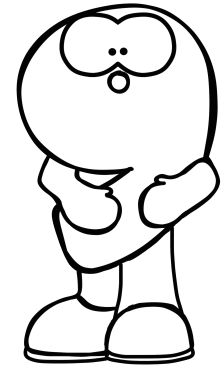
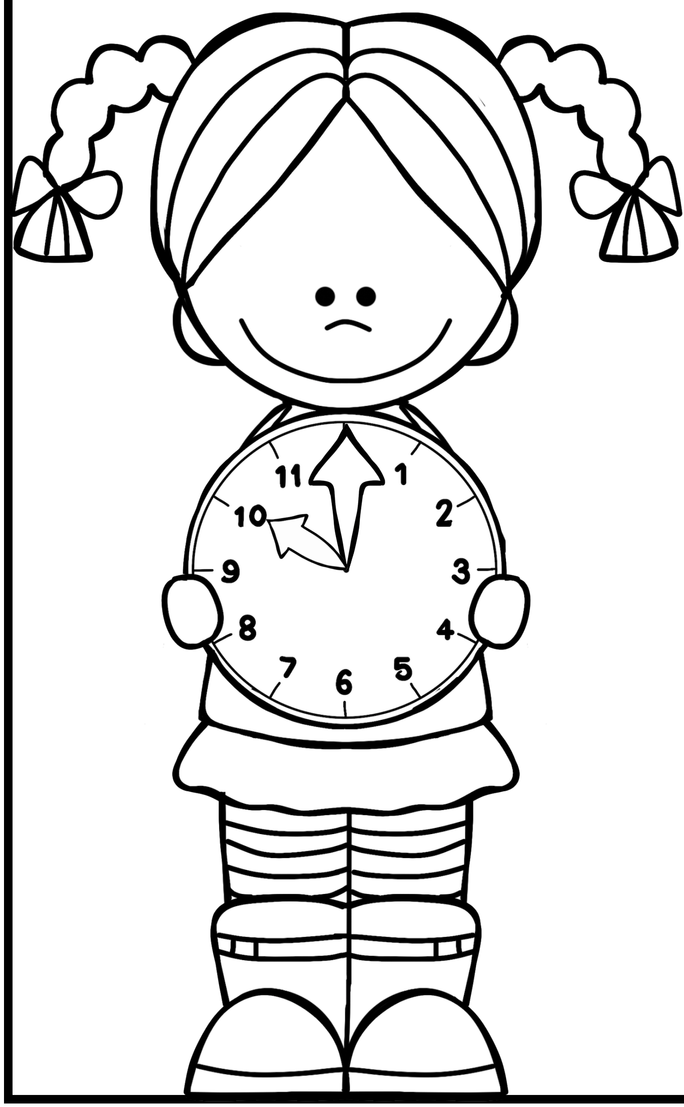
Name: Answer Key # ___ Teacher: ______________ Test Date: ___-___-___

Grade 3: Everyday Math: Unit



Student Learning Map/ Test Review



Key Learning:

Further development of an understanding of multiplication and division is built as application of basic fact knowledge is used to mentally solve number stories and multiply larger factors. Interpretations of length-of-day data will be made and calculations of elapsed time become more efficient.

Unit Essential Question:

How do you apply operations to multi-digit numbers?

Unit Vocabulary:

basic fact, break-apart strategy, decompose, doubling, efficient, elapsed time, extended fact, extended multiplication fact, length of day, multiplication/division diagram, partition

Lesson 9.1: (CC.2.2.3.A.1, CC.2.2.3.A.3)
How do you apply your basic fact knowledge to help you make comparisons between products?

For each number sentence, fill in the blank with a factor from 1 to 10 to make it true.

a. 4 x 6 < 6 x __7__ **b.** 5 x 4 > 5 x __3__ **c.** 9 x 7 < __10__ x __10__

Sample answers:

Lesson 9.2: (CC.2.1.3.B.1, CC.2.2.3.A.1, CC.2.2.3.A.2, CC.2.2.3.A.3, CC.2.4.3.A.1)
What strategies are applied to solve number stories when the problems involve multiples of 10?

For problems 1-2, write a number model with a letter for the unknown. Then solve the problem and write the answer. Write your number model again with the answer to check that your answer makes sense.

1. Eight eggs each have a mass of about 70 grams.
   What is their total mass?

   8 x 70 = M
   (number model with letter)

   The letter __M__ stands for the mass of 8 eggs.

   Eight eggs have a total mass of about __560__ grams.

   8 x 70 = 560
   (number model with answer)

2. About how many 50-gram boxes have a mass equal to one 600-gram box?

$50 \times B = 600$ or $600 \div 50 = B$

(number model with letter)

The letter B stands for the number of boxes.

It would take about 12 50-gram boxes to equal the mass of one 600-gram box.

$50 \times 12 = 600$ or $600 \div 50 = 12$

(number model with answer)

Lesson 9.3: (CC.2.1.3.B.1, CC.2.2.3.A.1, CC.2.2.3.A.2, CC.2.2.3.A.3, CC.2.2.3.A.4, CC.2.4.3.A.1)

How do you solve problems involving larger factors using mental strategies?

Write a number model with a letter for the unknown. Then solve the problem and write the answer. Write your number model again with the answer to check that your answer makes sense.

Together, 70 rocks have a mass of about 120 kilograms. One cement block has a mass of about 12 kilograms. About how many 12-kilogram cement blocks would it take to equal the mass of the rocks?

C x 12 = 120 or 120 ÷ 12 = C

(number model with letter)

The letter C stands for the number of cement blocks.

It would take about 10 cement blocks to equal the mass of 70 rocks.

10 x 12 = 120 or 120 ÷ 12 = 10

(number model with answer)

Lesson 9.4: (CC.2.3.3.A.1, CC.2.3.3.A.2, CC.2.4.3.A.1, CC.2.4.3.A.2)

Exploration A: How do you solve problems involving elapsed time?

Maria wants to know how long each Fun Day activity lasts. Use the table below to find the length of each activity. You may use open number lines, clocks, or another strategy.

Fun Day Activities		
Activity	**Schedule**	**Length, in minutes**
Relay Races	9:10 A.M.- 10:10 A.M.	60
Snack	10:10 A.M.- 10:35 A.M.	25
Art	10:35 A.M.- 11:50 A.M.	75

Exploration B: How do you use you your understanding of polygons to reassemble a deconstructed shape?

Were you able to put back together the square using all of your pieces? Yes or No

Can you make the larger square by cutting the squares into smaller squares? No

Exploration C: How does the construction of an object affect the amount of mass it is able to support?

Rank, from strongest to weakest, the three bridges you made.

Bridge One	Bridge Two	Bridge Three
#3	#2	#1

Do squares or triangles make stronger bridges? triangles

Lesson 9.5: (CC.2.1.3.B.1, CC.2.2.3.A.1, CC.2.2.3.A.2, CC.2.2.3.A.3, CC.2.2.3.A.4, CC.2.4.3.A.5, CC.2.4.3.A.6)

How do you solve multi-digit multiplication problems?

Use the break-apart strategy to solve the problem. You may use mental math, drawings, number sentences, or words. Show your thinking.

a. 3 x 52 = 156

Sample answer:

$$\overbrace{50 \quad\quad 2}^{52}$$

	50	2
3	3 x 50 = 150	3 x 2 = 6

$$\begin{array}{r} 150 \\ +\ \ 6 \\ \hline 156 \end{array}$$

b. Adalyn drew a rectangle to help solve 6 x 42. Here is her work:

$$\overbrace{40 \quad\quad 2}^{42}$$

	40	2
6	6 x 40 = 240	6 x 2 = 12

$$\begin{array}{r} 240 \\ +\ 12 \\ \hline 252 \end{array}$$

Explain how Adalyn solved the problem.

She broke 42 into 40 and 2. Then she multiplied 6 x 40 and 6 x 2. She added the two products together to get 252, so 6 x 42 = 252.

Lesson 9.6: (CC.2.1.3.B.1, CC.2.2.3.A.1, CC.2.2.3.A.3)
How do you apply your number sense to develop strategies for using a calculator with a broken key?

My teacher is planning to buy doughnut holes as a treat for the class. He will need 120 doughnut holes for the class. Doughnut holes come in boxes of 24. He must find out how many boxes to buy. I want to use my calculator to help him, but the $\boxed{+}$ and $\boxed{\div}$ keys are both broken. Help me find a way to use my broken calculator to help me solve the problem.

1. Show or tell how to use the broken calculator to find the number of boxes of doughnut holes the teacher needs to buy.

Sample answer: I knew the number of cartons needs to be less than 10 because 10 x 24 = 240. I knew that half of 24 is 12, so half of 240 would be 120. So, I tried 5 x 24 on my calculator and got 120. The teacher needs 5 boxes of doughnut holes.

2. Show or tell another way to use the broken calculator to solve the problem.

Sample answer: 1, 2, 0, - 2, 4, =, =, =, =, =; I had to push the equal key 5 times to reach 0, so the number of boxes are 5.

Lesson 9.7: (CC.2.4.3.A.2, CC.2.4.3.A.4)
How do you analyze data in a graph?

It starts snowing at 1:35 P.M. and stops at 4:10 P.M.
How long did it snow?
Show your thinking. You may use an open number line, your toolkit clock, or other representations.

Strategies vary.

__2__ hours __35__ minutes