An At-Home Guide for Families

First Grade Math in North Carolina Public Schools

Content Outline

At the end of the year, my child will know how to:

Geometry:
- Identify 2-dimensional (triangles, rectangles, squares, trapezoids, hexagons, circles) and 3-dimensional (cubes, rectangular prisms, cones, spheres, cylinders) shapes
- Distinguish shapes by non-defining and defining attributes
- Create composite shapes using 2-D and 3-D shapes
- Partition shapes into equal-sized shares and describe the parts as halves and fourths

Number in Base Ten:

- **Build** numbers with concrete models or drawings of two-digit numbers or base-ten blocks and **explain** how many groups of tens and ones are in each number
- Compare two-digit numbers using symbols (<, >, =)
- R**epresent** and **solve** addition story problems by adding a two-digit number to either a one-digit number or multiple of 10
- Apply knowledge of place value and use diagrams and representations when solving addition problems (e.g., bar model, number lines, ten frames).

Measurement and Data:

- Measure length using non-standard units (e.g., paper clips, cubes)
- Order three objects by length, using precision to line up objects
- Compare the length of objects using words like longer/shorter and taller/shorter
- Collect, represent, and interpret data
- Tell time to the nearest hour
- Identify pennies, nickels, dimes, and quarters and compare their value to pennies

Operations - Algebraic Thinking:
- Solve addition and subtraction problems, within 20, using a variety of strategies (e.g., pictures, objects, and number sentences)
- Represent the unknown number using a symbol
- Develop a relational understanding of the meaning of the equal sign
- Use properties of operations and the relationship between addition and subtraction to solve problems

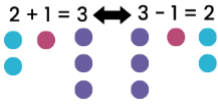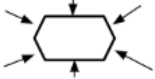**Curious what the specific standards are for Kindergarten Math in North Carolina?**
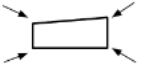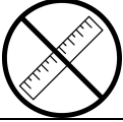
Check out the **North Carolina Standard Course of Study** to learn more. Looking for additional explanations about what students should be able to do at the end of this course? Check out **NC DPI's unpacked contents document** aligned to the course standards.

Key Vocabulary

Visual	Term	Definition
$9 + 6 = 15$	**Equation**	a number sentence, an equation has two balanced sides joined by the equal sign
$9 + \boxed{?} = 15$	**Symbol**	a picture that stands for an unknown number
?	**Unknown**	a number in the equation that we do not know
$9 + 6 = 15$	**Addend**	a number you add in an equation
$15 - 6 = 9$	**Difference**	the distance between two numbers
$=$	**Equal sign**	a symbol used to show that two numbers or sets are equal
(ten frame)	**Ten frame**	a math tool that helps us see and organize numbers less than or equal to 10
Tens | Ones	**Place value**	the value of each digit in a number
$>$	**Greater**	having more than another
$<$	**Less**	not having as much as another
$=$	**Equal to**	having the same value or amount
(hundreds chart)	**Hundreds chart**	a math tool used to show the sequence of numbers 1 to 100

Visual	Term	Definition
	Number line	visual representation that shows a line with numbers equally increasing in value from left to right
2 + 1 = 3 ⟷ 3 − 1 = 2	**Inverse operation of addition and subtraction**	an operation that undoes what was done by the previous operation
	Attributes	characteristics of an object
	Side	the outside line of a shape
	Angle	the point, or corner, that is made when two lines meet
	2-Dimensional Shape (2-D)	a shape that exists on a flat surface
	Composite Shape	a shape made of two or more individual, connected shapes
	Whole	a complete object or shape
	Equal Shares	pieces of a whole that are the same size
	Partition	to cut, split, or divide something into equal shares
	Half	a whole divided into two equal parts
	Fourth	a whole divided into four equal parts
	Length	the distance from one end of an object to the other
	Unit	an item used to measure another object
	Non-standard	different forms of measurement

Visual	Term	Definition
	Data	collected information
	Organize	to arrange information in a particular way
	Represent	to show
	Digital clock	a clock that shows the time with numbers
	Analog clock	a clock that shows the time with an hour hand and minute hand moving around the clock face
	Hour hand	the shorter hand on a clock that shows the hour
	Minute hand	the longer hand on a clock that shows the minute
	Thirty	30 minutes, or half of one hour
	Penny	a copper coin worth 1 cent
	Nickel	a silver coin worth 5 cents
	Dime	a small silver coin worth 10 cents
	Quarter	a large silver coin worth 25 cents

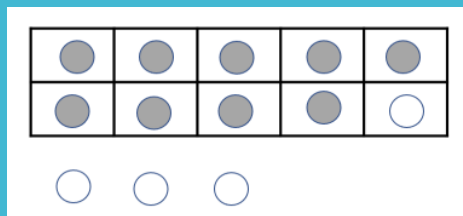# Learning in Action: Grade Level Skills

Examples of Grade Level Skills

Problem 1:
Nine bunnies were sitting on the grass. Some more bunnies hopped there. Now, there are 13 bunnies on the grass. How many bunnies hopped over there?

Solutions 1:
Using objects (manipulatives): I put 9 counters out that were red. I then added more counters that were yellow until I had 13.
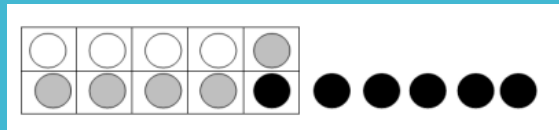
Problem 2:
Mrs. Smith has 4 oatmeal raisin cookies, 5 chocolate chip cookies, and 6 gingerbread cookies. How many cookies does Mrs. Smith have?

Solutions 2:
Student A: I put 4 counters on the Ten Frame for the oatmeal raisin cookies. Then, I put 5 different color counters on the ten frame for the chocolate chip cookies. Then, I put another 6 color counters out for the gingerbread cookies. Only one of the gingerbread cookies fit, so I had 5 leftover. Ten and five more makes 15 cookies. Mrs. Smith has 15 cookies.

Problem 3:
There are 8 birds in the tree. Some are red and some are yellow. There are 3 birds of one color. How many birds of each color could there be?

Solution 3:
Cubes: A student uses 2 colors of cubes to make as many different combinations of 8 as possible. When recording the combinations, the student records that 3 green cubes and 5 blue cubes equals 8 cubes in all. In addition, the student notices that 5 green cubes and 3 blue cubes also equals 8 cubes.

3 + 5 = 8
5 + 3 = 8

Problem 4:

Sam has 8 red marbles and 7 green marbles. How many marbles does Sam have in all?
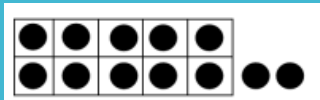
Solution 4:

| Making 10	Create an Easier Problem with Known Sums
I know that 8 plus 2 is 10, so I broke up (decomposed) the 7 up into a 2 and a 5. First, I added 8 and 2 to get 10, and then added the 5 to get 15. $$7 = 2 + 5$$ $$8 + 2 = 10$$ $$10 + 5 = 15$$	I broke up (decomposed) 8 into 7 and 1. I know that 7 and 7 is 14. I added 1 more to get 15. $$8 = 7 + 1$$ $$7 + 7 = 14$$ $$14 + 1 = 15$$

Problem 5:

Here is a pile of 12 cubes. Do you have enough to make a ten? Would you have any leftover? If so, how many leftovers would you have?

Solution 5:

Student A: I filled a ten frame to make a ten and had two counters left over. The number 12 has 1 ten and 2 ones.

Student B: I counted out 12 cubes. I had enough to make 10. I now have 1 ten and 2 cubes left over. The number 12 has 1 ten and 2 ones.
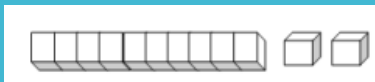
Problem 6:

Are the number 19 and 91 the same or different? How do explain it?(19 and 91)

Solution 6:

Student A: Even though they both have a one and a nine, I know the 1 in 19 represents one group of ten. The 1 in 91 represents 1 one.
Student B: I know the 9 in 91 represents nine groups of tens. The 9 in 19 represents 9 ones.

91

19
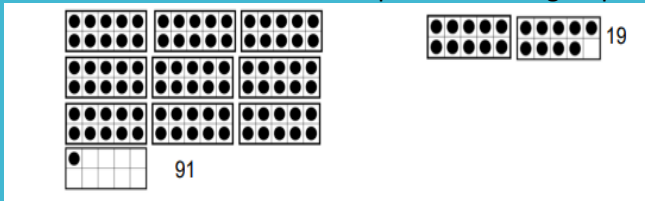
Problem 7:

Mrs. Olympia's class has 43 pencils. Mrs. Gregory's class has 34 pencils. Use base ten blocks or a picture of base ten blocks to represent the number of pencils that each teacher has.

Solution 7:

Mrs. Olympia has 43 which is more than the 34 that Mrs. Gregory had.

I know that 43 has 4 tens and 34 only has 3 tens so 43 is larger than 34.

Problem 8:

63 apples are in the basket. Mary put 20 more apples in the basket. How many apples are in the basket?

Solution 8:

Student A:

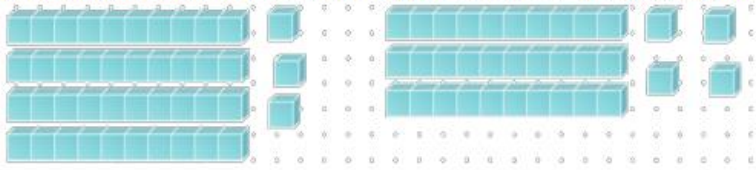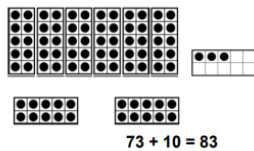I used ten frames. I picked out 6 filled ten frames. That's 60. I got the ten frame with 3 on it. That's 63. Then, I picked one more filled ten frame for part of the 20 that Mary put in. That made 73. Then, I got one more filled ten frame to make the rest of the 20 apples from Mary. That's 83. So, there are 83 apples in the basket.

$73 + 10 = 83$

Student B:

I used a hundreds chart. I started at 63 and jumped down one row to 73. That means I moved 10 spaces. Then, I jumped down one more row (that's another 10 spaces) and landed on 83. So, there are 83 apples in the basket.

$63 + 10 = 73$
$73 + 10 = 83$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Problem 9:

The yellow, red, and green pencils are on the desk. List them in order from the shortest to the longest pencil.

Solution 9:

The shortest pencil is the red pencil. Then the green pencil was the second longest. Finally, the yellow pencil is the longest.

Problem 10:

Measure this pencil using non-standard units

![RETHINK EDUCATION - North Carolina Department of Public Instruction](logo)

Solution 10:
I carefully placed paper clips end to end. The pencil is 5 paper clips long.

Problem 11:
Write the times shown on each of the clocks below:

Solution 11:
1st clock time is 1:30
2nd clock time is 11 o'clock or 11:00

Problem 12:
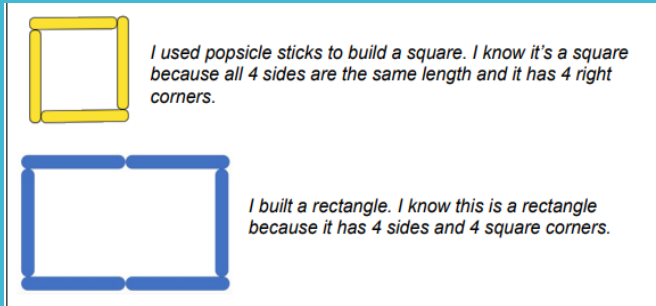Can you show me how much the value of a quarter is in pennies?

Solution 12:
25 pennies

Problem 13:
Build a shape from these popsicle sticks. What shape did you make? How do you know?

Solution 13:

I used popsicle sticks to build a square. I know it's a square because all 4 sides are the same length and it has 4 right corners.

I built a rectangle. I know this is a rectangle because it has 4 sides and 4 square corners.

Problem 14:
I am a three-dimensional shape that has 2 circular faces and a curved surface. What am I?
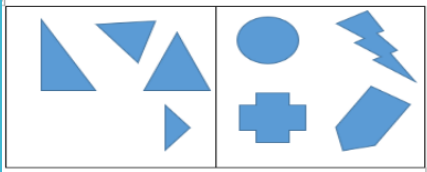
Solution 14:
A cylinder

Problem 15:
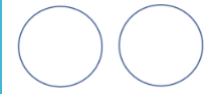Sort the following shapes into two groups: *Triangles* or *Not Triangles*

Solution 15:

Problem 16:
The class is painting clay circles in art class. Catey partitions her circle so that each section is half of the circle. Grayson cuts her circle so that each section is a fourth of the circle.

Solution 16:
In Catey's design we need 2 sections to make a whole since each section is one half.

In Grayson's design we need 4 sections to make a whole since each section is one fourth.

Resources
Links and online resources to allow you to support your child's learning.
- Games: practice basic skills for 1st graders
- Didax Virtual Manipulatives: find a ten frame, shapes, number line and more
- First grade math - IXL : digital practice on all skills
- Math Learning Center: 1st grade math practice problems
- PBS Kids Math Games: explore different games
- Fact Monster Flashcards: addition and subtraction flashcards

At-Home Connections
- Ask your child to:
  - Show you how to add using strategies they are comfortable with: counting on, ten frame, pictures, or models. Enjoy the use of household objects to help them (e.g., beans, legos, beads).

- o Play "I Spy" 2-D and 3-D shapes.
- o Sort objects found in their home and describe their rule for sorting.
- o Compare three different items using words like short, shorter, and shortest from their toys.
- o Identify the value of a quarter and how many pennies equivalent to that amount.
- o Collect data from the family by posing a question (e.g., What is your favorite ice cream? Vanilla, Chocolate, Strawberry). Then, collect, organize and represent the data in a tally chart.
- o Read with you and explore math concepts in books (e.g., Math Start).

Challenges to Anticipate

- ● It can be hard to watch your child struggle with something, but sometimes this is a necessary part of the learning process. Help your child by asking them to explain the problem to you and encourage them to keep trying even if they do not get it at first.
- ● Create your own ten frames (see example in vocabulary section) and use individual objects to practice "making ten" or identifying teen numbers (12 includes a full ten frame [1 group of 10] and 2 ones [leftovers]).
- ● Provide opportunities for students to create and compare 2-D and 3-D shapes using the toothpicks and clay to help them make sense of challenging vocabulary.
- ● Help students connect partitioning shapes to early fraction knowledge by asking "fair sharing" questions. For instance, "Two friends want to share a brownie so they each get the same amount. How much brownie would each friend get?" Reinforce this concept by partitioning a few "unfair" examples. Talk about being the person who would get the larger or smaller piece.

Communicating with Your Child's Teacher

Still feeling stuck? Reach out to your child's teacher to discuss what you can do further your child's learning. Some questions that might guide your discussion:

- ● What resources would you suggest I use to support my child?
- ● Where do you see my child struggling? What can we do together to help?
- ● What should my child practice at home?
- ● What collective message can we send together to help my child learn?

Need Technical Help?

Reach out to your student's home school for technical assistance. Include the type of device (PC, Mac, Chromebook, etc.) and browser (Chrome, Firefox, Safari, etc.).

Citations

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