## ESTAR <br> INTERVENTION



Name:
Module: Multiplication \& Division Fact Strategies (MDFS)

## Student Activity Sheets



## The Meadows Center

FOR PREVENTING EDUCATIONAL RISK THE UNIVERSITY OF TEXAS AT AUSTIN COLLEGE OF EDUCATION

Mathematics Institute for Learning Disabilities and Difficulties

## www.meadowscenter.org

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Draw an equal-groups model using pictures or numbers to solve the application problem below.
1.) You buy 6 packages of pencils. There are 5 pencils in each package. How many pencils do you have in all?

Complete the equal-groups models.
2.)


Write the repeated addition equation and a multiplication equation for the equal-groups model.

3.) $\qquad$
4.) $2 \times$ $\qquad$ $=$

Draw an equal-groups model for the problems below.
5.) 3 groups of 6 equals 18

Use the equal-groups model to answer the questions.

6.) How many groups are in the equal-groups model? $\qquad$
7.) How many are in each group? $\qquad$
8.) Skip count to find the total. $\qquad$
9.) Write a multiplication equation.

10.) Write a multiplication equation.

$$
4+4+4+4=16
$$

$$
L^{\times} \times{ }^{\times}=
$$

Solve the problem.
1.) $3+3+3=$ $\qquad$
2.) $15,20,25$, $\qquad$ , $\qquad$ , 40

Complete the equal-groups models.
3.)

4.)


Write the repeated addition equation and a multiplication equation for the equal-groups model.

5.) $5+$ $\qquad$ $+$ $\qquad$
6.) $\qquad$

7.) $\qquad$ $+\ldots+$ $\qquad$ $+$ $\qquad$ $+\ldots=30$
8.) $\qquad$ $\times$ $\qquad$ $=$ $\qquad$

## Module MDFS

 Lesson 1Draw an equal-groups model for the problems below.
9.) $3 \times 10=30$
10.) Jay has 4 packages of collectors cards. Each package has 5 cards. How many total collectors cards does Jay have?
A 15 cards
B 9 cards
C 20 cards
D 1 card

Use the counters to arrange in an array. Then draw the array.
There are 24 desks in a classroom. Your teacher wants to arrange them in equal rows. What are some ways to arrange the desks so that the 24 desks are in equal rows and columns?

Draw an array.

What is the multiplication equation that matches the array of desks?

Complete the 3-by-5 arrays. Use the arrays to fill in the blanks.
1.) Circle the rows in the array.

$\qquad$ rows of $\qquad$
$\qquad$ $\times$ $\qquad$ $=$ $\qquad$ $\times$ $\qquad$

Use the arrays below to fill in the blanks.
2.) Circle the rows in the array.


Circle the columns in the array.

$\qquad$
rows of $\qquad$
$\qquad$ $\times \ldots$ $\qquad$
$\qquad$
3.) Draw an array with 4 rows and a total of 16 objects.

How many columns are in this array? $\qquad$
Multiplication equation $\qquad$ $\times$ $\qquad$ = $\qquad$

Circle the rows in the array.
1.)

3.) $\qquad$

Draw a second array to match the one on the left. Circle the columns in the array.
2.)
4.) $\qquad$ columns of $\qquad$
5.) $\qquad$ $=\ldots \times$ $\qquad$
6.) Draw an array with 6 rows and a total of 18 objects.
7.) How many columns in this array? $\qquad$
8.) Multiplication equation $\qquad$ $\times$ $\qquad$ $=$ $\qquad$
9.) Marie buys a package of gum. When she opens the package, she recognizes that the gum is arranged in an array.


Write a multiplication equation to represent Marie's gum package.


## Module MDFS <br> Lesson 2 Independent Practice

Write a repeated addition equation and a multiplication equation for the equal-groups models.

10.) $\qquad$ $+$ $\qquad$ $+\ldots=27$
11.) $\qquad$ $\times$ $\qquad$ $=27$

12.) $\qquad$ $=42$
13.) $\qquad$ $\times 7=42$

Use graph paper to draw an area model to solve.
1.) Jennifer plants 6 rows of pepper plants with 4 plants in each row. How many pepper plants did she plant altogether?


For each area model, label the number of rows and columns. Write the repeated addition and multiplication equation.

2.) Addition: $3+\ldots+\ldots=9$
3.) Multiplication: $\qquad$ $\times 3=$ $\qquad$

4.) Addition: $\qquad$
5.) Mtultiplication: $\qquad$
6.) On graph paper, draw an area model with 10 square units as the area.

7.) What is the length and width of the rectangle you drew?
8.) Write an addition equation for the rectangle you drew.
9.) Write a multiplication equation for the rectangle you drew.
10.) A calendar has 7 columns and 5 rows. How many squares are on a calendar? Draw an area model to solve this problem.
A 30 squares
B 40 squares
C 12 squares
D 35 squares

Write the multiplication equation.

11.) $\qquad$

12.) $\qquad$

## Models of Multiplication

$6 \times 3$

## Models of Multiplication

Array
$6 \times 3$

## Models of Multiplication

## Area model

$6 \times 3$

Choose a model to represent the following multiplication problem. Solve.
1.) 8 objects in 8 group


Solve using an equal-groups model.
2.) $3 \times 5$

Solve using an array model.
3.) $2 \times 8$

Solve using an area model.

## 4.) $6 \times 3$

Use a model of your choice to solve.
5.) Mrs. Vine needs a classroom for her 28 students. Each student will need a desk. In room 203 there are 6 rows of 5 desks. Are there enough desks for Mrs. Vine's class? Draw a model to explain your answer.

What is this question asking you to find? $\qquad$

3 ESTAR

Solve using an equal-groups model and an array model.

$$
6 \times 3
$$

1.) Equal-groups model
2.) Array model

Solve using an area model.
3.) $2 \times 5$
4.) Draw an array with 5 rows and a total of 20 dots.
5.) How many columns are in this array? $\qquad$

Use the equal-groups model to answer the questions.

6.) How many groups are above? $\qquad$
7.) How many are in each group? $\qquad$
8.) $\qquad$ $\times$ $\qquad$ $=$ $\qquad$
9.) There are 25 books on the floor in Dominic's room. His bookcase has 5 shelves. How many books will be on each shelf if he puts an equal number per shelf?

A 5 books per shelf
B 30 books per shelf
C 4 books per shelf
D 20 books per shelf

Write a repeated addition equation and a multiplication equation for the equal-groups model.

10.) Repeated addition:
11.) Multiplication: $\qquad$ $\times$ $\qquad$ = $\qquad$

Review

## Equal-Groups Model



$$
\ldots \times=
$$

Array


## Area Model


$\qquad$


| Dividend |  | Divisor |
| :--- | :--- | :--- | :--- | :--- |
| Quotient |  |  |

## Round 1



## $\times$



Round 2


Write two multiplication equations and two division equations for the representations below.

$\qquad$
$\qquad$

3.) $48 \div 8=6 \quad 8 \times 6=48$

What are the numbers in this number family? $\qquad$
4.) Circle the equation that is not in the same number family as the others.
$6 \times 9=54$
$54 \div 6=9$
$18 \times 3=54$
$54 \div 9=6$

Read and solve.
5.) There are 21 band members in the marching band. They are lined up 7 people to a row for the parade. How many lines did they form?

Draw an array to solve this problem.

How many lines did they form?

Write a multiplication equation for the array.

Write a division equation for the array.

Module MDFS
Lesson 5 Independent Practice

Write the number family for the representations below.

1.) $\qquad$ 2.)

5.) $\qquad$ 6.) $\qquad$
3.) $\qquad$ 4.) $\qquad$ 7.) $\qquad$ 8.) $\qquad$
9.) $42 \div 7=6 \quad 7 \times 6=42$

What are the numbers in this number family? $\qquad$

Write the corresponding division equation for each problem.
10.) $9 \times 9=81$
11.) $6 \times 8=48$

Write the corresponding multiplication equation for each problem.
12.) $14 \div 7=2$
13.) $63 \div 7=9$
覑

## Module MDFS

Lesson 5 Independent Practice

Choose the correct multiplication equation and division equation to represent this problem.
14.) There are 12 pieces of candy left in the bowl. If Jana is fair, she will give herself and her 3 friends the same number of pieces. How many pieces does each person get if all 12 pieces are divided evenly?
A $12 \div 3=4$
$12 \times 3=4$
B $\quad 12 \div 2=6$
$6 \times 2=12$
C $4 \div 12=3$
D $\quad 12 \div 4=3$
$4 \times 12=3$
$4 \times 3=12$
15.) Draw an array with 7 rows and a total of 21 dots.
16.) How many dots are in each row? $\qquad$
17.) There are 5 boxes. Each box has 7 toys. How many toys in all?
A 12
B 36
C 35
D 2



7


## Number Family



## Does not belong

$\qquad$
$9=$ $\qquad$ $-1$
1.) Break apart 9.

2.) Break apart 11 .

3.) Write the addition and subtraction equations in the number family using 11,6 , and 5.
4.) Break apart the number. Write the part on the line.

5.) Write all the ways to break apart 10 .

Module MDFS
Lesson 6
Practice
Materials:
2 number cubes
Directions:

1. Player 1 rolls both number cubes and writes the 2 parts in the column with the correct sum.
2. Player 2 rolls both number cubes and writes the 2 parts in the column with the correct sum.
3. The players continue to take turns rolling the number cubes and writing the correct sum until
1 player has filled all the empty spaces.
4. If a player rolls the same parts that are already written then that player must pass.

1.) $36 \div 4=9$
$4 \times 9=36$

What are the numbers in the number family?

Write the number family for the representation below.

2.) $\qquad$
3.) $\qquad$
4.) $\qquad$
5.) $\qquad$
6.) Draw an array with 7 rows and a total of 28 dots.
7.) There are 6 bags. Each bag has 4 potatoes. How many potatoes are there in all?

Write the corresponding multiplication equation for each problem.
8.) $16 \div 2=8$
9.) $21 \div 7=3$

Write the addition and subtraction equations in the number family using 12,5 , and 7 .
10.) $\qquad$
11) $\qquad$
12.) $\qquad$
13.) $\qquad$

## Module MDFS <br> Lesson 6 Independent Practice

Break apart the numbers. Write the part on the line.
14.)

15.)
10
16.)
11


Write 2 ways to break apart 12.
17.)

18.) 12


## Module MDFS Lesson 7

## Break apart 10.



$$
30-3=
$$

$50-5=$
$20-2=$


Make 10 Subtract the Factor.

Step 1) Think of 9 as 10.
Step 2) Multiply 10 times the other factor.
Step 3) Subtract the other factor.

$$
9 \times 6
$$



Use the Make 10 Subtract the Factor strategy to solve.

4.) Write the multiplication and division equations for the number family using 6,9 , and 54 .
$\qquad$
$\qquad$
$\qquad$
$\qquad$

Use the Make 10 Subtract the Factor strategy to solve.
1.)
$9 \times 3$

3.) $8 \times 9$

2.) $6 \times 9$

4.) $9 \times 7$

$=$

1.) Draw an array with 3 rows and a total of 24 dots.

Write the number family for the representation below.

2.) $\qquad$
4.) $\qquad$
3.)
5.)
$\qquad$
$\qquad$
6.) Which equation does not belong to the number family?
A $3 \times 9=27$
B $27 \div 3=9$
C $9 \div 3=3$
D $9 \times 3=27$
7.) Ethan has 4 sheets of paper. Each paper has 4 stickers.

How many stickers are there? $\qquad$

Break apart 10. Write the part on the line.
8.)

9.)

10.)
10

Use the Make 10 subtract the Factor strategy to solve.
11.)

12.)
$9 \times 4$

13.)

14.) 8 girls sold 9 tickets for the school musical. How many tickets were sold altogether?


## Module MDFS Lesson 8 Engaged Practice

Fill in the missing numbers.
Hint: A good place to start is a circle with a whole and one part. Then, find the missing part to give you a clue to the next problem.


## $4 \times 8=$



$$
4 \times 8=
$$

$\qquad$

## $4 \times 8=$



$$
4 \times 8=
$$

$\qquad$

## Cut out the area models.



Cut and paste the rectangle for each multiplication problem into the blank boxes below. Break up the factor that is circled. Complete the problem to solve.
1.) $4 \times(6)$
$4 \times($ $\qquad$ $+$

2.) (3) $\times 6$
(Ax $\qquad$ ) $+(4 \times$ $\qquad$

$4 \times 6=$ $\qquad$

$+$


$$
+
$$


$(\ldots \times 6)+($ $\qquad$ $\times 6$ )

$工=3 \times 6$

Draw a line to cut the area model into two facts you know. Complete the problem below to solve.
3.)


Draw a line to cut the area models into two facts that you know. Complete the problem to solve.
4.) Find the area of the tile floor.

$7 \times 7=$ $\qquad$
5.) Find the area of the rug below.


Module MDFS
Lesson 8 Independent Practice

Draw a line to cut the area model into two facts you know. Complete the problem to solve.
1.)

8

$8 \times 3=$ $\qquad$
2.)

6


$$
\left.\begin{array}{c}
6 \times \ldots \\
6 \times(\ldots+\ldots
\end{array}\right)
$$

(6 $\times$ $\qquad$ ) $+($ $\qquad$ $\times$ $\qquad$
$\qquad$
$工=6 \times 6$

## Module MDFS

Lesson 8

Break up the factor that is circled. Complete the problem to solve.
3.)

4.)


$$
7 \times 6=
$$

$\qquad$
5.) Anna is figuring out the area of the wall in her room. It is 6 feet wide and 8 feet tall. Choose the correct way she can solve this unknown problem.
A

$$
\begin{gathered}
6+8 \\
(1+8)+(5+8) \\
8+13=21
\end{gathered}
$$

B
$8 \times 6$
$8 \times(3+3)$
$(8 \times 3)+(8 \times 3)$

C
$6 \times 8$
$(1+5) \times 8$
$(1 \times 8)+(5 \times 8)$

$$
8+40=48
$$

$$
1+40=41
$$

Break apart the numbers. Write the part.
6.)

7.)

8.)
12

9.) 8 girls sold 9 boxes of pecans each for a school fundraiser. How many boxes were sold in all? Use the Make 10 Subtract the Factor strategy.

$\times$ $\qquad$
$\qquad$ - $\qquad$
$8 \times 9=$ $\qquad$ boxes of pecans

Use the Make 10 Subtract the Factor strategy to solve.
10.)

$$
6 \times 9
$$


x $\qquad$
$\qquad$ - $\qquad$
$\qquad$

$$
=6 \times 9
$$



$$
\begin{aligned}
& 1 \times 9= \\
& 6 \times 1= \\
& 5 \times 6= \\
& 3 \times 5= \\
& 5 \times 5= \\
& 5 \times 8= \\
& 5 \times 7=
\end{aligned}
$$

## Break Apart Strategy for bs


$+$ $\qquad$ ) $\times 4$

Step 1) Break apart 6 to 1 and 5 .

Step 2) Multiply 1 and 5 by the other factor.

5
 $\times 4)+($ $\qquad$ $\times 4$ )


4


20


Step 3) Add the products together.

$$
\begin{gathered}
\text { Review } \\
6 \times 4 \\
(1+5) \times 4 \\
(1 \times 4)+(5 \times 4) \\
4+20=24
\end{gathered}
$$

Coach Martinez is setting up cones for a soccer obstacle course. She wants to set up 6 rows of 8 cones for her team to dribble around. How many cones does Coach Martinez need?


Step 1)

$\qquad$

Step 2)

$\qquad$
$\qquad$ )

Step 3)


$$
6 \times 8=
$$

$\qquad$

## Break Apart Strategy for $6 s$

Step 1) Break 6 apart to 1 and 5.
Step 2) Multiply 1 and 5 by the other factor.
Step 3) Add the products together.

Use the Break Apart Strategy for $6 s$ to solve the multiplication problems.
1.) $6 \times 7=$ $\qquad$

Step 1) $(\ldots+$

Step 2)

$\qquad$ $\times 7$ )

Step 3)

2.) $3 \times 6=$ $\qquad$

Step 1)

$\qquad$

Step 2)

$\qquad$ $\times 5$ )

Step 3) $\qquad$ $+$ $\qquad$

3.) $6 \times 6=$ $\qquad$

Step 1) $\qquad$

Step 2)

Step 3)

## Facts Tic Tac Toe

| $3 \times 2=\ldots$ | $6 \times 8=\ldots$ | $3 \times 9=\ldots$ |
| :--- | :--- | :--- |
| $10 \times 6=\ldots$ | $6 \times 4=\ldots$ | $5 \times 6=\ldots$ |
| $2 \times 6=$ | $3 \times 6=$ | $9 \times 4=$ |

## Facts Tic Tac Toe

| $6 \times 3=\ldots$ | $9 \times 6=\ldots$ | $5 \times 3=\ldots$ |
| :---: | :---: | :---: |
| $2 \times 6=\ldots$ | $9 \times 8=\ldots$ | $3 \times 9=\ldots$ |
| $6 \times 7=-$ | $10 \times 3=$ | $9 \times 7=$ |

## Facts Tic Tac Toe

| $9 \times 3=\ldots$ | $1 \times 6=\ldots$ | $8 \times 6=\ldots$ |
| :--- | :--- | :--- |
| $7 \times 6=\ldots$ | $9 \times 5=\ldots$ | $10 \times 6=\ldots$ |
| $5 \times 6=-$ | $9 \times 2=$ | $9 \times 4=$ |

Use the Make 10 Subtract the Factor strategy to solve.
1.) $9 \times 7$
2.)
$6 \times 9$


$6 \times 9=$ $\qquad$
3.) 8 students earned 9 extra points on their projects. How many total points were earned? Use the Make 10 Subtract the Factor strategy.
$8 \times 9=$ $\qquad$ points

```
Module MDFS
Lesson 9 Independent Practice
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4.) Aaron is painting a wall that is 6 feet tall and 8 feet wide. Which expression can be used to find the area of the wall?

A $8+6$

B $6+6$

C $8 \times 8$

D $6 \times 8$
5.) Break up the factor that is circled. Complete the problem to solve.

$$
\begin{gathered}
(3) \times 8 \\
(\ldots+\ldots) \times 8 \\
(\ldots+\ldots)+(\ldots+\ldots)= \\
3 \times 8=
\end{gathered}
$$

6.) Draw a line to cut the area model into two facts you know. Complete the problem to solve. Find the area of the carpet.

$\qquad$
$\qquad$ ) + (

$\qquad$


Use the Break Apart Strategy for 6 s to solve the multiplication problem.
7.)

$$
\begin{aligned}
& 7 \times 6 \\
& 7 \times(\sim+ \\
& (7 \times \longrightarrow \quad)+\left(7 \times \_ \text {_ }\right) \\
& ]^{+} \\
& 工=7 \times 6
\end{aligned}
$$

## Module MDFS <br> Lesson 9 Independent Practice

8.) $6 \times 3$

$$
\begin{aligned}
& (\sim) \times 3 \\
& (\ldots \times 3)+( \\
& \times 3 \text { ) } \\
& + \\
& 6 \times 3=
\end{aligned}
$$

Use the Break Apart Strategy for 6 s to solve the problem. Show your work.
9.) The bakery is open 6 days a week for 6 hours each day. How many hours is the bakery open in one week?
$\qquad$ hours


## Break Apart Strategy for 7s



Step 1) Break apart 7 to 2 and 5.


$$
]^{+}
$$



Step 2) Multiply 2 and 5 by the other factor.



8 friends went to a birthday party. On the way out they were told to grab a bag. Each bag had 7 prizes. How many total prizes were used to make the 8 bags?


Step 1) $(\ldots+\ldots) \times 8$


Step 3) $\qquad$ $+$ $\qquad$

$$
=
$$

## Number Family

$\qquad$
$\qquad$
$\qquad$
$\qquad$

## Module MDFS <br> Lesson 10

There are 7 tables in the restaurant. Each table has 6 chairs. How many chairs are there in all?



Step 3)

$$
\begin{aligned}
& ـ^{+} \\
& =7 \times 6
\end{aligned}
$$

Break Apart Strategy for Ts

Step 1) Break apart 7 to 2 and 5.
Step 2) Multiply 2 and 5 by the other factor.
Step) Add the products together.

Use the Break Apart Strategy for 7 s to solve the multiplication problems.
1.)

$$
7 \times 8=
$$

Step) $(\ldots \quad+\quad) \times 8$

Step) $(\ldots \times 8)+(\ldots \times 8)$
Step) $(\ldots$
2.) $7 \times 7=$

Step) $(\ldots+$

Step)


Step 1)

$+$ $\qquad$ $)=$ $\qquad$
3.) $7 \times 3=$ $\qquad$

Step) $(\ldots+$
Step 1) $(\ldots \times 3)+(\ldots \times 3)$

Step)


## Four in a Row

| $10 \times 6=$ | $6 \times 4=$ | $9 \times 5=$ | $4 \times 2=$ |
| :---: | :---: | :---: | :---: |
| $9 \times 6=$ | $7 \times 3=$ | $4 \times 9=$ | $8 \times 7=$ |
| $7 \times 6=$ | $6 \times 6=$ | $3 \times 1=$ | $10 \times 7=$ |
| $5 \times 5=$ | $7 \times 7=$ | $9 \times 7=$ | $8 \times 9=$ |

## Four in a Row

| $5 \times 4=$ | $6 \times 9=$ | $8 \times 9=$ | $9 \times 7=$ |
| :---: | :---: | :---: | :---: |
| $10 \times 8=$ | $8 \times 7=$ | $10 \times 4=$ | $6 \times 3=$ |
| $4 \times 9=$ | $9 \times 6=$ | $8 \times 1=$ | $2 \times 8=$ |
| $5 \times 9=$ | $7 \times 7=$ | $10 \times 9=$ | $6 \times 6=$ |

Use the Break Apart strategy for 7 s to solve.
1.)

$$
7 \times 4=
$$

Step) $(\ldots+5) \times 4$

Step 2) $\qquad$

Step 3) $\qquad$
2.)

$$
8 \times 7=
$$

Step 1)

Step 2)
$(8 \times 2)+($ $\qquad$ $\times 5$ )

Step 3) $\qquad$
3.)

$$
7 \times 6=
$$

Step 1) $\qquad$

Step 2) $\qquad$

Step 3)

$$
\ldots+30=42
$$

## Module MDFS <br> Lesson 10 Independent Practice

Use the Break Apart Strategy for 7 s to solve the problem. Show your work.
4.) Marvin gets paid $\$ 7$ for every lawn he mows. In the month of June, he mowed 8 lawns. How much money did Marvin make in June?
\$ $\qquad$ in June
5.) There are 8 boats. Each boat holds 7 people. How many total people can 8 boats hold? Use the Break Apart Strategy for 7s to solve. Show your work.


## Module MDFS

Lesson 10

Use the Break Apart Strategy for 6 s to solve the multiplication problems.
6.) $\qquad$

$$
\begin{gathered}
3 \times\left(\_^{+}+\ldots\right) \\
\left(3 \times \_(3 \times \ldots)\right. \\
+\quad+
\end{gathered}
$$

7.)

$$
\begin{gathered}
6 \times 8=[ \\
(\ldots+\ldots \times 8)+(\ldots \times 8) \\
(\ldots+\ldots=
\end{gathered}
$$

Break up the factor that is circled. Complete the problem to solve.
8.)
(4) $\times 6$

$+$ $\qquad$ ) $\times 6$

$4 \times 6=$ $\qquad$

Use the Make 10 Subtract the Factor strategy to solve.
9.) $8 \times 9$
$\qquad$ $\times$ $\qquad$

10.) $9 \times 7$

$9 \times 7=$ $\qquad$


Number Family
$\qquad$


Number Family
$\qquad$

Round Robin Practice


Use a strategy to solve.
1.) $9 \times 3=$ $\qquad$
3.) $6 \times 6=$ $\qquad$ 4.) $7 \times 7=$ $\qquad$
5.)

$$
3 \times 6=
$$

$\qquad$
6.) On the math test Nancy was solving $8 \times 7$. She remembered to break apart 7 into 2 and 5 but then got stuck. What is Nancy's next step?
A multiply $8 \times 2$
B add $2+5$
and $8 \times 5$
C multiply $7 \times 2$ and $8 \times 5$
D add $8+2$
plus 5

## Module MDFS <br> Lesson 12 <br> Engaged Practice

Complete the list of numbers.
1.) 2 , $\qquad$ , 6, 8, 10, $\qquad$
$\qquad$ 16,18 $\qquad$ ,
2.) $26,28,30$, $\qquad$ , $\qquad$ , 38, $\qquad$ 42, $\qquad$ ,
3.) 52 , $\qquad$ , , 58, 60, 62 $\qquad$ , _ 70

Solve.
4.) $5+5=$ $\qquad$
6.) $8+8=$ $\qquad$
5.) $3+3=$ $\qquad$
7.) $6+6=$
8.) $12+12=$ $\qquad$
9.) $15+15=$ $\qquad$

Read and solve.
1.) Asheem was doubling a length of rope for his project. The rope was 16 inches long. He said the doubled length would be 23 inches. Is he correct?

Double the tens, double the ones, then put it back together.
2.) What is 18 doubled?

Double the tens = $\qquad$

Double the ones = $\qquad$
Put it together $=$ $\qquad$
3.) What is 34 doubled?

Double the tens $=$ $\qquad$
Double the ones = $\qquad$
Put it together = $\qquad$

## Doubles Doom

Materials needed:

- 2 6-sided number cubes
- Calculator
- Pencil


## Directions:

2 players

1. Player 1 rolls the number cubes and adds up the dots. The player then multiplies the number of dots times 2 and records the multiplication fact below.
2. Then Player 2 rolls, adds up the dots, and multiplies by 2. The player records the fact on their sheet.
3. If a player rolls doubles on the number cubes, their score for that round is 0 .
4. Each player has 5 turns. At the end of 5 turns the players each add up the products for the 5 rounds. The player with the highest score wins.

Roll 1

Roll 2
Answer $\qquad$

Roll 3
Answer $\qquad$

Roll 4
Answer $\qquad$

Roll 5
Answer $\qquad$

Total Score $\qquad$

Double the tens, double the ones, then put it back together.
1.) What is 32 doubled?

Double the tens = $\qquad$
Double the ones = $\qquad$
Put it together = $\qquad$
2.) What is 28 doubled?

Double the tens = $\qquad$
Double the ones = $\qquad$

Put it together = $\qquad$
3.) What is 64 doubled?

Double the tens = $\qquad$

Double the ones = $\qquad$
Put it together = $\qquad$

# Module MDFS <br> Lesson 12 Independent Practice 

Double each number.
4.) $17 \times 2=$ $\qquad$
6.) $2 \times 15=$ $\qquad$ 7.) $2 \times 36=$ $\qquad$

Solve.
8.) A 4-year-old child will have doubled in length since the time of birth. If a baby is born 19 inches long, by 4 years, how long will the child be?

Choose the answer that shows the length of the baby in 4 years.
A 38 inches
B 28 inches
C 48 inches
D 21 inches
1.)

| A $(4 \times 2) \times 5$ | B $4 \times(2 \times 5)$ |
| :--- | :--- |
|  |  |
|  |  |
|  |  |

2.)

| $(2 \times 3) \times 4$ | $2 \times(3 \times 4)$ |
| :--- | :--- |
|  |  |
|  |  |
|  |  |

Solve.
1.) $(5 \times 5) \times 2$

2.) $5 \times(5 \times 2)$

3.) $(3 \times 5) \times 2$

5.) On problems 3 and 4 , which way worked best for you to solve? Explain why.

## Module MDFS <br> Lesson 13 Independent Practice

Draw parentheses around the two factors you choose to multiply first, then solve.
6.) $2 \times 2 \times 6$
7.) $4 \times 3 \times 3$
8.) $5 \times 5 \times 4$

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Module MDFS
Lesson 13 Independent Practice
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9.) To find the volume of a box, multiply the length times the width times the height. What is the volume of a box that is 3 cm in length, 2 cm in width, and 5 cm in height? Choose the answer that finds the volume of the box.
A $\quad(3 \times 2) \times 5$
C $(3 \times 2)-5$
$6 \times 5$

$30 \mathrm{~cm}^{3}$

$$
\begin{gathered}
6-5 \\
1 \mathrm{~cm}^{3}
\end{gathered}
$$

B

$13 \mathrm{~cm}^{3}$



Double the following 2-digit numbers:
1.) $2 \times 12=$ $\qquad$
2.) $2 \times 24=$ $\qquad$
3.) $2 \times 28=$
4.) $2 \times 16=$ $\qquad$
5.) $2 \times 36=$ $\qquad$

Regroup the factors, then double to find the answer.
1.)
$3 \times 2 \times 5=$ $\qquad$

$\qquad$ ) $x$ $\qquad$
$\qquad$
2.)

$$
2 \times 2 \times 7=
$$

( $\quad \times$ $\qquad$ ) $x$ $\qquad$
$\qquad$
3.) $\square$

$\qquad$ ) $x$ $\qquad$ $=$
4.) $8 \times 5 \times 2=$ $\qquad$

$\times$ $\qquad$ ) $x$ $\qquad$ $=$ $\qquad$

## $4 \times 6$



Step 1) Think of 4 as $2 \times 2$.

Step 2) Double the other factor.
Step 3) Double the product.

$$
6 \times \ldots=24
$$



Step 1) Think of 4 as $2 \times 2$.


Step 2) Double the other factor.

Step 3) Double the product.

$$
12 \div ـ=4
$$

## Doubling Strategy

Stepl) Think of 4 as $2 \times 2$.

Step 2) Double the other factor.

Step 3) Double the product.

Solve using the doubling strategy.

5.) $28 \div 7=$
6.) $16 \div 4=$ $\qquad$

Use the doubling strategy to solve.

Step 1) Think of 4 as $2 \times 2$.

Step 2) Double the other factor.

Step 3) Double the product.

Solve using the doubling strategy.

## 1.)

$4 \times 3=$ $\qquad$ 2.)
$7 \times 4=$ $\qquad$
$\qquad$
$\qquad$
$\qquad$
3.)
$6 \times 4=$ $\qquad$
$\qquad$
4.)
$8 \times 4=$ $\qquad$
$\qquad$
$\qquad$

## Module MDFS <br> Lesson 14 Independent Practice

5.) $4 \times 4=$ $\qquad$

Solve.
6.) The animal shelter has 4 times more dogs than cats. If there are 8 cats, how many dogs are at the shelter? Choose the answer that shows how many dogs are at the shelter.

A 4 dogs

B 12 dogs

C 16 dogs

D 32 dogs

## Module MDFS Lesson 15 Engaged Practice

Fill in the missing number.


## Module MDFS <br> Lesson 15



$$
\begin{aligned}
& 8 \times 8=64 \\
& 64 \div 8=8
\end{aligned}
$$

# Module MDFS <br> Lesson 15 

## Doubling Strategy <br> Step 1)

Step 2)
Step 3)

$\qquad$

Write the the facts that go with each triangle for the number family.
1.)

2.)

$\qquad$
$\qquad$
$\qquad$
$\qquad$

List the 3 numbers in each number family and list the other 2 facts below them.
3.)

4.)
$\qquad$
$\qquad$


Find the missing factor using your knowledge of number families.
5.) $\qquad$ $\times 8=16$
6.) $4 \times$ $\qquad$ $=20$

## Doubles Doom

Materials needed:

1. 26 -sided number cubes
2. Calculator
3. Pencil

## Directions:

1. Player 1 rolls the number cubes, adds up the dots, multiplies the number of dots times 2, and then, records the multiplication fact on their sheet.
2. Player 2 rolls the number cubes, adds up the dots, multiplies the number of dots times 2, and then, records the multiplication fact on their sheet.
3. If the player rolls doubles on the number cubes, their score for that round is " 0 ".
4. Each player has 4 turns. At the end of 4 turns, the players add up the products for the 4 rounds. The player with the highest score wins.

Roll 1

Answer $\qquad$

Roll 2
Answer $\qquad$

Roll 3
Answer $\qquad$

Roll 4
Answer $\qquad$

Total Score $\qquad$

Write the the facts that go with each triangle for the number family.

1.) $\qquad$
2.) $\qquad$
3.) $\qquad$
4.) $\qquad$

5.) $\qquad$
6.) $\qquad$
7.) $\qquad$
8.) $\qquad$

Use the Doubling Strategy to solve.
11.) $4 \times 8$
12.) $6 \times 4$

Find the missing factor using your knowledge of number families.
13.) $\qquad$ $\times 8=32$
14.) $6 \times$ $\qquad$ $=24$

Solve.
The taco truck sold 3 potato breakfast tacos and 4 bacon breakfast tacos each hour for 4 hours. How many breakfast tacos in all were sold in the 4 hours?

Find the missing multiplication problem.

$$
\begin{aligned}
& (5+1) \times 6 \\
& (5 \times 6)+(1 \times 6) \\
& 30+6=36
\end{aligned}
$$

Choose a strategy to solve. Show your work.
1.) $9 \times 3$

Strategy:
2.) $4 \times 8$

Strategy:
3.) $3 \times 6$

Strategy:
4.) Jenna swims 5 freestyle laps and 3 backstroke laps every day. How many laps total does she swim in 4 days?

Follow the steps to determine the original problem.
5.)


$$
8+20=28
$$

6.)

$\quad$| $4 \times 2 \times 3$ |
| :--- |
| $2 \times 2 \times 2 \times 3$ |
| $2 \times 2 \times 6$ |

$2 \times 12$

24
7.)

$(7 \times 1)+(7 \times 5)$

$$
7+35=42
$$

Choose a strategy to solve. Show your work.
1.) $9 \times 6$

Strategy:
2.) $4 \times 6$

Strategy:

Follow the steps to determine the original problem.
3.)

4.)

$60-6=54$

Use the Doubling Strategy to solve.
5.) $8 \times 8$

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Module MDFS
Lesson 16 Independent Practice
```

Think multiplication to solve for division.
6.) $32 \div 4=$ $\qquad$
7.) $24 \div 4=$ $\qquad$
8.) At sports camp the campers have to run 3 laps around the field in the morning and 2 laps around the field in the afternoon. How many laps in total do campers run after 5 days at camp?

A 5 laps
B 10 laps
C 20 laps
D 25 laps
$n=a$ letter that stands for an unknown number or factor

$$
\begin{gathered}
n+1=4 \\
n= \\
n \times 3=15
\end{gathered}
$$

$$
n=
$$

$\qquad$

$$
21 \div 3=a
$$

$$
a=
$$

$\qquad$

Choose a strategy to solve. Show your work.
1.) Perla is buying hotdog buns, soda, and 5 bags of chips for a $B B Q$. She needs to buy 48 buns. The buns come in packages of 8 . How many packages of 8 buns will Perla need to buy to have a total of 48 buns?

Use counters or draw an equal-groups model to solve.
2.) $16 \div 4=n$
$n=$ $\qquad$
3.) $12 \div 3=n$
$n=$ $\qquad$

Use your knowledge of number families to help solve. Rewrite the division problem as a multiplication problem with a missing factor.
4.) $20 \div 5=n$
5.) $12 \div 3=n$


$$
n=
$$

$$
n=
$$

Follow the steps used to determine the original problem.
1.)


40-4
$40-4=36$
2.)


Draw an equal-groups model to solve.
3.) $14 \div 7=n$

$$
n=
$$

$\qquad$
4.) $10 \div 5=n$

$$
n=
$$

$\qquad$

## Module MDFS <br> Lesson 17 Independent Practice

Use your knowledge of number families to help solve. Rewrite the division problem as a multiplication problem with a missing factor.
5.) $20 \div 5=n$

$n=$ $\qquad$
6.) $12 \div 3=n$

$n=$ $\qquad$

Choose the correct division and multiplication with missing factor problem.
7.) Mrs. Flores is making flower arrangements. She has 108 flowers and 9 vases. If each vase has an equal number of flowers, how many flowers will she place in each vase?
A $108 \div 9=n$
C $108 \div 9=n$
$n \times 108=9$
$n \times 9=108$
B $9 \div 108=n$
$n \times 9=108$
D $n \div 108=9$
$9 \times 108=n$

# Module MDFS <br> Lesson 18 <br> Engaged Practice 

Freddy was twice as tall as his little brother Eddy.

What does twice mean? $\qquad$

The sunflowers were triple the height of any other flower in the garden.

What does triple mean? $\qquad$

After I practiced, I quadrupled my score from last week.

What does quadrupled mean? $\qquad$

The number of people attending the game doubled from last year.

What does doubled mean? $\qquad$

113

## Module MDFS <br> Lesson 18 Modeled Practice

I ate 4 pancakes this morning for breakfast and drank 4 glasses of orange juice. My brother ate 5 times as many pancakes as I did, but only drank 2 glasses of orange juice. How many pancakes did he eat?


Solve each problem using the number line and strip diagram.
1.) The tree in the front yard is 8 ft . tall. The house is twice as tall as the tree. The 4 kids who live in the house love climbing the tree! How tall is the house?

What is the question asking you to find? $\qquad$

Number Line

$\qquad$ ft .

Strip Diagram
$\square$
$\qquad$
$=$
$\qquad$ ft.

Solve each problem using the number line and strip diagram.
2.) The average rattlesnake is about 3 ft. in length. The longest snake in the world can grow to be 5 times longer than the rattlesnake. The largest crocodile can grow up to 20 ft . long. What is the length of the longest snake in the world?

What is the question asking you to find? $\qquad$

Number Line

$\times$ $\qquad$
$\qquad$
$\qquad$ ft.

Strip Diagram
$\square$
$\qquad$
$\qquad$ ft.

Use your knowledge of number families to help solve. Rewrite the division problem as a multiplication problem with a missing factor.
1.) $49 \div 7=n$
$\qquad$ $\times$ $\qquad$ $=$ $\qquad$
$n=$ $\qquad$
2.) $24 \div 8=n$
$\qquad$ X $\qquad$ = $\qquad$
$n=$ $\qquad$

Solve each problem using the number line and strip diagram.

A farmer has 4 hens and 2 roosters. He has 7 times as many chicks as hens. How many chicks does the farmer have?
3.) What is the question asking you to find? $\qquad$
4.) Number Line

5.) Multiplication $\qquad$
$\qquad$ chicks
6.) Strip Diagram
$\square$
7.) Multiplication $\qquad$
$\qquad$ chicks

## Module MDFS

Lesson 18 Independent Practice

At Fulmore Elementary School, there are 124 students in band and choir.

There are triple the amount of girls in choir as boys. If there are 10 boys in choir, how many girls are there?
8.) What is the question asking you to find?
9.) Number Line

10.) Multiplication $\qquad$

11.) Strip Diagram
$\square$
12.) Multiplication $\qquad$
$\qquad$ girls
13.) How many boys and girls are in choir altogether?

| 24 |  |  |
| :---: | :---: | :---: |
| 8 | 8 | 8 |

## Multiplication

Division

|  |
| :--- |
|  |

Multiplication

$$
\begin{array}{ll}
9 \times 6=54 & 54 \div 6=9 \\
6 \times 9=54 & 54 \div 9=6
\end{array}
$$

Division

## Module MDFS <br> Lesson 19 <br> Modeled Practice

The Millers are remodeling their house. They bought 4 large buckets of paint with 6 gallons of paint in each bucket, 12 paintbrushes, and 4 rags. How many gallons of paint did the Millers buy altogether?
$\square$

For the light fixture in the dining room, Mrs. Miller needs 16 light bulbs. Light bulbs are sold in packages of 4 . Each package costs $\$ 2.25$. How many packages will she need to buy?
$\square$

Read the problem. Use a strip diagram to solve.
1.) At the hardware store, Mr. Miller bought 3 packages of screws and 5 packages of nails. Each package of screws had 12 screws in it. Mr. Miller needs 30 screws to build the new shelves. Did he buy enough screws to build the shelves?

2.) Mr. Miller hired a handyman on Friday to help with the remodeling. The handyman charged Mr. Miller \$8 an hour. Mr. Miller paid the handyman $\$ 32$ when he was done. How many hours did the handyman work?
$\square$

Write a story problem for the strip diagram below.
3.)

| 35 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | 7 | 7 | 7 | 7 |  |

$\qquad$
$\qquad$

Solve the problem below using the number line.
1.) Margo ran 6 miles on Thursday. She did not run on Friday. Then she ran 3 times further on Saturday than Thursday. How far did she run on Saturday?

$\qquad$ miles

Solve the problem below using a strip diagram.
2.) In the hot dog eating contest, Jake ate 8 hot dogs in 3 minutes. Omar ate 3 times more hot dogs than Jake. How many hot dogs did Omar eat in 3 minutes?

$\qquad$ hot dogs

Read the problem. Use a strip diagram to solve.
3.) The Millers put new carpet in their son's room. His room is 7-ft. wide and 9 -ft. long. The carpet cost $\$ 3.99$ per square foot. How much carpet should the Millers order for their son's room?
4.) Mrs. Miller bought 45 small flowers to plant in the front flowerbeds of the house. Each flower has 3 to 4 blooms. Mrs. Miller wants to plant the flowers equally with 9 flowers in each flowerbed. How many flowerbeds will she plant flowers in?

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Module MDFS
Lesson 19 Independent Practice
```

Choose the correct equation for the problem.
5.) The remodeling of the Miller's house took 6 weeks to complete. The Millers worked 5 days a week on remodeling. They spent 8 hours a day working. How many days altogether did the Millers work on their house?

A $6 \times 8=48$ days
B $6 \times 5=30$ days
C $5 \times 8=40$ hours
D $6 \times 5 \times 8=240$ days


Multiplication
Division


Multiplication
Division
$4 \times 9=36$
$36 \div 4=9$
$9 \times 4=36$
$36 \div 9=4$

Module MDFS
Lesson 20

There are 56 sticks of gum. Each package has 8 sticks of gum. The gum is a mix of peppermint, spearmint, and sweet mint. How many packages of gum are there?
$\qquad$

Kiya buys 7 packages of highlighters, 2 packages of pens, and 3 spiral notebooks for school. Each package contains 4 highlighters. How many highlighters did Kiya buy?
$\square$

Read the problem. Use a strip diagram to solve.
1.) Ian collected $\$ 27$ for selling candy bars for a school fundraiser. He sold milk chocolate, dark chocolate, and chocolate with almonds. Each candy bar was $\$ 3$. How many candy bars did lan sell?
$\square$
2.) Tonya's art teacher asked her to pass out paintbrushes for art class. She is told to give 8 brushes to each table. There are 5 tables in the class. The class is 45 minutes long. How many paintbrushes will she need?
$\square$

## Module MDFS

Lesson 20

Write a story problem for the strip diagram below.
3.)

$\qquad$
$\qquad$
$\qquad$

Use your knowledge of number families to help solve. Rewrite the division problem as a multiplication problem with a missing factor.
1.) $35 \div 5=n$
$\qquad$ $\times$ $\qquad$ $=$ $\qquad$
$n=$ $\qquad$
2.) $72 \div 8=n$

$n=$ $\qquad$

Read the problem. Use a strip diagram to solve.
3.) At the restaurant Julia and her 3 friends ordered nachos and sodas to share. The cost of the meal including tax and tip was $\$ 20$. If each friend paid the same amount, how much did each friend pay?
$\square$
4.) Natalya read 9 pages every night for 1 week. She read $1 / 3$ of her book in the week. How many pages did she read in the week?

Solve.
5.) Kyle had a stamp collection of 64 stamps. He placed the stamps in an album for safekeeping. Kyle placed 8 stamps per page. How many pages of stamps does he need for all 64 stamps? Choose the correct strip diagram to represent the problem below.
A

C

B

D


