COMMON CORE ITEM BANK FOR MATHEMATICS

GRADE 1

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1.OA.2 – Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. 6

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1.OA.3 – Apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) (Students need not use formal terms for these properties.)* 6

1.OA.4 – Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.* 6

Cluster: Add and subtract within 20. ..... ***6***

1.OA.5 – Relate counting to addition and subtraction (e.g., by counting on 2 to add 2) 6

1.OA.6 – Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). 6

Cluster: Work with addition and subtraction equations. ***6***

1.OA.7 – Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.* 6

1.OA.8 – Determine the unknown number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ? – 3, 6 + 6 = ?.* 6

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1.NBT.3 – Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <. 27

Cluster: Use place value understanding and properties of operations to add and subtract. ***27***

1.NBT.4 – Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. 27

1.NBT.5 – Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. 27

1.NBT.6 – Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. 27

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1.G.2 – Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as "right rectangular prism.") 52

1.G.3 – Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares. 52

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INTRODUCTION

This document is meant to be a resource tool for items aligned to the Common Core State Standards. The sample items provided are not exhaustive of what the standards mean, rather they are a gauge of what should be included in teaching first graders based on the intent of the Common Core State Standards. The items should be considered as formative assessment tasks to provide educators, students, and parents feedback about mathematical knowledge and inform educators about students' behavior, communication, and learning habits.

Observing students' interactions when solving these tasks is best. Howard County Public School System developed a rubric for grade 1, which is located in the answer key, and it is a great start for documenting students' progress towards their mathematical learning pathway.

Sites used to select assessment items include:

- Illustrative Mathematics
- Howard County Public School System
- North Carolina Department of Instruction
- Seattle Public Schools
- Engage New York

How to Use Various Aspects of This Document

- Analyze the way mathematics standards are conceptualized in each item or task.
- Identify the instructional shifts that need to occur to prepare students to address these more rigorous demands. Develop a plan to implement the necessary instructional changes.
- Recognize that the sample items and tasks are only one way of assessing the standard.
- Instruction should address "focus," coherence," and "rigor" of mathematics concepts.
- Instruction should embed mathematical practices when teaching mathematical content.
- For grades K–5, calculators should not be used as the concepts of number sense and operations are fundamental to learning new mathematics content in grades 6–12.

Your feedback is welcome. Please do not hesitate to contact Katia Foret at katia.foret@doe.k12.de.us or Rita Fry at rita.fry@doe.k12.de.us with suggestions, questions, and/or concerns.

Priorities in Mathematics

Grade	Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction, measurement using whole number quantities
3–5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra

Common Core State Standards for Mathematical Practices

Mathematical Practices		Student Dispositions:	Teacher Actions to Engage Students in Practices:
Essential Processes for a Productive Math Thinker	**1. Make sense of problems and persevere in solving them**	▪ Have an understanding of the situation ▪ Use patience and persistence to solve problem ▪ Be able to use different strategies ▪ Use self-evaluation and redirections ▪ Communicate both verbally and written ▪ Be able to deduce what is a reasonable solution	▪ Provide open-ended and rich problems ▪ Ask probing questions ▪ Model multiple problem-solving strategies through Think-Aloud ▪ Promote and value discourse ▪ Integrate cross-curricular materials ▪ Promote collaboration ▪ Probe student responses (correct or incorrect) for understanding and multiple approaches ▪ Provide scaffolding when appropriate ▪ Provide a safe environment for learning from mistakes
	6. Attend to precision	▪ Communicate with precision—orally and written ▪ Use mathematics concepts and vocabulary appropriately ▪ State meaning of symbols and use them appropriately ▪ Attend to units/labeling/tools accurately ▪ Carefully formulate explanations and defend answers ▪ Calculate accurately and efficiently ▪ Formulate and make use of definitions with others ▪ Ensure reasonableness of answers ▪ Persevere through multiple-step problems	▪ Encourage students to think aloud ▪ Develop explicit instruction/teacher models of thinking aloud ▪ Include guided inquiry as teacher gives problem, students work together to solve problems, and debrief time for sharing and comparing strategies ▪ Use probing questions that target content of study ▪ Promote mathematical language ▪ Encourage students to identify errors when answers are wrong
Reasoning and Explaining	**2. Reason abstractly and quantitatively**	▪ Create multiple representations ▪ Interpret problems in contexts ▪ Estimate first/answer reasonable ▪ Make connections ▪ Represent symbolically ▪ Talk about problems, real-life situations ▪ Attend to units ▪ Use context to think about a problem	▪ Develop opportunities for problem-solving strategies ▪ Give time for processing and discussing ▪ Tie content areas together to help make connections ▪ Give real-world situations ▪ Demonstrate thinking aloud for students' benefit ▪ Value invented strategies and representations ▪ More emphasis on the process instead of on the answer
	3. Construct viable arguments and critique the reasoning of others	▪ Ask questions ▪ Use examples and counter examples ▪ Reason inductively and make plausible arguments ▪ Use objects, drawings, diagrams, and actions ▪ Develop ideas about mathematics and support their reasoning ▪ Analyze others arguments ▪ Encourage the use of mathematics vocabulary	▪ Create a safe environment for risk-taking and critiquing with respect ▪ Provide complex, rigorous tasks that foster deep thinking ▪ Provide time for student discourse ▪ Plan effective questions and student grouping ▪ Probe students

Mathematical Practices		Students:	Teacher(s) promote(s) by:
Modeling and Using Tools	**4. Model with mathematics**	▪ Realize that mathematics (numbers and symbols) is used to solve/work out real-life situations ▪ Analyze relationships to draw conclusions ▪ Interpret mathematical results in context ▪ Show evidence that they can use their mathematical results to think about a problem and determine if the results are reasonable—if not, go back and look for more information ▪ Make sense of the mathematics	▪ Allowing time for the process to take place (model, make graphs, etc.) ▪ Modeling desired behaviors (think alouds) and thought processes (questioning, revision, reflection/written) ▪ Making appropriate tools available ▪ Creating an emotionally safe environment where risk-taking is valued ▪ Providing meaningful, real-world, authentic, performance-based tasks (non-traditional work problems) ▪ Promoting discourse and investigations
	5. Use appropriate tools strategically	▪ Choose the appropriate tool to solve a given problem and deepen their conceptual understanding (paper/pencil, ruler, base ten blocks, compass, protractor) ▪ Choose the appropriate technological tool to solve a given problem and deepen their conceptual understanding (e.g., spreadsheet, geometry software, calculator, web 2.0 tools) ▪ Compare the efficiency of different tools ▪ Recognize the usefulness and limitations of different tools	▪ Maintaining knowledge of appropriate tools ▪ Modeling effectively the tools available, their benefits, and limitations ▪ Modeling a situation where the decision needs to be made as to which tool should be used ▪ Comparing/contrasting effectiveness of tools ▪ Making available and encouraging use of a variety of tools
Seeing Structure and Generalizing	**7. Look for and make use of structure**	▪ Look for, interpret, and identify patterns and structures ▪ Make connections to skills and strategies previously learned to solve new problems/tasks independently and with peers ▪ Reflect and recognize various structures in mathematics ▪ Breakdown complex problems into simpler, more manageable chunks ▪ "Step back" or shift perspective ▪ Value multiple perspectives	▪ Being quiet and structuring opportunities for students to think aloud ▪ Facilitating learning by using open-ended questions to assist students in exploration ▪ Selecting tasks that allow students to discern structures or patterns to make connections ▪ Allowing time for student discussion and processing in place of fixed rules or definitions ▪ Fostering persistence/stamina in problem solving ▪ Allowing time for students to practice
	8. Look for and express regularity in repeated reasoning	▪ Identify patterns and make generalizations ▪ Continually evaluate reasonableness of intermediate results ▪ Maintain oversight of the process ▪ Search for and identify and use shortcuts	▪ Providing rich and varied tasks that allow students to generalize relationships and methods and build on prior mathematical knowledge ▪ Providing adequate time for exploration ▪ Providing time for dialogue, reflection, and peer collaboration ▪ Asking deliberate questions that enable students to reflect on their own thinking ▪ Creating strategic and intentional check-in points during student work time

For classroom posters depicting the Mathematical Practices, please see: http://seancarberry.cmswiki.wikispaces.net/file/detail/12-20math.docx

OPERATIONS AND ALGEBRAIC THINKING (OA)

Cluster: Represent and solve problems involving addition and subtraction.

1.OA.1 – Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 1, of CCSS document.)

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1.OA.4 – Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*

Cluster: Add and subtract within 20.

1.OA.5 – Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

1.OA.6 – Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

Cluster: Work with addition and subtraction equations.

1.OA.7 – Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*

1.OA.8 – Determine the unknown number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = ? – 3, 6 + 6 = ?.*

Additional sample formative assessment material can be downloaded from Engageny.org under their New York State Mathematics Curriculum Materials: *http://www.engageny.org/sites/default/files/resource/attachments/g1-m1-full-module.pdf* Suggestions include Lessons 1, 6, 9, 17, 19, 20, 21, 25, 26, and 28.

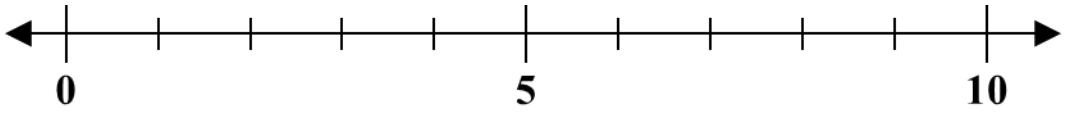
Task 1 – 1.OA.1

Solve the word problem with a picture, a number line, and an equation.

There are 9 cookies. Jake eats 3. How many cookies are left?

A. Picture

B. Number line



C. Equation

Task 2 – 1.OA.1

Kate has 4 markers. Jill has 9 markers. How many fewer markers does Kate have than Jill?

A. Write a number sentence that matches this story. Use a symbol for the unknown number.

B. Solve the problem. Show your thinking with pictures, numbers, or words.

_____ markers

Task 3 – 1.OA.1

Samuel has 7 pencils. How many can he put in his red box and how many in his blue box?

Solve the problem.

- **Find as many different combinations as you can.**
- **Show your thinking with pictures, number, or words.**
- **Write a number sentence for each combination.**

Task 4 – 1.OA.1

Bo bought 20 tickets to play games at Family Fun Night at his school. He wants to play each game at least once. He needs to use all of his tickets. How many times might he play each game? Find at least two ways he can do it.

Game	Number of Tickets Needed
Ring Toss	1
Putt-Putt Golf	2
Soccer Kick	3
Moonwalk	5

Task 5 – 1.OA.2

Fill in each set of three empty spaces below with three numbers to make a sum of 12. You can use numbers more than once.

1st Way ☐ + ☐ + ☐ = 12

2nd Way ☐ + ☐ + ☐ = 12

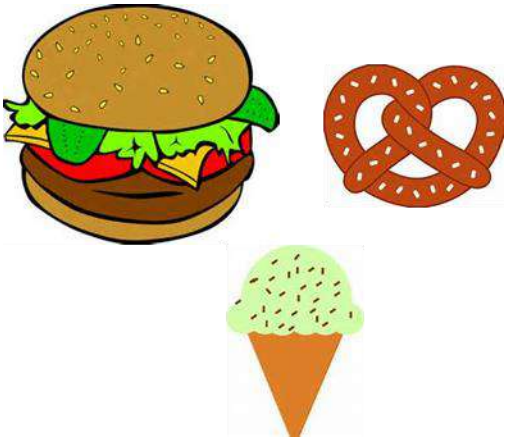
3rd Way ☐ + ☐ + ☐ = 12

4th Way ☐ + ☐ + ☐ = 12

Task 6 – 1.OA.2

Madison went to the fair. After she finished the rides, she bought one hamburger, one pretzel, and an ice cream cone.

The bill shows how much money each item cost. How much did Madison spend to buy all the food?



BILL

Hamburger – $8

Pretzel – $3

Ice Cream – $2

Show your work in the space. Then, fill in the blank with you answer.

Madison spent _____ on all her food.

Task 7 – 1.OA.2

Ryan counted 8 mints, 7 gummy bears, and 3 chocolates in his treat bag. How many pieces of candy did he have in his bag?

Show your thinking with pictures, numbers, or words.

Task 8 – 1.OA.3

Use the digits in the box to write 4 different equations.

7, 10, 3

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

2, 9, 7

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

Task 9 – 1.OA,2

Jasmine has eight daisies and three vases – one large, one medium, and one small.

She puts 5 daisies in the large vase, 2 daisies in the medium vase, and 1 in the small vase.

- Can you find another way to put daisies so that there are the most in the large vase and least in the small vase?
- Try to find as many ways as you can to put the daisies in the vases with the most in the large vase and the least in the smallest vase. If you think you have found them all, explain how you know those are all the possibilities.

Task 10 – 1.OA.3

Write the missing numbers to make each equation true.

A. $4 + 2 + 6 = 10 + _____$

B. $7 + 9 = _____ + 7$

C. $3 + 5 + 3 = _____ + 5$

D. $4 + 8 = 8 + _____$

Task 11 – 1.OA.3

Write the missing numbers to make each equation true.

A. $7 = 4 + _____$

B. $9 - 6 = _____ - 5$

C. $_____ + 5 = 10 - 1$

Task 12 – 1.OA.4

Carlos went fruit picking. He picked 9 pieces of fruit to bring home. 5 pieces were apples and the rest were peaches.

A. Write an addition equation that someone can use to figure out how many peaches Carlos brought home.

_____ + _____ = _____

B. Write a subtraction equation that someone can use to figure out how many peaches Carlos brought home.

_____ – _____ = _____

Task 13 – 1.OA.4

A. Max has 15 stickers. His brother took 7 stickers away. Max doesn't know how to solve 15 – 7.

Circle the addition equation he can think of to find the difference.

15 + 7 = ? 15 + ? = 7 7 + ? = 15

B. Vic has 13 cookies to share. He gives away 6 cookies. Vic doesn't know how to solve 13 – 6.

Circle the addition equation she can think of to find the difference.

13 + 6 = ? 6 + ? = 13 13 + ? = 6

Task 14 – 1.OA.4

Mia at 10 cookies for dessert. 3 were chocolate chip and the rest were sugar cookies.

A. Draw a picture to show how many sugar cookies Mia ate.

B. Write a subtraction equation to match your drawing.

_____ – _____ = _____

Task 15 – 1.OA.5

Write each number to finish the sentence.

A. 1 more than 37 is _____

B. 2 more than 49 is _____

C. 1 less than 80 is _____

D. 2 less than 95 is _____

Task 16 – 1.OA.5

Carly was working to solve a math problem. She solved the problem by counting out loud.

Carly counted, "6…7…8…9…10…11…12…13."

What is a problem that Carly could have been solving?

_____

Task 17 – 1.OA.5

A. Austin was using a number line to solve a math problem. He started at number 13 and counted backwards. He stopped at number 8. Write a number sentence to show the problem that Austin could have been solving.

_____

B. When Austin solved his next problem on the number line, he was counting up. He started at a certain number, and he counted up 4 more. When he stopped, he was at a number greater than 20.

What three different numbers could he have started at?

_____ _____ _____

C. For Austin's last problem, he used a hundreds chart. He started at 37 and counted up to 45. How far did he count up?

_____

Task 18 – 1.OA.6

Circle the two numbers in each box that have a sum of 10.

A. | 8 | 7 | 3 | 1 |

C. | 5 | 5 | 2 | 9 |

B. | 9 | 6 | 5 | 4 |

D. | 6 | 3 | 2 | 8 |

Task 19 – 1.OA.6

Use a line to connect number sentences/expressions that are equal.

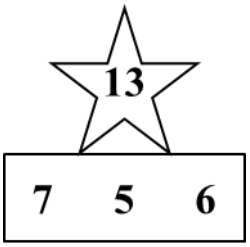
3 + 4	10 – 2
9	5 + 1
8 – 2	3 + 6
5 + 3	7

Task 20 – 1.OA.6

Circle the numbers in the box that can be added to make the number in the star above the box.

A.

C.

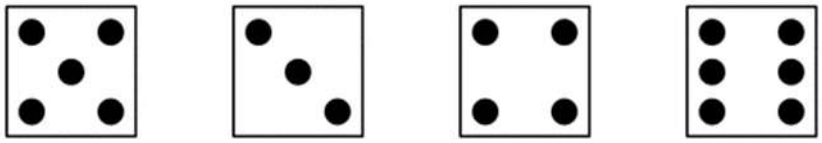


B.

D.

Task 21 – 1.OA.6

Fill in each box with one of the numbers from the number cubes shown below to complete each equation. Use each cube only once.



Clipart courtesy FCIT, http://etc.usf.edu/clipart

A. 13 + ☐ = _____

C. _____ + ☐ = 19

B. _____ – ☐ = 9

D. 17 – _____ = ☐

Task 22 – 1.OA.7

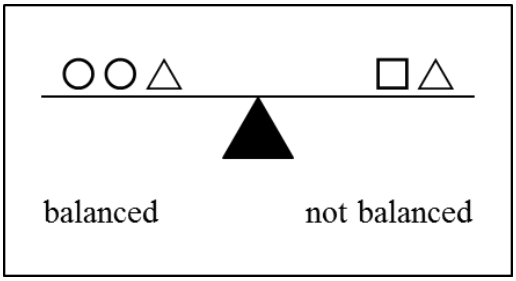
Each symbol has a different value. Use the symbols to decide if each scale is balanced.

Circle your answer.

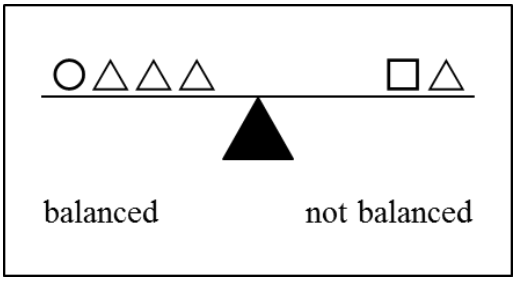
○ = 5, △ = 2, and □ = 10

Show how you know you are correct.

A.



B.



Task 23 – 1.OA.7

Look at each equation. Decide if the equation is true or false by circling the correct word. For each question, show your work.

A. $7 = 5 - 2$

True False

C. $12 = 6 + 6$

True False

B. $9 + 3 = 3 + 9$

True False

D. $7 + 4 + 3 = 14 - 2$

True False

Task 24 – 1.OA.7

1. Circle the equations below that are true. Cross out by putting an *X* on the equations that are false.

4 + 9 = 13 – 2	8 – 4 = 9 – 5	16 – 5 = 7 + 4
3 + 8 = 14 – 3	9 + 6 = 5 + 9	6 + 6 = 7 + 5

2. Fill in the blanks to make one true equation and one false equation.

True	False
_____ + _____ = _____ + _____	_____ – _____ = _____ + _____

Task 25 – 1.OA 8

Cut apart cards. Have students pick a card. Ask them to solve the equation using pencil and paper or whiteboards and marker and then write a story representing the problem.

a. $___ - 6 = 2$	d. $13 = 5 + ___$
b. $7 - ___ = 4$	e. $4 + ___ = 11$
c. $9 = ___ + 1$	f. $9 = ___ - 6$

Task 26 – 1.OA.8

Which equations need a number **greater than 5** in the blank to be true? Place a check next to each equation that needs a number greater than 5.

☐ 13 – _____ = 4	☐ _____ – 1 = 7
☐ 8 + _____ = 9	☐ _____ + 5 = 7
☐ 4 + _____ = 16	☐ 16 – _____ = 13

NUMBER AND OPERATIONS IN BASE TEN (NBT)

Cluster: Extend the counting sequence.

1.NBT.1 – Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Cluster: Understand place value.

1.NBT.2 – Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones - called a "ten."

b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

1.NBT.3 – Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Cluster: Use place value understanding and properties of operations to add and subtract.

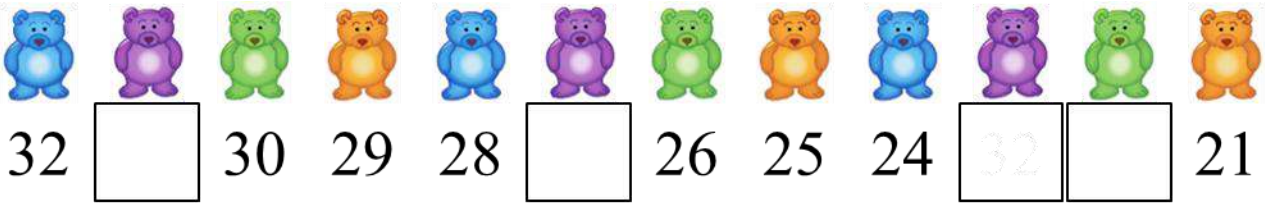
1.NBT.4 – Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

1.NBT.5 – Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.6 – Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Task 27 – 1.NBT.1

The bears are in a line. The position number is missing for some of the bears. Write the missing numbers.



Did you count forward? _____

Did you count backward? _____

Task 28 – 1.NBT.1

Fill in the missing numbers to follow the rule.

Counting by 1s . . .

		96			99	

Counting by 1s . . .

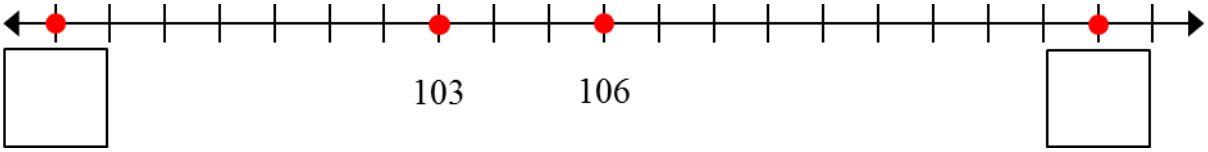
104					109	

Counting by 2s . . .

	110		114			120

Task 29 – 1.NBT.1

Write the missing numbers on this number line.



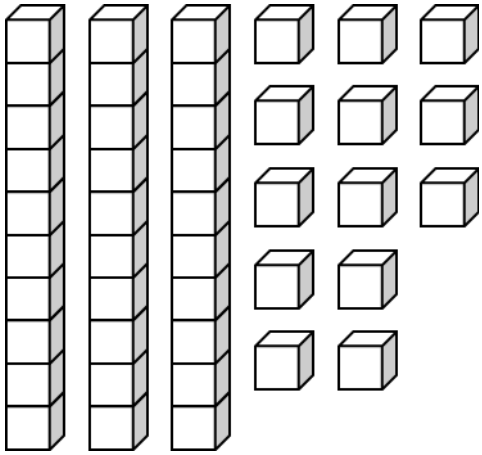
Task 30 – 1.NBT.2

Show the number 27 in different ways. Use a ▮ to show tens and a ● to show ones.

Use ▮ to show tens, and use ● to show ones.

Task 31 – 1.NBT.2

Count the place value blocks below. How many 10s? How many 1s? What number does this picture represent?



10s	1s

_____

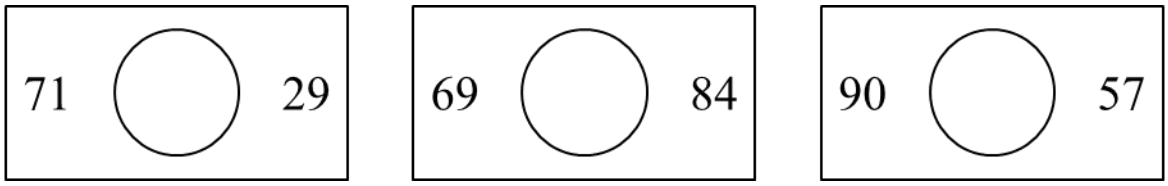
Task 32 – 1.NBT.3

Look at the numbers in each box. Circle the number that is greater in each box.

16 60	43 39	19 32	71 29

Task 33 – 1.NBT.3

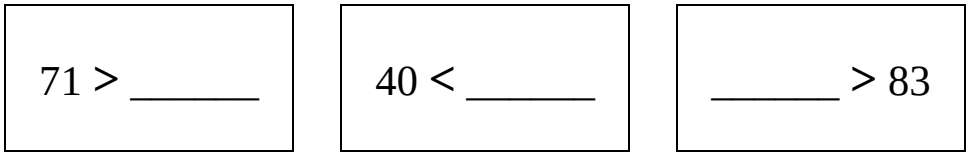
Compare numbers. Write <, >, or = in each circle to compare the numbers.



Show how you know you are correct.

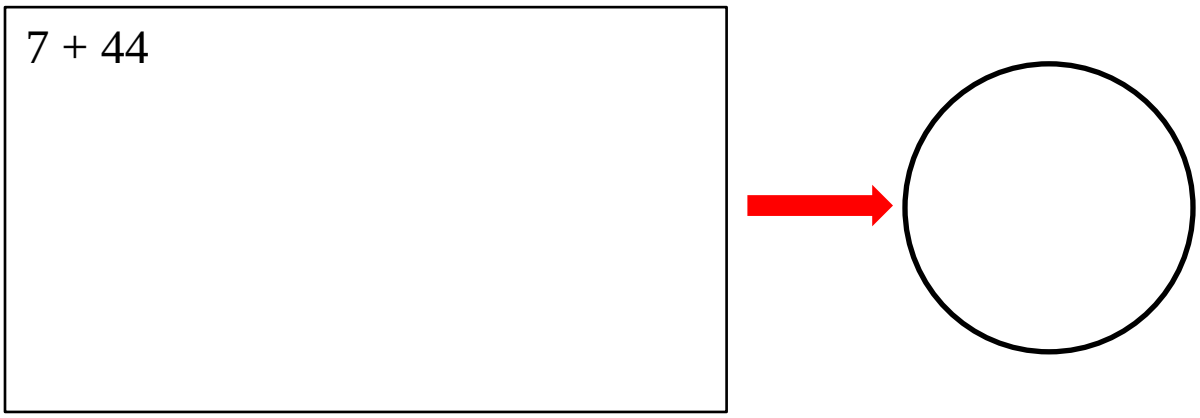
Task 34 – 1.NBT.3

Write a number on the line that makes the statement in each box true.



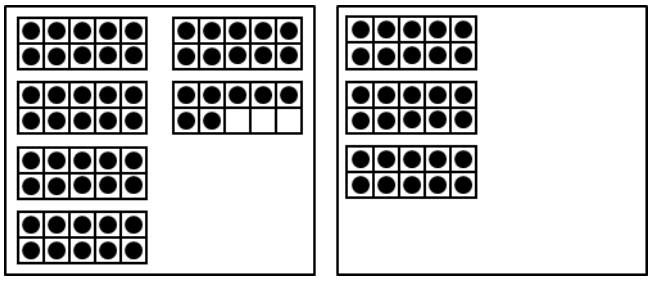
Task 35 – 1.NBT.4

Use sticks ▌ and dots ● to show 7 + 44, where ▌ = 10 and ● = 1. Write the sum in the circle.



Task 36 – 1.NBT.4

What is the total for the two trays of ten frames? Write an equation to show how you found the total.

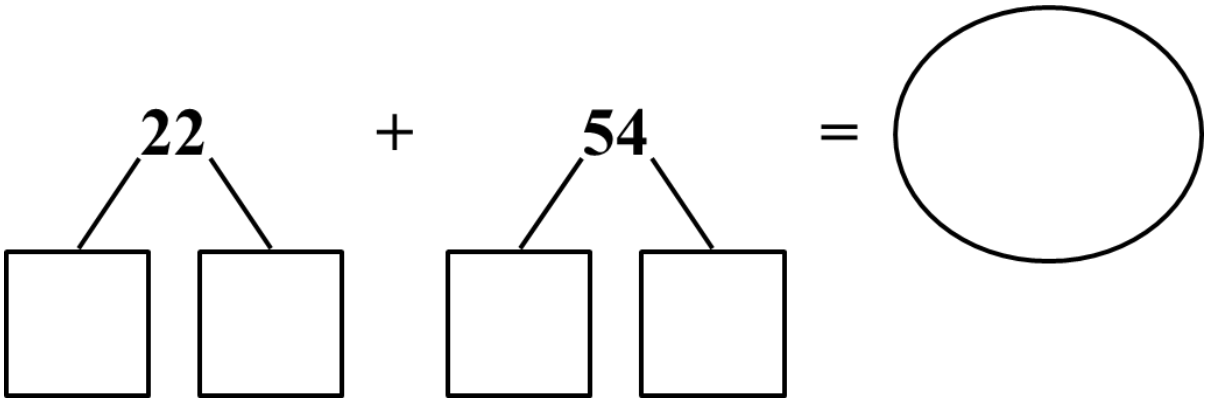


_____

Equation to show the total

Task 37 – 1.NBT.4

Break apart one or both numbers to make them easier to add. Write the answer to this problem in the circle.



Task 38 – 1.NBT.5

Write the number that is 10 less and 10 more using mental math:

_____, **19**, _____
10 Less 10 More

_____, **56**, _____
10 Less 10 More

_____, **37**, _____
10 Less 10 More

_____, **82**, _____
10 Less 10 More

Task 39 – 1.NBT.5

A. Circle the number below that is 10 **more** than 73.

63 83 37 173

B. Circle the number below that is 10 **less** than 28.

27 38 18 82

Task 40 – 1.NBT.5

These are pieces of a hundred chart. Use what you know about a hundred chart to fill in the missing numbers.

A.

	45
54	
	75

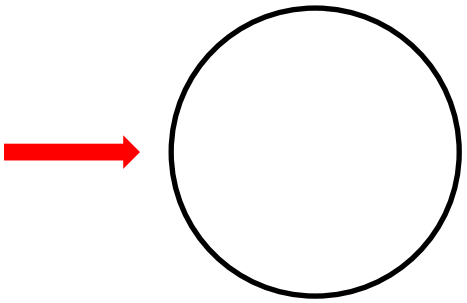
B.

12		14
	23	
		34

Task 41 – 1.NBT.6

Use sticks ▮ and dots ● to show 80 – 20, where ▮ = 10 and ● = 1. Write the answer in the circle.

80 – 20



Task 42 – 1.NBT.6

Fill in the missing number to complete each equation.

A. 80 – 10 = _____

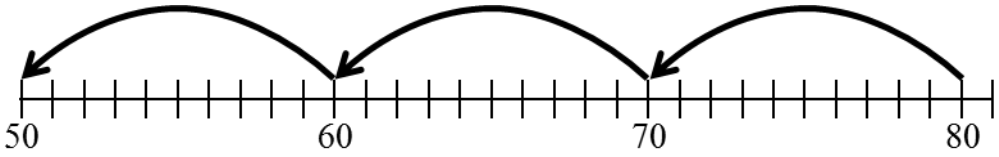
C. 60 – 60 = _____

B. 40 – 30 = _____

D. 90 – 20 = _____

Task 43 – 1.NBT.6

David solved a subtraction problem using the number line.



Write the subtraction problem that David was solving.

_____

MEASUREMENT AND DATA (MD)

Cluster: Measure lengths indirectly and by iterating length units.

1.MD.1 – Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD.2 – Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Cluster: Tell and write time.

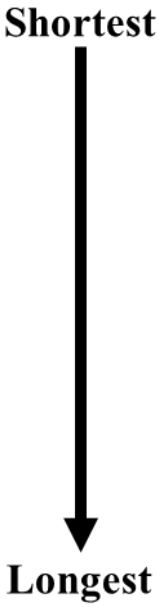
1.MD.3 – Tell and write time in hours and half-hours using analog and digital clocks.

Cluster: Represent and interpret data.

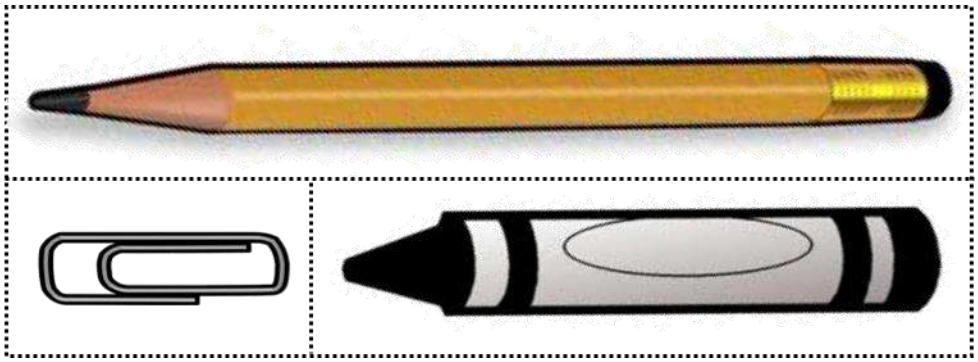
1.MD.4 – Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Task 44 – 1.MD.1

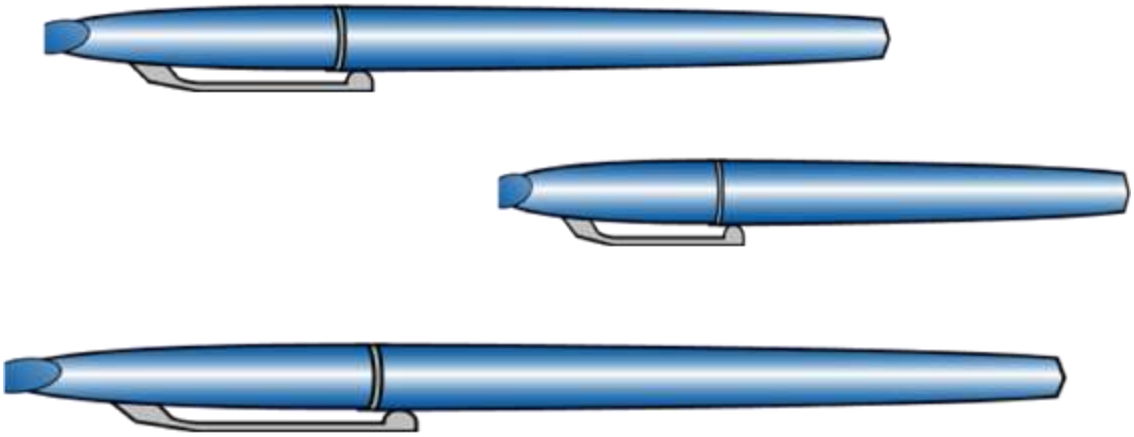
Give students the objects from the **Ordering Objects** strip and ask them to order the objects in order from **shortest** to **longest**.



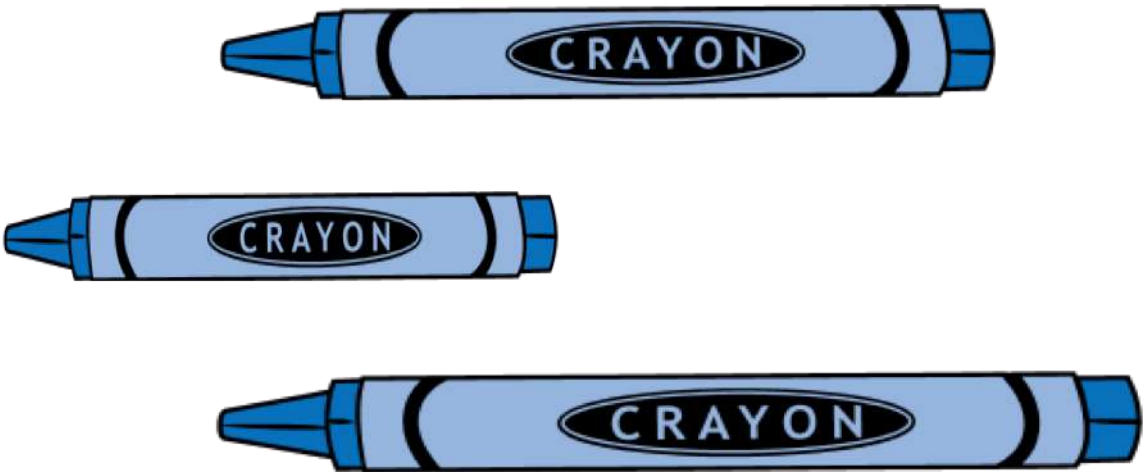
Ordering Objects Strip



A. Circle the pen that is the longest.



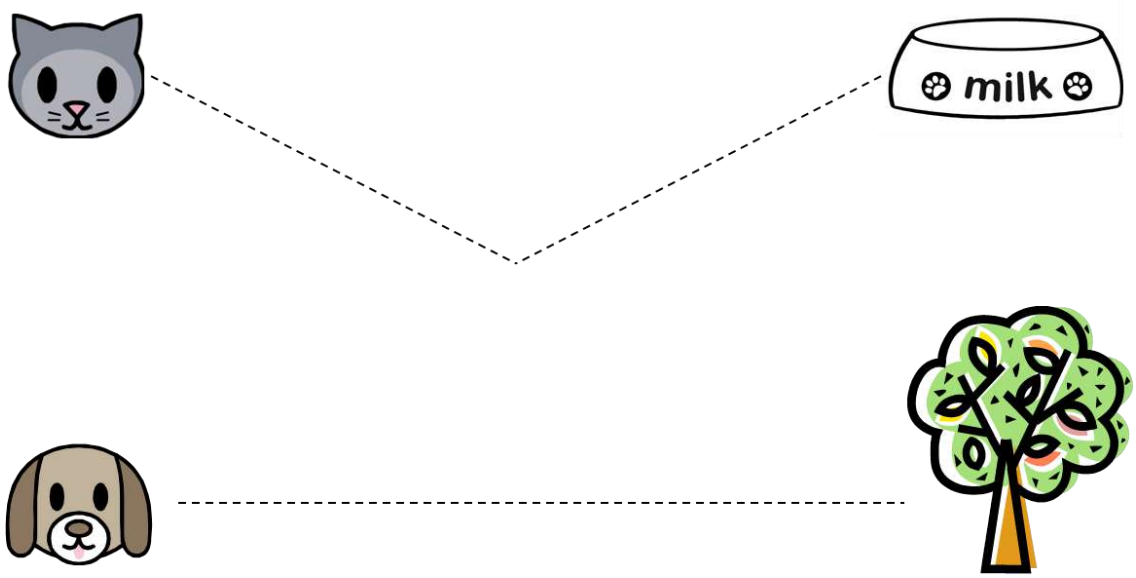
B. Circle the crayon that is the shortest.



Task 46 – 1.MD.1

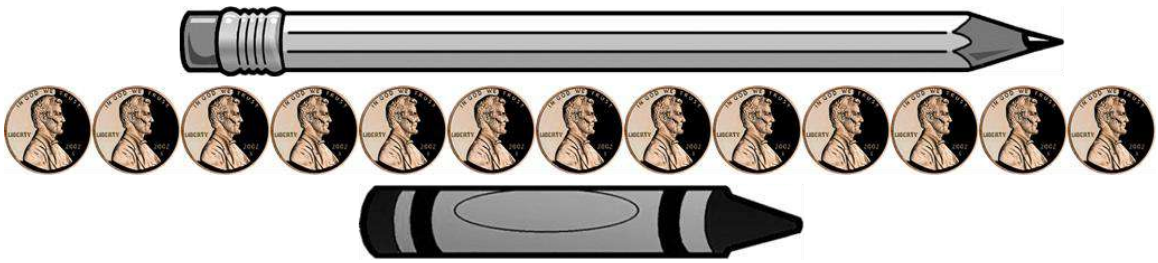
Which animal walks the longest path? Use the paperclip* to help you decide.

* Other objects for measurement are also allowed.



Task 47 – 1.MD.2

How many pennies long is each writing tool?



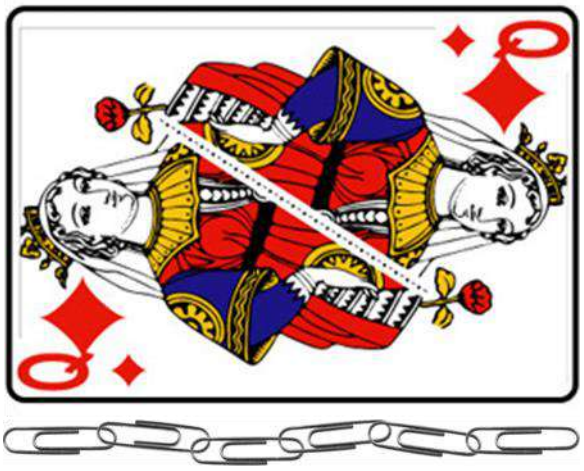
A. Pencil is _____ pennies long.

B. Crayon is _____ pennies long.

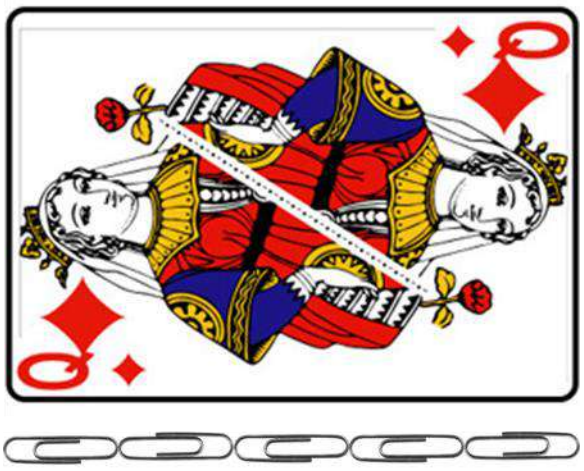
Task 48 – 1.MD.2

Decide which card is being measured correctly. Fill in the bubble to show your answer.

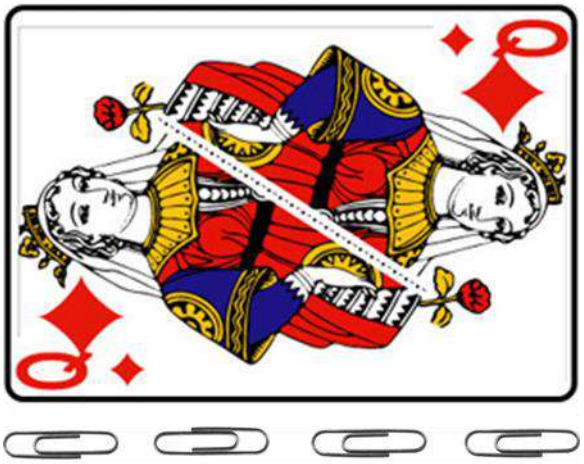
A.



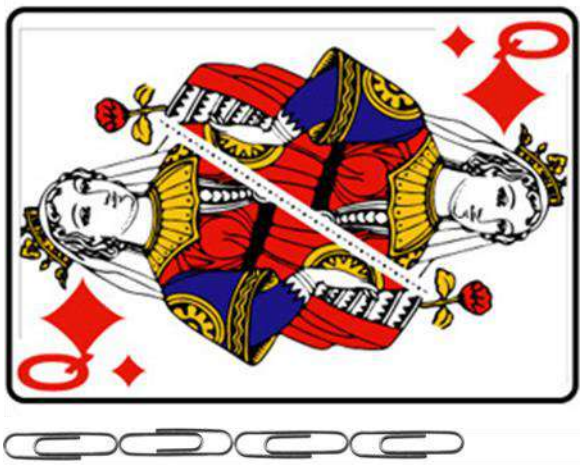
B.



C.



D.



Task 49 – 1.MD.48

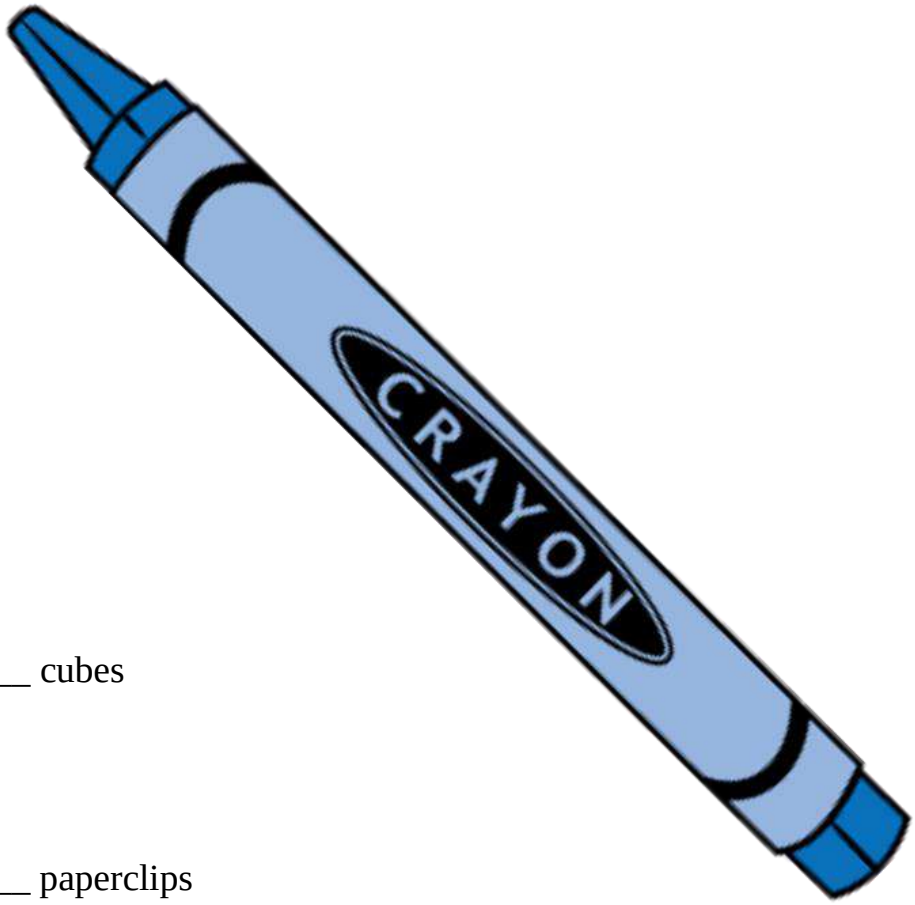
Joe measured the length of the line using paper clips. He told his teacher that it took 8 paperclips.

Do you think Joe is correct? Show your thinking with pictures, numbers, or words.

Note: Students should be given actual paperclips to perform this task.

Task 50 – 1.MD.2

Measure the object with cubes and paperclips. Write its length on the line.

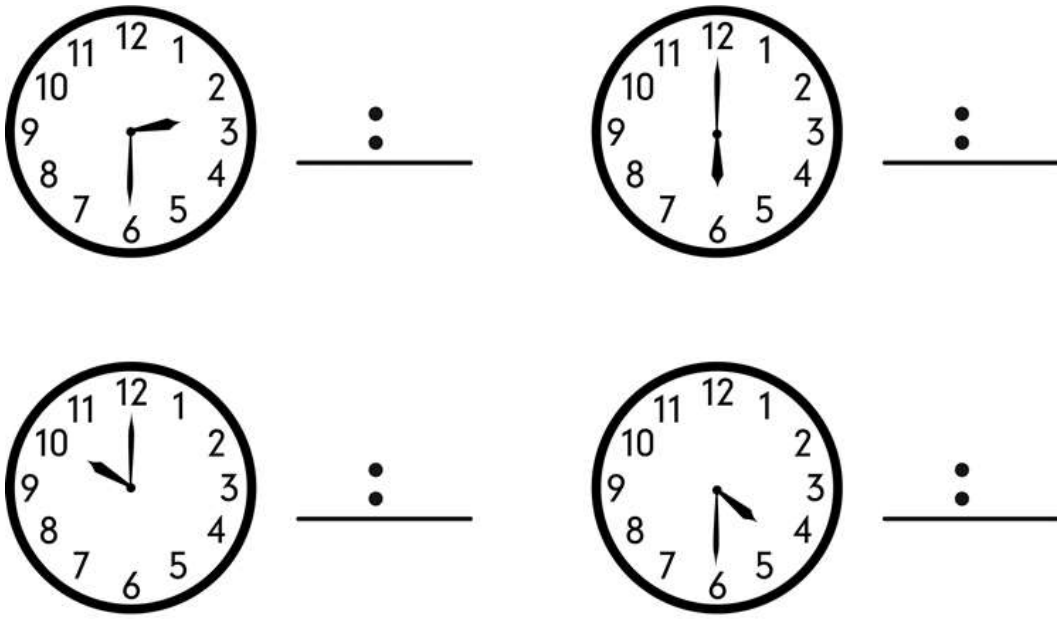


_____ cubes

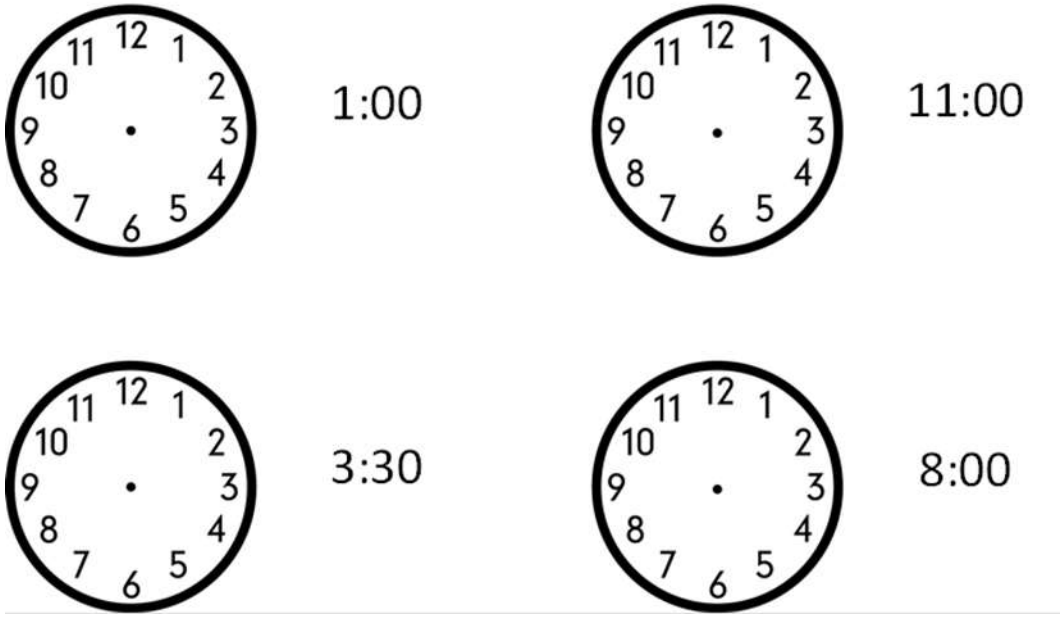
_____ paperclips

Task 51 – 1.MD.3

Write the time shown on the clocks.



Draw the hour and the minute hand to match the time.



Task 52 – 1.MD.3

Write the time under each clock.

_____ _____ _____

Task 53 – 1.MD.3

Match the clocks with the correct time. You will not use all the times.

1:06 5:12 1:30 7:30 2:30 8:30 5:00 9:30

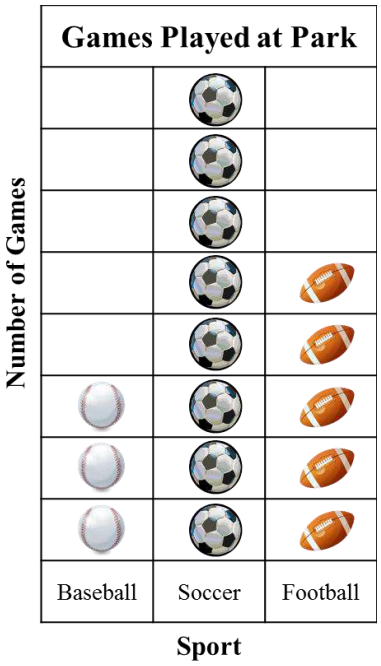
Task 54 – 1.MD.4

The graph shows the number of games played at a park on Saturday.

A. How many baseball games were played? _____

B. Which sport had 3 more games than football? _____

C. How many football and baseball games were played altogether? _____



Task 55 – 1.MD.4

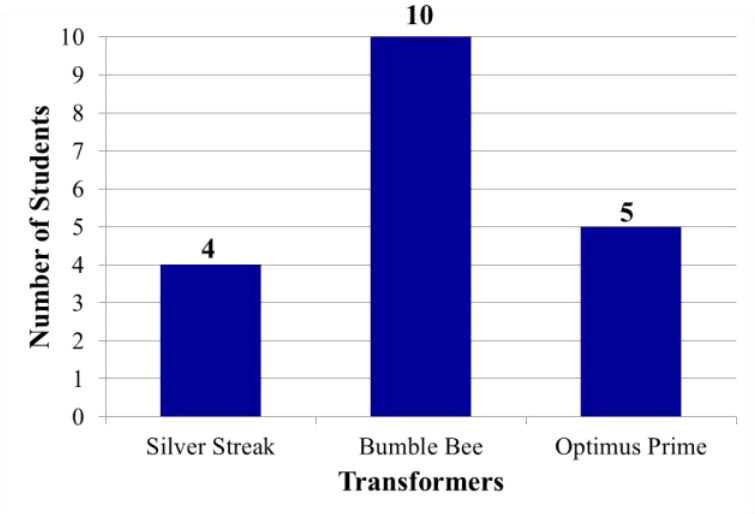
Use the graph to answer the questions.

1. How many more students like Bumble Bee than Optimus Prime?

   _____

2. How many students are in Mr. Smith's class?

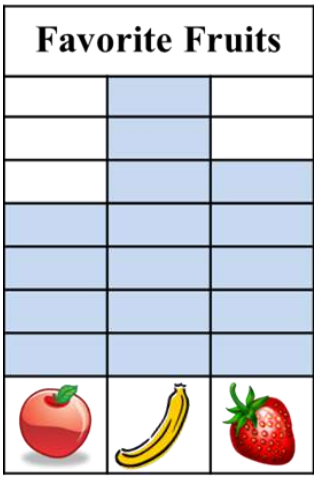
   _____



Task 56 – 1.MD.4

1. Use the graph to complete the table with tallies and numbers.

Favorite Fruits		
	////	4



2. How many students liked strawberry? _____

3. How many more students chose banana than apple? _____

4. How many students were interviewed (surveyed)? _____

GEOMETRY (G)

Cluster: Reason with shapes and their attributes.

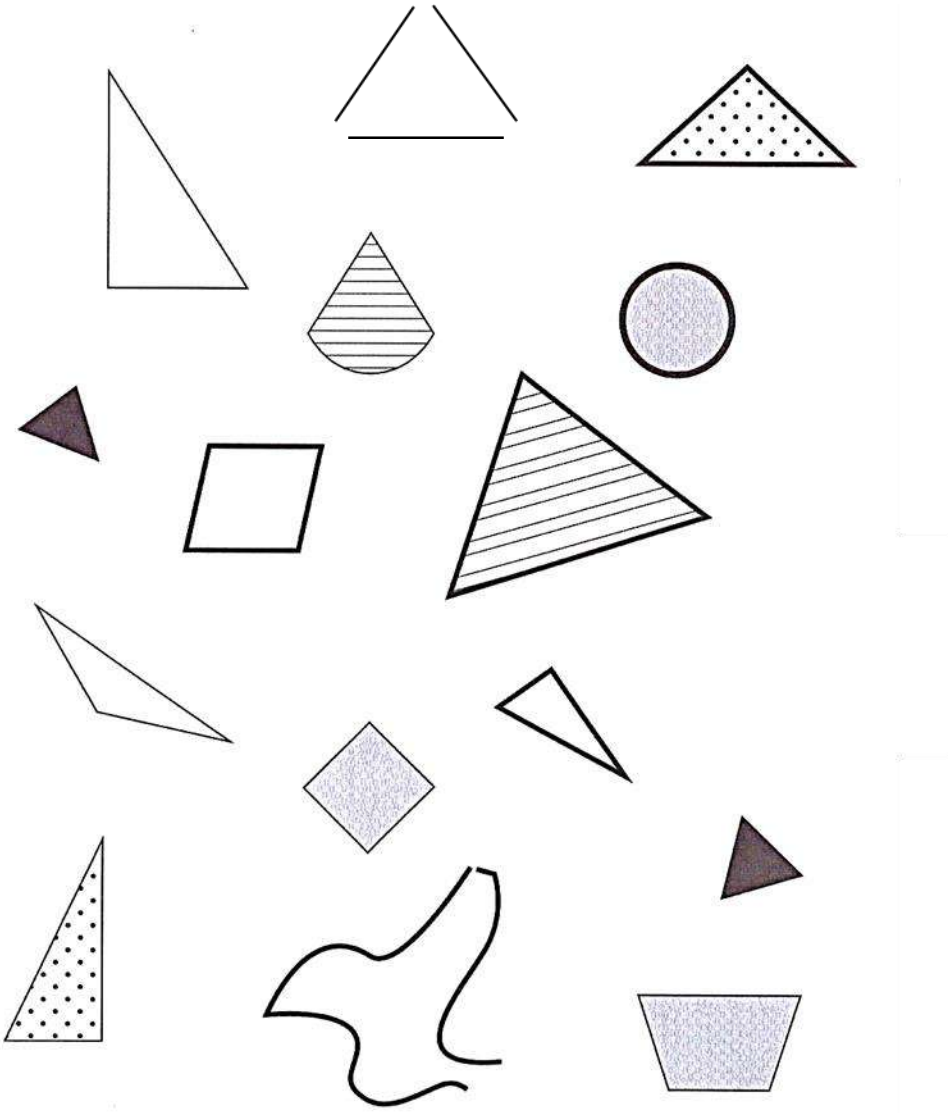
1.G.1 – Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) for a wide variety of shapes; build and draw shapes to possess defining attributes.

1.G.2 – Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as "right rectangular prism.")

1.G.3 – Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

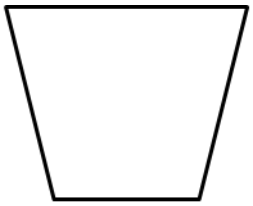
Task 57 – 1.G.1

Circle all of the triangles.



Task 58 – 1.G.1

Label each shape. Tell how they are similar and how they are different.

A. 

B.

Triangle
Rectangle
Square
Trapezoid
Rhombus

C. They are similar because _____

_____

_____

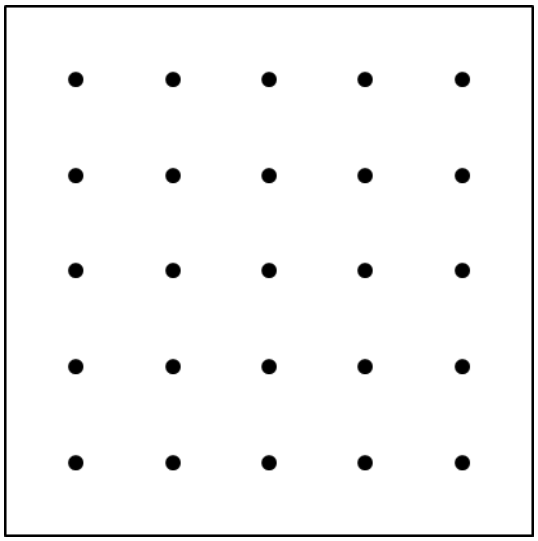
D. They are different because _____

_____

_____

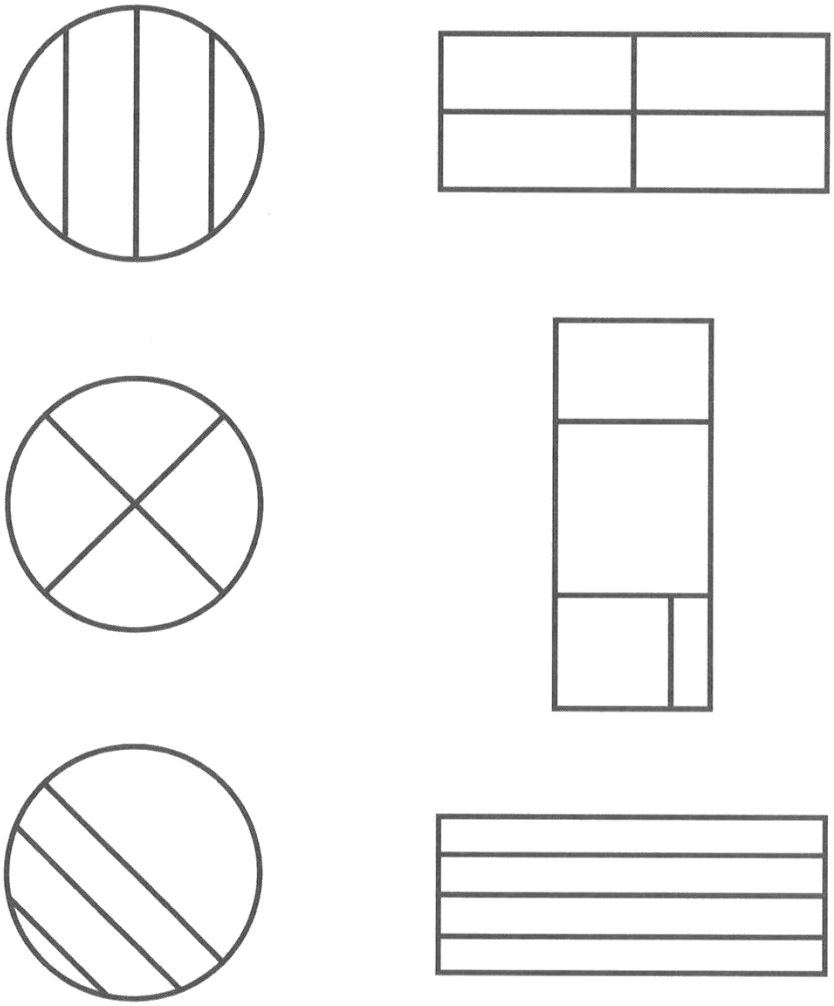
Task 59 – 1.G.2

Make a shape on the geoboard that has 2 rectangles and a triangle.



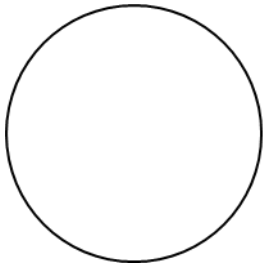
Task 60 – 1.G.3

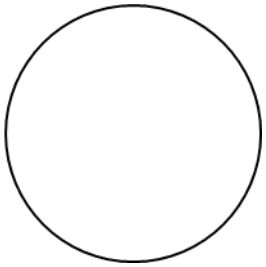
Circle or put a checkmark on all of the pictures that are correctly divided into fourths.



Task 61 – 1.G.3

A. Draw a line to make 2 equal shares of the first circle. Then, show another way to make 2 equal shares in the second circle.





B. Draw lines to make 4 equal shares of the first rectangle. Then, show another way to make 4 equal shares in the second rectangle.

RUBRIC AND SOLUTIONS FOR GRADE 1 ITEMS

Grade 1 Rubric

The following rubric should be used where observing students' interactions at solving the problems and tasks.

Not Yet: Student shows evidence of misunderstanding, incorrect concept or procedure.		**Got It:** Student essentially understands the target concept.	
Needs Improvement (N)	**With Assistance (W)**		**Independent (I)**
0 Unsatisfactory: Little Accomplishment	**1 Marginal: Partial Accomplishment**	**2 Proficient: Substantial Accomplishment**	**3 Excellent: Full Accomplishment**
The task is attempted and some mathematical effort is made. There may be fragments of accomplishment but little or no success. Further teaching is required.	Part of the task is accomplished, but there is lack of evidence of understanding or evidence of not understanding. Further teaching is required.	Student could work to full accomplishment with minimal feedback from teacher. Errors are minor. Teacher is confident that understanding is adequate to accomplish the objective with minimal assistance.	Strategy and execution meet the content, process, and qualitative demands of the task or concept. Student can communicate ideas. May have minor errors that do not impact the mathematics.

Adapted from Van de Walle, J. (2004) Elementary and Middle School Mathematics: Teaching Developmentally. Boston: Pearson Education, 65
Used with permission from Howard County Public School System

Operations and Algebraic Thinking (OA)

Task 1

A. Picture:

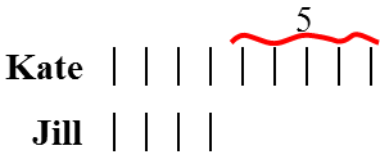
B. Number line:

C. Equation: $9 - 3 = 6$

Task 2

A. Number sentence: 9 – ♦ =4 ♦ = Jill's markers

B. Solve the problem:



Task 3

Red		Blue		
0	+	7	=	7
1	+	6	=	7
2	+	5	=	7
3	+	4	=	7
4	+	3	=	7
5	+	2	=	7
6	+	1	=	7
7	+	0	=	7

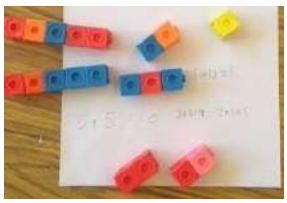
Task 4

Solution using concrete objects:

One solution is:

- 1 ring toss
- 3 putt-putt golf
- 1 soccer kick
- 2 moonwalks

Students can use linking cubes or counters to represent the required tickets.



One equation that represents this is
$1 + 0 + 5 + 5 + 2 + 3 + 2 + 2 = 20$

Some students might also record their thinking using equations. Another equation that represents this is:

$$2 + 2 + 1 + 2 + 3 + 5 + 5 + 0 = 20$$

Solution starting with one of each:

First, play each game once: $1 + 2 + 3 + 5 = 11$. 11 tickets are used $20 - 11 = 9$, so there are 9 tickets left.

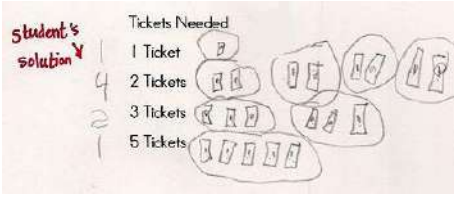
One way to use the rest of the tickets is to play ring toss, soccer kick, and moonwalk again because: $1 + 3 + 5 = 9$

- Ring toss: 2
- Putt-putt golf: 1
- Soccer kick: 2
- Moonwalk: 2

We can write this solution as an equation in different ways:

- $1 + 1 + 2 + 3 + 3 + 5 + 5 = 20$ OR
- $1 + 2 + 3 + 5 + 1 + 3 + 5 = 20$ OR
- $2 + 2 + 6 + 10 = 20$

Solution drawing pictures:



An equation that represents this solution is:
$1 + 2 + 2 + 2 + 2 + 3 + 3 + 5 = 20$

Task 5

1st Way	0	+	1	+	11	=	**12**
2nd Way	3	+	4	+	5	=	**12**
3rd Way	6	+	6	+	0	=	**12**
4th Way	7	+	3	+	2	=	**12**

Task 6

Answer: Madison spent $13 on all her food.

Task 7

Answer: $8 + 7 + 3 = 18$

Task 8

Four equations with 7, 10, 3:

$3 + 7 = 10$
$7 + 3 = 10$
$10 - 3 = 7$
$10 - 7 = 3$

Four equations with 2, 9, 7

$2 + 7 = 9$
$7 + 2 = 9$
$9 - 2 = 7$
$9 - 7 = 2$

Task 9

Solution list and decomposition strategy

The full list is:

- 8 in the large and none in the others, which we abbreviate as 8, 0, 0
- 7 in the large, 1 in the medium, and 0 in the small, which we abbreviate as 7, 1, 0
- 6, 2, 0
- 6, 1, 1
- 5, 3, 0
- 5, 2, 1
- 4, 4, 0
- 4, 3, 1
- 4, 2, 2
- 3, 3, 2

If students and the teacher decide to not allow empty vases or equal numbers, there are only two possibilities, the other being 4, 3, 1. It is likely that at least equal amounts will be allowed, in which case there are five possibilities.

One full solution strategy is to decide how many are in the first vase, and then decide from there how many in the second and third vases.

Task 10

A. $4 + 2 + 6 = 10 + 2$

B. $7 + 9 = 9 + 7$

C. $3 + 5 + 3 = 6 + 5$

D. $4 + 8 = 8 + 4$

Task 11

A. $7 = 4 + 3$

B. $9 - 6 = 6 - 5$

C. $4 + 5 = 10 - 1$

Task 12

A. $5 + ? = 9$

B. $9 - 5 = ?$

Task 13

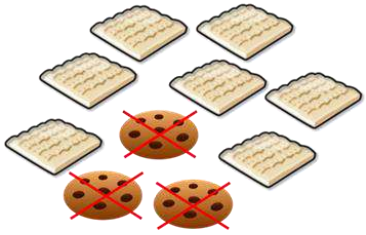
A. $7 + ? = 15$

B. $9 + ? = 16$

C. $6 + ? = 13$

Task 14

A.



B. $10 - 3 = 7$

Task 15

A. 1 more than 37 = <u>38</u>

B. 2 more than 49 = <u>51</u>

C. 1 less than 80 = <u>79</u>

D. 2 less than 95 = <u>93</u>

Task 16

Answer: 5 + 8 = 13

Task 17

A. 13 – ? = 8

B. Any number greater than 17, 18, 19, or ….

C. 8

Task 18

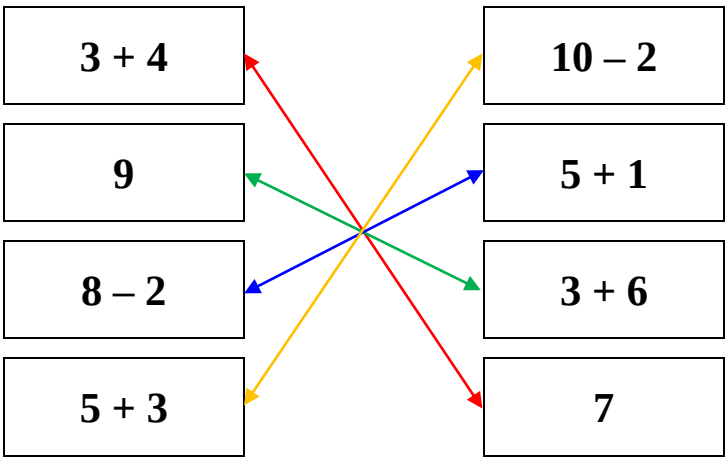
A. 7 + 3

B. 6 + 4

C. 5 + 5

D. 2 + 8

Task 19



Task 20

A. 7 + 3 = 10

B. 5 + 6 = 11

C. 7 + 6 = 13

D. 4 + 6 = 10

Task 21

A. 13 + 5 = 18

B. 13 – 4 = 9

C. 16 + 3 = 19

D. 17 – 9 = 8

Task 22

A. Balanced

B. Not balanced

Task 23

A. False

B. True

C. True

D. False

Task 24

Part 1

False True True

True False True

Part 2

Any correct equation.

Task 25

a. 8
b. 3
c. 8
d. 8
e. 7
f. 15

Task 26

☑ 9
☐ 1
☑ 12
☑ 8
☐ 2
☐ 3

Number and Operations in Base Ten (NBT)

Task 27

Answer: 31, 27, 23, 22

Task 28

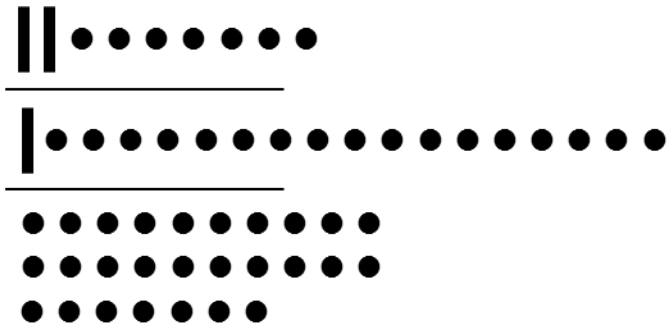
Answer:

94	95	96	97	98	99	100
104	105	106	107	108	109	110
108	110	112	114	116	118	120

Task 29

Answer: 96, 115

Task 30



Task 31

Answer:

10s	1s
3	13

43

Task 32

Answer: 60, 43, 32, 71

Task 33

Answer:

- 71 > 29; 69 < 84; 90 > 57
  Place value or other strategies should be expected.

Task 34

Answer:

- Any number equal to 70 or less
- Any number equal to 41 or greater
- Any number 84 or greater.

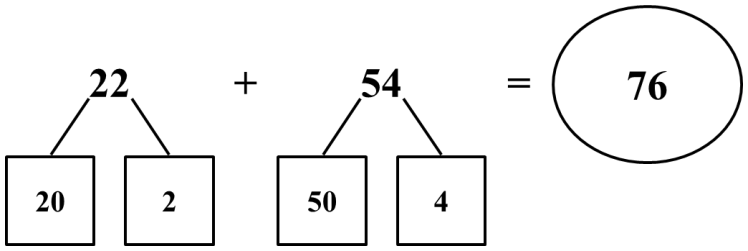
Task 35

51

Task 36

Equation: 80 + 7 = 87

Task 37



Task 38

A. 9, 19, 29

B. 46, 56, 66

C. 27, 37, 47

D. 72, 82, 92

Task 39

A. 83

B. 18

Task 40

Answer:

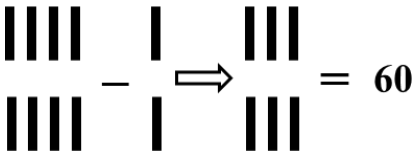
A.

	45
54	55
	65
74	75

B.

12	13	14
	23	
	33	34

Task 41



Task 42

A. 80 – 10 = 70

B. 40 – 30 = 10

C. 60 – 60 = 0

D. 90 – 20 = 70

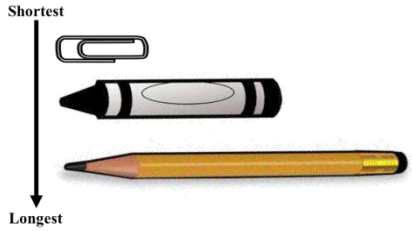
Task 43

Equation: 80 – 30 = 50

Measurement and Data

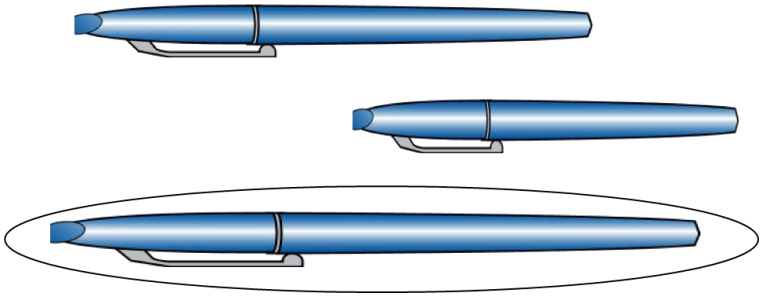
Task 44

Answer:

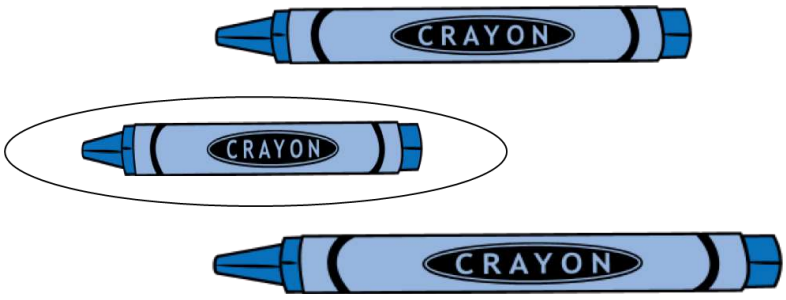


Task 45

A.



B.



Task 46

Answer:

- 1st level: Students will measure each path and compare them, so they rely on numerical values to compare the two measurements.
- 2nd level: Students notice that one path is a straight line and not the other one. When using the same object to measure both paths, the straight one is the shortest and the cat's path is the longest.

Task 47

A. Pencil is 10 pennies long.

B. Crayon is 5 pennies long.

Task 48

Answer: B

Task 49

Answer: Observe how students solve this problem and communicate their reasoning. Joe is correct. They will rearrange the paperclips so they do not overlap.

Task 50

Answer: Answer depends on objects used in the classroom.

Task 51

A. 2:30 6:00

10:00 4:30

B. 1:00 11:00

3:30 8:00

Task 52

Answer: 9:30, 2:00, 10:00

Task 53

Answer:

The first clock shows: 1:30

The second clock shows: 7:30

The third clock shows: 5:00

The fourth clock shows: 9:30

Task 54

A. 3 baseball games

B. Soccer

C. 8 games

Task 55

1. 5 students
2. 19 students

Task 56

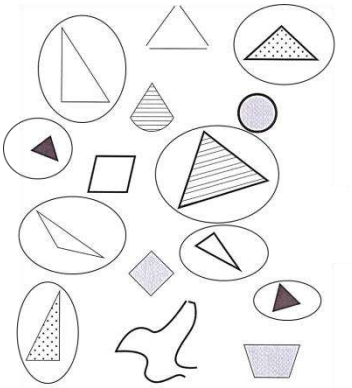
1.

Favorite Fruits		
	////	4
	///////	7
	/////	5

2. 5
3. 3
4. 16

Geometry

Task 57



Task 58

A. Trapezoid

B. Rectangle

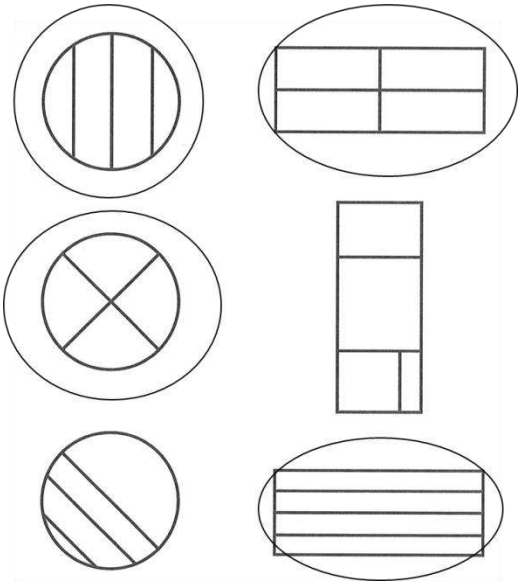
C. Similar because

D. Different because

Task 59

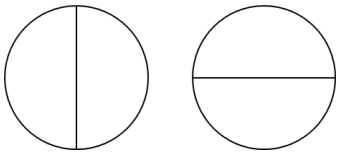
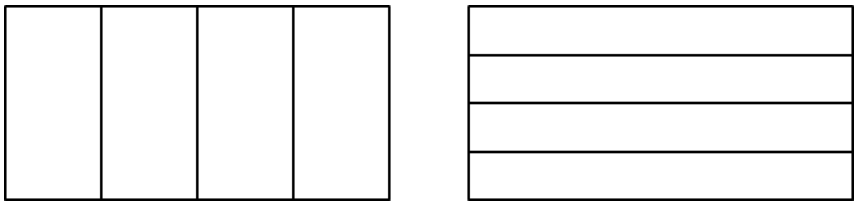
Different strategies may be used.

Task 60



Task 61

A.



B.