MODULE 2 LESSON 12

Objective: Reason about the product of a whole number and a decimal with hundredths using place value understanding estimation.

FLUENCY PRACTICE – UNIT CONVERSION

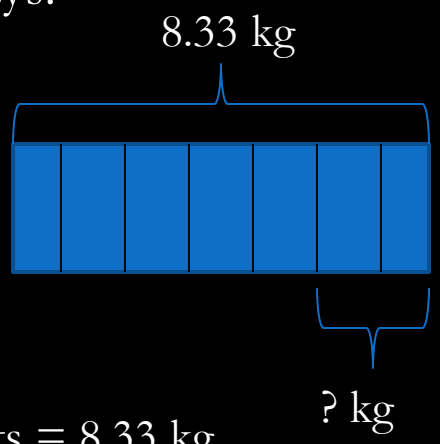
Inches (in)	= Feet (ft)		Feet (ft)	= Inches (in)
12 in.	1 ft.		1 ft.	12 in.
24 in.	2 ft.		2 ft.	24 in.
36 in.	3 ft.		4 ft.	48 in
48 in.	4 ft.		6 ft.	72 in.
72 in.	6 ft.		10 ft.	120 in.
144 in.	12 ft.		24 ft.	288 ft.

FLUENCY PRACTICE – STATE THE DECIMAL

Unit form	Decimal		Word Form	Decimal
8 tenths	0.8		Eleven and five tenths	11.5
24 thousandths	.024		Ninety hundredths	0.90
364 hundredths	3.64		Forty-five and forty-five thousandths	45.045
99 hundredths	0.99		Three hundred and two tenths	300.2
1234 thousandths	1.234		Fifteen tenths	1.5
1234 hundredths	12.34		Nine and three hundred two thousandths	9.302

APPLICATION PROBLEM

Thirty-two cyclists make a seven day trip. Each cyclist requires 8.33 kg of food for the entire trip. If each cyclist wants to eat an equal amount of food each day, how many kg of food will the group be carrying at the end of 5 days?



What do we know? We know how much 7 units of food weighs. (8.33 kg)

What do we want to know? How much they are carrying all together after 5 days. What ways can we figure this out?

Divide 8.33 by 7 to find 1 unit and then multiply by 2 to find 2 units and then by 32

7 units = 8.33 kg
1 unit = 1.19 kg
2 units = 2.38 kg

```
  2.38
  x 32
  -------
    476
  7140
  -------
  76.16
```

```
  1.19
  X  2
  ------
  2.38
```

```
        1.19
7 | 8.33
    - 7
      1 3
     -7
        6 3
       -6 3
          0
```

After 5 days all of the cyclists will be carrying a total of 76.16 kgs.

CONCEPT DEVELOPMENT – PROBLEM 1-2

Problem 1

- 2.31 x 22 – How can we look at this in unit form?

231 hundredths x 22

Using the standard algorithm solve the problem.

```
  231  hundredths
x  22
----------
  462
4620
----------
5082  hundredths
```

Final Answer: 50.82

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

Problem 2

- 2.31 x 221 – How can we look at this in unit form?

231 hundredths x 221

Using the standard algorithm solve the problem.

```
    231  hundredths
x   221
------------
    231
   4620
  46200
------------
  51051  hundredths
```

Final Answer: 510.51

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

CONCEPT DEVELOPMENT – PROBLEM 3-4

Problem 3

- 2.31 x 201 – How can we look at this in unit form?

231 hundredths x 201

Using the standard algorithm solve the problem.

```
   231 hundredths
 X 201
 -----------
   231
  0000
 46200
 -----------
 46431  hundredths
```

Final Answer: 464.31

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

Problem 4

- 495 x 1.11 – How can we look at this in unit form?

495 x 111 hundredths

Using the standard algorithm solve the problem.

```
   495
 x 111  hundredths
 -----------
   495
  4950
 49500
 -----------
 54945  hundredths
```

Final Answer: 549.45

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

CONCEPT DEVELOPMENT – PROBLEM 5-6

Problem 5

- 0.98 * 495– How can we look at this in unit form?

98 hundredths * 495

Using the standard algorithm solve the problem.

```
   0.98 hundredths
 X 495
 ----------
     490
    8820
   39200
 ----------
   48510  hundredths
```

Final Answer: 485.10

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

Problem 6

- 102.64 * 495 – How can we look at this in un form?

495 x 111 hundredths

Using the standard algorithm solve the problem.

```
     10264
 x     495 hundredths
 ----------------
     51320
    923760
   4105600
 ----------------
   5080680  hundredths
```

Final Answer: 50806.80

Is our answer complete? Why or Why not?

No, because our answer is in unit forms (hundredths). This means it is 100 times greater than the actual answer so we have to divide by 100 or make sure we have 2 decimal places to the right in our answer because that is how many we have in the original problem.

CONCEPT DEVELOPMENT – PROBLEM 7-9

Problem 7

- 2.5 * 51

```
   2.5
X 51
------------
   25
1250
------------
127.5
```

Problem 8

- 0.25 * 51

Using the standard algorithm solve the problem.

```
    0.25
x     51
-----------------
    025
   1250
-----------------
   12.75
```

Problem 9

- 0.56 * 84

Using the standard algorithm solve the problem.

```
    0.56
x     84
-----------------
    224
   4480
-----------------
   47.04
```

END OF LESSON ACTIVITIES

Debrief

Problem Set

Homework

Exit Ticket

PROBLEM SET

Estimate, and then solve using the standard algorithm. You may draw an area model or lattice to help you.

a. 1.21 * 14 = _____ * _____ = _____ b. 2.45 * 305 = _____ * _____ = _____

Estimate, and then solve using the standard algorithm.

a. 1.23 * 12 b. 1.3 * 26 c. 0.23 * 14 d. 0.45 * 26

e. 7.06 * 28 f. 6.32 * 223 g. 7.06 * 208 h. 151.46 * 555

Denise walks on the beach every afternoon. In the month of July she walked 3.45 miles each day. How far did Denise walk during the month of July?

A gallon of gas cost $4.34. Greg puts 12 gallons of gas in his car. He has a 50-dollar bill. Tell how much money Greg will have left, or how much more money he will need. Show all your calculations.

Seth drinks a glass of orange juice every day that contains 0.6 grams of Vitamin C. He eats a serving of strawberries for snack after school every day that contains 0.35 grams of Vitamin C. How many grams of Vitamin C does Seth consume in 3 weeks?

EXIT TICKET #12

Find the product using the standard algorithm.

a. 3.03 * 402

b. 667 * 1.25

HOMEWORK

Estimate, and then solve using the standard algorithm. You may draw an area model or lattice to help you.

a. 24 * 2.31 = _____ * _____ = _____ b. 5.42 * 305 = _____ * _____ = _____

Estimate, and then solve using the standard algorithm.

a. 1.23 * 21 b. 3.2 * 41 c. 0.32 * 41 d. 0.54 * 62

e. 6.09 * 28 f. 6.83 * 683 g. 6.09 * 208 h. 171.76 * 555

Eric walks 2.75 miles to and from work every day for an entire year. How many miles did he walk?

Art galleries often price paintings by the square inch. If a painting measures 22.5 inches by 34 inches and costs $4.15 per square inch, what is the selling price for the painting?

Gerry spends $1.25 each day on lunch at school. On Fridays she buys an extra snack for $0.55. How much money will she spend in two weeks?