

Grade 3 Target G

Domain, Target, Standards, DOK, Vertical Alignments, Achievement Levels, Evidence Required, Vocabulary, Response Types, Materials, Attributes, Question Types, and Question Banks (Examples)

[Content Domain: Measurement and Data](#)

[Target G \[m\]: 3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.](#)

[Standards included in Target G: 3.MD.A.1, 3.MD.A.2](#)

[Vertical Alignment](#)

[Achievement Level Descriptors](#)

[Evidence Required](#)

[Vocabulary](#)

[Response Types](#)

[Materials](#)

[Attributes](#)

[Claim 1: Concepts and Procedures \(DOK 1, 2\) Question Banks](#)

[Claim 2 Problem Solving Question Banks](#)

[Claim 4 Modeling and Data Analysis Question Banks](#)

Content Domain: Measurement and Data

Target G [m]: 3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Standards included in Target G: 3.MD.A.1, 3.MD.A.2

3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

3.MD.A.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (L). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Vertical Alignment

Related Grade 2 standards

These pages were adapted from open source documents available on the Smarter Balanced Website: <http://www.smarterbalanced.org/assessments/development/> August 2016

2MD.A Measure and estimate lengths in standard units.

2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.

2MD.C Work with time and money.

2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

Related Grade 4 Standards

4.MD.A Solve problems involving measurement and conversion of measurements.

4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb., oz.; L, ml; hr., min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft. is 12 times as long as 1 in. Express the length of a 4 ft. snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...

4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Achievement Level Descriptors

Level 1 Students should be able to tell and write time to the nearest five-minute interval and solve addition and subtraction problems involving fifteen-minute time intervals.

Level 2 Students should be able to tell and write time to the nearest minute and solve one-step addition problems involving five-minute time intervals. They should be able to measure liquid volumes using liters and masses of objects using grams and kilograms and add or subtract to solve one-step word problems involving masses or liquid volumes that are given in the same units.

Level 3 Students should be able to solve one-step addition and subtraction problems involving time intervals in minutes. They should be able to multiply or divide to solve one-step problems involving masses or volumes that are given in the same units.

Level 4 Students should be able to solve one-step addition or subtraction problems involving all time intervals from hours to minutes.

Evidence Required

1. The student tells and writes time to the nearest minute.

These pages were adapted from open source documents available on the Smarter Balanced Website: <http://www.smarterbalanced.org/assessments/development/> August 2016

2. The student solves one-step word problems with addition and subtraction including time intervals in minutes.

3. The student solves one-step word problems involving liquid volume (liters) and mass (grams, kilograms) using the four operations.

Vocabulary

grams (g), kilograms (kg), liters (L), estimate, time, time intervals, minute, hour, measure, liquid volume, mass, standard units, metric

Response Types

Multiple Choice, single correct response; Equation/Numeric

Materials

number line diagram, measurement scales, tables, measuring cups, analog clocks, digital clock

Attributes

Word problems involving intervals of time are limited to addition and subtraction.

Claim 1: Concepts and Procedures (DOK 1, 2) Question Banks

Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.

Claim 1 3.MD.A.3 DOK Level 1

Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Evidence Required

The student tells and writes time to the nearest minute.

Question Type 1: The student is prompted to identify time, in minutes, on an analog clock.

1. Use this clock to answer the question.



Select the time, to the nearest minute, shown on the clock.

- A. 1:15
- B. 2:07
- C. 3:07
- D. 7:15

Rubric: (1 point) The student correctly selects the time displayed on the clock (e.g., C).

Response Type: Multiple Choice, single correct response

Claim 1 3.MD.A.3 DOK Level 2

Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Evidence Required

The student solves one-step word problems with addition and subtraction including time intervals in minutes.

Question Type 1: The student is presented with a one-step, contextual problem using images of clocks or text only.

1. A music class starts at 1:32 p.m and ends at 2:15 p.m.

Enter the length, in minutes, of the music class.

Rubric: (1 point) The student correctly enters the length of the class in minutes (e.g., 43).

Response Type: Equation/Numeric

Claim 1 3.MD.A.2 DOK Level 2

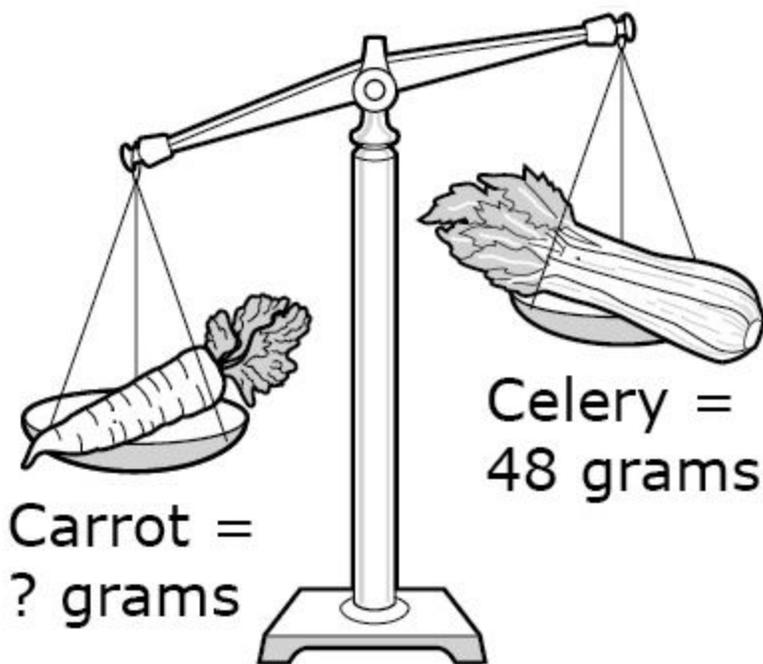
Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (L). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Evidence Required

The student solves one-step word problems involving liquid volume (liters) and mass (grams, kilograms) using the four operations.

Question Type 1: The student is presented with a one-step contextual word problem.

1. A bunch of celery has a mass of 48 grams. A carrot has a mass that is 15 grams more than the celery.



Enter the mass, in grams, of the carrot.

2: A farmer takes 46 kilograms of potatoes to the market. The farmer sells 29 kilograms of the potatoes.

Enter the number of kilograms of potatoes the farmer has left.

Rubric: (1 point) The student writes the correct solution (e.g., 63; 17).

Response Type: Equation/Numeric

3. Harold buys 2-liter bottles of juice for a picnic. He buys 8 bottles.

How many liters of juice did Harold buy?

4. Mrs. Ross made 48 liters of fruit juice for a school picnic. She gives all of the juice to 8 classrooms with each classroom getting the same amount of juice.

How many liters of juice does Mrs. Ross give each classroom?

Rubric: (1 point) The student writes the correct solution (e.g., 16; 6).

Response Type: Equation/Numeric

Claim 2 Problem Solving Question Banks

[Claim Descriptors and Targets](#)

Students can solve a range of complex well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.

Example 1

Enter the **greatest** number of minutes that James can play his computer game.

James gets home from school at 3:30 p.m. He completes 2 chores. Then he plays his computer game until 5:00 p.m.

Chore	Time to Complete
Walk dog	20 minutes
Clean room	40 minutes

Rubric: (1 point) The student enters the correct number of minutes (30 or 30 min).

Response Type: Equation/Numeric

Commentary: This item requires the student to identify the relationship between given start and end times and the elapsed times presented in the table, and to identify the unknown quantity as

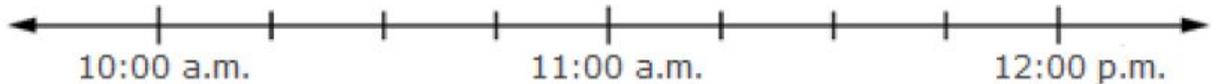
These pages were adapted from open source documents available on the Smarter Balanced Website: <http://www.smarterbalanced.org/assessments/development/> August 2016

the elapsed time remaining between the start and end times given. Seeing these different quantities and mapping their relationships draws on the skill set identified in Target 2D.

Example 2

Math class begins at 10:45 a.m. and is 45 minutes long.

Use the Add point tool to put a point on the number line that shows when math class ends.



Rubric: (1 point) Student places a point on the number line at the correct location (11:30 p.m.).

Response Type: Graphing

Scoring/Interaction: Scoring/interaction must allow for point to “snap to” tick marks or allow for a tolerance of +/- 5 minutes on the number line.

Commentary: This item requires the student to identify the start time, end time, and elapsed time as quantities of interest and map the relationship between them using the number line, and so draws on the skill set identified in Target 2D.

Example 2

Mary started her homework 25 minutes before the time shown on the clock.

Fill in the table to show the time when Mary started her homework.



__ : __

Rubric: (1 point) The student shows the correct time (4:25).

Response Type: Fill-in-table

Commentary: This item requires the student to identify the start time, end time, and elapsed time as quantities of interest and map the relationship between them, and so draws on the skill set identified in Target 2D.

Claim 4 Modeling and Data Analysis Question Banks

[Claim Descriptors and Targets](#)

Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.

The table shows the start and end times for runners in a race.

	Racing Times	
Runner	Start Time	End Time
Mike	12:03 p.m.	12:26 p.m.
Ann	12:10 p.m.	12:17 p.m.
John	12:13 p.m.	12:19 p.m.
Patty	12:16 p.m.	12:25 p.m.

What is the difference, in minutes, between Patty's start time and Mike's start time?

Rubric: (1 point) The student enters the correct difference (13).

Response Type: Equation/Numeric (label the response box with minutes)