

McLean School

Summer Math Assignment Rising Grade 4

Dear Mathematician,

Happy Summer!

Welcome to your Summer Math Assignment. Please try your best to complete a little bit each week. We recommend completing three pages a week over the course of the summer months. The first section of the workbook should feel like a review. There are no new concepts, only old friends from this past year of learning. This is your opportunity to shore up your skills and get a bit of extra practice. To help freshen your memory, there are teaching pages that provide step-by-step guidance and examples. The second section provides optional extension activities for more challenging work. In the third section, you will find games to play over the summer. The final section has templates and graph paper to use if you need them.

At first, try solving the problems on your own. If you need help, you may ask someone to help you solve the problem. Always show your work - even if you did the math in your head!

Some of these exercises will feel easier than others. Remember to persevere, explore, make mistakes, and grow your brain. You can do it!

Be gentle with yourself, mathematician. Take your time as you complete this workbook. Please return this workbook to your homeroom teacher by Friday, September 13. If you have questions, please contact Michelle FitzGerald, Coordinator of Learning Services and Assistant Head of Lower School, at mfitzgerald@mcleanschool.org.

See you in September and have a fabulous, Mathematical Summer!

Mrs. Peters
K-4 Math Specialist

PRACTICE



Chapter

2

Reteach

Addition Within 10,000

Activity 3 Add Fluently Within 1,000

Add. Fill in each blank.

Example

$$435 + 124 = ?$$

STEP 1

Add the ones.

$$\begin{array}{r} 435 \\ + 124 \\ \hline \end{array}$$

$$\begin{array}{l} \underline{5} \text{ ones} \\ + \underline{4} \text{ ones} \\ = \underline{9} \text{ ones} \end{array}$$

STEP 2

Add the tens.

$$\begin{array}{r} 435 \\ + 124 \\ \hline \end{array}$$

$$\begin{array}{l} \underline{3} \text{ tens} \\ + \underline{2} \text{ tens} \\ = \underline{5} \text{ tens} \end{array}$$

STEP 3

Add the hundreds.

$$\begin{array}{r} 435 \\ + 124 \\ \hline \end{array}$$

$$\begin{array}{l} \underline{4} \text{ hundreds} \\ + \underline{1} \text{ hundred} \\ = \underline{5} \text{ hundreds} \end{array}$$

So, $435 + 124 = \underline{559}$.

1 $126 + 71 = ?$

STEP 1	STEP 2	STEP 3
Add the ones.	Add the tens.	Add the hundreds.
$\begin{array}{r} 126 \\ + 71 \\ \hline \end{array}$	$\begin{array}{r} 126 \\ + 71 \\ \hline \end{array}$	$\begin{array}{r} 126 \\ + 71 \\ \hline \end{array}$
_____ ones	_____ tens	_____ hundred
+ _____ one	+ _____ tens	+ _____ hundreds
= _____ ones	= _____ tens	= _____ hundred

So, $126 + 71 =$ _____.

2 $344 + 23 = ?$

STEP 1	STEP 2	STEP 3
Add the ones.	Add the tens.	Add the hundreds.
$\begin{array}{r} 344 \\ + 23 \\ \hline \end{array}$	$\begin{array}{r} 344 \\ + 23 \\ \hline \end{array}$	$\begin{array}{r} 344 \\ + 23 \\ \hline \end{array}$
_____ ones	_____ tens	_____ hundreds
+ _____ ones	+ _____ tens	+ _____ hundreds
= _____ ones	= _____ tens	= _____ hundreds

So, $344 + 23 =$ _____.

5 $258 + 410 = ?$

$$\begin{array}{r} 258 \\ + 410 \\ \hline \end{array}$$

So, $258 + 410 =$ _____.

6 $615 + 181 = ?$

$$\begin{array}{r} 615 \\ + 181 \\ \hline \end{array}$$

So, $615 + 181 =$ _____.

7 $403 + 280 = ?$

$$\begin{array}{r} 403 \\ + 280 \\ \hline \end{array}$$

So, $403 + 280 =$ _____.

8 $512 + 346 = ?$

$$\begin{array}{r} 512 \\ + 346 \\ \hline \end{array}$$

So, $512 + 346 =$ _____.

Example

$$386 + 455 = ?$$

STEP 1

Add the ones.

$$\begin{array}{r} \boxed{1} \\ 386 \\ + 455 \\ \hline \boxed{} \end{array}$$

$$\begin{array}{l} \underline{} 6 \text{ ones} \\ + \underline{} 5 \text{ ones} \\ = \underline{} 11 \text{ ones} \end{array}$$

Regroup the ones.

$$\begin{array}{l} \underline{} 11 \text{ ones} \\ = \underline{} 1 \text{ ten} \\ \underline{} 1 \text{ one} \end{array}$$

STEP 2

Add the tens.

$$\begin{array}{r} \boxed{1} \boxed{1} \\ 386 \\ + 455 \\ \hline \boxed{} \end{array}$$

$$\begin{array}{l} \underline{} 1 \text{ ten} \\ + \underline{} 8 \text{ tens} \\ + \underline{} 5 \text{ tens} \\ = \underline{} 14 \text{ tens} \end{array}$$

Regroup the tens.

$$\begin{array}{l} \underline{} 14 \text{ tens} \\ = \underline{} 1 \text{ hundred} \\ \underline{} 4 \text{ tens} \end{array}$$

STEP 3

Add the hundreds.

$$\begin{array}{r} \boxed{1} \boxed{1} \\ 386 \\ + 455 \\ \hline \boxed{} \end{array}$$

$$\begin{array}{l} \underline{} 1 \text{ hundred} \\ + \underline{} 3 \text{ hundreds} \\ + \underline{} 4 \text{ hundreds} \\ = \underline{} 8 \text{ hundreds} \end{array}$$

So, $386 + 455 = \underline{} 841$.

Check:

$$\begin{array}{r} \boxed{1} \boxed{1} \\ 455 \\ + 386 \\ \hline \boxed{} \end{array}$$

9 $263 + 318 = ?$

STEP 1	STEP 2	STEP 3
Add the ones.	Add the tens.	Add the hundreds.
<div style="text-align: center;"> <input type="text"/> $\begin{array}{r} 263 \\ + 318 \\ \hline \end{array}$ </div>	<div style="text-align: center;"> <input type="text"/> $\begin{array}{r} 263 \\ + 318 \\ \hline \end{array}$ </div>	<div style="text-align: center;"> <input type="text"/> $\begin{array}{r} 263 \\ + 318 \\ \hline \end{array}$ </div>
<p>_____ ones</p> <p>+ _____ ones</p> <p>= _____ ones</p>	<p>_____ ten</p> <p>+ _____ tens</p> <p>+ _____ ten</p> <p>= _____ tens</p>	<p>_____ hundreds</p> <p>+ _____ hundreds</p> <p>= _____ hundreds</p>
<p>Regroup the ones.</p> <p>_____ ones</p> <p>= _____ ten</p> <p>_____ one</p>		

So, $263 + 318$ _____.

Check:

$$\begin{array}{r} 318 \\ + 263 \\ \hline \end{array}$$

13 $528 + 396 = ?$

$$\begin{array}{r} \square \square \\ 528 \\ + 396 \\ \hline \square \square \end{array}$$

So, $528 + 396 = \underline{\hspace{2cm}}$.

Check:

$$\begin{array}{r} \square \square \\ 396 \\ + 528 \\ \hline \square \square \end{array}$$

14 $574 + 188 = ?$

$$\begin{array}{r} \square \square \\ 574 \\ + 188 \\ \hline \square \square \end{array}$$

So, $574 + 188 = \underline{\hspace{2cm}}$.

Check:

$$\begin{array}{r} \square \square \\ 188 \\ + 574 \\ \hline \square \square \end{array}$$

15 $756 + 198 = ?$

$$\begin{array}{r} \square \square \\ 756 \\ + 198 \\ \hline \square \square \square \end{array}$$

So, $756 + 198 = \underline{\hspace{2cm}}$.

Check:

$$\begin{array}{r} \square \square \\ 198 \\ + 756 \\ \hline \square \square \square \end{array}$$

16 $483 + 479 = ?$

$$\begin{array}{r} \square \square \\ 483 \\ + 479 \\ \hline \square \square \square \end{array}$$

So, $483 + 479 = \underline{\hspace{2cm}}$.

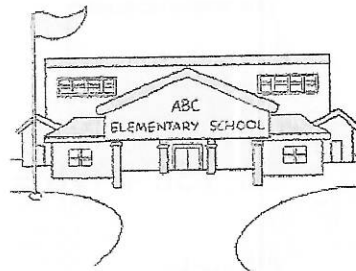
Check:

$$\begin{array}{r} \square \square \\ 479 \\ + 483 \\ \hline \square \square \square \end{array}$$

Solve. Show your work. ~~Draw bar models to help you.~~
Then, check if your answers are reasonable.

- 3 A middle school has 3,756 students. It has 455 fewer students than an elementary school.

- a How many students does the elementary school have?



- b How many students do both schools have in all?

- 4 There are 5,740 visitors at Exhibition A.
There are 2,871 visitors at Exhibition B.
Another 1,388 visitors arrive at Exhibition B.
- a How many visitors are there at Exhibition B now?

- b How many visitors are there in all at the two exhibitions?

- 5 A shop sold 2,390 bottles of water on Saturday.
350 more bottles were sold on Sunday than on Saturday.
- a How many bottles of water were sold on Sunday?

- b How many bottles of water were sold over the weekend?



Chapter

3

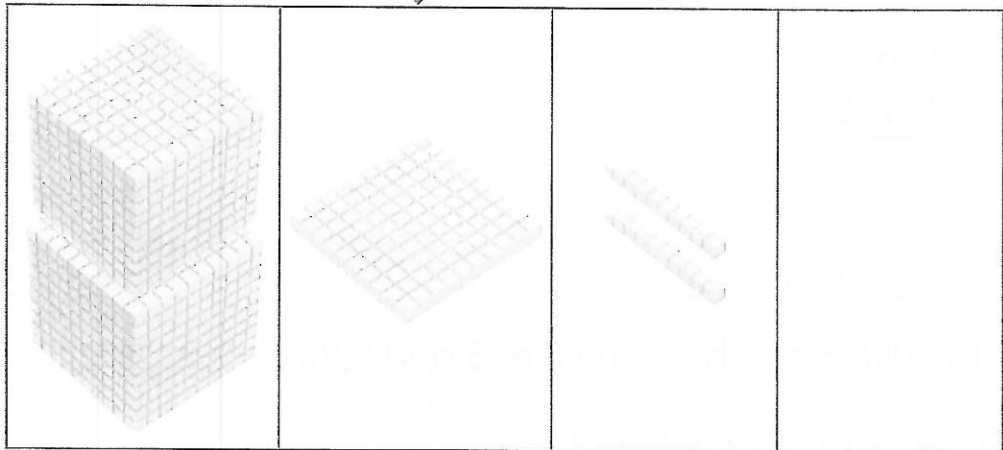
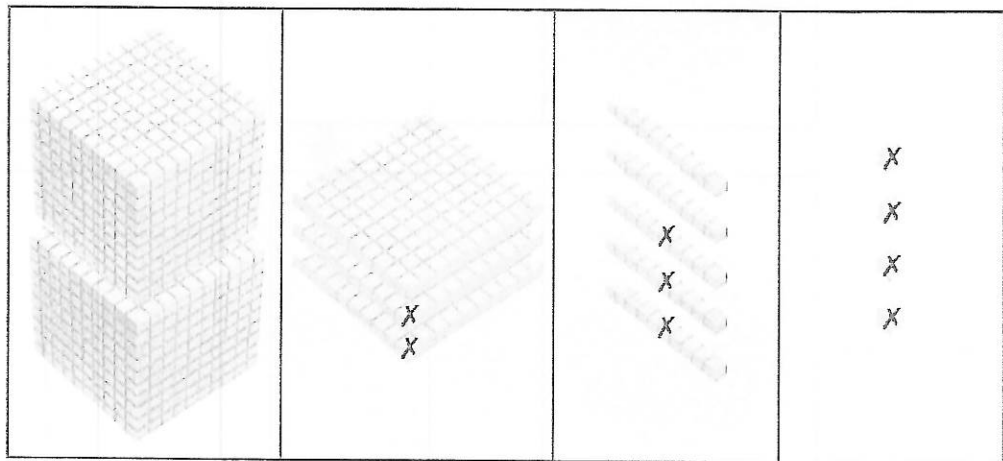
Extra Practice and Homework Subtraction Within 10,000

Activity 3 Subtracting Without Regrouping

Fill in each blank.

- ① Subtract 234 from 2,354.

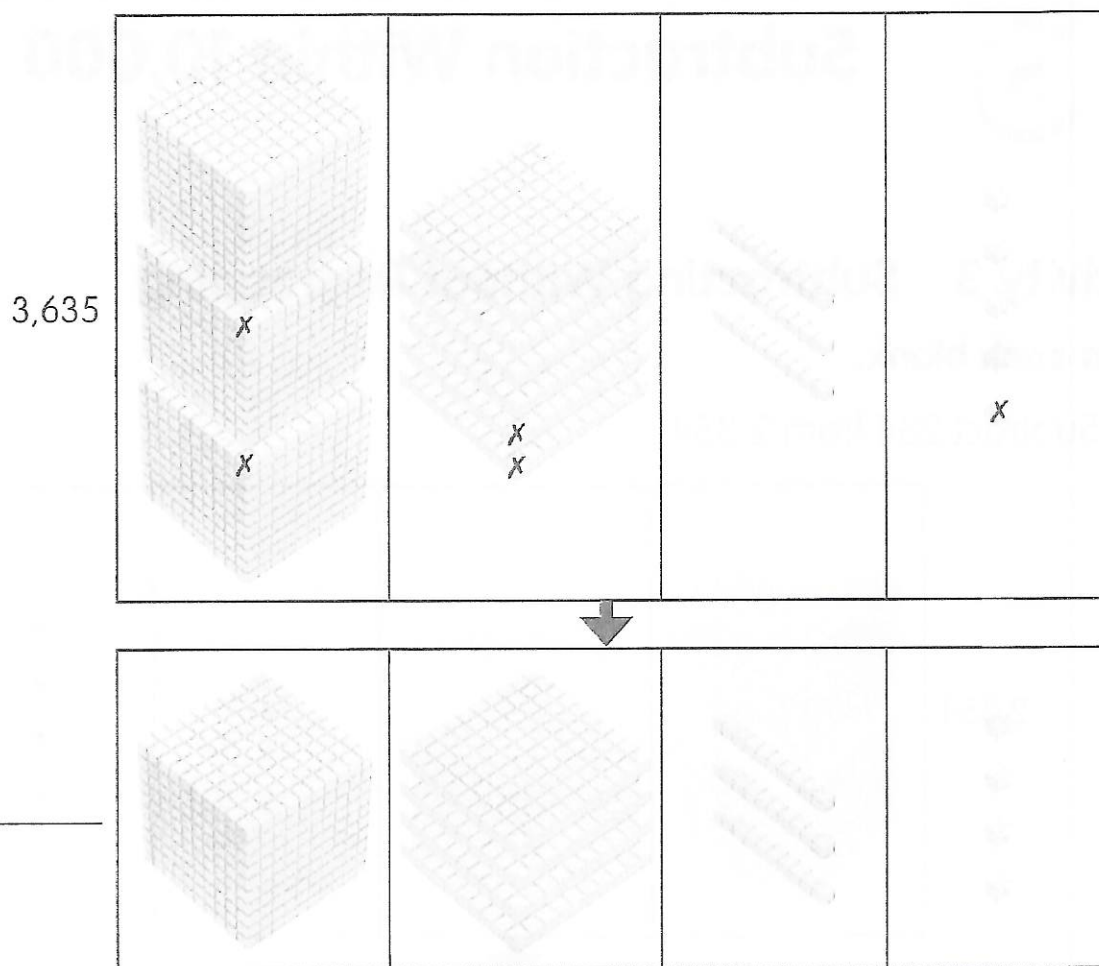
2,354



$$\begin{array}{r} 2,354 \\ - 234 \\ \hline \end{array}$$

2,354 - 234 = _____

- 2 Find the difference between 3,635 and 2,201.



$$\begin{array}{r} 3,635 \\ - 2,201 \\ \hline \end{array}$$

$3,635 - 2,201 = \underline{\hspace{2cm}}$

The difference between 3,635 and 2,201 is .

- 3 Subtract 138 from 9,349.

$$\begin{array}{r} 9,349 \\ - 138 \\ \hline \end{array}$$

$9,349 - 138 = \underline{\hspace{2cm}}$

- 4 Find the difference between 4,321 and 7,352.

$$\begin{array}{r} 7,352 \\ - 4,321 \\ \hline \end{array}$$

The difference between 4,321 and 7,352 is _____.

Subtract.

5

$$\begin{array}{r} 5,564 \\ - 23 \\ \hline \end{array}$$

6

$$\begin{array}{r} 8,975 \\ - 64 \\ \hline \end{array}$$

7

$$\begin{array}{r} 3,819 \\ - 705 \\ \hline \end{array}$$

8

$$\begin{array}{r} 9,646 \\ - 523 \\ \hline \end{array}$$

9

$$\begin{array}{r} 6,481 \\ - 350 \\ \hline \end{array}$$

10

$$\begin{array}{r} 3,606 \\ - 2,503 \\ \hline \end{array}$$

11

$$\begin{array}{r} 5,286 \\ - 5,123 \\ \hline \end{array}$$

12

$$\begin{array}{r} 7,249 \\ - 6,238 \\ \hline \end{array}$$

13

$$\begin{array}{r} 9,785 \\ - 7,541 \\ \hline \end{array}$$



Extra Practice and Homework

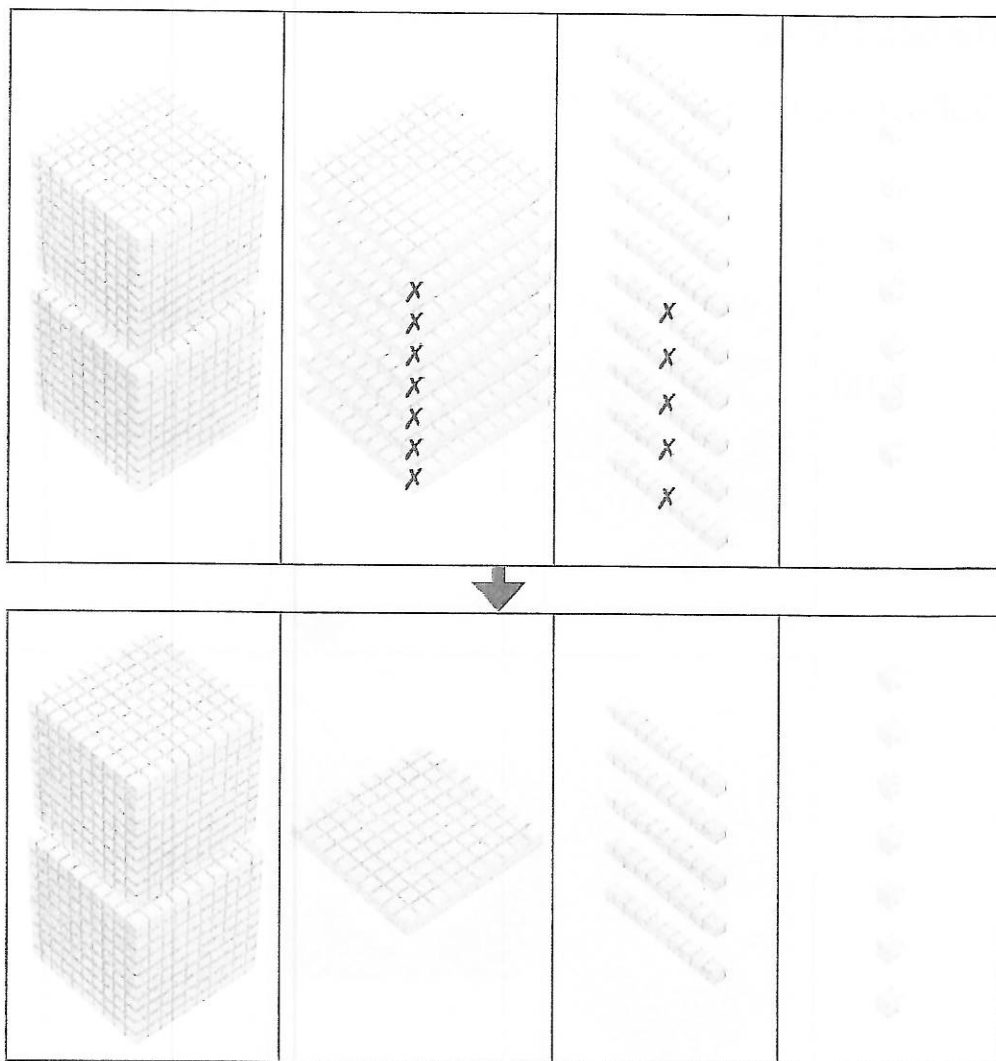
Subtraction Within 10,000

Activity 4 Subtracting with Regrouping

Fill in each blank.

- Subtract 753 from 2,910.

2,910			
↓			
↓			
			X X X



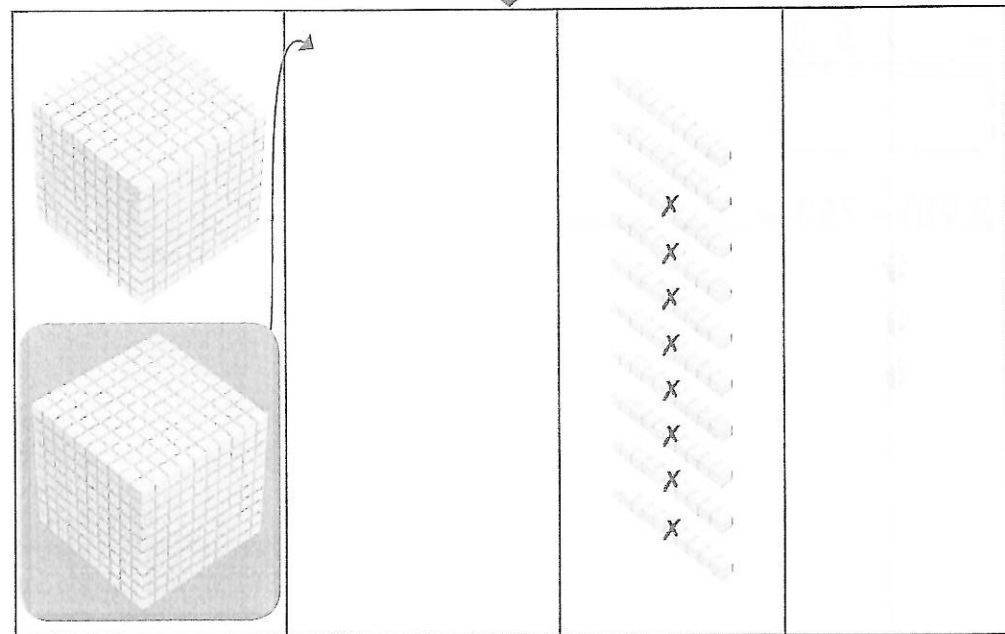
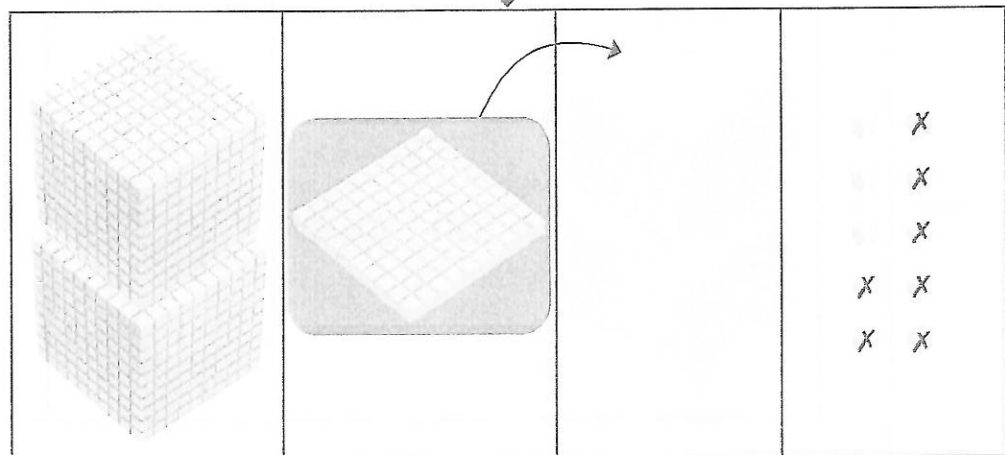
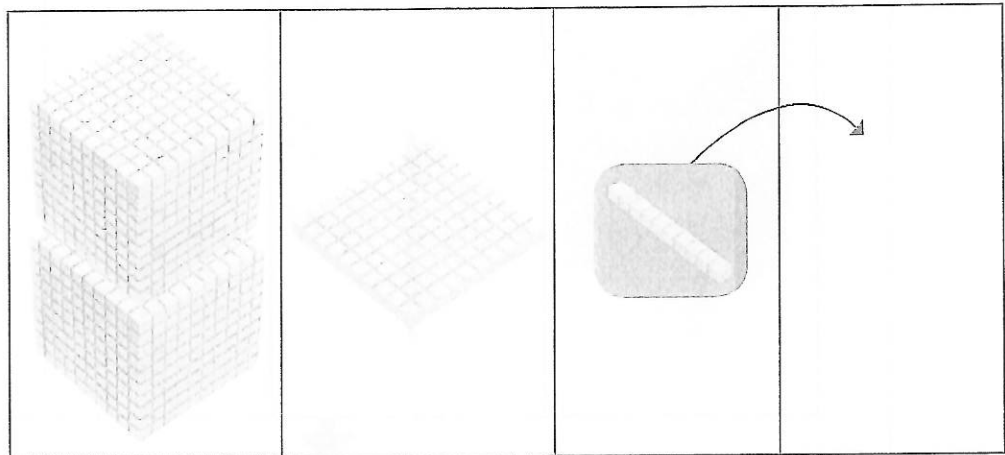
$$\begin{array}{r} 2,910 \\ - 753 \\ \hline \end{array}$$

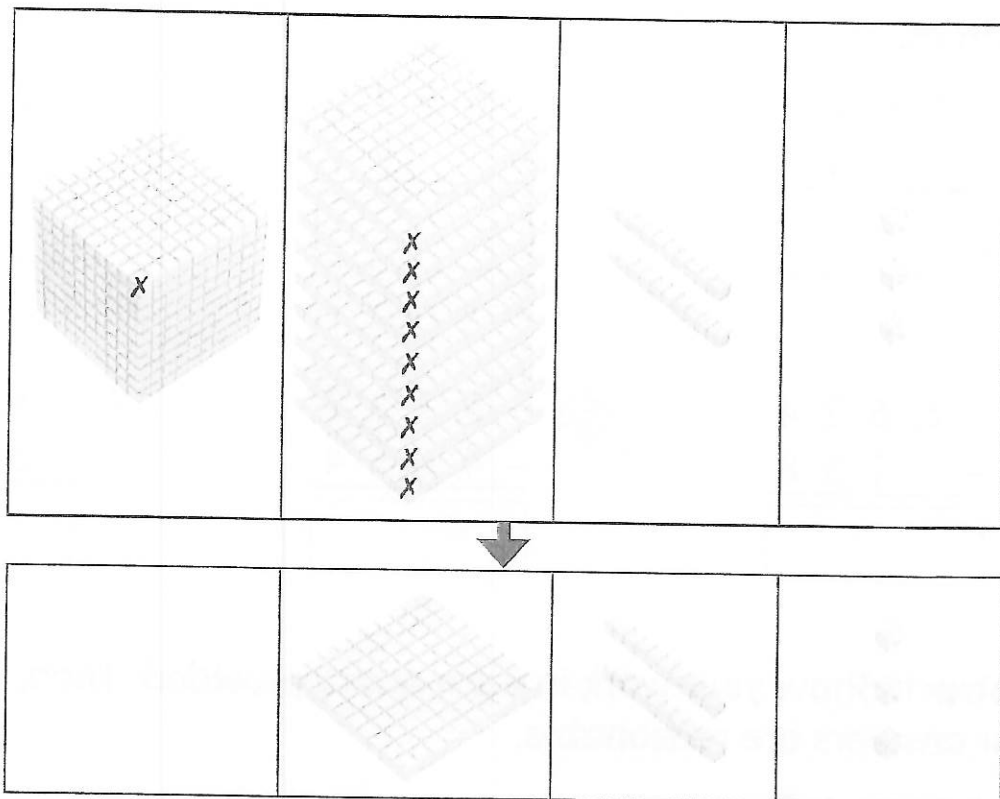
$$2,910 - 753 = \underline{\hspace{2cm}}$$

Fill in each blank.

14 Subtract 1,987 from 2,110.

2,110





$$\begin{array}{r} 2,110 \\ - 1,987 \\ \hline \end{array}$$

$$2,110 - 1,987 = \underline{\hspace{2cm}}$$

Regroup and subtract.

15

$$\begin{array}{r} 1,436 \\ - 688 \\ \hline \end{array}$$

16

$$\begin{array}{r} 2,111 \\ - 197 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 2,943 \\ - \quad 59 \\ \hline \end{array}$$

$$\begin{array}{r} 6,570 \\ - \quad 91 \\ \hline \end{array}$$

$$\begin{array}{r} 3,613 \\ - \quad 274 \\ \hline \end{array}$$

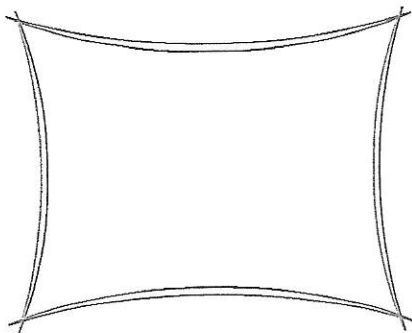
$$\begin{array}{r} 6,524 \\ - \quad 138 \\ \hline \end{array}$$

$$\begin{array}{r} 5,732 \\ - 4,064 \\ \hline \end{array}$$

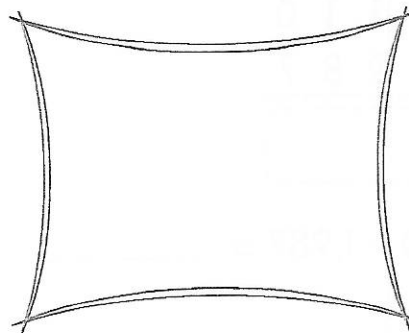
$$\begin{array}{r} 9,625 \\ - 3,288 \\ \hline \end{array}$$

Subtract. Show your work in each space provided. Then, check if your answers are reasonable.

9 $7,824 - 489 =$ _____



10 $2,655 - 1,397 =$ _____



Fill in each blank.

$$\begin{array}{r} 8, \overset{5}{\square}, \overset{10}{\cancel{7}}, \overset{12}{\cancel{2}} \\ - \quad 3, \quad 1, \quad \square, \quad 5 \\ \hline 5, \quad 4, \quad 3, \quad 7 \end{array}$$

$$\begin{array}{r} \square, \overset{7}{\cancel{8}}, \overset{13}{\square}, \overset{11}{\cancel{7}} \\ - \quad 7, \quad \square, \quad 5, \quad 6 \\ \hline 2, \quad 4, \quad 8, \quad 5 \end{array}$$

$$\begin{array}{r} 17 \quad 6,345 \\ - \quad 469 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \quad 7,556 \\ - 3,589 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \quad 4,873 \\ - 1,984 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \quad 5,160 \\ - 3,217 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \quad 9,191 \\ - 2,563 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \quad 8,956 \\ - 4,987 \\ \hline \end{array}$$

Color the answers from questions 15 to 22 to find the path to the present.

→ Start

4,987	3,876	1,864	
5,533	1,914	6,628	
1,235	748	9,713	
6,753	2,889	276	
1,943	3,969	438	
3,967	5,876	1,176	5,763





$$\begin{array}{r} 8,214 \\ - 635 \\ \hline \end{array}$$

34

$$\begin{array}{r} 8,462 \\ - 999 \\ \hline \end{array}$$

35

$$\begin{array}{r} 3,287 \\ - 1,779 \\ \hline \end{array}$$

36

$$\begin{array}{r} 6, 5 \ 2 \ 2 \\ - 5, 7 \ 8 \ 3 \\ \hline \end{array}$$

37

$$\begin{array}{r} 3, 150 \\ - 1, 274 \\ \hline \end{array}$$

38

$$\begin{array}{r} 9,731 \\ - 8,875 \\ \hline \end{array}$$



Extra Practice and Homework Grade 3A

Subtract. Then, check if your answers are reasonable.

$$\begin{array}{r} 52 \quad 2,060 \\ - \quad 78 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \quad 3,000 \\ - \quad 29 \\ \hline \end{array}$$

$$\begin{array}{r} 54 \quad 1,060 \\ - \quad 343 \\ \hline \end{array}$$

$$\begin{array}{r} 55 \quad 5,000 \\ - \quad 764 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \quad 2,006 \\ - \quad 358 \\ \hline \end{array}$$

$$\begin{array}{r} 57 \quad 6,003 \\ - \quad 1,437 \\ \hline \end{array}$$

$$\begin{array}{r} 58 \quad 3,006 \\ - \quad 2,515 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \quad 8,004 \\ - \quad 5,476 \\ \hline \end{array}$$

Fill in each blank.

$$\begin{array}{r} 60 \quad \begin{array}{cccc} & 8 & 9 & 9 & 11 \\ & \cancel{9} & \cancel{10} & \cancel{10} & \\ & \boxed{} & & \boxed{} & \\ - & \boxed{}, & 5 & \boxed{} & 7 \\ \hline & 3, & 4 & 4 & 4 \end{array} \end{array}$$

$$\begin{array}{r} 61 \quad \begin{array}{cccc} & 6 & 9 & 9 & 10 \\ & \cancel{7}, & \cancel{10} & \cancel{10} & \cancel{10} \\ - & 1, & \boxed{} & \boxed{} & \boxed{} \\ \hline & 5, & 0 & 0 & 1 \end{array} \end{array}$$



Chapter

5

Reteach

Multiplication

Activity 3 Multiplying with Regrouping

Multiply.

① $4 \times 10 =$ _____

② $8 \times 5 =$ _____

③ $6 \times 7 =$ _____

④ $9 \times 6 =$ _____

⑤ $8 \times 8 =$ _____

⑥ $7 \times 4 =$ _____

⑦ $9 \times 3 =$ _____

⑧ $5 \times 11 =$ _____

Multiply.

Example

$25 \times 3 =$ 75

Regroup the ones.



⑨ $18 \times 4 =$ _____

10 $24 \times 3 =$ _____

$$\begin{array}{r} \square \\ 24 \\ \times 3 \\ \hline \end{array}$$

11 $14 \times 6 =$ _____

Example

$54 \times 3 =$ 162

$$\begin{array}{r} \boxed{1} \\ 54 \\ \times 3 \\ \hline \boxed{162} \end{array}$$

Regroup the ones and tens.



12 $38 \times 4 =$ _____

$$\begin{array}{r} \square \\ 38 \\ \times 4 \\ \hline \end{array}$$

13 $72 \times 5 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \square \\ 72 \\ \times 5 \\ \hline \end{array}$$

14 $87 \times 6 = \underline{\hspace{2cm}}$

Example
 $118 \times 5 = \underline{590}$

$$\begin{array}{r} \square 4 \\ 118 \\ \times 5 \\ \hline 590 \end{array}$$

Regroup the ones.



15 $214 \times 4 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \square \\ 214 \\ \times 4 \\ \hline \end{array}$$



Chapter

5

Extra Practice and Homework

Multiplication

Activity 3 Multiplying with Regrouping

Multiply and match.

1
$$\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$$

•

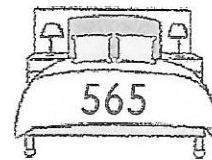
•



2
$$\begin{array}{r} 79 \\ \times 4 \\ \hline \end{array}$$

•

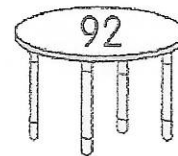
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3
$$\begin{array}{r} 96 \\ \times 8 \\ \hline \end{array}$$

•

•



4
$$\begin{array}{r} 113 \\ \times 5 \\ \hline \end{array}$$

•

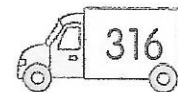
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5
$$\begin{array}{r} 327 \\ \times 2 \\ \hline \end{array}$$

•

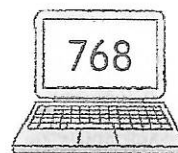
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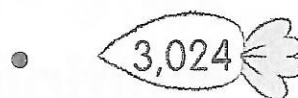
6
$$\begin{array}{r} 108 \\ \times 6 \\ \hline \end{array}$$

•

•



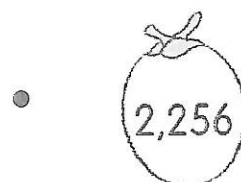
7
$$\begin{array}{r} 167 \\ \times 3 \\ \hline \end{array}$$
 •



8
$$\begin{array}{r} 139 \\ \times 7 \\ \hline \end{array}$$
 •



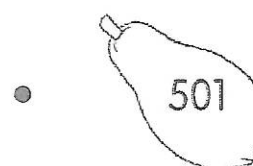
9
$$\begin{array}{r} 254 \\ \times 3 \\ \hline \end{array}$$
 •



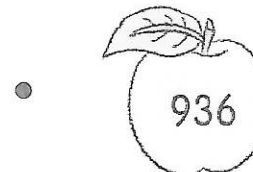
10
$$\begin{array}{r} 234 \\ \times 4 \\ \hline \end{array}$$
 •



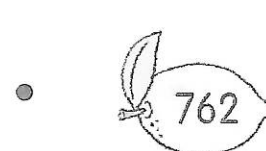
11
$$\begin{array}{r} 432 \\ \times 7 \\ \hline \end{array}$$
 •



12
$$\begin{array}{r} 376 \\ \times 6 \\ \hline \end{array}$$
 •



13
$$\begin{array}{r} 198 \\ \times 9 \\ \hline \end{array}$$
 •



14
$$\begin{array}{r} 237 \\ \times 8 \\ \hline \end{array}$$
 •



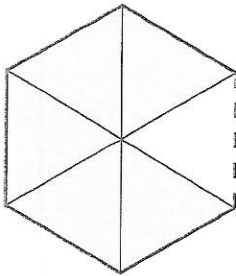


Extra Practice and Homework Fractions

Activity 2 Fractions as Part of a Whole

Fill in each blank.

1



The whole is divided into _____ equal parts.

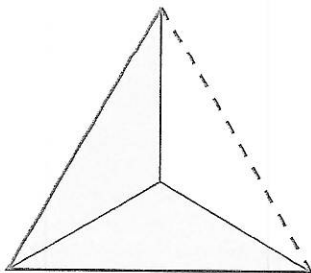
$$\frac{\boxed{}}{\boxed{}}$$

of the whole is shaded.

$$\frac{\boxed{}}{\boxed{}}$$

of the whole is **not** shaded.

2



The whole is divided into _____ equal parts.

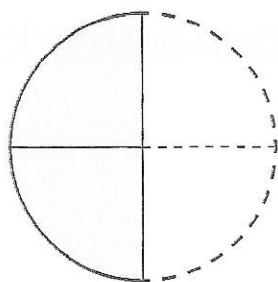
$$\frac{\boxed{}}{\boxed{}}$$

of the whole is shaded.

$$\frac{\boxed{}}{\boxed{}}$$

of the whole is **not** shaded.

3

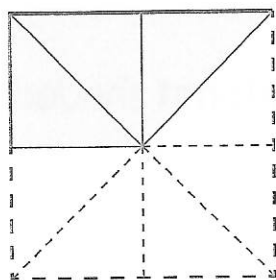


The whole is divided into _____ equal parts.

of the whole is shaded.

of the whole is **not** shaded.

4



The whole is divided into _____ equal parts.

of the whole is shaded.

of the whole is **not** shaded.



Chapter

7

Reteach Fractions

Activity 3 Fractions as part of a set

Divide the stars into equal groups.
Then, fill in each blank.

Example



3 out of the 5 stars are shaded.

$\frac{3}{5}$ of the stars are shaded.

2 out of the 5 stars are not shaded.

$\frac{2}{5}$ of the stars are not shaded.

$\frac{5}{5}$

Fill in each blank.

1



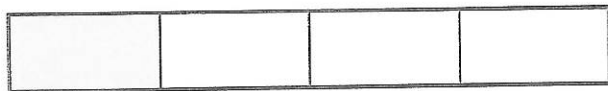
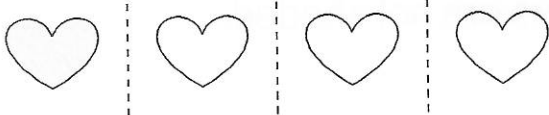
_____ out of the _____ triangles are shaded.

_____ of the triangles are shaded.

_____ out of the _____ triangles are not shaded.

_____ of the triangles are not shaded.

2



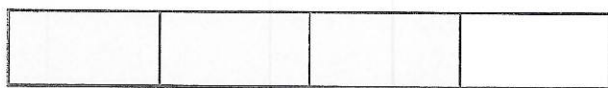
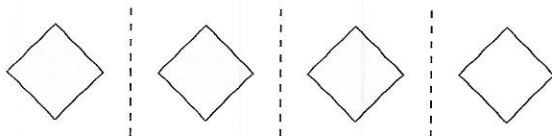
_____ out of the _____ hearts are shaded.

_____ of the hearts are shaded.

_____ out of the _____ hearts are not shaded.

_____ of the hearts are not shaded.

3



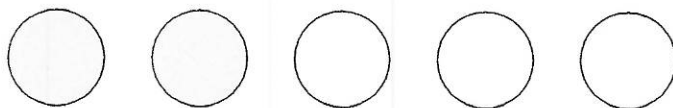
_____ out of the _____ squares are shaded.

of the squares are shaded.

_____ out of the _____ squares are not shaded.

of the squares are not shaded.

4



of the circles are shaded.

of the circles are not shaded.

CHALLENGE-
OPTIONAL



Enrichment

Addition Within 10,000

Activity 6 Real-World Problems: Addition

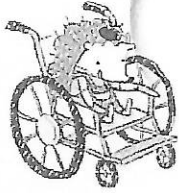
Solve. Show your work. Draw bar models to help you.

- 1 Alan had some stamps at first. After Brandon gave Alan 163 stamps, Alan had 1,325 stamps and Brandon had 720 fewer stamps than Alan. How many stamps did Brandon have at first?

- 2 There are two activity halls in Beaver Elementary School. During the school's annual sports meet, there were 1,882 people in Hall A. After 689 people entered Hall A and 1,036 people left Hall B, both halls had the same number of people. How many people were there in Hall B at first?

Solve. Show your work.

- 3 There are 3,422 fiction books, 1,451 non-fiction books, and 595 audiobooks in Fairmount Library.
- a Estimate the total number of books in the library by rounding to the nearest hundred.
- b Is the estimated total number of books greater than or less than the actual total number of books in the library? Explain. Then, find the difference between the estimated total number of books and the actual total number of books in the library.



Chapter

3

Enrichment

Subtraction Within 10,000

Activity 4 Subtraction with Regrouping

Solve. Show your work.

- 1 The sum of two numbers is 7,243. If the greater number is 5,744, find the difference between the two numbers.

- 2 The difference between 3,835 and 1,960 is the same as the difference between 2,157 and _____.

Malik made some errors in the subtraction algorithm.
Explain the errors he made. Then, show the correct solution.

$$\begin{array}{r} 3 \quad 1\,0\,0\,0\,0 \\ - \quad 6\,5\,4\,3 \\ \hline 1\,6\,5\,4\,3 \end{array}$$

Explanation:

Correct solution:



Chapter

5

Enrichment Multiplication

Activity 3 Multiplying with Regrouping

Answer each question. Show your work.

- 1 Use the digits 3, 4, and 9 to form the greatest 3-digit even number. Then, multiply your answer by 5.

- 2 Use the digits 0, 5, and 6 to form the least 3-digit odd number. Then, multiply your answer by 7.

Find each missing digit.

$$\begin{array}{r}
 3 \quad \quad 8 \ P \ 8 \\
 \times \quad \quad \quad 9 \\
 \hline
 P, \ 9 \ Q \ R
 \end{array}$$

Find each missing number.

4 $40 \times 26 = 1,040$
 $1,040 \div 4 = A$
 $4 \times 260 = B$

Answer the question.

- 5 Liam multiplied some numbers.
His solutions are shown below.

a

$$\begin{array}{r} 84 \\ \times 6 \\ \hline 484 \end{array}$$

b

$$\begin{array}{r} 136 \\ \times 5 \\ \hline 550 \end{array}$$

Identify the mistakes Liam made.
Then, write the correct solutions below.



Chapter

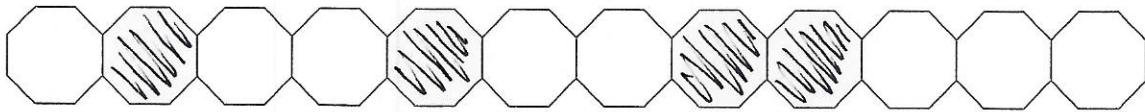
7

Enrichment Fractions

Activity 2 Fractions as Part of a Whole

Fill in each blank.

- 1 A figure is shaded as shown.



- a What fraction of the figure is shaded? _____
- b What fraction of the figure is not shaded? _____

Give your answers in simplest form.

Answer each question.

- 2 How many more squares need to be shaded so that $\frac{3}{4}$ of the figure is shaded?



8 Mr. Morgan brought his family out for breakfast.

He ate $\frac{21}{8}$ pancakes. His son ate $\frac{11}{8}$ pancakes. His wife ate 2 pancakes.

His daughter ate $\frac{5}{8}$ of a pancake. Who ate the most pancakes?

Arrange the fractions on a number line to help you.



Enrichment Fractions

Activity 5 Comparing Fractions

Answer each question.

- 1 Find the missing numerator or denominator of each fraction.

$$\frac{1}{3} = \frac{2}{\boxed{}} = \frac{\boxed{}}{9} = \frac{\boxed{}}{12}$$

- 2 List **any two** fractions that are less than $\frac{1}{3}$.
Explain how you got your answer.

- 3 List **any two** fractions that are greater than $\frac{1}{3}$.
Explain how you got your answer.

- 4 List **any two** fractions that are less than $\frac{3}{4}$.
Explain how you got your answer.

- 5 List **any two** fractions that are greater than $\frac{1}{4}$.
Explain how you got your answer.

- 6 List **at least two** fractions that are greater than $\frac{1}{4}$ but less than $\frac{3}{4}$.

Name: _____ Date: _____

Mathematical Habit 1 Persevere in solving problems


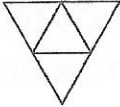
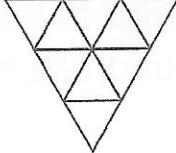
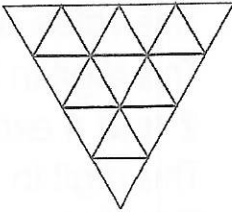
- 1 Amari writes down all the possible 4-digit numbers using the clues given below.
- The value of the digit in the thousands place is 9,000.
 - The digit in the hundreds place can be divided by both 2 and 4 exactly.
 - The digit in the tens place is an odd number.
 - The digit in the ones place is twice the digit in the tens place.
 - There are no repeated digits.

He writes down three numbers.

Is he correct? If not, how many numbers should there be?

Mathematical Habit 7 Make use of structure

2 The figures below form a pattern.

			
Figure 1	Figure 2	Figure 3	Figure 4

How many triangles are needed to make Figure 10?

Mathematical Habit 7 Make use of structure

- 1 Isabella's school day begins at 8:15 A.M. She has to complete four tasks before recess. First, her morning meeting lasts for 10 minutes. Then, her science practice lasts for 1 hour 21 minutes. Next, she reads for 27 minutes. After that, she spends 12 minutes studying her spelling words. Finally, it is time for recess. At what time does her recess begin?

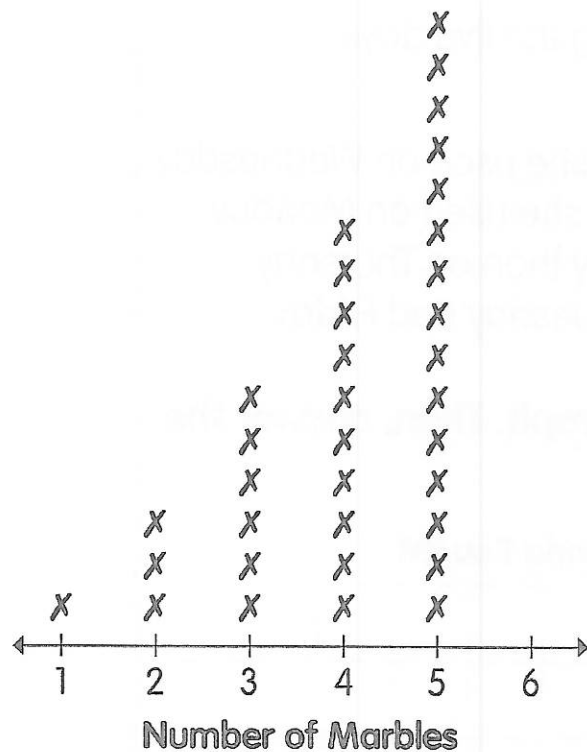
Mathematical Habit 7 Make use of structure

- 2 Ethan did all his homework from 3:55 P.M. until 5:25 P.M. First, he worked on his math homework for 33 minutes. He took a 14-minute snack break. Then, he did his science homework for 25 minutes. He studied for his spelling test for the remaining duration. How long did he spend studying for his spelling test?

Name: _____ Date: _____

Mathematical Habit 8 Look for patterns

- 1 The line plot follows a pattern.
What is the number of Xs for 6 marbles?



Mathematical Habit 4 Use mathematical models

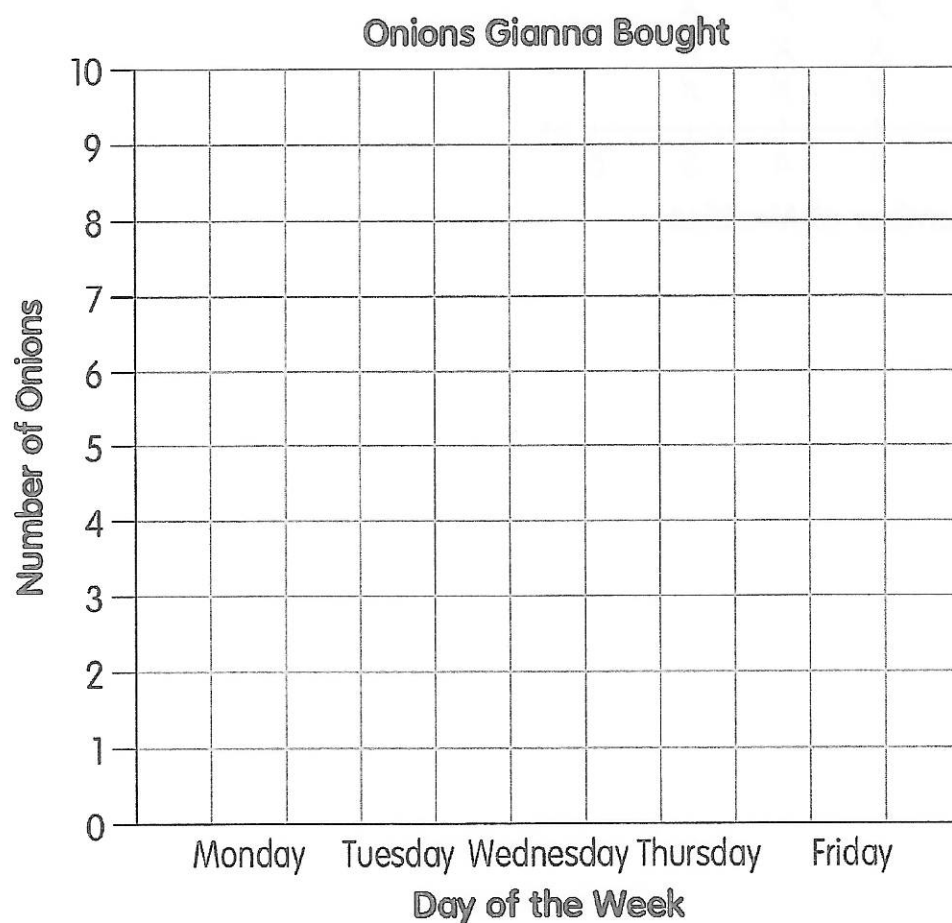
Gianna goes to the market and buys some onions.
After using some onions over 5 days, she has 12 onions left.

Number of onions Gianna used during the five days:

- 3 onions on Wednesday
- For Monday, 3 more onions than she used on Wednesday
- For Tuesday, 4 fewer onions than she used on Monday
- Twice as many onions on Tuesday than on Thursday
- The same number of onions on Tuesday and Friday

Use the data to complete the bar graph. Then, answer the question.

2 a



b Gianna buys _____ onions from the market.

STRATEGIES

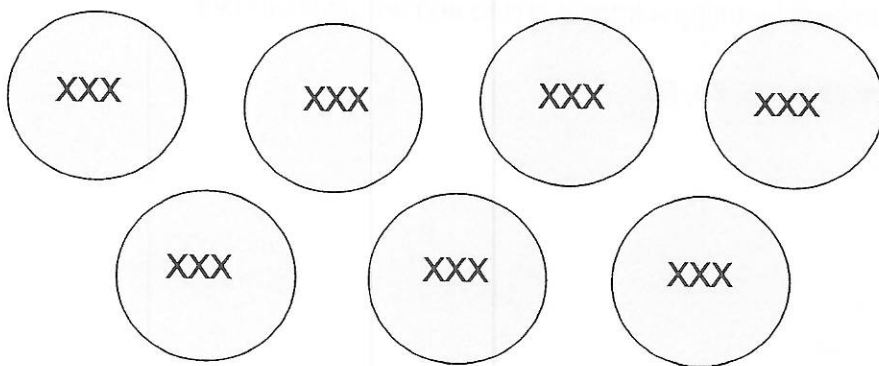
Fact Fluency Focus #1

Groups of

Used for all multiplication tables

Instead of saying times, say groups of. Students build (or draw) the multiplication problems by putting blocks or chips into equal groups. If the multiplication problem is 7×3 , students would read the problem as “**7 groups of 3**” and would then make 7 groups or piles of 3 chips in each pile. Students then count the number of total items. It is essential that students understand that there are the same number of items in each group. Multiplication is equal groups.

Ex. 7×3



So, $7 \times 3 = 21$

Fact Fluency Focus #2

Skip counting

Typically used for 2s, 3s, 5s and 10s

Students put one finger out each time they say the next number in the pattern. The multiplication problem is the number of fingers times the number they skip counting by.

Ex. 5, 10, 15, 20, 25, 30, 35

The seventh finger times 5 is 35
or $7 \times 5 = 35$

This can be extended to larger numbers by using a known fact to find an unknown fact.

Ex. $5 \times 10 = 50$ so 5×13 is 3 more 5s or 55, 60, 65.
or $5 \times 13 = 65$



Fact Fluency Focus #3

Repeated Addition

Typically used for 3s and 4s

Students can write down their repeated addition number sentence or do it mentally. When students are figuring out 6×4 , the first factor, 6, indicates how many 4s students will add.

Ex. 6×4 is $4 + 4 + 4 + 4 + 4 + 4$.

Students can add $4 + 4 = 8$

$$8 + 4 = 12$$

$12 + 4$ and so on.

Students can also add groups of numbers such as $4 + 4 = 8$

$$8 + 8 = 16$$

$$16 + 8 = 24$$

Fact Fluency Focus #4

Arrays

Typically used for 3s, 4s, 6s, 7s, 8s, 9s

An array is a visual representation of a multiplication problem. Arrays use objects or symbols in rows and columns. The array always takes the shape of a rectangle or square. The first factor is the number of objects in the column (going down) and the second factor is the number of objects going across the row. After filling in the columns and rows of the array, students can count the total number to find the answer to the multiplication problems.

Ex. 9×2

XX
XX
XX
XX
XX
XX
XX
XX
XX

Ex. 2×9

XXXXXXXXXX
XXXXXXXXXX

Fact Fluency Focus #5

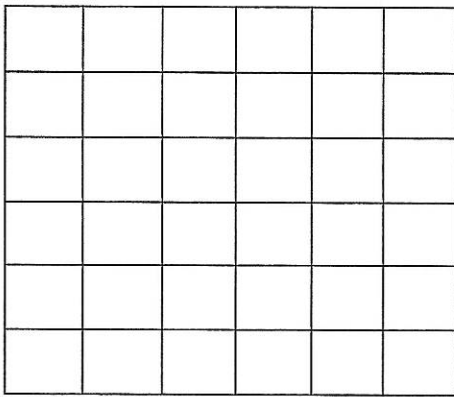
Area Model

Typically used for 3s, 4s, 6s, 7s, 8s, 9s

The area model is another visual representation of multiplication. The area model is important because it continues to be used in algebra and beyond.

The area model is introduced with a grid. Students create a square or rectangle based on the multiplication problem. The first factor is the number of squares in each column and the second factor is the number of squares in each row. The total number of squares is the product (or answer to the multiplication problems)

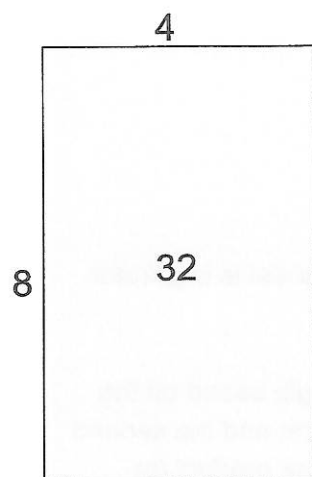
This area model represents $6 \times 6 = 36$. There are 36 squares in the model. It creates a square because both factors are the same.



As students become more comfortable with the area model and the multiplication facts, area models are drawn without the grid lines.

An area model would then look like this:

Ex. $8 \times 4 =$



The area model can be used to break apart both single digit and multi digit multiplication problems. This will be shown in the Warm Up #6

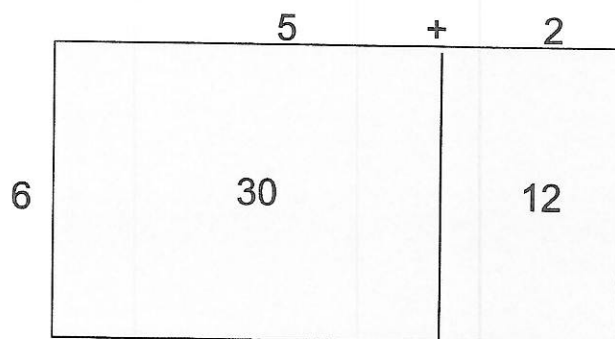
Fact Fluency Focus #6

More Area Models

Typically used for 3s, 4s, 6s, 7s, 8s, 9s and beyond

Area models are very helpful when students know some of their facts but not all. Area models let students break apart multiplication problems into smaller pieces. This is called the distributive property. For example, a student is working on 6×7 but doesn't know their 7 times tables yet. They do know their 5 and 2 times tables. The problem becomes $(6 \times 5) + (6 \times 2)$ or $(30) + (12) = 42$.

The area model looks like this:



Fact Fluency Focus #7

Commutative property

Remember that factors multiplied in any order have the same product. The groups, arrays and area models look different but the answer is the same. Use it to your advantage. You may not feel comfortable with 9×8 because of the 8 times tables but if you turn it around to 8×9 , you can use all of your knowledge of the 9 times tables to figure it out.

Example:

$$7 \times 6 = 42$$

$$6 \times 7 = 42$$

The factors are in different orders but the product is the same.



Fact Fluency Warm up #8

Tips and Tricks for 0 times table

Zero times any number is 0.

Any number times zero is 0.

No exceptions!

Fact Fluency Warm up #9

Tips and Tricks for 1 times table

The product equals the other factor in the problem.

Fact Fluency Focus #10

Tips and Tricks for 2 times table

Double the other product

Example: 6×2 is the same as $6 + 6$

The product is always even when you multiply by 2.

Fact Fluency Warm up #11

Tips and Tricks for 3 times table

Multiply the other factor by 2, then add one more group.

Example: 6×3 is the same as $6 \times 2 = 12$, then $12 + 6 = 18$

or

$$(6 \times 2) + 6 = 18$$

Fact Fluency Warm up #12

Tips and Tricks for 4 times table

If you know your 2 times tables, then you know your 4 times tables.

Start with your problems, For example:

$$9 \times 4$$

Use the distributive property from Warm Up #6 and break the 4 up into 2×2 .
Find the product of 2×9 which equals 18. Double the answer once, There is your answer.

$$9 \times 2 = 18$$

$$18 + 18 = 36 \text{ or } 18 \times 2 = 36$$

Fact Fluency Warm up #13

Tips and Tricks for 5 times table

Product always ends in a 5 or 0

Fact Fluency Focus #14

Tips and Tricks for 6 times table

If you know your 3 times tables, then you know your 6 times tables.

$$7 \times 6$$

Use the distributive property from Warm Up #6 and break the 6 up into 3×2 .
Find the product of 3×7 which equals 21. Double the answer once, There is your answer.

$$7 \times 3 = 21$$

$$21 + 21 = 42 \text{ or } 21 \times 2 = 42$$

Fact Fluency Warm up #15

Tips and Tricks for 7 times table

By the time you learn the 7 times tables, there is only one remaining fact that you need to learn.

$$7 \times 7 = 49 \text{ (I think of the San Francisco 49ers)}$$

This is due to the commutative property. You can change the order in which you multiply numbers but the product will always be the same.

Fact Fluency Warm up #16

Tips and Tricks for 8 times tables

If you know your 2 times tables, then you know your 8 times tables. There is plenty of doubling going on in the 8 times tables.

Start with your problems, For example:

$$6 \times 8$$

Use the distributive property from Warm Up #6 and break the 8 up into $2 \times 2 \times 2$.

Find the product of 2×6 which equals 12. Double the answer once, Remember from Tips and Tricks for the 4 times tables. Doubling the 2 times tables gets you to the 4 times tables. By double it one more time gets you to the 8 times tables.

$$6 \times 2 = 12$$

$$12 \times 2 = 24$$

$$24 \times 2 = 48$$

Which is also 6×8 !

This is a great trick for 7×8

5 6 7 8 is $56 = 7 \times 8$ - the numbers are all in order

Fact Fluency Focus #17

Tips and Tricks for 9 times tables

There are so many amazing patterns in the 9 times table.

In the answer, the digit in the tens place increases as the digit in the ones place decreases. Also the tens digit plus the ones digit equals 9.

$1 \times 9 = 9$	$0 + 9 = 9$
$2 \times 9 = 18$	$1 + 8 = 9$
$3 \times 9 = 27$	$2 + 7 = 9$
$4 \times 9 = 36$	$3 + 6 = 9$
$5 \times 9 = 45$	$4 + 5 = 9$
$6 \times 9 = 54$	$5 + 4 = 9$
$7 \times 9 = 63$	$6 + 3 = 9$
$8 \times 9 = 72$	$7 + 2 = 9$
$9 \times 9 = 81$	$8 + 1 = 9$
$10 \times 9 = 90$	$9 + 0 = 9$

Use the distributive property and multiply the other factor by 10 then subtract that factor.

Example: 4×9 is the same as $(4 \times 10) - 4$

GAMES

How to play Chocolate Chip Cookies

This is a 2+ player game.

Materials needed:

2 game boards

1 6-sided die

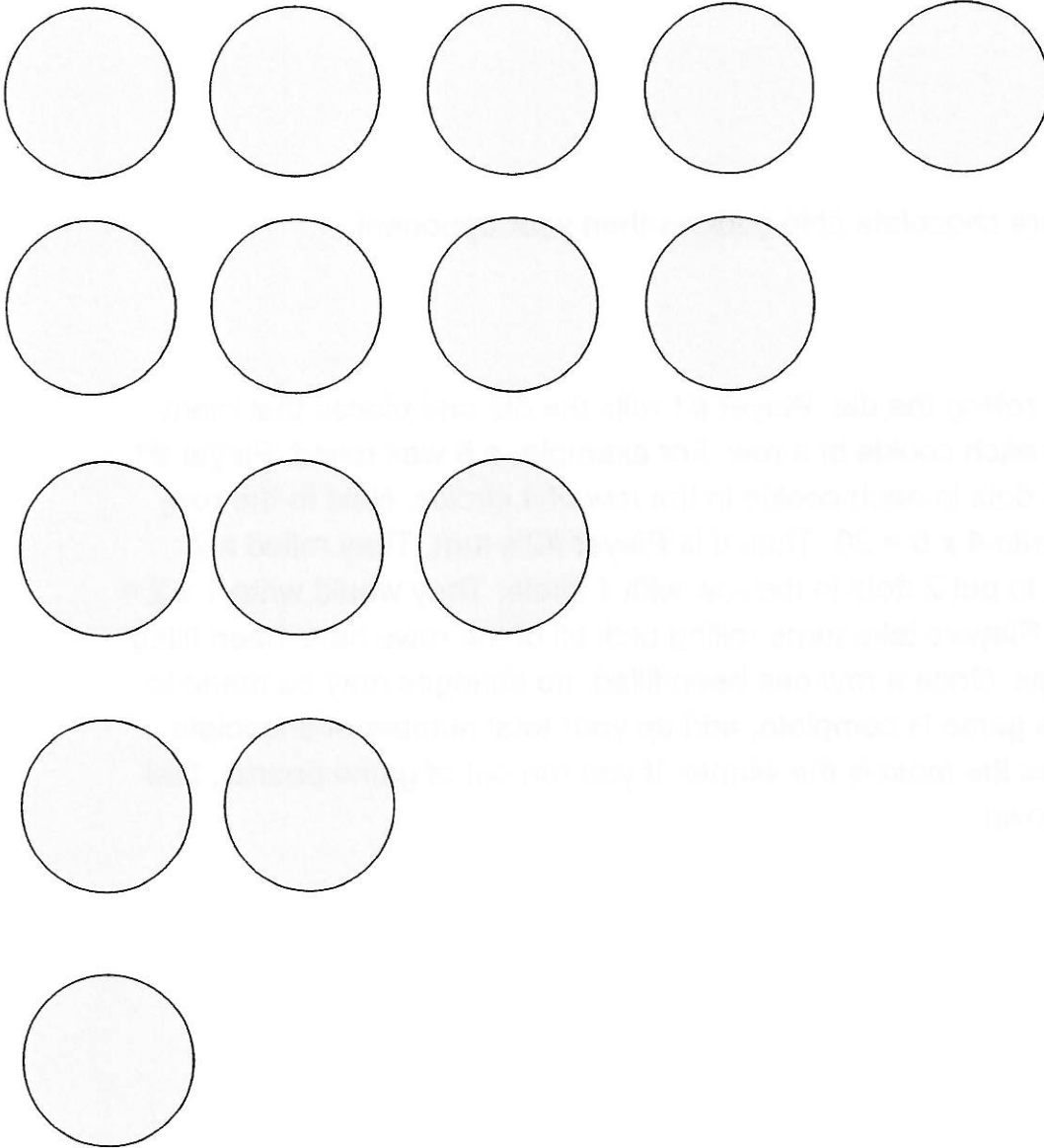
Objective:

To end up with more chocolate chip cookies than your opponent.

To play:

Players take turns rolling the die. Player #1 rolls the die and places that many chocolate chips in each cookie in a row. For example, a 5 was rolled. Player #1 decides to place 5 dots in each cookie in the row of 4 circles. Next to the row, Player #1 would write $4 \times 5 = 20$. Then it is Player #2's turn. They rolled a 2. Player #2 decided to put 2 dots in the row with 1 circle. They would write $1 \times 2 = 2$ next to that row. Players take turns rolling until all of the rows have been filled with chocolate chips. Once a row has been filled, no changes may be made to that row. When the game is complete, add up your total number of chocolate chips. Whoever has the most is the winner. If you run out of game boards, feel free to make your own.

Chocolate Chip Cookies





RULES

1. **Set up** the game starting with a blank Number Hive game board. Player 1 collects plenty of one colored counters and player 2 collects plenty of a different color.
2. Place 2 counters of a third (neutral) color each on the 1 on the number pads down the bottom. The game can now begin!
3. Player 1 moves **one** of the neutral counters somewhere else on its number pad. The new product (or sum) created is then taken in the hive by that player by placing their counter on that cell. If there are two of that product (or sum) available, they may choose which one they will take.
4. Turns now alternate. Player 2 moves either of the neutral counters (but only one) in order to create a new product (or sum) and then take that number in the hive with their counter.
5. To **win** the game, a player must get **four** of their counters **in a straight line**.



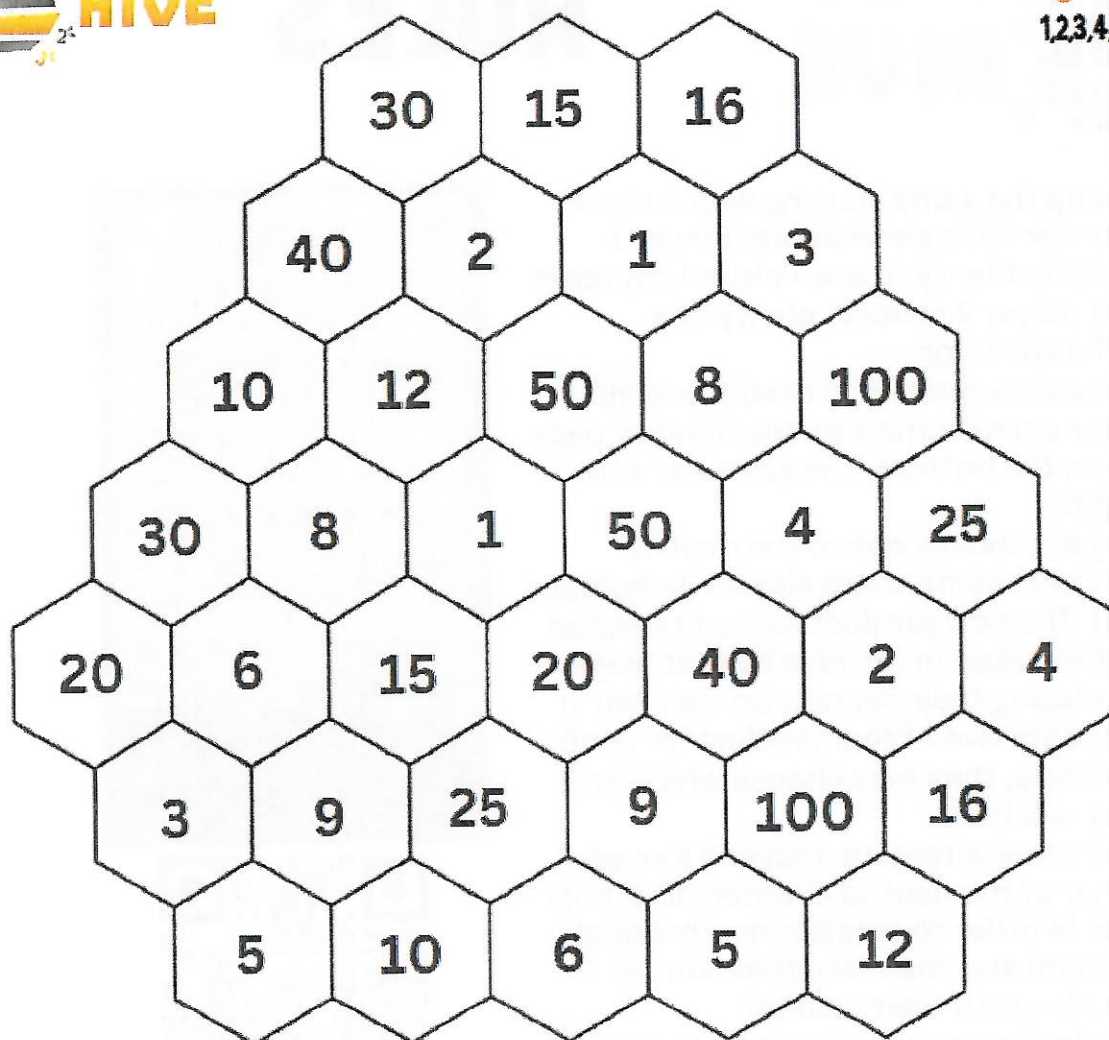
SCAN FOR VIDEO

What if?

- a player moves the neutral counter and a product (or sum) is created that is no longer available in the hive? The player forfeits their turn. Feel free to give players a chance.
- There are no more available options to move. This constitutes a stalemate.

Variations:

- There are many variations you can play. Three or more players can work. Some play collaboratively and try to fill the hive. Some choose to play where each player gets one number pad each.
- Many teachers also laminate and use markers, or place game board into plastic sleeves and do the same.



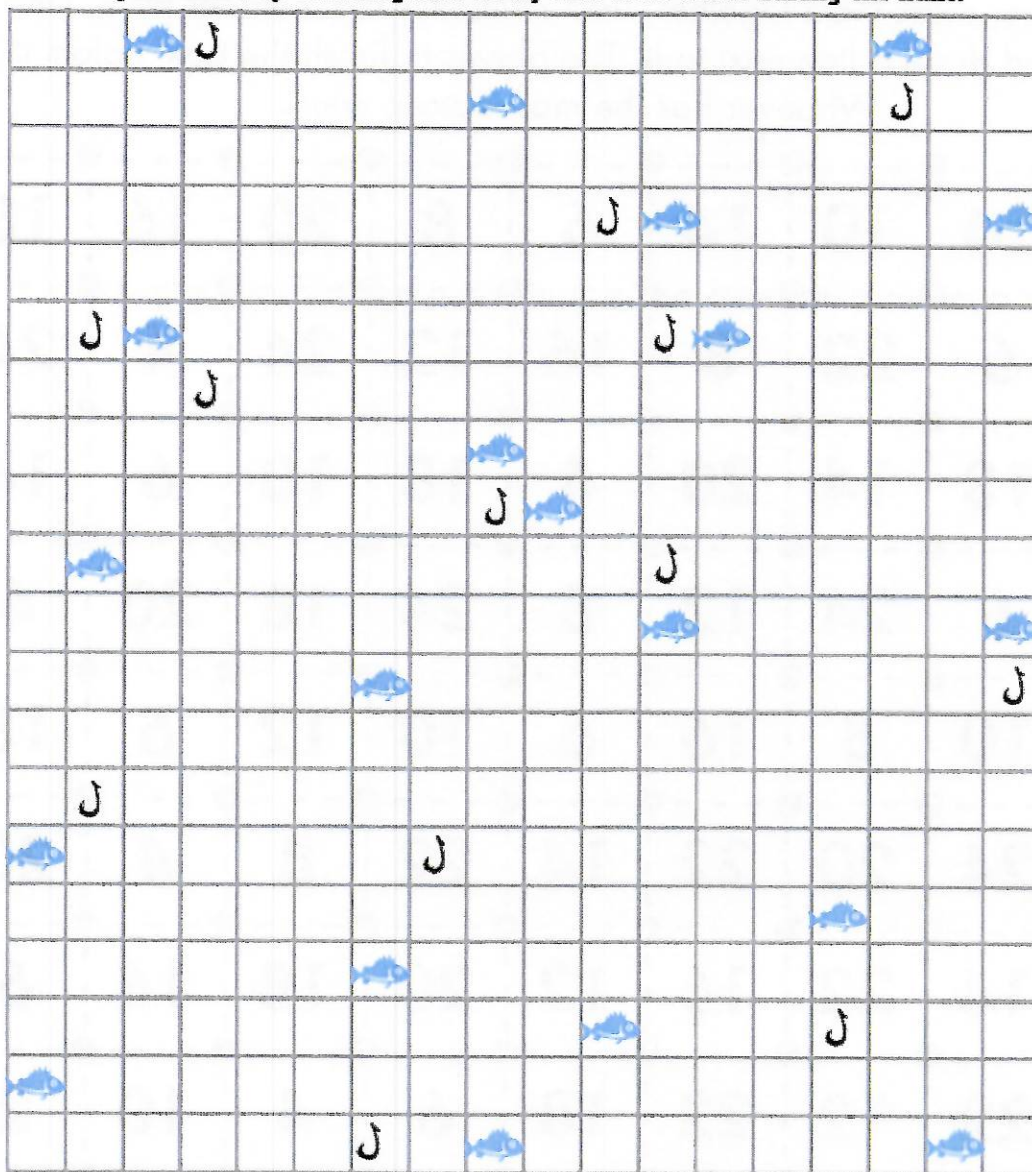
1	2	3	×	1	2	3
4	5	10		4	5	10



Area of Attack



Shark is hunting for fish! Yum! Roll 2 dice and draw the area model on the grid. The shark eats any fish in the area model! Don't get caught on the hooks! Shark stops hunting for fish if there isn't enough space for the next area model. Find your score by counting how many fish were eaten during the hunt!



0-4 fish: Shark's stomach rumbles!

5-9 fish: Not bad...for a snack.

10-14 fish: Shark is still hungry!

15-19 fish: Yum! Great hunting!

20 fish: SHARK ATTACK CHAMPION!

1+ hooks: You've been caught! Game over!

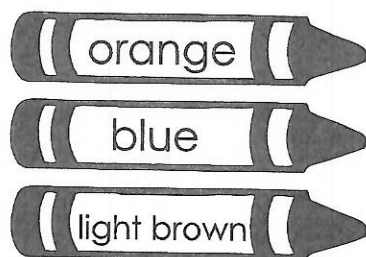
Multiplication Squares (x2)

Rules: each player needs a different colored marker, pen, or pencil. The player rolls two dice, adds them together, then multiplies that number by 2. Find the product and draw a line next to it. The player to finish the box, colors it in.

Whoever has the most boxes, wins!

12	24	10	14	6	8	20	16	18
22	6	22	8	16	12	24	4	24
4	18	14	20	4	18	10	6	14
10	6	24	12	8	24	18	20	4
20	10	8	16	6	10	12	6	18
8	24	20	22	14	22	8	4	20
6	14	22	16	12	20	18	14	6
18	22	12	22	18	6	4	10	2
2	16	2	10	16	8	2	16	2
14	20	4	18	12	2	10	24	8

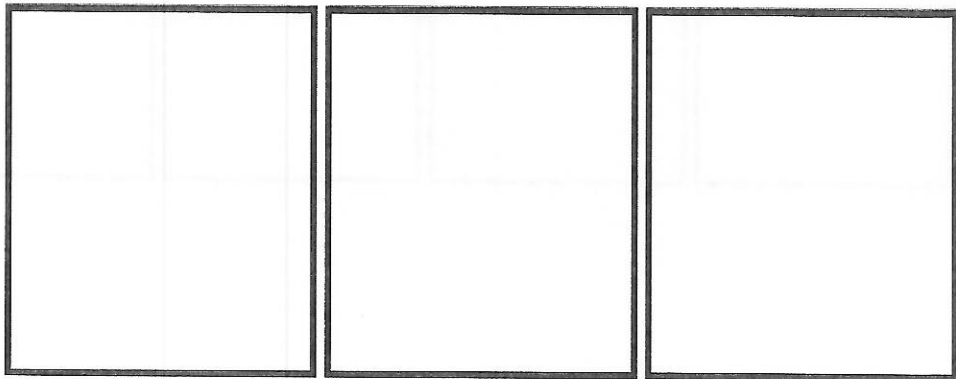
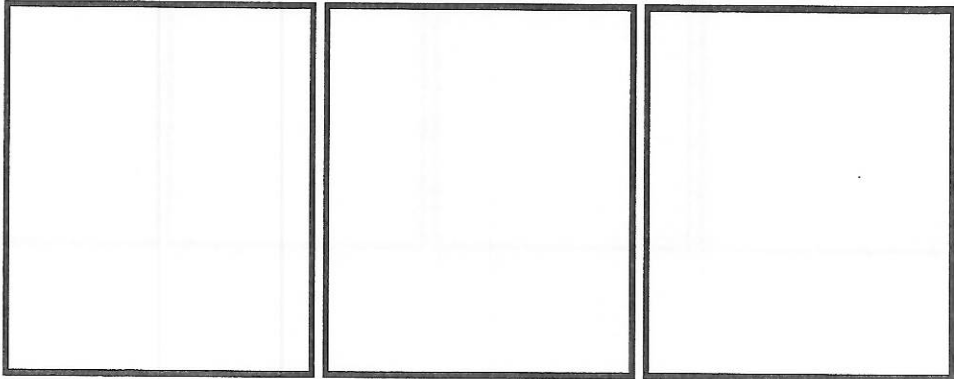
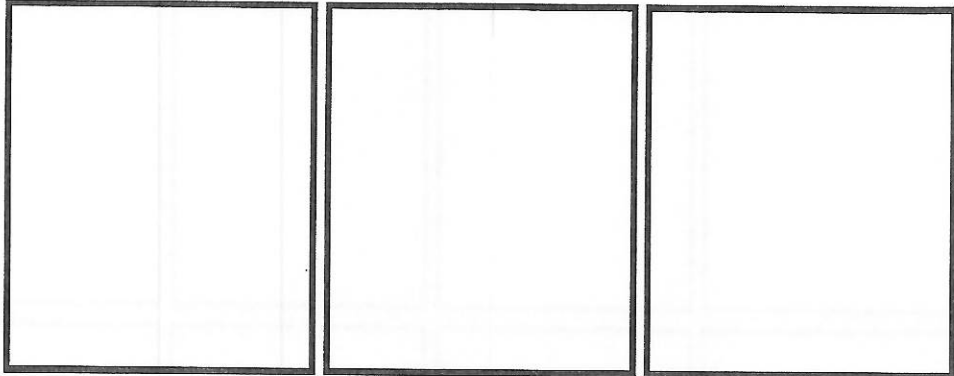
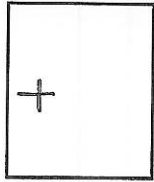
Write the answer for each problem. Then, color according to the key at the bottom.

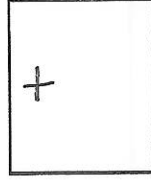
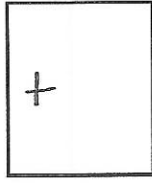
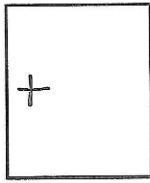


56, 81

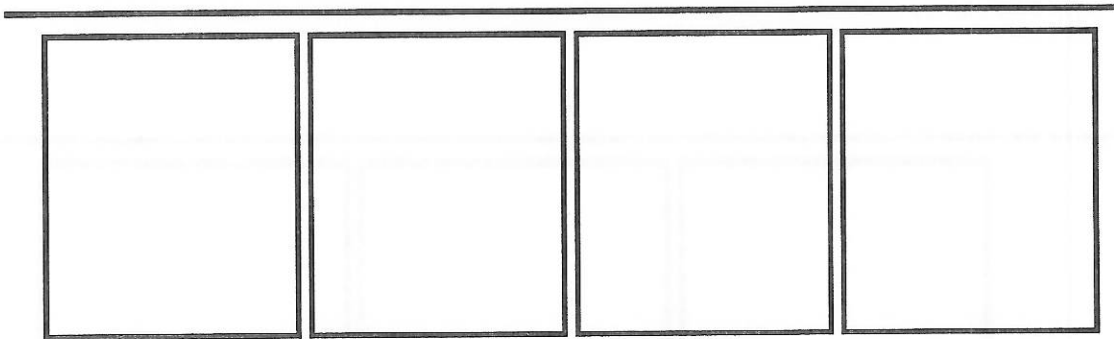
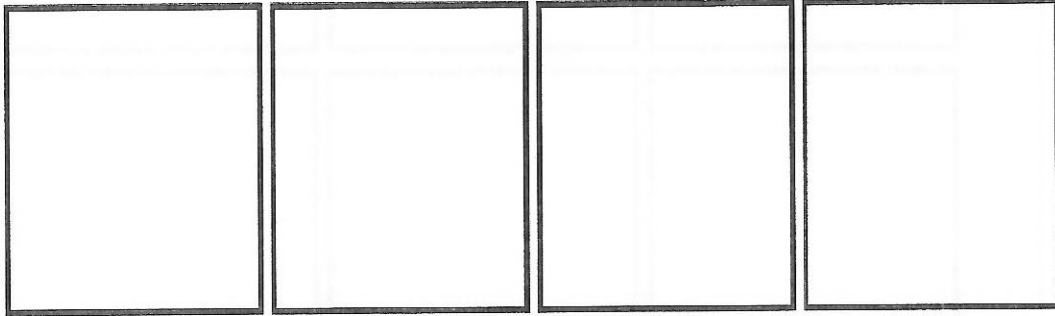
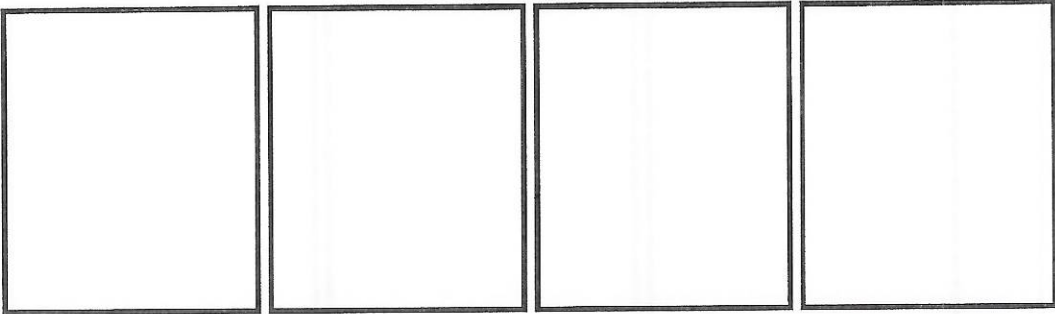
 $10 \times 2 =$

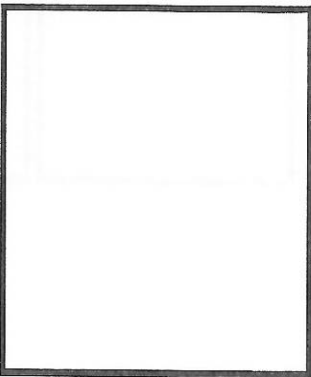
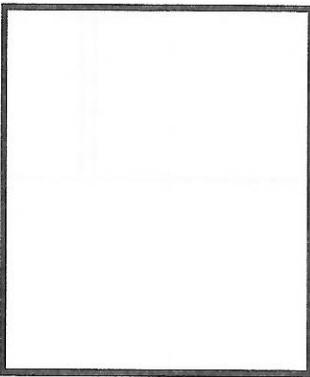
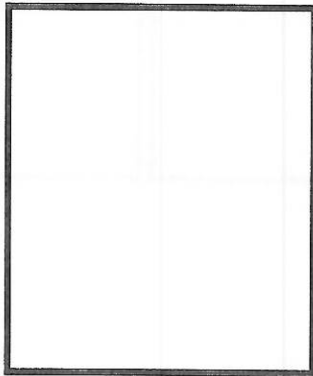
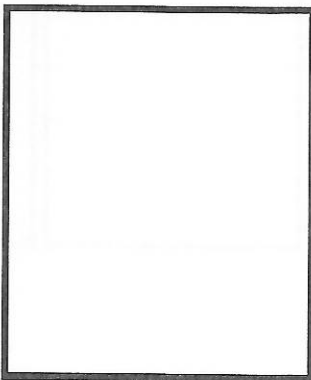
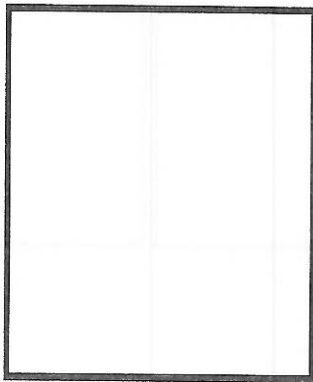
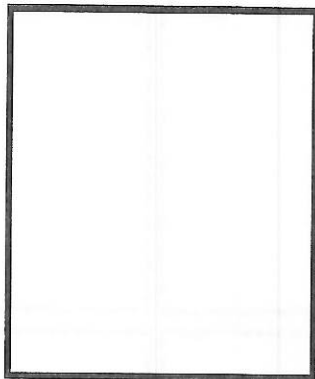
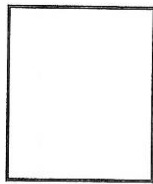
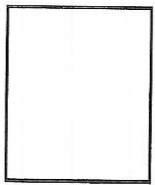
TEMPLATES AND GRAPH PAPER

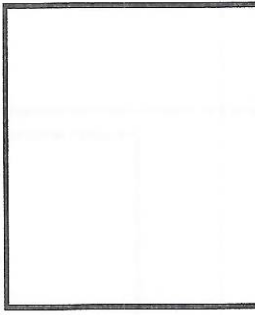
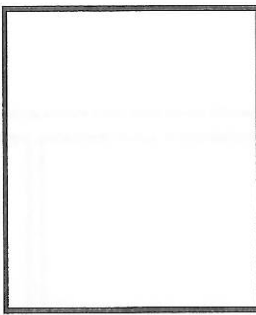
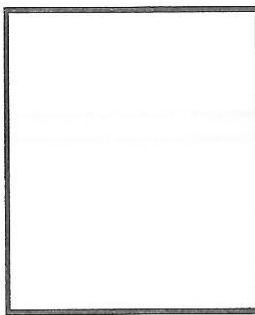
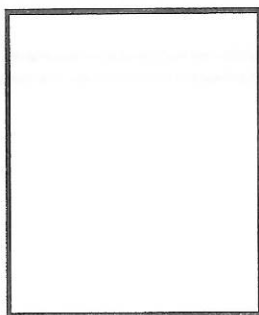
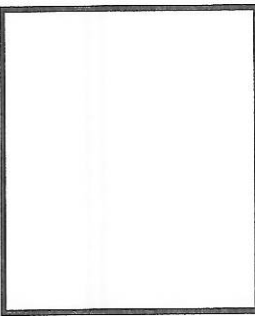
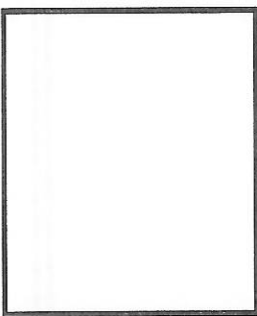
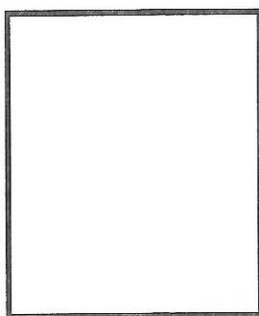
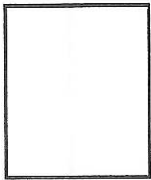




+



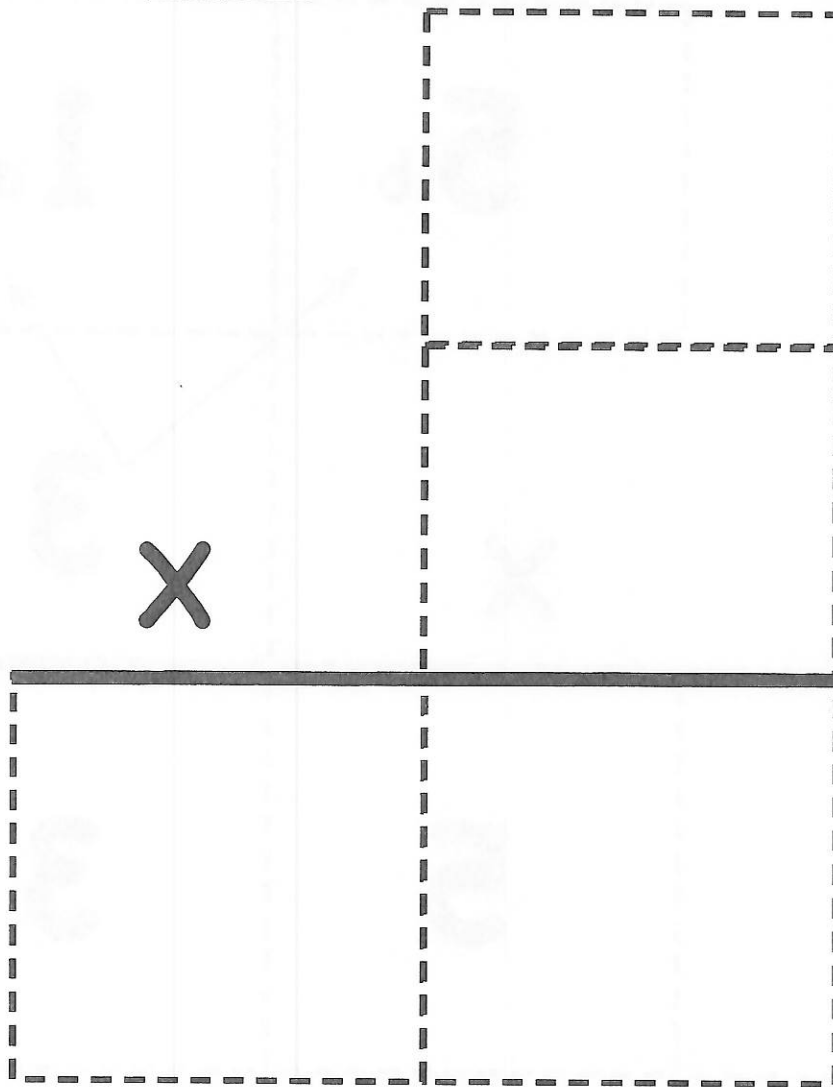
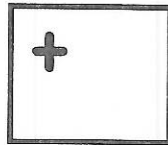




Marvelous Multiplication

Multiplying 1 digit x 1 digit

Instructional Visual & Student Template with "Helps"



(Color in the squares appropriately before using.)

Marvelous Multiplication

Multiplying 2 digits x 1 digit

Anchor Chart

+1

+

5_b

1_a

x

3

1

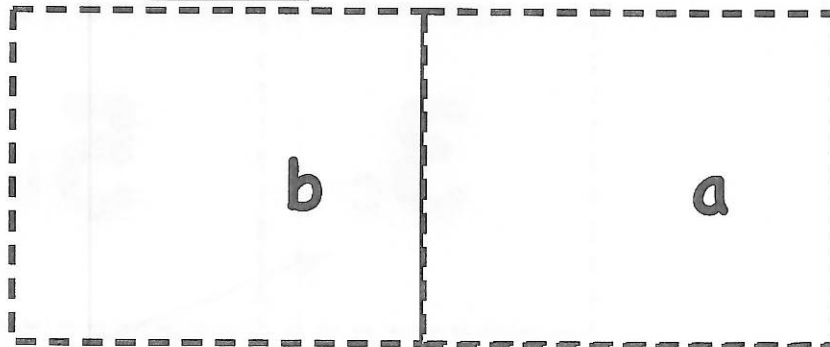
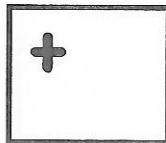
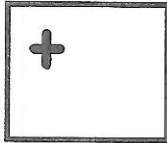
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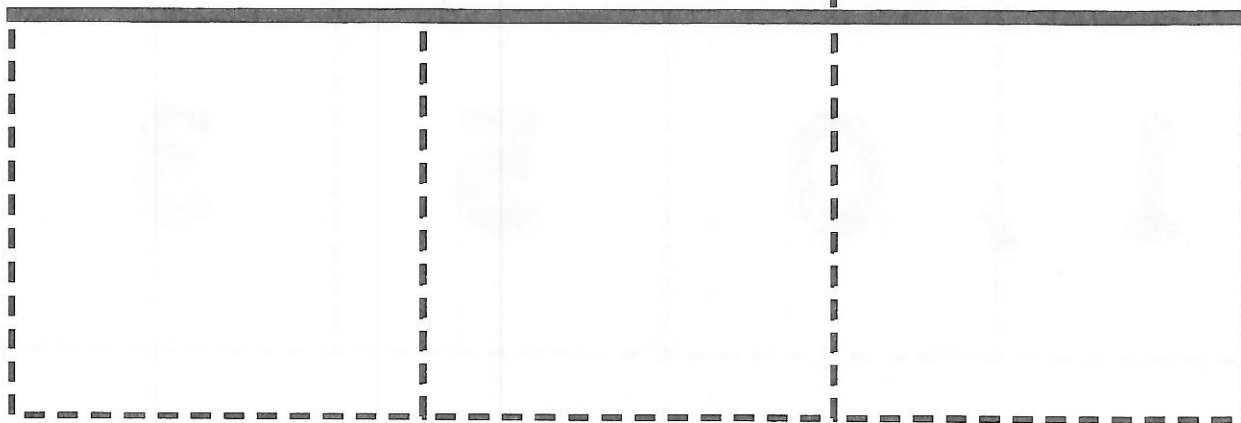
Marvelous Multiplication

Multiplying 2 digits x 1 digit

Instructional Visual & Student Template with "Helps"



x



(Color in the squares appropriately before using.)

Marvelous Multiplication

Multiplying 3 digits x 1 digit

Anchor Chart

+

+1

+1

3_c

5_b

1_a

x

3

1

,

0

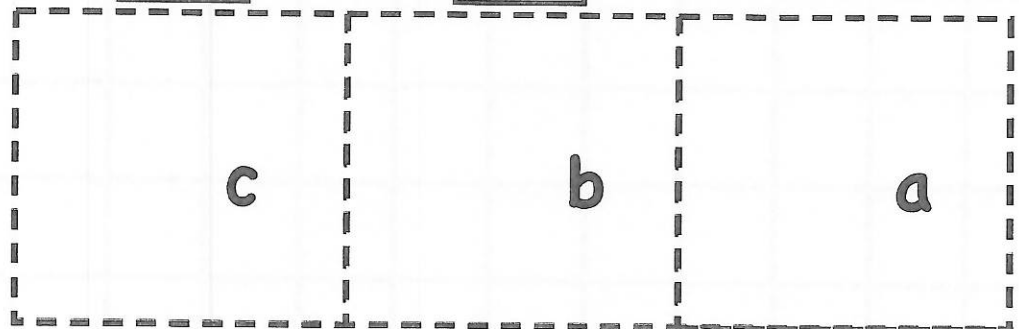
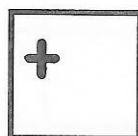
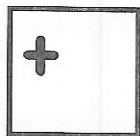
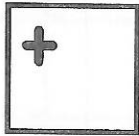
5

3

Marvelous Multiplication

Multiplying 3 digits x 1 digit

Instructional Visual & Student Template with "Helps"



x

