



# Math Milestones™ Task List — Grade 3

The 14 Math Milestones™ tasks for grade 3 have been carefully crafted to embody grade 3 mathematics on one page.

<b>3:1</b> Volleyball Players	C A	3.OA.A.3, 3.OA.A
<b>3:2</b> Hidden Rug Design	C	3.OA.A.1
<b>3:3</b> Length and Area Quantities	C	3.MD.C
<b>3:4</b> Corn Seeds	C A	3.OA.A.3, 3.OA.A
<b>3:5</b> Playground Cleanup	A	3.MD.B.3
<b>3:6</b> Unit Fraction Ideas	C	3.NF.A
<b>3:7</b> Locating Numbers on a Number Line	C	3.NF.A
<b>3:8</b> Shape Attributes and Categories	C	3.G.A.1
<b>3:9</b> Bulletin Board Pictures	C A	3.OA.A.3, 3.OA.A
<b>3:10</b> Alice's Multiplication Fact	C P	3.OA.B.5, 3.MD.C.7b
<b>3:11</b> Water Balloons	A	3.OA.D.8
<b>3:12</b> Products of Single-Digit Numbers	P	3.OA.C.7
<b>3:13</b> Fluency within the Multiplication Table	P	3.OA.C.7, 3.OA.A.4, 3.OA.A, B, C
<b>3:14</b> Fluency within 1000 (Add/Subtract)	P	3.NBT.A.2

C = Task has a conceptual focus.

P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

## Standards for Mathematical Practice

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

Standards codes refer to [www.corestandards.org](http://www.corestandards.org). One purpose of the codes is that they may allow a task to shed light on the Standards cited for that task. Conversely, reading the cited Standards may suggest opportunities to extend a task or draw out its implications. Finally, Standards codes may also assist with locating relevant sections in curriculum materials, including materials aligned to comparable standards.



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**4:1** A tablespoon holds 15 ml of olive oil, which is 3 times as much as a teaspoon holds. How many ml of olive oil does a teaspoon hold?  
Equation model: \_\_\_\_\_  
Answer: \_\_\_\_\_

**4:2**

(1) Find the three missing lengths and write them on the diagram. Compare answers with a classmate.  $\begin{array}{r} 137 \\ 7 \overline{)959} \\ \underline{-700} \\ 259 \\ \underline{-210} \\ 49 \\ \underline{-49} \\ 0 \end{array}$

(2) What is the total area of the diagram?  $\underline{210}$

(3) Look for connections between the diagram and the division problem.  $\begin{array}{r} 49 \\ \underline{-49} \\ 0 \end{array}$   
What connections can you see?

**4:3** Everyone in class measured the length of their pencil. Here are the measurements:

(1) How many pencils were measured?

(2) How much longer was the longest pencil than the shortest pencil?

(3) Could two of the pencils be laid end to end to make a total length of 1 foot?

**4:4**

(1) Compare  $\frac{5}{9}$  to  $\frac{4}{7}$ . First do it by making equal denominators. Then do it by making equal numerators.

(2) Ariana said, " $\frac{300}{400}$  looks greater than  $\frac{3}{4}$ . How can they be the same size?" Write or say an explanation that could help Ariana understand why  $\frac{300}{400}$  and  $\frac{3}{4}$  are the same size.

(3) Which is closer to 1 on a number line,  $\frac{4}{5}$  or  $\frac{5}{4}$ ? Tell how you decided. Draw a number line and show  $\frac{4}{5}$  and  $\frac{5}{4}$  accurately on the number line.

**4:5** (1a–f) Write the values of the products. Compare answers with a classmate.

(1g) Which answer is twice as much as the answer for (e)?

(1h) Which answer is six times as much as the answer for (a)?

(1i) Which two answers are equal?

(2) Zoe was reading her math book. She saw the equation  $6 \times (4 + \frac{1}{2}) = 24 + 3$ . She said, "I don't get it—where did the 24 and the 3 come from?" Write an explanation that could answer Zoe's question.

$4 \times \frac{1}{7} = \underline{\hspace{1cm}}$  (a)  
 $6 \times \frac{4}{7} = \underline{\hspace{1cm}}$  (b)  
 $86 \times \frac{1}{86} = \underline{\hspace{1cm}}$  (c)  
 $6 \times \frac{8}{2} = \underline{\hspace{1cm}}$  (d)  
 $9 \times \frac{1}{9} = \underline{\hspace{1cm}}$  (e)  
 $9 \times \frac{2}{9} = \underline{\hspace{1cm}}$  (f)

**4:6** Grandpa took a jar of pennies to the bank. He said, "I'd like nickels for this, please." The bank teller poured the pennies into a counting machine. "Eighty-seven dollars and forty-two cents," said the teller. (1) How many nickels did Grandpa get? (2) Check your answer with an estimate.

**4:7** Write the values of the expressions. Read each completed equation aloud.

3 fifths + 2 fifths = \_\_\_\_\_

$\frac{1}{10} + \frac{3}{100} = \underline{\hspace{1cm}}$  (fraction)  
 = \_\_\_\_\_ (decimal)

$\frac{6}{25} + \frac{6}{25} = \underline{\hspace{1cm}}$   
 $\frac{1}{8} + \frac{5}{8} - \frac{3}{8} = \underline{\hspace{1cm}}$

**4:8**  $L$  is a line,  $R$  is a ray, and  $T$  is a triangle. True or false:

(1) Line  $L$  is a line of symmetry for triangle  $T$ .

(2) Line  $L$  intersects ray  $R$ .

(3) Triangle  $T$  has two angles measuring less than 90 degrees.

**4:9** In gym it was fitness day. Students ran laps around the gym.

I ran  $1\frac{2}{3}$  more laps than Catherine.

I ran  $6\frac{1}{3}$  laps.

How many laps did Catherine run?

**4:10** Write the values of the products and quotients. Check the quotients by multiplying.

Mentally	$40 \times 20$	With pencil and paper	
	$30 \times 11$	$6,132 \quad 48$	
	$12 \times 60$	$\times \quad 6$	$\times \quad 39$
	$5 \times 19$	$480 \div 8$	$7 \overline{)8,722}$

**4:11** A cook in the school kitchen uses 6 oz of cheese to make a pizza. The kitchen has 45 lb of cheese. How many pizzas will that make?

**4:12** The pickup truck can carry  $1\frac{3}{5}$  tons. The super hauler truck can carry 300 times as much. How many tons can the super hauler truck carry?

**4:13**

(1) A red rectangle has length  $L = 12$  in and width  $W = 6$  in. Use the formula  $A = L \times W$  to find the area of the red rectangle.

(2) A blue rectangle has length 1 ft and width  $\frac{1}{2}$  ft. Draw a picture to show that two copies of the blue rectangle make one square foot. Based on your picture, what is the area of the blue rectangle?

(3) Do the red rectangle and the blue rectangle have equal areas? Tell how you decided.

**4:14**  $540,909 + 87,808 - 5,864 + 2,556 = ?$

# Math Milestones™ Task List — Grade 4

The 14 Math Milestones™ tasks for grade 4 have been carefully crafted to embody grade 4 mathematics on one page.

<b>4:1</b> A Tablespoon of Oil	C A	4.OA.A.2
<b>4:2</b> Multi-Digit Division Concepts	C	4.NBT.B.6
<b>4:3</b> Pencil Data	A	4.MD.B.4
<b>4:4</b> Comparing Fractions with Equivalence	C	4.NF.A
<b>4:5</b> Fraction Products and Properties	C	4.NF.B.4a, 4b
<b>4:6</b> Jar of Pennies	A P	4.OA.A.3
<b>4:7</b> Fraction Sums and Differences	C P	4.NF.B.3a–c, 4.NF.C.5, 6
<b>4:8</b> Shapes with Given Positions	C	4.MD.C, 4.G.A
<b>4:9</b> Fitness Day	C A	4.NF.B.3d
<b>4:10</b> Calculating Products and Quotients	P	4.NBT.B
<b>4:11</b> School Kitchen	A	4.MD.A.2, 4.NBT.B.5
<b>4:12</b> Super Hauler Truck	C A	4.NF.B.4c, 4.OA.A.2
<b>4:13</b> Area Units	C	4.MD.A.3
<b>4:14</b> Fluency with Multi-Digit Sums and Differences	P	4.NBT.B.4

C = Task has a conceptual focus.

P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

## Standards for Mathematical Practice

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

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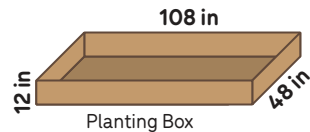
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**5:1** A school needed 240 *four-packs* of juice boxes for a field trip. However, the school accidentally bought 240 *six-packs* of juice boxes. How many extra juice boxes did the school buy?

**5:2** After a hurricane, the 12 residents of a nursing home didn't have any clean water to drink. Their neighbors donated 40 gallons of bottled water, which would provide \_\_\_ gallons for each resident.



**5:3** A neighborhood garden will have 6 wooden planting boxes. Every box will have the same shape (see diagram). Soil can be bought by the truckload; a truckload is 54 ft<sup>3</sup> of soil. How many truckloads of soil will fill all of the boxes?



**5:4** (1) Circle T for true or F for false.

(a) 9 thousandths + 5 hundredths > 3 hundredths + 2 tenths      T    F

(b) 92 hundredths + 4 thousandths > 0.924      T    F

(c) 0.456 < 0.5      T    F

(2) Write each number in the requested form.

(a) 7 thousandths + 5 tenths = \_\_\_\_ (decimal)

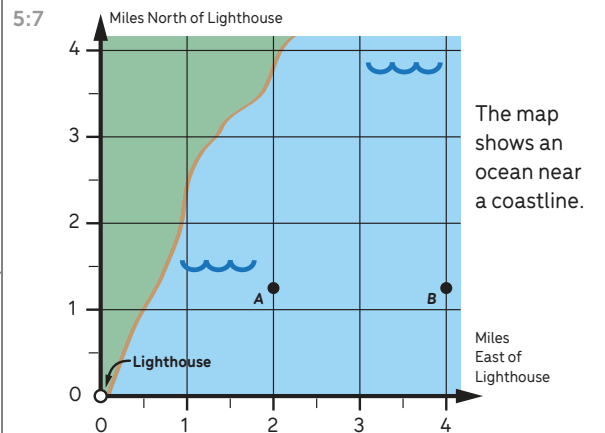
(b) 0.1 tenths = \_\_\_\_ (decimal)

(c)  $\frac{2}{100} + \frac{5}{1000} =$  \_\_\_\_ (decimal)  
= \_\_\_\_ (fraction in lowest terms)

**5:5** Write the requested values.

$4087 \times 53 = ?$	$\frac{1}{10} \div 10 = ?$	$0.4 \times 0.9 = ?$
$246 \times 914 = ?$	$\frac{7}{8} \times \frac{5}{3} = ?$	$0.75 \div 0.01 = ?$
$9744 \div 12 = ?$	$8 \times ? = 73$	$0.63 \div 0.3 = ?$
$1461 \div 6 = ?$	$3 \div \frac{1}{8} = ?$	$0.86 + 0.4 = ?$
$4 - (8 - 4) = ?$	$\frac{1}{2} + \frac{1}{3} - \frac{1}{5} = ?$	$0.72 - 0.17 = ?$
	$\frac{1}{3} \div (6 \times 5) = ?$	$0.02 + 0.2 = ?$
		$0.8 - 0.55 = ?$
		$637 - 1.31 = ?$

**5:6** (1) Arya and Lily's house is  $\frac{1}{5}$  mile from the store. (a) Arya ran  $\frac{1}{3}$  of the way from her house to the store. How far, in miles, did Arya run? (b) Lily ran  $\frac{2}{3}$  of the way from her house to the store. How far, in miles, did Lily run? (2) It is  $\frac{2}{5}$  mile from Leon's house to the store. (a) Leon ran  $\frac{1}{3}$  of the way from his house to the store. How far, in miles, did Leon run? (b) Compare how far Leon and Lily ran; what do you notice, and why is it true?



Shipwrecks are at locations A  $(2, 1\frac{1}{4})$  and B  $(4, 1\frac{1}{4})$ . Shipwrecks are also at locations C  $(4, 3\frac{1}{2})$  and D  $(2, 3\frac{1}{2})$ . (1) Mark C and D on the map and shade rectangle ABCD. (2) Some believe there is sunken treasure in the region you shaded. How large is that region in mi<sup>2</sup>?

**5:8** A *scalene triangle* is a triangle in which the sides all have different lengths. Thinking about this, Alana decided there should also be a name for quadrilaterals in which the sides all have different lengths. She said, "I'll name them after myself." She defined an *alana-gon* to be a quadrilateral in which the four sides all have different lengths. (1) Draw an example of an alana-gon. (2) True or false: (a) All squares are alana-gons. (b) No trapezoids are alana-gons.

**5:9** On Saturday there was a walkathon.

Catherine: I walked  $\frac{1}{3}$  mile farther than Leslie.

Catherine: I walked  $1\frac{1}{4}$  mile.

How many miles did Leslie walk?

**5:10** (1) Solve:  $\frac{1}{3} = 0.1 + ?$

(2) Is there a number greater than  $\frac{1}{5}$  and less than  $\frac{1}{4}$ ? If you think so, find such a number. If you think there is no such number, explain why.

(3) Show one of the above problems and its solution on a number line.

**5:11** Juliet said, "I'm thinking of a rectangle. Its area is 1 square unit. Its perimeter is more than 1 million units."

(1) Is Juliet thinking of something possible or impossible? Use math to decide for sure.

(2) Explain your reasoning to your classmates. Revise your explanation based on suggestions from your classmates.

**5:12** Before it rained, the teacher went outside and placed identical baking pans on the ground. After it rained, the teacher brought the pans inside, and students measured how much water was collected in each pan.

If all the water collected were shared equally among the pans, how much water would be in each pan?

**5:13** In a snack shop there is a frozen yogurt machine. When there is 3 l of frozen yogurt in the machine, the machine is  $\frac{1}{3}$  full. How much frozen yogurt is in the machine when it is  $\frac{1}{4}$  full?

**5:14** Brandon was reading his math book. He saw the equation  $\frac{3}{4} \times (4 + \frac{1}{2}) = 3 + \frac{3}{8}$ . He said, "I don't get it—where did the 3 and the  $\frac{3}{8}$  come from?" Write an explanation that could answer Brandon's question.

# Math Milestones™ Task List — Grade 5

The 14 Math Milestones™ tasks for grade 5 have been carefully crafted to embody grade 5 mathematics on one page.

<b>5:1</b> Juice Box Mixup	C A	5.OA.A.2, 5.NBT.B.5
<b>5:2</b> Water Relief	C A	5.NF.B.3
<b>5:3</b> Neighborhood Garden	A	5.MD.A, B
<b>5:4</b> Place Value to Thousandths	C	5.NBT.A
<b>5:5</b> Calculating	P	5.NBT.B, 5.NF.A, B
<b>5:6</b> Corner Store	C A	5.NF.B.4a, 5.NF.B.6
<b>5:7</b> Shipwrecks	C A	5.NF.B.4b, 5.G.A
<b>5:8</b> Alana's New Shape Category	C	5.G.B
<b>5:9</b> Walkathon	A P	5.NF.A.1, 2
<b>5:10</b> Number System, Number Line	C	5.NF.A.1
<b>5:11</b> Juliet's Rectangle	C	5.NF.B
<b>5:12</b> Rain Measurements	A	5.MD.B
<b>5:13</b> Frozen Yogurt Machine	A	5.NF.B.6, 7
<b>5:14</b> Brandon's Equation	C	5.NF.B.4a

C = Task has a conceptual focus.

P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

## Standards for Mathematical Practice

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

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