Name _____   Date _____

1. Paul is moving to Australia. The total weight of his 4 suitcases is shown on the scale to the right. On a number line, round the total weight to the nearest 100 kilograms.

2. Paul buys snacks for his flight. He compares cashews to yogurt raisins. The cashews weigh 205 grams, and the yogurt raisins weigh 186 grams. What is the difference between the weight of the cashews and yogurt raisins?

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3. The clock to the right shows what time it is now.

    Time Right Now

   a. Estimate the time to the nearest 10 minutes.

   b. The clock to the right show Paul's departure time. Estimate the time to the nearest 10 minutes.
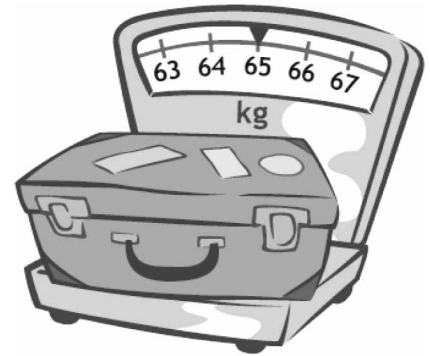
    Departure Time

   c. Use your answers from Parts (a) and (b) to estimate how long Paul has before his flight leaves.

   d. A large airplane can take on 3,746 liters of fuel every minute.

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4. A large airplane can take on 3,746 liters of fuel every minute.

    a. Round 3,746 to the nearest hundred to estimate how many liters of fuel are pumped into the plane every minute.

    b. Use your estimate to find about how many liters of fuel are pumped into the airplane every 2 minutes.

    c. Calculate precisely how many liters of fuel are pumped into the airplane every 2 minutes.

    d. Draw a strip diagram to find the difference between your estimate and the precise calculation.

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5. Baggage handlers lift heavy luggage into the plane. The weight of one bag is shown on the scale to the right.

    a. One baggage handler lifts 3 bags of the same weight. Round to estimate the total weight he lifts. Then, calculate exactly.

    b. Another baggage handler lifts luggage that weighs a total of 200 kilograms. Write and solve an equation to show how much more weight he lifts than the first handler in Part (a).

    c. The baggage handlers load luggage for 18 minutes. If they start at 10:25 p.m., what time do they finish?

    d. The table shows the number of passengers in 2017 for three regional airports in Texas. Write the names of the airports in order from greatest to least according to the number of passengers.

Airport	Passengers in 2017
Biggs Army Airfield	26,730
East Texas Regional	22,480
Jack Brooks Regional	26,730

6. Complete as many problems as you can in 100 seconds. The teacher will time you and tell you when to stop.

$3 \times 1 =$ _____	$2 \div 1 =$ _____	_____ $= 20 \div 10$	$2 \times 2 =$ _____	$5 \times$ _____ $= 10$
_____ $\times 2 = 4$	$10 \div 5 =$ _____	$10 \times$ _____ $= 30$	_____ $= 2 \times 3$	_____ $= 12 \div 4$
$4 \times 3 =$ _____	$15 \div 5 =$ _____	_____ $\times 4 = 16$	_____ $= 40 \div 10$	$2 \times 4 =$ _____
$3 \times 4 =$ _____	$4 \times$ _____ $= 12$	$20 \div 4 =$ _____	_____ $= 10 \times 5$	_____ $\times 5 = 25$
$4 \times$ _____ $= 20$	_____ $= 10 \div 2$	_____ $\times 3 = 18$	$10 \times 6 =$ _____	$30 \div 5 =$ _____
$3 \times 6 =$ _____	_____ $= 24 \div 4$	$5 \times$ _____ $= 35$	_____ $= 10 \times 7$	$14 \div 2 =$ _____
$2 \times 7 =$ _____	_____ $\times 4 = 28$	_____ $= 40 \div 5$	$10 \times$ _____ $= 80$	_____ $= 3 \times 8$
$24 \div 3 =$ _____	$80 \div 10 =$ _____	$36 \div 4 =$ _____	$5 \times 9 =$ _____	$2 \times$ _____ $= 18$

Module 2:   Place Value and Problem Solving with Units of Measure

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End-of-Module Assessment Task	Topics A–F
Standards Addressed	

Number and Operations

The student is expected to:

3.2A	compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate;
3.2B	describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;
3.2C	represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers.

Number and Operations

The student is expected to:

3.4A	solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;
3.4B	round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;
3.4E	represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting;
3.7C	determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes;
3.7D	determine when it is appropriate to use measurements of liquid volume (capacity) or weight;
3.7E	determine liquid volume (capacity) or weight using appropriate units and tools.

Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left (Step 1) to right (Step 4) for Problems 1–5. The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what students CAN do now and what they need to work on next. Problem 6 is scored differently since it is a timed assessment of fluency. Students complete as many problems as they can in 100 seconds. Although this page of the assessment contains 40 questions, answering 30 correct within the time limit is considered passing.

| A Progression Toward Mastery				
Assessment Task Item	**STEP 1** Little evidence of reasoning without a correct answer. (1 Point)	**STEP 2** Evidence of some reasoning without a correct answer. (2 Points)	**STEP 3** Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	**STEP 4** Evidence of solid reasoning with a correct answer. (4 Points)
1 **3.2B** **3.2C** **3.4B** **3.7D** **3.7E**	Student is unable to answer the question correctly. The attempt shows the student may not understand the meaning of the question.	Student attempts to answer the question. Mistakes may include those listed in the box to the right and/or misreading the scale but correctly rounding based on error.	Same criteria as for a 4 but may omit the unit (kg) in one or more parts of the answer.	Student answers the question correctly: ▪ Accurately reads the scale as 127 kg. ▪ Rounds on a number line to estimate 100 kg.
2 **3.2A**	Student is unable to answer the question correctly. The attempt shows student may not understand the meaning of the question.	Student attempts to answer the question. Mistakes may include those listed in the box to the right and/or decomposing the numbers incorrectly.	Mistakes may include: a minor transcription error in either the standard or expanded form.	Student correctly writes 480,763 and 400,000 + 80,000 + 700 + 60 + 3 or 400,000 + 80,000 + 0 + 700 + 60 + 3 (addends in any order is correct)
3 **3.2A** **3.2B** **3.2C** **3.4A** **3.4B** **3.7C**	Student is unable to answer questions correctly. The attempt shows the student may not understand the meaning of the questions.	Student attempts to answer the questions. Mistakes may include those listed in the box to the right and/or inaccurately reading one or both of the clocks.	Student answers at least one question correctly. Mistakes may include a rounding error in either Part (a) or Part (b) affecting Part (c) or a correctly solved problem based on a wrong answer.	Student answers every question correctly: a. Rounds 10:19 to 10:20. b. Rounds 10:53 to 10:50. c. Estimates about 30 minutes before the plane leaves.

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| A Progression Toward Mastery				
4 **3.2C** **3.4A** **3.4B**	Student is unable to answer any of the questions correctly. The attempt shows the student may not understand the meaning of the questions.	Student attempts to answer the questions. Mistakes may include those listed in the box to the right, and/or: ■ Either failing to round or calculate exactly in Parts (a–d). ■ Incorrectly drawing or labellng a strip diagram.	Student may or may not answer questions correctly. Mistakes may include an arithmetic error in Part (c) affecting Part (d) or a strip diagram drawn and labeled correctly based on a wrong answer.	Student answers every question correctly: a. Rounds to estimate 3,700 liters in Part (a). b. Estimates 7,400 liters in Part (b). c. Precisely calculates 7,492 liters in Part (c). d. Draws and labels a strip diagram to show 88 liters as the difference in Part (d).
5 **3.2A** **3.2B** **3.2C** **3.2D** **3.4A** **3.4B** **3.7C** **3.7D** **3.7E**	Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.	Student attempts to answer the questions. Mistakes may include those listed in the box to the right, and/or: ■ Conceptual rather than calculation error in Parts (a), (b), or (d). ■ Either failing to round or calculate exactly in Part (a). ■ Omitting the units in any part.	Student may or may not answer questions correctly. Mistakes may include those listed below: ■ Arithmetic error in Part (a) affecting Part (b) but solved correctly based on a wrong answer. ■ Failing to write an equation in Part (b).	Student answers every question correctly: a. 65 kg + 65 kg + 65 kg = 195 kg, and 70 kg + 70 kg + 70 kg = 210 kg in Part (a). b. Writes and solves 200 kg − 195 kg = 5 kg in Part (b). c. Calculates end time of 10:43 p.m. in Part (c). d. Biggs Army Airfield Jack Brooks Regional East Texas Regional
6 **3.4E**	Use the attached sample work to correct students' answers on the fluency page of the assessment. Students who answer 30 or more questions correctly within the allotted time pass this portion of the assessment. They are ready to move on to the more complicated fluency page given with the Module 3 End-of-Module Assessment. For students who do not pass, you may choose to re-administer this fluency page with each subsequent End-of-Module assessment until they are successful. Analyze the mistakes students make on this assessment to further guide your fluency instruction. Possible questions to ask as you analyze are given below: ■ Did this student struggle with multiplication, division, or both? ■ Did this student struggle with a particular factor? ■ Did the student consistently miss problems with the unknown in a particular position?			

Name **Gina**   Date _____

1. Paul is moving to Australia. The total weight of his 4 suitcases is shown on the scale to the right.
    On a number line, round the total weight to the nearest 100 kilograms.

200 Kg
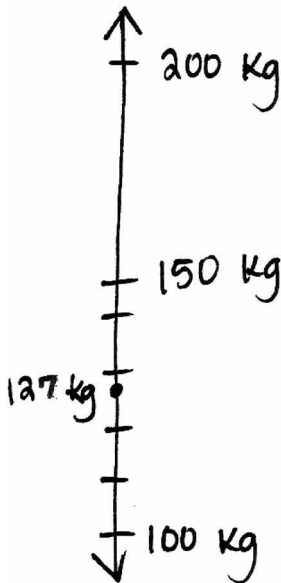
Rounded to the
nearest 100 Kg,
his suit cases weighs
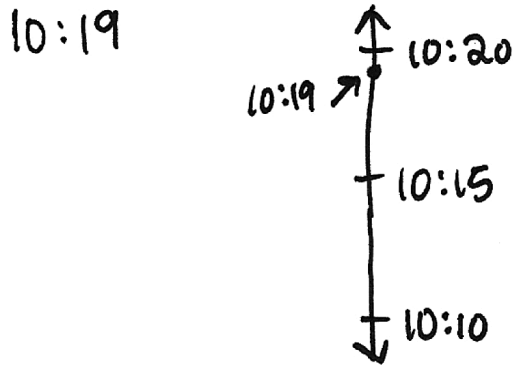100 Kg.

150 kg

127 kg

100 Kg
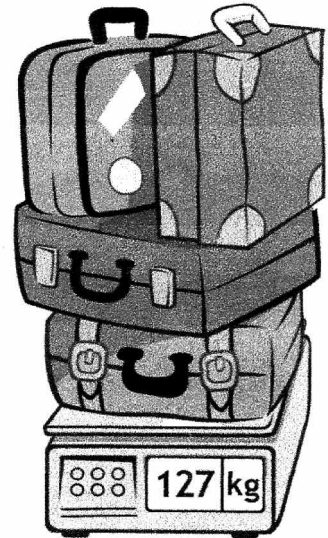
2. Paul buys snacks for his flight. He compares cashews with yogurt raisins. The cashews weigh 205 grams, and the yogurt raisins weigh 186 grams. What is the difference between the weight of the cashews and yogurt raisins?

$$
\begin{array}{r}
{\scriptstyle 1\ 9\ 15} \\
20\!\!\!\not5\ g \\
-\ 186\ g \\
\hline
019\ g
\end{array}
$$

The difference in
weight is 19 grams.

Module 2:   Place Value and Problem Solving with Units of Measure

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3. The clock to the right shows what time it is now.   Time right now:

   a. Estimate the time to the nearest 10 minutes.
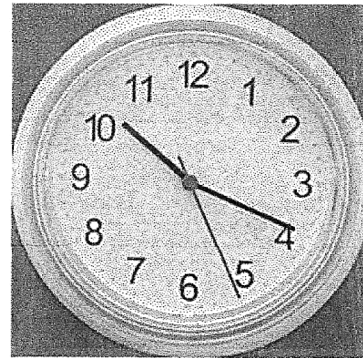
   10:19

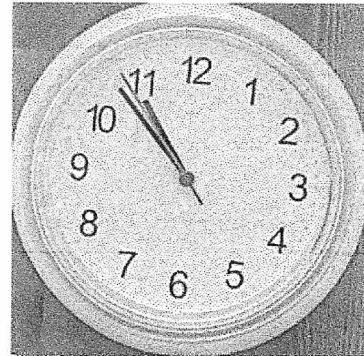   10:20
   10:19 ↗
   10:15
   10:10

   It is 10:20 to the nearest 10 minutes.

   b. The dock to the right show Paul's departure time. Estimate the time to the nearest 10 minutes.   Departure time:

   10:53

   11:00
   10:55
   10:53 ↗
   10:50

   His departure time is 10:50 to the nearest 10 minutes.
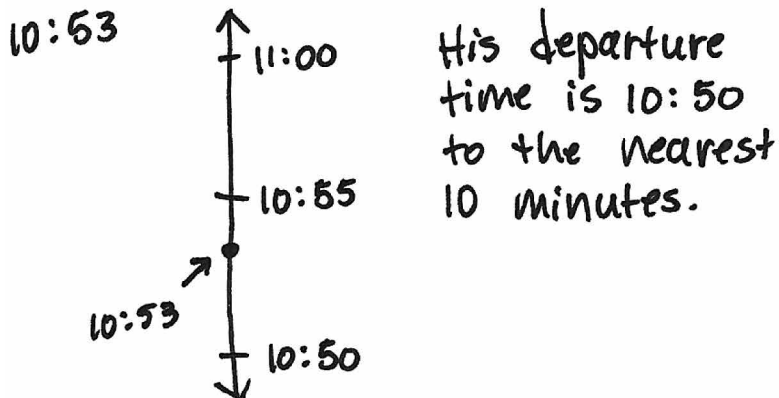
   c. Use your answers from Parts (a) and (b) to estimate how long Paul has before his flight leaves.

   50 minutes - 20 minutes = 30 minutes

   Paul has about 30 minutes before his flight leaves.

4. A large airplane can take on 3,746 liters of fuel every minute.

   a. Round 3,746 to the nearest hundred to estimate how many liters of fuel are pumped into the plane every minute.

   3,800 L

   3,746 L ●

   3,700 L

   About 3,700 L of fuel are pumped every minute.
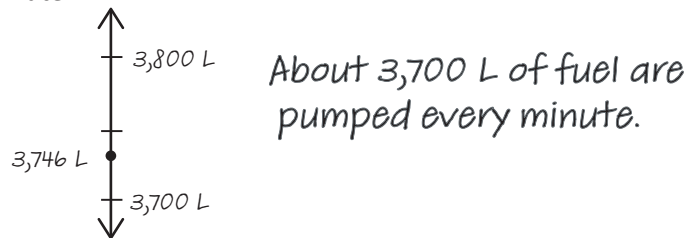
   b. Use your estimate to find about how many liters of fuel are pumped into the airplane every 2 minutes.

   $$\begin{array}{r} 3{,}700 \\ +\ 3{,}700 \\ \hline 7{,}400 \end{array}$$

   *About 7,400 L of fuel are pumped every 2 minutes.*

   c. Calculate precisely how many liters of fuel are pumped into the airplane every 2 minutes.

   $$\begin{array}{r} 3{,}746 \\ +\ 3{,}746 \\ \hline 7{,}492 \end{array}$$

   Exactly 7,492 L of fuel are used in 2 minutes.

   d. Draw a strip diagram to find the difference between your estimate and the precise calculation.

   $$\begin{array}{r} 7{,}492\ \text{L} \\ -\ 7{,}400\ \text{L} \\ \hline 0092\ \text{L} \end{array}$$

   7,400 liters   ? liters

   7,492 liters
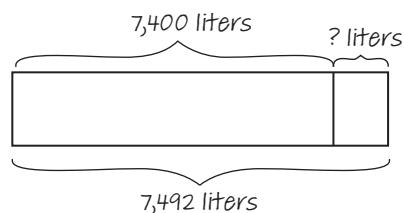
   The difference between the calculation and the estimate is 8 liters.

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5. Baggage handlers lift heavy luggage into the plane. The weight of one bag is shown on the scale to the right.

    a. One baggage handler lifts 3 bags of the same weight. Round to estimate the total weight he lifts. Then, calculate exactly.
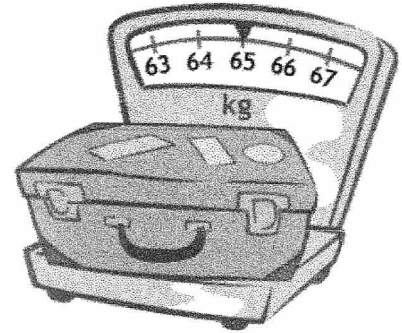
65 kg is about 70 kg.

14 { 70   He lifts about   12{65   He lifts
21 { 70   210 kg total.   18{65   exactly
   + 70   + 65   195 kg.
   210   195

63 64 65 66 67
kg

    b. Another baggage handler lifts luggage that weighs a total of 200 kilograms. Write and solve an equation to show how much more weight he lifts than the first handler in Part (a).

1 9 10
200
-195
005

He lifts 5 kg more than the first handler.

    c. The baggage handlers load luggage for 18 minutes. If they start at 10:25 p.m., what time do they finish?

25
+ 18
43

They finish at 10:43 p.m.

    d. The table shows the number of passengers in 2017 for three regional airports in Texas. Write the names of the airports in order from greatest to least according to the number of passengers.

Airport	Passengers in 2017
Biggs Army Airfield	26,730
Jack Brooks Regional	22,480
East Texas Regional	26,730

6. Complete as many problems as you can in 100 seconds. The teacher will time you and tell you when to stop.

$3 \times 1 = \underline{3}$	$2 \div 1 = \underline{2}$	$\underline{2} = 20 \div 10$	$2 \times 2 = \underline{4}$	$5 \times \underline{2} = 10$
$\underline{2} \times 2 = 4$	$10 \div 5 = \underline{2}$	$10 \times \underline{3} = 30$	$\underline{6} = 2 \times 3$	$\underline{3} = 12 \div 4$
$4 \times 3 = \underline{12}$	$15 \div 5 = \underline{3}$	$\underline{4} \times 4 = 16$	$\underline{4} = 40 \div 10$	$2 \times 4 = \underline{8}$
$3 \times 4 = \underline{12}$	$4 \times \underline{3} = 12$	$20 \div 4 = \underline{5}$	$\underline{50} = 10 \times 5$	$\underline{5} \times 5 = 25$
$4 \times \underline{5} = 20$	$\underline{5} = 10 \div 2$	$\underline{6} \times 3 = 18$	$10 \times 6 = \underline{60}$	$30 \div 5 = \underline{6}$
$3 \times 6 = \underline{18}$	$\underline{6} = 24 \div 4$	$5 \times \underline{7} = 35$	$\underline{70} = 10 \times 7$	$14 \div 2 = \underline{7}$
$2 \times 7 = \underline{14}$	$\underline{7} \times 4 = 28$	$\underline{8} = 40 \div 5$	$10 \times \underline{8} = 80$	$\underline{24} = 3 \times 8$
$24 \div 3 = \underline{8}$	$80 \div 10 = \underline{8}$	$36 \div 4 = \underline{9}$	$5 \times 9 = \underline{45}$	$2 \times \underline{9} = 18$

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