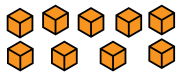
Math Milestones™ — Kindergarten

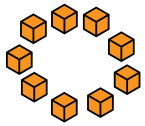
Math Milestones

K:1 How many blocks?



[Student tells how many.]

[Teacher slowly rearranges.]



If you count the blocks, how many do you think there will be?

K:2 There are 4  books on the floor

and 6  books on the bed.

How many  books are there?

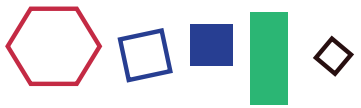
K:3 Say the counting numbers. Also say the missing numbers.

☞ 9 10 11 ____ ____ 14

☞ 55 56 57 58 59 ____

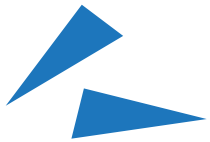
K:4 Are both of the bears correct?

[Student uses manipulatives to answer.]



"There are 3 squares."

"These two triangles can be put together to make a new triangle."



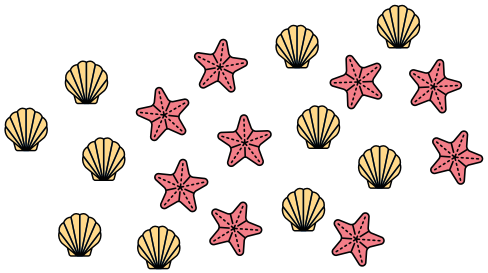
K:5 [Teacher puts 3 red counters on table.]

Put some blue counters here to make 10 counters in all. [Student completes this task.] **How many counters did you add?**

[Student determines the answer.]

Write the missing number: 3 + ____ = 10

K:6 Are there more  shells or more  sea stars?



K:7 Hazel told a story. Write or say two numbers that will make Hazel's story true.

I have 10  pennies in my hands.

I have _____  pennies in my left hand.

I have _____  pennies in my right hand.

What other numbers will also make Hazel's story true?

K:8 [Teacher holds out 5 paper clips.]

How many do I have?

[Student counts the paper clips.]

[Teacher puts both hands behind back, then brings out 0, 1, 2, 3, 4, or 5 paper clips in one hand.] **How many are in this hand?**

[Student counts the paper clips.]

How many are in my other hand?

K:9 6 5

Point to the greater number. [Student points.] **Tell me how you decided.**

K:10 5  dogs were playing.

Then 3 more  dogs came.

How many  dogs are here now?

K:11 9  birds were in a tree.

5  birds flew away.

How many  birds are there now?

K:12 Draw 16 circles. Use a [favorite color] marker for 10 of them. Use a pencil for the rest. [Student draws.]

How many are [favorite color]**? How many are in pencil?**

Write the missing number: 16 = 10 + ____

K:13 Write or say the missing numbers.

3 + 1 = _____ 2 + 3 = _____

5 + 0 = _____ 2 − 2 = _____

4 − 3 = _____ 5 − 3 = _____

K:14 Are there more land animals or more sea animals?

elephant

clownfish

gorilla

dolphin

mantis

snake

seahorse

octopus

shark

STUDENT ACHIEVEMENT PARTNERS

Math Milestones™ Task List — Kindergarten

The 14 Math Milestones™ tasks for kindergarten have been carefully crafted to embody kindergarten mathematics on one page.

K:1	How Many Blocks?	✋	C P	K.CC.B.4
K:2	Two Groups of Books		C A	K.OA.A.2
K:3	Say the Numbers (Teens, Decades)		P	K.CC.A.1, 2
K:4	Bears Talk About Shapes	✋	C	K.G.A.2, K.G.B.4,6
K:5	Adding to Make a Group of Ten	✋	C	K.OA.A.4
K:6	More Shells or More Stars?		C P	K.CC.B.5
K:7	Ten Pennies, Two Hands	✋	C P	K.OA.A.3, 4
K:8	Five Behind the Back	✋	C	K.OA.A
K:9	Compare 6 and 5		C P	K.CC.B.4c, K.CC.C.7
K:10	Hello, Dogs		C A	K.OA.A.2
K:11	Bye-Bye, Birds		C A	K.OA.A.2
K:12	Make Ten and Some More		C	K.NBT.A.1
K:13	Fluency within Five		P	K.OA.A.5
K:14	Animals from Land and Sea	✋	A	K.MD.B.3

C = Task has a conceptual focus. P = Task has a procedural skill & fluency focus. A = Task has an application focus. ✋ = Task is designed for use with manipulatives or objects. Students might also use manipulatives to support their work on other tasks.

Standards for Mathematical Practice

MP.1	Make sense of problems and persevere in solving them.	K:5–8, K:12
MP.2	Reason abstractly and quantitatively.	K:1, K:5, K:8, K:9, K:12
MP.3	Construct viable arguments and critique the reasoning of others.	K:9
MP.4	Model with mathematics.	K:2, K:7, K:10, K:11, K:14
MP.5	Use appropriate tools strategically.	K:4, K:5
MP.6	Attend to precision.	K:3, K:6, K:13
MP.7	Look for and make use of structure.	K:5, K:12
MP.8	Express regularity in repeated reasoning.	K:3, K:7

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Math Milestones™

Math Milestones™ was created by Jason Zimba, John W. Staley, Elizabeth Meier, Sandra Alberti, Harold Asturias, and Phil Daro.

Math Milestones™ tasks are not designed for summative assessment. Used formatively, the tasks can reveal and promote student thinking. Student work on tasks could be collected in student portfolios.

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Math Milestones™ — Grade 1

Math Milestones

1:1

10 lions were at the water hole. 4 lions joined them. Then 3 more lions joined. How many lions were at the water hole after that?

1:2

True or false?

6 tens + 4 ones < 4 ones + 7 tens

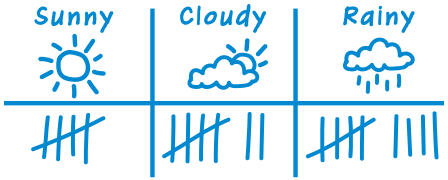
7 ones + 5 tens = _____

1:3

Using a paper clip as a unit of length, draw a straight line 7 units long.

1:4

Our class watched the weather for 21 days. On a chart, we marked each day as one of three kinds: sunny, cloudy, or rainy.



(1) Count all the tally marks. Does your answer make sense?

(2) How many days were not rainy?

(3) Now create your own question by circling one word. Use the data to answer your question.

How many more cloudy/rainy days were
(circle one word)
there than sunny days?

1:5

Tyler has 6 more grapes than Zoey. Zoey has 8 grapes. How many grapes does Tyler have?

Equation model: _____

Answer: Tyler has _____ grapes.

1:6

I have 24 straws in a jar.
I have 30 straws in a bag.
How many straws do I have?

1:7

If the class works hard, our teacher will put a marble in a jar. We will have a party when there are 10 marbles in the jar. Today there are 6 marbles in the jar. How many marbles do we need for a party?

1:8

90 − 40 = _____

9 apples − 4 apples = _____ (number) _____ (unit)

9 cups − 4 cups = _____ (number) _____ (unit)

9 tens − 4 tens = _____ (number) _____ (unit)

1:9

Write the missing numbers.

4 + 5 = _____	7 − 4 = _____
10 − 8 = _____	2 + 6 = _____
4 + _____ = 10	7 + _____ = 10

1:10

Write the sum.

$$\begin{array}{r} 37 \\ +\ 46 \\ \hline \end{array}$$

1:11

Write the missing numbers. Tell how you got the answers.

8 + 5 = _____	8 − _____ = 2
13 − 4 = _____	_____ − 5 = 4
7 + 4 = 10 + _____	6 + _____ = 12

1:12

Grace tried to blow out 15 candles on her birthday cake. Grace blew out 9 candles. How many candles are still lit?

Equation model: _____

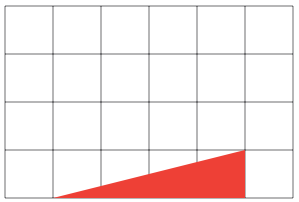
Answer: _____ candles are still lit.

1:13

When I fell asleep last night, there were 8 icicles outside my window. When I woke up this morning, there were 3 icicles. How many icicles fell while I slept?

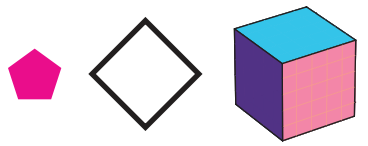
1:14

One statement below is false. Find the false statement. How did you decide?

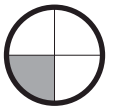


A square can be created using triangles like this one.

None of these are squares.



The shaded part of the circle is one fourth of the whole circle.



Math Milestones™ Task List — Grade 1

The 14 Math Milestones™ tasks for grade 1 have been carefully crafted to embody grade 1 mathematics on one page.

1:1	Lions at the Watering Hole	C	A	1.OA.A.2, 1.OA,
1:2	Tens and Ones	C		1.NBT.B
1:3	Paper Clip Length Units	C	A	1.MD.A
1:4	Analyzing Weather Data		A	1.MD.C.4
1:5	Tyler's Grapes	C	A	1.OA.A.1, 1.OA
1:6	Two Groups of Straws	P	A	1.NBT.C, 1.OA.A
1:7	Class Marble Jar	C	A	1.OA.A.1, 1.OA
1:8	Subtracting Units	C		1.NBT.C.6
1:9	Fluency within Ten	P		1.OA.C.6
1:10	Two-Digit Addition	C	P	1.NBT.C.4
1:11	Using Properties and Relationships	C	P	1.OA.B
1:12	Blowing Out Candles	C	A	1.OA.A.1, 1.OA
1:13	Falling Icicles	C	A	1.OA.A.1, 1.OA
1:14	Shape True/False	C		1.G.A

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Standards for Mathematical Practice

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MP.2	Reason abstractly and quantitatively.	1:1, 1:3–5, 1:12
MP.3	Construct viable arguments and critique the reasoning of others.	1:11, 1:14
MP.4	Model with mathematics.	1:1, 1:4–7, 1:12, 1:13
MP.5	Use appropriate tools strategically.	1:3, 1:14
MP.6	Attend to precision.	1:2, 1:9–11
MP.7	Look for and make use of structure.	1:2, 1:8, 1:10, 1:11, 1:14
MP.8	Express regularity in repeated reasoning.	1:8

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Math Milestones™ — Grade 2

Math Milestones

2:1 Avi made a paper chain. Then Avi added 29 more links to the paper chain. Now there are 52 links in the paper chain. How many links were in the paper chain before?

2:2 (1) True or false?

(a) 2 hundreds + 3 ones > 5 tens + 9 ones

(b) 9 tens + 2 hundreds + 4 ones < 924

(c) 456 < 5 hundreds

(2) Write the number that makes each statement true.

(a) 7 ones + 5 hundreds = _____

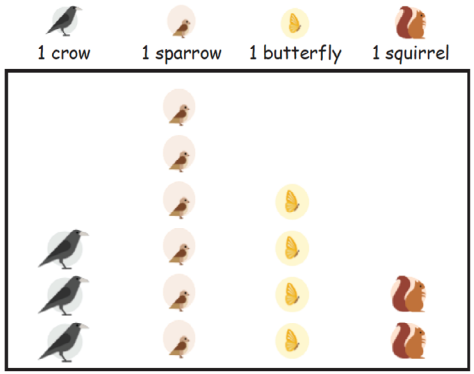
(b) 14 tens = _____

(c) 90 + 300 + 4 = _____

2:3 Write the sums and differences.

36	72	64	82
+ 45	− 17	+ 27	− 55

2:4 Faith went to the park. The picture graph shows all of the animals Faith saw.



Faith said, "I saw fewer butterflies than birds." How many fewer butterflies did Faith see?

2:5 Write the value of each sum. Use as much time as you need. If you "just knew it," then draw a check mark, like this: 2 + 2 4 ✓

Click here for student handout 2:5

2:6 A rope is 32 feet long. The rope is cut into two pieces. One piece is 3 feet long. How long is the other piece?

Equation model: _____

Answer: _____ feet

2:7 (1) Write the number that makes the statement true.

6 hundreds + 3 tens + 4 ones

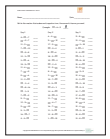
= 5 hundreds + _____ tens + 4 ones.

(2) How do you know your statement is true?

(3) Look for connections between your statement and this subtraction problem. What connections can you see?

$$\begin{array}{r} {}^{5}\cancel{6}\,{}^{13}\cancel{3}4 \\ -\ 482 \\ \hline 152 \end{array}$$

2:8 Write the number that makes each equation true. Use as much time as you need.



Click here for student handout 2:8

2:9 A farmer said, "Last night some deer came and ate 16 of my cabbages. Now I only have 38 cabbages." How many cabbages were there before the deer came?

Equation model: _____

Answer: There were _____ cabbages.

2:10 Check the subtraction by adding.

946 − 678 = 268

2:11 A grass snake is 28 inches long. A rat snake is 74 inches long. How much longer is the rat snake?

Draw a diagram to illustrate your solution. Label the diagram with numbers.

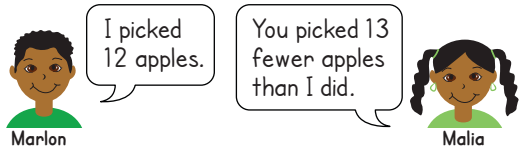
2:12 At recess there was a jump-rope contest.

How many times did Catherine jump?

Equation model: _____

Answer: Catherine jumped _____ times.

2:13 Marlon and Malia went apple-picking.



How many apples did Malia pick?

Equation model: _____

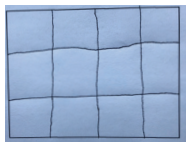
Answer: Malia picked _____ apples.

2:14 Zariah got one answer wrong.

(1) Which answer did Zariah get wrong?

(2) Correct Zariah's wrong answer.

(a) Show how the rectangle can be divided into 15 squares.



(b) 2 halves make one whole.

(c) Draw a triangle. All three sides of your triangle must have different lengths.

Math Milestones™ Task List — Grade 2

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2:1	Paper Chain	C A P	2.OA.A.1, 2.NBT.B.5
2:2	Place Value to Hundreds	C	2.NBT.A
2:3	Fluency within 100 (Add/Subtract)	P	2.NBT.B.5
2:4	Animals in the Park	A	2.MD.D.10
2:5	Sums of Single-Digit Numbers	P	2.OA.B.2
2:6	Cutting a Rope	C A	2.MD.B.5, 2.MD.B
2:7	Subtraction Regrouping	C P	2.NBT.B.7, 2.NBT.B
2:8	Fluency within the Addition Table	P	2.OA.B.2
2:9	Disappearing Cabbages	C A P	2.OA.A.1, 2.NBT.B.5
2:10	Three-Digit Addition/Subtraction	C P	2.NBT.B.7
2:11	Grass Snake vs. Rat Snake	C A P	2.MD.B, 2.NBT.B.5
2:12	Jump-Rope Contest	C A P	2.OA.A.1, 2.NBT.B.5
2:13	Apple-Picking	C A	2.OA.A.1
2:14	Correcting a Shape Answer	C	2.G.A

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Standards for Mathematical Practice

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MP.2	Reason abstractly and quantitatively.	2:6, 2:7, 2:11–13
MP.3	Construct viable arguments and critique the reasoning of others.	2:7, 2:14
MP.4	Model with mathematics.	2:1, 2:4, 2:6, 2:9, 2:11–13
MP.5	Use appropriate tools strategically.	2:14
MP.6	Attend to precision.	2:2–5, 2:7, 2:8, 2:10
MP.7	Look for and make use of structure.	2:2, 2:3, 2:7, 2:10, 2:14
MP.8	Express regularity in repeated reasoning.	2:2

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