives taught previously in the book or aligned to key skills from previous grade level(s). The Answer Key designates the objective each question assesses. The Continuous Review is in sequence after each objective lesson or can be used as a weekly assessment to reinforce past skills.

**OAS Mathematics**
**Table of Contents**
**1<sup>st</sup> grade**

| Suggested Order | Objective Number | Objective Description                                                                                                                                                     | Teacher Guide Page Number | Student Book Page Number |
|-----------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------|
| 1               | 1.N.1.1          | Recognize numbers to 20 without counting the quantity of structured arrangements.                                                                                         | 1                         | 1                        |
| 2               | 1.N.1.2          | Use concrete representations to describe whole numbers between 10 and 100 in terms of tens and ones.                                                                      | 15                        | 11                       |
| 3               | 1.N.1.4          | Count forward, with and without objects, from any given number up to 100 by 1s, 2s, 5s, and 10s.                                                                          | 32                        | 23                       |
| 4               | 1.N.1.5          | Find a number that is 10 more or 10 less than a given number up to 100.                                                                                                   | 45                        | 33                       |
| 5               | 1.N.1.6          | Compare and order whole numbers from 0 to 100.                                                                                                                            | 58                        | 41                       |
| 6               | 1.N.1.7          | Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 20.                                                     | 74                        | 53                       |
| 7               | 1.N.1.8          | Use objects to represent and use words to describe the relative size of numbers, such as more than, less than, and equal to.                                              | 87                        | 63                       |
| 8               | 1.A.1.1          | Identify, create, complete, and extend repeating, growing, and shrinking patterns with quantity, numbers, or shapes in a variety of real world and mathematical contexts. | 102                       | 75                       |
| 9               | 1.GM.1.1         | Identify trapezoids and hexagons by pointing to the shape when given the name.                                                                                            | 118                       | 87                       |
| 10              | 1.GM.1.2         | Compose and decompose larger shapes using smaller two-dimensional shapes.                                                                                                 | 127                       | 93                       |
| 11              | 1.GM.1.4         | Recognize three dimensional shapes such as cubes, cones, cylinders, and spheres.                                                                                          | 142                       | 105                      |

**OAS Mathematics**
**Table of Contents**
**1<sup>st</sup> grade**

| Suggested Order | Objective Number | Objective Description                                                                                                                                                                  | Teacher Guide Page Number | Student Book Page Number |
|-----------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------|
| 12              | 1.GM.1.3         | Compose structures with three-dimensional shapes.                                                                                                                                      | 158                       | 117                      |
| 13              | 1.N.3.1          | Partition a regular polygon using physical models and recognize when those parts are equal.                                                                                            | 172                       | 129                      |
| 14              | 1.N.3.2          | Partition (fair share) sets of objects into equal groupings.                                                                                                                           | 183                       | 135                      |
| 15              | 1.GM.2.2         | Illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other. | 195                       | 145                      |
| 16              | 1.GM.2.3         | Measure the same object/distance with units of two different lengths and describe how and why the measurements differ.                                                                 | 208                       | 157                      |
| 17              | 1.GM.2.1         | Use nonstandard and standard measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement.                                                | 224                       | 171                      |
| 18              | 1.GM.2.4         | Describe a length to the nearest whole unit using a number and a unit.                                                                                                                 | 242                       | 185                      |
| 19              | 1.GM.2.5         | Use standard and nonstandard tools to identify volume/capacity. Compare and sort containers that hold more, less, or the same amount.                                                  | 257                       | 197                      |
| 20              | 1.GM.3.1         | Tell time to the hour and half hour (analog and digital).                                                                                                                              | 273                       | 209                      |
| 21              | 1.N.2.1          | Represent and solve real-world and mathematical problems using addition and subtraction up to ten.                                                                                     | 290                       | 221                      |

**OAS Mathematics**
**Table of Contents**
**1<sup>st</sup> grade**

| Suggested Order | Objective Number | Objective Description                                                                                                                                                                                                             | Teacher Guide Page Number | Student Book Page Number |
|-----------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------|
| 22              | 1.N.2.2          | Determine if equations involving addition and subtraction are true.                                                                                                                                                               | 317                       | 243                      |
| 23              | 1.N.2.3          | Demonstrate fluency with basic addition facts and related subtraction facts up to 10.                                                                                                                                             | 329                       | 251                      |
| 24              | 1.N.1.3          | Read, write, discuss, and represent whole numbers up to 100. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks. | 381                       | 279                      |
| 25              | 1.N.4.1          | Identify pennies, nickels, dimes, and quarters by name and value.                                                                                                                                                                 | 397                       | 291                      |
| 26              | 1.N.4.2          | Write a number with the cent symbol to describe the value of a coin.                                                                                                                                                              | 407                       | 297                      |
| 27              | 1.N.4.3          | Determine the value of a collection of pennies, nickels, or dimes up to one dollar counting by ones, fives, or tens.                                                                                                              | 417                       | 303                      |
| 28              | 1.D.1.2          | Use data to create picture and bar-type graphs to demonstrate one-to-one correspondence.                                                                                                                                          | 432                       | 315                      |
| 29              | 1.D.1.1          | Collect, sort, and organize data in up to three categories using representations (e.g., tally marks, tables, and Venn diagrams.)                                                                                                  | 448                       | 325                      |
| 30              | 1.D.1.3          | Draw conclusions from pictures and bar-type graphs.                                                                                                                                                                               | 463                       | 333                      |

## Teacher's Guide

### 1.N.1.1 Recognize numbers to 20 without counting the quantity of structured arrangements.

#### Real-World Connections

The students will recognize a structured number arrangement to 20 without counting. Recognizing structured number arrangements helps students quickly recall a number which will lead to the student's cognitive math computation and problem solving skills in higher mathematics.

#### Vocabulary

numbers, counting, quantity

#### Modeling

**Step 1:** The teacher will state that she wants to play a game of dominoes, but we don't have much time and must play quickly. The teacher will explain the process and rules of dominoes, and then will review all the number combinations.

**Step 2:** The teacher will pass out the dominoes to the students. The teacher will play a group game of dominoes for demonstration. The teacher will proceed playing dominoes with the whole group until out of dominoes. The teacher will state the vocabulary words while playing. For example, "What is the quantity of this domino?" "What number would be represented with this domino?" "Which is faster counting the dots or just knowing the number arrangement?"

**Step 3:** The class will break into small groups and play a game of dominoes while naming the number arrangement.

**Step 4:** The teacher will explain that there are other ways to arrange numbers (dice, five frames, playing cards, etc...); then move onto guide practice, independent practice, and continuous review with the students.

#### Extension Activities

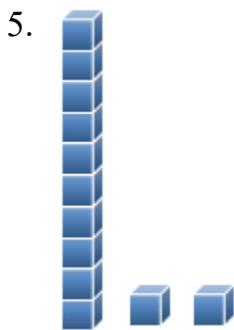
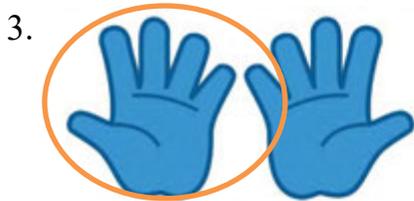
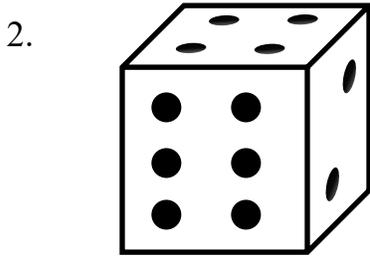
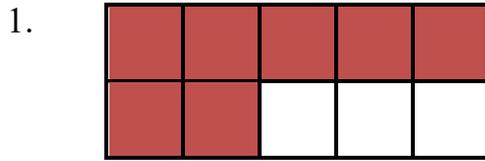
See also Oklahoma State Department of Education's OAS objective wiki at <http://okmathframework.pbworks.com/w/page/113057992/1-N-1-1>

Dot Pattern Match game-Turn all cards over to play matching game with the dot pattern cards. <https://app.box.com/s/fca91fccba7d3f6dcd30>

Fill the tower activity uses die and linking cubes or counters <http://rbanksmath1unit.weebly.com/activity-4-roll-a-tower.html>

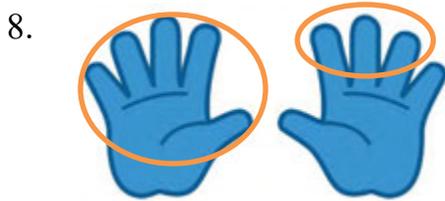
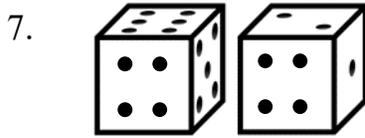
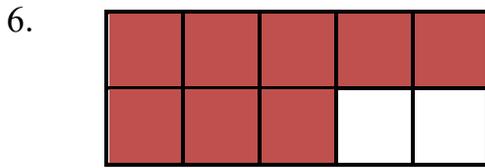
# Answer Key 1.N.1.1

## Guided Practice



**Answer Key 1.N.1.1**

**Guided Practice**



10. 9

**Independent Practice**

- 1. 12
- 2. 9
- 3. 11
- 4. 10
- 5. 13
- 6. 15
- 7. 19
- 8. 20
- 9. 16
- 10. 18
- 11. 16
- 12. 7
- 13. 9
- 14. 3
- 15. 6
- 16. 1
- 17. 5
- 18. 4

## **Answer Key 1.N.1.1**

### **Independent Practice**

19. 3

20. 9

### **Continuous Review**

1. (1.N.1.1) 19

2. (1.N.1.1) 11

3. (1.N.1.1) 7

4. (1.N.1.1) 9

5. (1.N.1.1) 8

6. (1.N.1.1) 2

7. (1.N.1.1) 20

8. (1.N.1.1) 5

9. (1.N.1.1) 6

10. (1.N.1.1) 10

**1.N.1.1 Recognize numbers to 20 without counting the quantity of structured arrangements.**

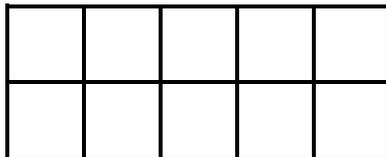
**Real-World Connections** Bob really likes math. He knows that you can write a **number** to tell how many. He **counts** things to find how many of something there are. He can look at a domino and knows the **quantity** or how many dots there are without counting. He wants to show his mom all the ways to make his favorite number of 6. Can you help him?



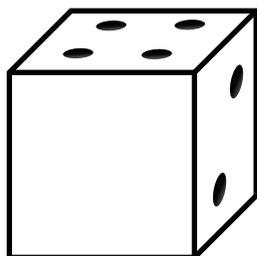
**Vocabulary**

|                 |                                                                      |
|-----------------|----------------------------------------------------------------------|
| <b>number</b>   | numbers describe quantities or values                                |
| <b>counting</b> | to find how many of something there are                              |
| <b>quantity</b> | amount, number of, total, sum, size or extent: how much or how many? |

1. Fill in the ten frame to make 7.



2. Draw the dots to show what a number 6 would look like on a die.

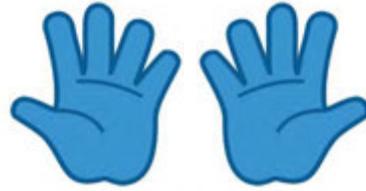


**Guided Practice (1.N.1.1)**

Name: \_\_\_\_\_

*Read and answer.*

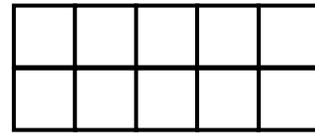
3. Circle 6 fingers.



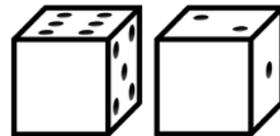
4. Draw 17 tally marks.

5. Draw 12 blocks.

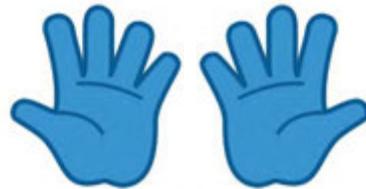
6. Fill in the ten blocks to make 8.



7. Draw the dots to show the number 8 on the dice.



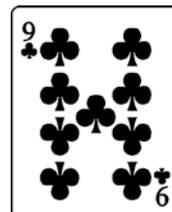
8. Circle 8 fingers.



9. Draw 19 tally marks.

10. Write the number that is on the card.

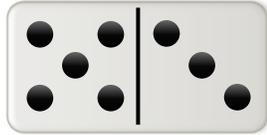
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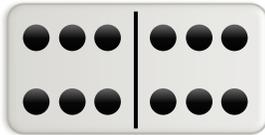
**1.N.1.1 Recognize numbers to 20 without counting the quantity of structured arrangements.**

*Write the number shown on the domino.*

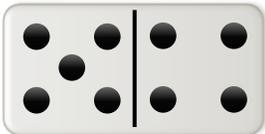
**Example:**



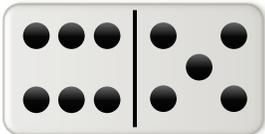
1.



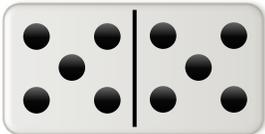
2.



3.



4.



**Independent Practice (1.N.1.1)**

Name: \_\_\_\_\_

*Write the number shown with the tally marks.*

**Example:**  

5.  

6.  

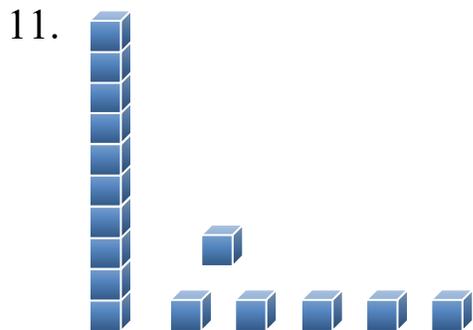
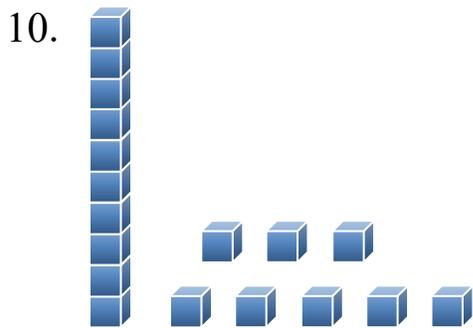
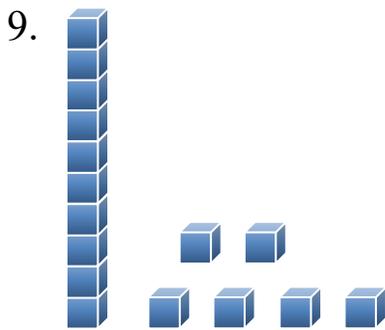
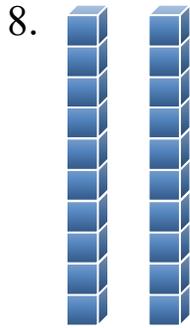
7.  

**Independent Practice (1.N.1.1)**

Name: \_\_\_\_\_

*Write the number shown with the base ten blocks.*

**Example:**

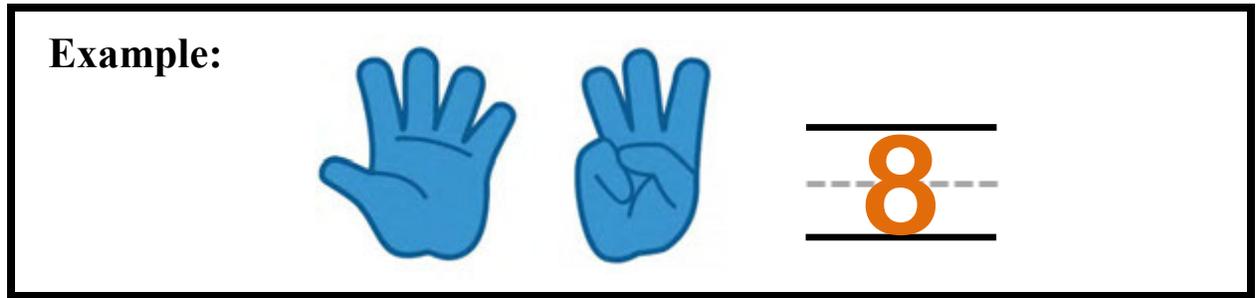


**Independent Practice (1.N.1.1)**

Name: \_\_\_\_\_

*Write the number of fingers shown on the hands.*

**Example:**



The example shows two blue hands. The left hand is open with all five fingers extended. The right hand has the index and middle fingers extended. To the right of the hands is a set of three horizontal lines (top, middle dashed, bottom) with a large orange number 8 written in the center.

12.



13.



14.



15.

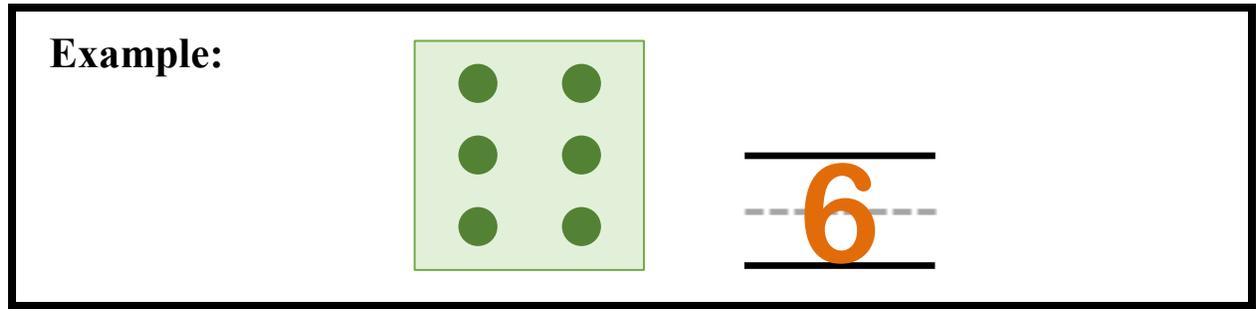


**Independent Practice (1.N.1.1)**

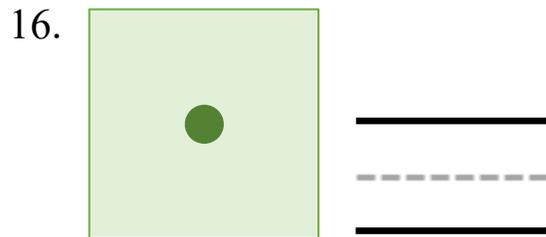
Name: \_\_\_\_\_

*Write the number of dots on the tile.*

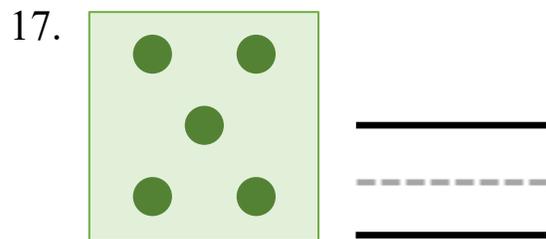
**Example:**



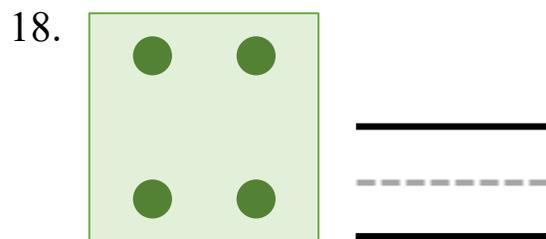
16.



17.



18.



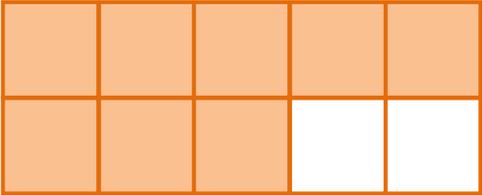
**Independent Practice (1.N.1.1)**

Name: \_\_\_\_\_

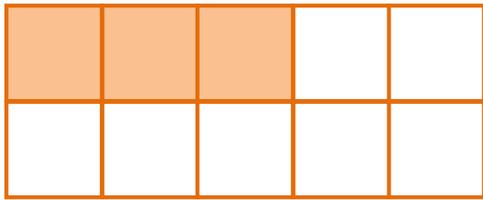
*Write the number shown in the ten frame.*

**Example:**

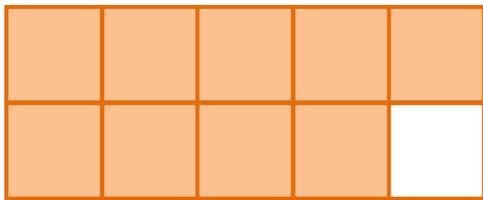
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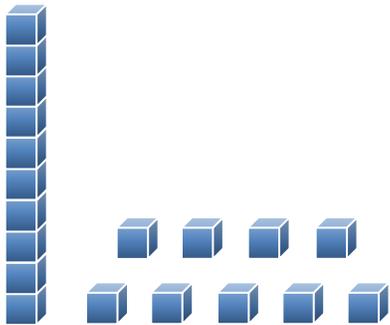
19.



20.

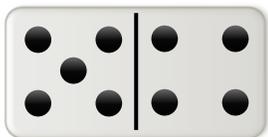


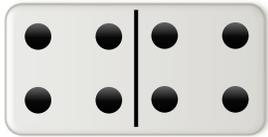
Write the number for the shown object.

1.  \_\_\_\_\_  
-----  
\_\_\_\_\_

2.  \_\_\_\_\_  
-----  
\_\_\_\_\_

3.  \_\_\_\_\_  
-----  
\_\_\_\_\_

4.  \_\_\_\_\_  
-----  
\_\_\_\_\_

5.  \_\_\_\_\_  
-----  
\_\_\_\_\_

6.  \_\_\_\_\_  
-----  
\_\_\_\_\_

Write the number for the shown object.



\_\_\_\_\_

-----

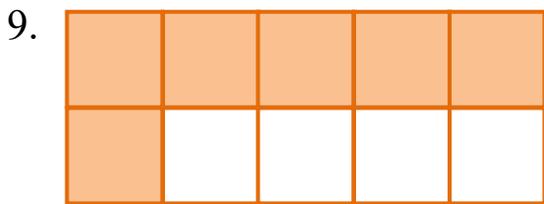
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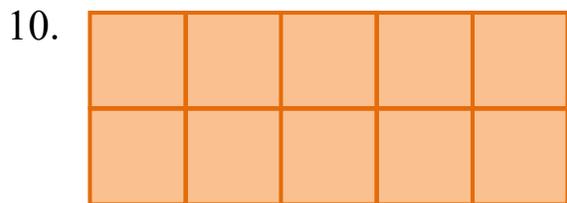
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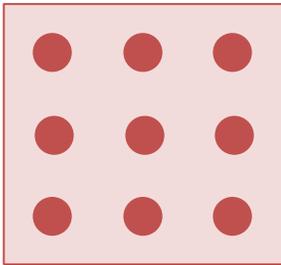
**1<sup>st</sup> Grade**  
**COMPREHENSIVE**  
**ASSESSMENT**

1. How many dots are shown?



- (A) 5
- (B) 6
- (C) 7
- (D) 4

2. How many dots are shown?



- (A) 10
- (B) 8
- (C) 9
- (D) 12

3. How many tens are in the number **53**?

- (A) 3
- (B) 5
- (C) 8
- (D) 2

4. How many ones are in the number **89**?

- Ⓐ 4
- Ⓑ 8
- Ⓒ 9
- Ⓓ 1

5. Which of the following is an addition problem for the sum of 16?

- Ⓐ  $8 + 8 = 16$
- Ⓑ  $8 + 4 = 12$
- Ⓒ  $20 - 4 = 16$
- Ⓓ sixteen

6. Count by twos. Which number would come next?

52, 54, 56, 58,   ?

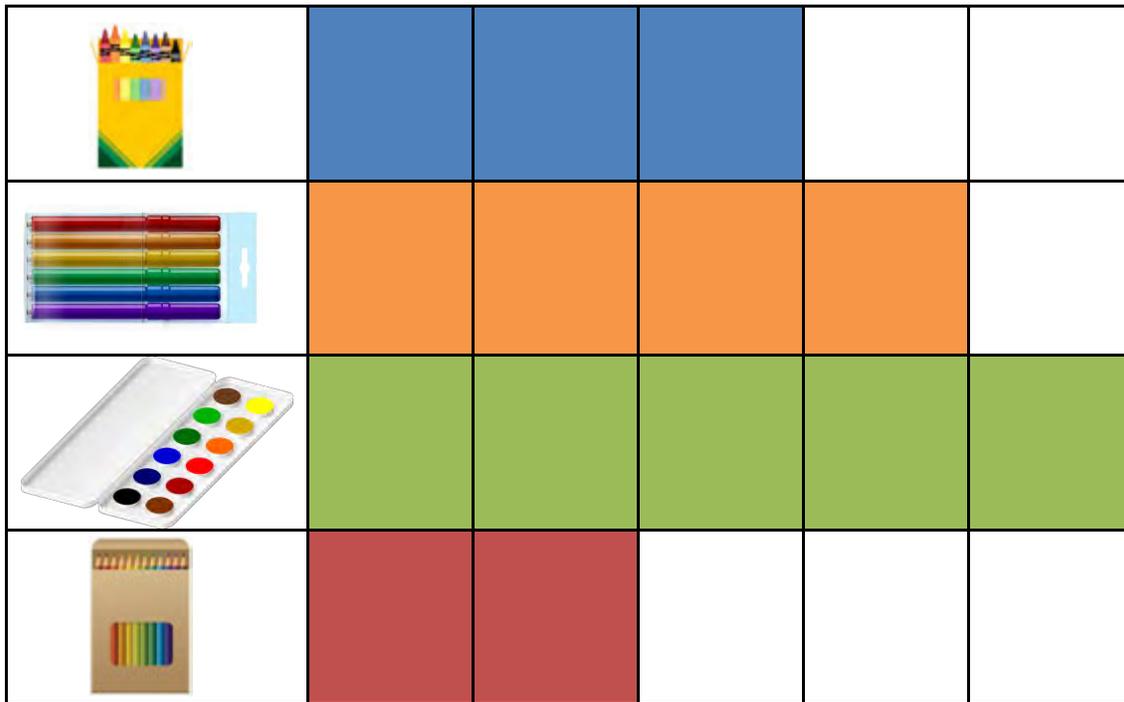
- Ⓐ 2
- Ⓑ 16
- Ⓒ 62
- Ⓓ 60

7. Count by fives. Which number would come next?

25, 30, 35, 40,   ?

- Ⓐ 35
- Ⓑ 40
- Ⓒ 54
- Ⓓ 45

Use the graph to answer the following question.



50. Which coloring was chosen the most?

(A)



(B)



(C)



(D)



**A**

**addition facts:** an equation that combines two or more addends together to find the total or the sum

**addition:** the process of combining two or more addends together to find the total or the sum

**analog:** represented by a continuously variable physical quantity such as spatial position

**B**

**bar graph:** a chart used to sort items on a vertical or horizontal graph

**base 10 blocks:** blocks which show base-10 number values

**bundles of sticks:** a group of sticks usually grouped into 10 or 100 to represent the hundreds or tens digit

**C**

**capacity:** the maximum amount or number that can be contained or accommodated, e.g., a jug with a one-gallon capacity; the auditorium was filled to capacity

**cent symbol:** equal to one hundredth of the base currency unit; the symbol is ¢

**compare:** tells how two or more things are alike

**compose:** to compose shapes is to join geometric shapes without overlaps to form new shapes

**cone:** a 3-dimensional figure with one curved surface, one flat surface, one curved edge, and one vertex

**counting:** to find how many of something there are

**counting forward:** a strategy for finding the number of objects in a group without having to count every member of the group

**counting number:** a number used in counting objects, i.e., a number from the set  $\{1, 2, 3, 4, 5, \dots\}$

**create:** to make

**cube:** the regular solid of six equal square sides

**cylinders:** a three-dimensional figure with two parallel lines and congruent circles as bases

**D**

**data:** a collection of information

**decompose:** given a number, identify pairs, triples, etc. of numbers that combine to form the given number

**digital:** having to do with data that is represented in the form of numerical digits; providing readout in numerical digits, e.g., a digital watch

**dime:** smaller silver coin worth ten cents

**E**

**equal groupings:** two or more groups having equal sets

**equal parts:** parts being of the same size and shape

**equal to (=):** a sign indicating two numbers are the same ( $7=7$ )

**equation:** a number sentence that uses the equal sign ( $1 + 2 = 3$ )

**extend:** to make bigger; to add to original

**F**

**fact families:** related number sentences for addition and subtraction that contains all the same numbers e.g.,  $2 + 3 = 5$ ,  $3 + 2 = 5$ ,  $5 - 3 = 2$ ,  $5 - 2 = 3$

**fair share:** sharing objects equally

**fives:** a cardinal number, the next number after four, counting by 5's, e.g., 5, 10, 15, 20, ...

**fractions:** a number that expresses parts of a whole or a set

**full hour:** sixty whole minutes

**H**

**half hour:** thirty whole minutes

**hexagon:** a polygon with six sides

**hour:** sixty whole minutes

**I**

**identify:** recognize and name

**illustrate:** to draw a picture

**S**

**sets:** a set is a collection of items with one of each member

**solve:** solving an equation involves finding numerical values for all the variables that make the equation true

**sphere:** a three-dimensional solid that is perfectly round, a ball

**standard units:** there are two main groups of standardized units: the metric system and US customary measures

**subtraction facts:** an equation that finds the difference between two numbers

**subtraction:** the process of finding the difference between two numbers

**sum:** the total amount when two or more numbers are added together

**T**

**table:** mathematical information organized in columns and rows

**tally marks or tallies:** a record of an amount

- using tally marks to record counting,
- count by 5's to get the total, for example,
- $\text{||||} \text{||||} \text{||} = 13$ ; a mark that represents each item; the marks are made where four lines in close distance are then crossed for the fifth item

**ten less:** subtracting 1 in the tens

**ten more:** adding 1 to the tens digit in a number

**ten:** a cardinal number, the next number after nine

**tens place:** two places to the left of the decimal point

**three-dimensional shapes:** having three dimensions of length, width (or breadth) and height

**time:** continuum from past to present to future, the interval between two events or the duration of an event

**trapezoid:** a quadrilateral only having two sides that are parallel

**two-dimensional shapes:** existing in 2 dimensions (2D); having length, width, and height

**U**

**unit:** a determinate quantity (as of length, time, heat, or value) adopted as a standard of measurement

**V**

**value:** the numerical worth or amount

**Venn diagram:** data display typically using circles, to show the relationship between sets

**volume:** a measurement of the amount of space within a closed three-dimensional shape

**W**

**whole numbers:** the numbers 0, 1, 2, 3, ...



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