



**MULTIPLICATION
WORKSHEETS**

GREG TANG'S

LEARNING

THE

**BASIC
TIMES
TABLES**



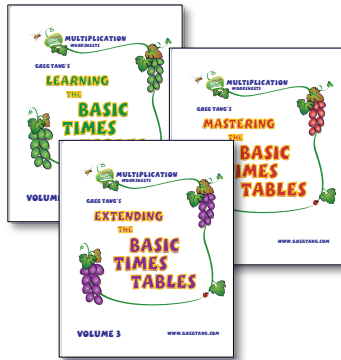
VOLUME 1

WWW.GREGTANGMATH.COM

Great Times™ Multiplication Worksheets



Series Overview

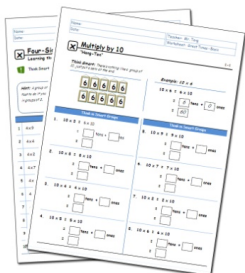


Wouldn't it be great if there were a better way for kids to learn their multiplication facts instead of brute force memorization? If there were a systematic approach that develops true understanding, improves number sense and develops the abstract, algebraic thinking skills needed for higher math? Well there is!

Greg Tang's three-part multiplication series builds on the revolutionary strategies he first introduced in his best-selling picture book *The Best of Times* and made even more popular with his *Great Times*™ multiplication flash cards. Now, Greg offers a series of worksheets that provides the instruction, practice and rigor kids need to truly master multiplication.



In part 1 of the series, **Learning the Basic Times Tables**, students take the first step in learning multiplication by thinking and adding in smart groups. Greg's common sense approach teaches basic multiplication facts while laying the groundwork for larger numbers. In part 2, **Mastering the Basic Times Tables**, students take the important next step by moving away from addition and learning to think more efficiently using partial products to multiply. Just as addition evolves from counting, multiplication evolves from addition.



In part 3 of the series, **Beyond the Basic Times Tables**, students learn to extend and apply partial products to double-digit numbers. Being good at multiplication means being able to multiply all numbers, not just small numbers. By applying smart grouping strategies more generally, students also learn to think algebraically - the key to being good in math.

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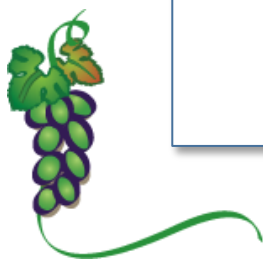
Mathematically speaking, multiplication is the process of scaling a number by a factor or multiple. To learn the basic times tables, students must learn to multiply or scale numbers by factors ranging in size from 0 to 10. While traditional approaches rely on rote memorization, the goal here is to encourage students to derive answers by building on their understanding of addition. Each carefully designed worksheet teaches them to create a single group or product from smaller groups, and to break down larger groups into smaller groups or parts.

Sequence. The worksheets are ordered to provide a logical sequence for learning. Basic, foundational strategies (0x, 1x, 2x, 10x) are introduced first, followed by moderate (3x, 4x, 5x, 9x) and finally advanced strategies (6x, 7x, 8x). Learning is sequential as students scaffold from easy skills to more advanced skills over time.

Format. Every worksheet teaches and reinforces a specific multiplication strategy that is communicated verbally through rhymes, visually through pictures, and abstractly through equations. We challenge kids to see and work with smart groupings of numbers rather than discrete, single values.

Vertically formatted worksheets provide an intuitive, top-to-bottom approach for deriving multiplication facts. Students will add in smart groups, the first step in learning their times tables. Later in volume 2, they'll learn to think more efficiently in terms of partial products.

**Vertical
Format**



$$\begin{aligned} 6 \times 5 &= 5+5+5 + 5+5+5 \\ &= \boxed{15} + \boxed{15} \\ &= \boxed{30} \end{aligned}$$



Assessment. Each section ends with worksheets that give students valuable practice and also give teachers and parents an opportunity for assessment. Proficiency in multiplication requires both fact fluency and a strong conceptual understanding.

NOTE: These worksheets prepare students to multiply not just single-digit numbers but larger numbers as well. A faster strategy may exist for a given problem, but we encourage students to master the specified strategy first.

Directions



Basic Numbers 0, 1, 2, 10



The basic numbers are the starting point and are foundational to the rest of the times tables. 0 and 1 are easy - 0 of any number is 0 and 1 of any number is itself.

To multiply by 2, the best strategy is to double because doubling works with any number. Many kids are taught to skip count by 2, but this strategy only works for small numbers and is completely ineffective with larger numbers. As with all of the times tables, kids need to be proficient with addition first, and this does not mean using counting strategies to add. Counting is counting - not adding!

To multiply by 10, kids learn to add a zero to the end of the number. So 10×4 is 4 with a 0 or 40. Most kids learn this trick but never understand why it works. Since multiplication is commutative, 10×4 equals 4×10 . Thinking place value, a group of 4 tens means the 4 must be in the ten's place, so just add a 0 in the one's place.

Looking ahead. Mastering 2 is the key to multiplying by 3 and 4, and mastering 10 is the key to multiplying by both 5 and 9.

0x

Pages 5. 0 times any number is always 0. For example, 0×3 means a group of 0 threes which is 0.

$$\begin{aligned} 0 \times 3 &= \text{a group of } \underline{0} \text{ threes} \\ &= \boxed{0} \end{aligned}$$

1x

Pages 6. 1 times any number is just that number. For example, 1×5 means a group of 1 five which is 5.

$$\begin{aligned} 1 \times 5 &= \text{a group of } \underline{1} \text{ five} \\ &= \boxed{5} \end{aligned}$$

2x

Pages 7. 2 times any number is just double that number. In this example, 2×7 is a group of 2 sevens and $7+7$ is the same as 7 doubled or 14.

$$\begin{aligned} 2 \times 7 &= 7 + 7 \\ &= \text{double } 7 \\ &= \boxed{14} \end{aligned}$$

10x

Pages 8. 10 times a number is simply that number with a 0 on the end. Multiplication is commutative, so 10×7 or a group of 10 sevens is the same as 7×10 or a group of 7 tens. In terms of place value, 7 tens is just 70.

$$\begin{aligned} 10 \times 7 &= 7 \times 10 \\ &= \boxed{7} \text{ tens} + \boxed{0} \text{ ones} \\ &= \begin{array}{|c|c|} \hline 7 & 0 \\ \hline \end{array} \\ &\quad \text{tens ones} \end{aligned}$$



page 9. Practice and show mastery of the grouping strategies for 0, 1, 2 and 10.

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Multiply by 0

"A group of 0's fast and fun - no matter what the answer's none!"



Example: 0×9

Think Smart:



$0 \times 9 =$ a group of 0 nines

$=$

Think Smart

Think Smart

1. $0 \times 2 =$ a group of 0 twos

$=$

5. $0 \times 6 =$ a group of 0 sixes

$=$

2. $0 \times 3 =$ a group of 0 threes

$=$

6. $0 \times 7 =$ a group of 0 sevens

$=$

3. $0 \times 4 =$ a group of 0 fours

$=$

7. $0 \times 8 =$ a group of 0 eights

$=$

4. $0 \times 5 =$ a group of 0 fives

$=$

8. $0 \times 9 =$ a group of 0 nines

$=$

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Multiply by 1

"A group of 1 you won't forget - what you see is what you get!"



Example: 1×4

Think Smart:



$1 \times 4 =$ a group of 1 four

$=$

Think Smart

Think Smart

1. $1 \times 2 =$ a group of 1 two

$=$

5. $1 \times 6 =$ a group of 1 six

$=$

2. $1 \times 3 =$ a group of 1 three

$=$

6. $1 \times 7 =$ a group of 1 seven

$=$

3. $1 \times 4 =$ a group of 1 four

$=$

7. $1 \times 8 =$ a group of 1 eight

$=$

4. $1 \times 5 =$ a group of 1 five

$=$

8. $1 \times 9 =$ a group of 1 nine

$=$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Multiply by 2

"A group of 2? It's no trouble - just make sure you always double!"



Example: 2×7 (a group of 2 sevens)



Think Smart:

$$\begin{aligned}
 2 \times 7 &= 7 + 7 \\
 &= \text{double } \boxed{7} \\
 &= \boxed{14}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 2 \times 2 &= 2 + 2 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 2 \times 6 &= 6 + 6 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 2 \times 3 &= 3 + 3 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 2 \times 7 &= 7 + 7 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 2 \times 4 &= 4 + 4 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 2 \times 8 &= 8 + 8 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 2 \times 5 &= 5 + 5 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 2 \times 9 &= 9 + 9 \\
 &= \text{double } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:

Date:

Teacher:

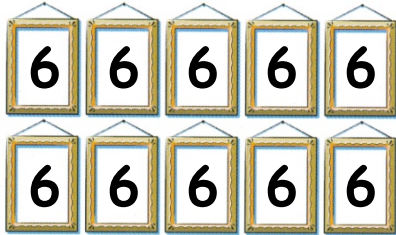
Part 1: Learning the Basic Times Tables

Multiply by 10

"There's nothing like a group of 10 - just put a zero at the end!"



Example: 10×6 (a group of 10 sixes)



Think Smart:

$$10 \times 6 = 6 \times 10 \text{ (commutative property)}$$

$$= \boxed{6} \text{ tens}$$

$$= \boxed{60}$$

Think Smart

1. $10 \times 2 = 2 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

Think Smart

5. $10 \times 6 = 6 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

2. $10 \times 3 = 3 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

6. $10 \times 7 = 7 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

3. $10 \times 4 = 4 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

7. $10 \times 8 = 8 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

4. $10 \times 5 = 5 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

8. $10 \times 9 = 9 \times 10$
 $= \boxed{} \text{ tens}$
 $= \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Practice 0, 1, 2, 10



Think Smart	Think Smart
<p>1. $0 \times 7 =$ a group of <u>0</u> sevens</p> <p>= <input type="text"/></p>	<p>6. $1 \times 3 =$ a group of <u>1</u> three</p> <p>= <input type="text"/></p>
<p>2. $1 \times 6 =$ a group of <u>1</u> six</p> <p>= <input type="text"/></p>	<p>7. $2 \times 9 = 9 + 9$</p> <p>= double <input type="text"/></p> <p>= <input type="text"/></p>
<p>3. $2 \times 4 = 4 + 4$</p> <p>= double <input type="text"/></p> <p>= <input type="text"/></p>	<p>8. $10 \times 7 = 7 \times 10$</p> <p>= <input type="text"/> tens</p> <p>= <input type="text"/></p>
<p>4. $10 \times 5 = 5 \times 10$</p> <p>= <input type="text"/> tens</p> <p>= <input type="text"/></p>	<p>9. $2 \times 8 = 8 + 8$</p> <p>= double <input type="text"/></p> <p>= <input type="text"/></p>
<p>5. $0 \times 8 =$ a group of <u>0</u> eights</p> <p>= <input type="text"/></p>	<p>10. $10 \times 6 = 6 \times 10$</p> <p>= <input type="text"/> tens</p> <p>= <input type="text"/></p>

Directions



Moderate Numbers 3, 4, 5, 9



The moderate numbers build on the basic numbers and leverage the important concept of breaking big groups into more manageable, smaller groups.

To multiply by 3, think of a group of 3 as a group of 2 plus 1 more. Since you can't add 3 numbers simultaneously, first add 2 and then add the third. To multiply by 4, think of a group of 4 as two groups of 2. Multiplying by 3 and 4 requires students to master 2 or doubling first.

To multiply a number by 5, first multiply by 10 and then take half since a group of 5 is half of a group of 10. To multiply by 9, again start by multiplying by 10 but this time subtract the extra one since a group of 9 is one less than a group of 10. Multiplying by 5 and 9 requires students to master 10 first.

Looking ahead. Mastering 3 is the key to multiplying by 6, 4 is the key to 8, and 2 and 5 are the key to 7.

3x

Pages 11. For 3 times a number, think in terms of smaller, easier groups. 3×5 or a group of 3 fives is a group of 2 fives plus a group of 1 five or $10 + 5 = 15$. To multiply by 3, first master multiplying by 2.

$$\begin{aligned} 3 \times 5 &= 5 + 5 + 5 \\ &= \boxed{10} + \boxed{5} \\ &= \boxed{15} \end{aligned}$$

4x

Pages 12. For 4 times a number, think in terms of smaller, easier groups. 4×9 or a group of 4 nines is a group of 2 nines plus a group of 2 nines or $18 + 18 = 36$. To multiply by 4, first master multiplying by 2.

$$\begin{aligned} 4 \times 9 &= 9 + 9 + 9 + 9 \\ &= \boxed{18} + \boxed{18} \\ &= \boxed{36} \end{aligned}$$

5x

Pages 13. For 5 times a number, start with 10 times the number then take half since $\frac{1}{2}$ of 10 is 5. A group of 5 eights is half of 10 eights. Since $10 \times 8 = 80$, $5 \times 8 = 40$. To multiply by 5, first master multiplying by 10.

$$\begin{aligned} 5 \times 8 &= \frac{1}{2} \text{ of } (10 \times 8) \\ &= \frac{1}{2} \text{ of } (\boxed{80}) \\ &= \boxed{40} \end{aligned}$$

9x

Pages 14. For 9 times a number, start with 10 times the number and take away since $10 - 1$ is 9. A group of 9 sevens is a group of 10 sevens minus 7. Since $10 \times 7 = 70$, $9 \times 7 = 63$. To multiply by 9, first master multiplying by 10.

$$\begin{aligned} 9 \times 7 &= (10 \times 7) - 7 \\ &= \boxed{70} - \boxed{7} \\ &= \boxed{63} \end{aligned}$$



Page 15. Practice and show mastery of the grouping strategies for 3, 4, 5 and 9.

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Multiply by 3

"A group of 3 is quickly done - start with 2 and then add 1!"



Example: 3×8 (a group of 3 eights)



Think Smart:

$$\begin{aligned} 3 \times 8 &= 8 + 8 + 8 \\ &= \boxed{16} + \boxed{8} \\ &= \boxed{24} \end{aligned}$$

Think Smart

$$\begin{aligned} 1. \quad 3 \times 2 &= 2 + 2 + 2 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

Think Smart

$$\begin{aligned} 5. \quad 3 \times 6 &= 6 + 6 + 6 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 2. \quad 3 \times 3 &= 3 + 3 + 3 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 6. \quad 3 \times 7 &= 7 + 7 + 7 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 3. \quad 3 \times 4 &= 4 + 4 + 4 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 7. \quad 3 \times 8 &= 8 + 8 + 8 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 4. \quad 3 \times 5 &= 5 + 5 + 5 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 8. \quad 3 \times 9 &= 9 + 9 + 9 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Multiply by 4

"A group of 4 is fast to do - if you think in groups of 2!"



Example: 4×6 (a group of 4 sixes)



Think Smart:

$$\begin{aligned}
 4 \times 6 &= 6 + 6 + 6 + 6 \\
 &= \boxed{12} + \boxed{12} \\
 &= \boxed{24}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 4 \times 2 &= 2 + 2 + 2 + 2 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 4 \times 6 &= 6 + 6 + 6 + 6 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 4 \times 3 &= 3 + 3 + 3 + 3 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 4 \times 7 &= 7 + 7 + 7 + 7 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 4 \times 4 &= 4 + 4 + 4 + 4 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 4 \times 8 &= 8 + 8 + 8 + 8 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 4 \times 5 &= 5 + 5 + 5 + 5 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 4 \times 9 &= 9 + 9 + 9 + 9 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

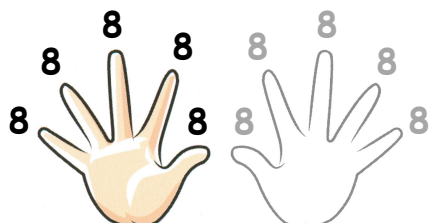
Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Multiply by 5

"A group of 5 you'll find with ease - half of 10 is just a breeze!"



Example: 5×8 (a group of 5 eights)



Think Smart:

$$\begin{aligned}
 5 \times 8 &= 1/2 \text{ of } (10 \times 8) \\
 &= 1/2 \text{ of } \boxed{80} \\
 &= \boxed{40}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 5 \times 2 &= 1/2 \text{ of } (10 \times 2) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 5 \times 6 &= 1/2 \text{ of } (10 \times 6) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 5 \times 3 &= 1/2 \text{ of } (10 \times 3) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 5 \times 7 &= 1/2 \text{ of } (10 \times 7) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 5 \times 4 &= 1/2 \text{ of } (10 \times 4) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 5 \times 8 &= 1/2 \text{ of } (10 \times 8) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 5 \times 5 &= 1/2 \text{ of } (10 \times 5) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 5 \times 9 &= 1/2 \text{ of } (10 \times 9) \\
 &= 1/2 \text{ of } \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Multiply by 9

"A group of 9 requires tact - start with 10 and then subtract!"



Example: 9×7 (a group of 9 sevens)



Think Smart:

$$\begin{aligned}
 9 \times 7 &= (10 \times 7) - 7 \\
 &= \boxed{70} - \boxed{7} \\
 &= \boxed{63}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 9 \times 2 &= (10 \times 2) - 2 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 9 \times 6 &= (10 \times 6) - 6 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 9 \times 3 &= (10 \times 3) - 3 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 9 \times 7 &= (10 \times 7) - 7 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 9 \times 4 &= (10 \times 4) - 4 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 9 \times 8 &= (10 \times 8) - 8 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 9 \times 5 &= (10 \times 5) - 5 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 9 \times 9 &= (10 \times 9) - 9 \\
 &= \boxed{} - \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Practice 3, 4, 5, 9



Think Smart

$$\begin{aligned} 1. \quad 3 \times 7 &= 7 + 7 + 7 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 2. \quad 4 \times 6 &= 6 + 6 + 6 + 6 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 3. \quad 5 \times 5 &= 1/2 \text{ of } (10 \times 5) \\ &= 1/2 \text{ of } \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 4. \quad 9 \times 4 &= (10 \times 4) - 4 \\ &= \boxed{} - \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 5. \quad 3 \times 8 &= 8 + 8 + 8 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

Think Smart

$$\begin{aligned} 6. \quad 4 \times 7 &= 7 + 7 + 7 + 7 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 7. \quad 5 \times 6 &= 1/2 \text{ of } (10 \times 6) \\ &= 1/2 \text{ of } \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 8. \quad 9 \times 5 &= (10 \times 5) - 5 \\ &= \boxed{} - \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 9. \quad 5 \times 7 &= 1/2 \text{ of } (10 \times 7) \\ &= 1/2 \text{ of } \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 10. \quad 9 \times 6 &= (10 \times 6) - 6 \\ &= \boxed{} - \boxed{} \\ &= \boxed{} \end{aligned}$$

Directions



Advanced Numbers 6, 7, 8



The advanced numbers leverage the skills and facts learned from the basic and moderate numbers. They challenge students to process larger groups and develop their abstract thinking skills.

To multiply a number by 6, think of a group of 6 as two groups of 3. 3 of a number plus 3 of a number is 6 of that number. To multiply by 7, think of a group of 7 as a group of 5 plus a group of 2. 5 of a number plus 2 of a number is 7 of that number. Finally, to multiply by 8, think of a group of 8 as two groups of 4. 4 of a number plus 4 of a number is 8 of that number. To multiply by 6, students need to master 3 first. For 7 they need to master 5 and 2, and for 8 they need to master 4.

Looking ahead. Once students master their multiplication facts by adding in smart groups (volume 1 of this series), the next step is to switch to partial products and instead multiply in smart groups (volume 2). Both approaches lay the foundation for multiplying larger numbers (volume 3).

6x

Pages 17. For 6 times a number, think in terms of smaller, easier groups. 6×9 or a group of 6 nines is a group of 3 nines plus a group of 3 nines or $27+27 = 54$. To multiply by 6, first master multiplying by 3.

$$\begin{aligned} 6 \times 9 &= 9+9+9 + 9+9+9 \\ &= \boxed{27} + \boxed{27} \\ &= \boxed{54} \end{aligned}$$

7x

Pages 18. For 7 times a number, think in terms of smaller, easier groups. 7×8 or a group of 7 eights is a group of 5 eights plus a group of 2 eights or $40+16 = 56$. To multiply by 7, first master multiplying by 2 and 5.

$$\begin{aligned} 7 \times 8 &= 8+8+8+8+8 + 8+8 \\ &= \boxed{40} + \boxed{16} \\ &= \boxed{56} \end{aligned}$$

8x

Pages 19. For 8 times a number, think in terms of smaller, easier groups. 8×6 or a group of 8 sixes is a group of 4 sixes plus a group of 4 sixes or $24+24 = 48$. To multiply by 8, first master multiplying by 4.

$$\begin{aligned} 8 \times 6 &= 6+6+6+6 + 6+6+6+6 \\ &= \boxed{24} + \boxed{24} \\ &= \boxed{48} \end{aligned}$$



Page 20. Practice and show mastery of the grouping strategies for 6, 7, and 8.

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Multiply by 6

"A group of 6 is clear to see - when you look for groups of 3!"



Example: 6×5 (a group of 6 fives)



Think Smart:

$$\begin{aligned}
 6 \times 5 &= 5+5+5 + 5+5+5 \\
 &= \boxed{15} + \boxed{15} \\
 &= \boxed{30}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 6 \times 2 &= 2+2+2 + 2+2+2 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 6 \times 6 &= 6+6+6 + 6+6+6 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 6 \times 3 &= 3+3+3 + 3+3+3 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 6 \times 7 &= 7+7+7 + 7+7+7 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 6 \times 4 &= 4+4+4 + 4+4+4 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 6 \times 8 &= 8+8+8 + 8+8+8 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 6 \times 5 &= 5+5+5 + 5+5+5 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 6 \times 9 &= 9+9+9 + 9+9+9 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:

Date:

Teacher:

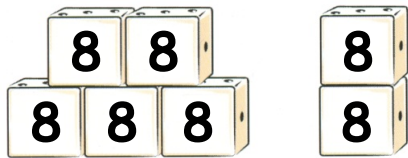
Part 1: Learning the Basic Times Tables

Multiply by 7

"A group of 7 can be quick - 5 and 2 will do the trick!"



Example: 7×8 (a group of 7 eights)



Think Smart:

$$\begin{aligned}
 7 \times 8 &= 8+8+8+8+8 + 8+8 \\
 &= \boxed{40} + \boxed{16} \\
 &= \boxed{56}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 7 \times 2 &= 2+2+2+2+2 + 2+2 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 7 \times 6 &= 6+6+6+6+6 + 6+6 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 7 \times 3 &= 3+3+3+3+3 + 3+3 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 7 \times 7 &= 7+7+7+7+7 + 7+7 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 7 \times 4 &= 4+4+4+4+4 + 4+4 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 7 \times 8 &= 8+8+8+8+8 + 8+8 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 7 \times 5 &= 5+5+5+5+5 + 5+5 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 7 \times 9 &= 9+9+9+9+9 + 9+9 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:

Date:

Teacher:

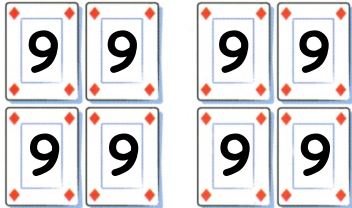
Part 1: Learning the Basic Times Tables

Multiply by 8

"A group of 8 is nothing more - than equal groups of 4 and 4!"



Example: 8×9 (a group of 8 nines)



Think Smart:

$$\begin{aligned}
 8 \times 9 &= 9+9+9+9 + 9+9+9+9 \\
 &= \boxed{36} + \boxed{36} \\
 &= \boxed{72}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 1. \quad 8 \times 2 &= 2+2+2+2 + 2+2+2+2 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Think Smart

$$\begin{aligned}
 5. \quad 8 \times 6 &= 6+6+6+6 + 6+6+6+6 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad 8 \times 3 &= 3+3+3+3 + 3+3+3+3 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad 8 \times 7 &= 7+7+7+7 + 7+7+7+7 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad 8 \times 4 &= 4+4+4+4 + 4+4+4+4 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad 8 \times 8 &= 8+8+8+8 + 8+8+8+8 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 4. \quad 8 \times 5 &= 5+5+5+5 + 5+5+5+5 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad 8 \times 9 &= 9+9+9+9 + 9+9+9+9 \\
 &= \boxed{} + \boxed{} \\
 &= \boxed{}
 \end{aligned}$$

Name:

Date:

Teacher:

Part 1: Learning the Basic Times Tables

Practice 6, 7, 8



Think Smart

$$\begin{aligned} 1. \quad 6 \times 5 &= 5+5+5 + 5+5+5 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 2. \quad 7 \times 4 &= 4+4+4+4+4 + 4+4 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 3. \quad 8 \times 3 &= 3+3+3+3 + 3+3+3+3 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 4. \quad 6 \times 6 &= 6+6+6 + 6+6+6 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 5. \quad 7 \times 5 &= 5+5+5+5+5 + 5+5 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

Think Smart

$$\begin{aligned} 6. \quad 8 \times 4 &= 4+4+4+4 + 4+4+4+4 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 7. \quad 6 \times 7 &= 7+7+7 + 7+7+7 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 8. \quad 7 \times 6 &= 6+6+6+6+6 + 6+6 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 9. \quad 8 \times 5 &= 5+5+5+5 + 5+5+5+5 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

$$\begin{aligned} 10. \quad 7 \times 7 &= 7+7+7+7+7 + 7+7 \\ &= \boxed{} + \boxed{} \\ &= \boxed{} \end{aligned}$$

Directions



Practice & Assessment

- !** When assessing multiplication skills, it's important to evaluate both strategies and answers. Students need command of their basic math facts, but they also need the ability to think abstractly in groups both large and small. The following worksheets allow teachers to assess a student's grouping ability, mental math skills, and fluency with basic facts.

To begin, students must apply every multiplication strategy to the same number, then generalize by applying different strategies to different numbers. Finally, they can demonstrate mastery through timed tests written in the traditional problem-answer format with no verbal or visual clues.

- !** **Pages 22-32.** Practice all the strategies by applying them to a single number at a time. For example, practice grouping 7s by applying every strategy to the number 7 (1×7 , 2×7 , 3×7 , etc). This contrasts with previous worksheets where a single strategy (e.g. multiply by 7) was applied to different numbers (7×1 , 7×2 , 7×3).

1×7	a group of 1 seven	$1 \times 7 = $ 7
2×7	double 7	$2 \times 7 = $ 14
3×7	$7+7 + 7 = $ 14 + 7	$3 \times 7 = $ 21

- !** **Pages 33-43.** Now think more generally by applying different strategies to different numbers. This provides an opportunity to assess a student's comprehensive understanding of basic multiplication. Every strategy is applied to every number in random order to eliminate visual or sequencing clues.

5×8	$1/2$ of (10 \times 8)	$5 \times 8 = $ 40
4×6	$6+6 + 6+6 = $ 12 + 12	$4 \times 6 = $ 24
9×3	(10 \times 3) - 3	$9 \times 3 = $ 27

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Teacher:	Part 1: Learning the Basic Times Tables

Practice Grouping Ones



Practice grouping 1s in groups ranging in size from 0 to 10. This contrasts with finding 1 times a number, which means putting numbers into groups of 1.

Example. 4×1 means "a group of 4 ones" or $1+1+1+1$
 1×4 means "a group of 1 four" or 4

Think Smart			Think Quick
1.	0×0	a group of <input type="text"/> zeroes	$0 \times 0 =$ <input type="text"/>
2.	1×0	a group of <input type="text"/> zero	$1 \times 0 =$ <input type="text"/>
3.	2×0	double <input type="text"/>	$2 \times 0 =$ <input type="text"/>
4.	3×0	$0+0 + 0 =$ <input type="text"/> + <input type="text"/>	$3 \times 0 =$ <input type="text"/>
5.	4×0	$0+0 + 0+0 =$ <input type="text"/> + <input type="text"/>	$4 \times 0 =$ <input type="text"/>
6.	5×0	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 0 =$ <input type="text"/>
7.	6×0	$0+0+0 + 0+0+0 =$ <input type="text"/> + <input type="text"/>	$6 \times 0 =$ <input type="text"/>
8.	7×0	$0+0+0+0+0 + 0+0 =$ <input type="text"/> + <input type="text"/>	$7 \times 0 =$ <input type="text"/>
9.	8×0	$0+0+0+0 + 0+0+0+0 =$ <input type="text"/> + <input type="text"/>	$8 \times 0 =$ <input type="text"/>
10.	9×0	(<input type="text"/> \times <input type="text"/>) - 0	$9 \times 0 =$ <input type="text"/>
11.	10×0	$0 \times 10 =$ <input type="text"/> ten	$10 \times 0 =$ <input type="text"/>

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Practice Grouping Ones



Practice grouping 1s in groups ranging in size from 0 to 10. This contrasts with finding 1 times a number, which means putting numbers into groups of 1.

Example. 4×1 means "a group of 4 ones" or $1+1+1+1$
 1×4 means "a group of 1 four" or 4

Think Smart			Think Quick
1.	0×1	a group of <input type="text"/> ones	$0 \times 1 =$ <input type="text"/>
2.	1×1	a group of <input type="text"/> one	$1 \times 1 =$ <input type="text"/>
3.	2×1	double <input type="text"/>	$2 \times 1 =$ <input type="text"/>
4.	3×1	$1+1 + 1 =$ <input type="text"/> + <input type="text"/>	$3 \times 1 =$ <input type="text"/>
5.	4×1	$1+1 + 1+1 =$ <input type="text"/> + <input type="text"/>	$4 \times 1 =$ <input type="text"/>
6.	5×1	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 1 =$ <input type="text"/>
7.	6×1	$1+1+1 + 1+1+1 =$ <input type="text"/> + <input type="text"/>	$6 \times 1 =$ <input type="text"/>
8.	7×1	$1+1+1+1+1 + 1+1 =$ <input type="text"/> + <input type="text"/>	$7 \times 1 =$ <input type="text"/>
9.	8×1	$1+1+1+1 + 1+1+1+1 =$ <input type="text"/> + <input type="text"/>	$8 \times 1 =$ <input type="text"/>
10.	9×1	(<input type="text"/> \times <input type="text"/>) - 1	$9 \times 1 =$ <input type="text"/>
11.	10×1	$1 \times 10 =$ <input type="text"/> ten	$10 \times 1 =$ <input type="text"/>

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Practice Grouping Twos



Practice grouping 2s in groups ranging in size from 0 to 10. This contrasts with finding 2 times a number, which means putting numbers into groups of 2.

Example. 5×2 means "a group of 5 twos" or $2+2+2+2+2$
 2×5 means "a group of 2 fives" or $5+5$

Think Smart			Think Quick
1.	0×2	a group of <input type="text"/> twos	$0 \times 2 =$ <input type="text"/>
2.	1×2	a group of <input type="text"/> two	$1 \times 2 =$ <input type="text"/>
3.	2×2	double <input type="text"/>	$2 \times 2 =$ <input type="text"/>
4.	3×2	$2+2 + 2 =$ <input type="text"/> + <input type="text"/>	$3 \times 2 =$ <input type="text"/>
5.	4×2	$2+2 + 2+2 =$ <input type="text"/> + <input type="text"/>	$4 \times 2 =$ <input type="text"/>
6.	5×2	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 2 =$ <input type="text"/>
7.	6×2	$2+2+2 + 2+2+2 =$ <input type="text"/> + <input type="text"/>	$6 \times 2 =$ <input type="text"/>
8.	7×2	$2+2+2+2+2 + 2+2 =$ <input type="text"/> + <input type="text"/>	$7 \times 2 =$ <input type="text"/>
9.	8×2	$2+2+2+2 + 2+2+2+2 =$ <input type="text"/> + <input type="text"/>	$8 \times 2 =$ <input type="text"/>
10.	9×2	(<input type="text"/> \times <input type="text"/>) - 2	$9 \times 2 =$ <input type="text"/>
11.	10×2	$2 \times 10 =$ <input type="text"/> tens	$10 \times 2 =$ <input type="text"/>

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Practice Grouping Threes



Practice grouping 3s in groups ranging in size from 0 to 10. This contrasts with finding 3 times a number, which means putting numbers into groups of 3.

Example. 6×3 means "a group of 6 threes" or $3+3+3+3+3+3$
 3×6 means "a group of 3 sixes" or $6+6+6$

Think Smart			Think Quick
1.	0×3	a group of <input type="text"/> threes	$0 \times 3 =$ <input type="text"/>
2.	1×3	a group of <input type="text"/> three	$1 \times 3 =$ <input type="text"/>
3.	2×3	double <input type="text"/>	$2 \times 3 =$ <input type="text"/>
4.	3×3	$3+3 + 3 =$ <input type="text"/> + <input type="text"/>	$3 \times 3 =$ <input type="text"/>
5.	4×3	$3+3 + 3+3 =$ <input type="text"/> + <input type="text"/>	$4 \times 3 =$ <input type="text"/>
6.	5×3	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 3 =$ <input type="text"/>
7.	6×3	$3+3+3 + 3+3+3 =$ <input type="text"/> + <input type="text"/>	$6 \times 3 =$ <input type="text"/>
8.	7×3	$3+3+3+3+3 + 3+3 =$ <input type="text"/> + <input type="text"/>	$7 \times 3 =$ <input type="text"/>
9.	8×3	$3+3+3+3 + 3+3+3+3 =$ <input type="text"/> + <input type="text"/>	$8 \times 3 =$ <input type="text"/>
10.	9×3	(<input type="text"/> \times <input type="text"/>) - 3	$9 \times 3 =$ <input type="text"/>
11.	10×3	$3 \times 10 =$ <input type="text"/> tens	$10 \times 3 =$ <input type="text"/>

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Practice Grouping Fours



Practice grouping 4s in groups ranging in size from 0 to 10. This contrasts with finding 4 times a number, which means putting numbers into groups of 4.

Example. 8×4 means "a group of 8 fours" or $4+4+4+4 + 4+4+4+4$
 4×8 means "a group of 4 eights" or $8+8+8+8$

Think Smart			Think Quick
1.	0×4	a group of <input type="text"/> fours	$0 \times 4 =$ <input type="text"/>
2.	1×4	a group of <input type="text"/> four	$1 \times 4 =$ <input type="text"/>
3.	2×4	double <input type="text"/>	$2 \times 4 =$ <input type="text"/>
4.	3×4	$4+4 + 4 =$ <input type="text"/> + <input type="text"/>	$3 \times 4 =$ <input type="text"/>
5.	4×4	$4+4 + 4+4 =$ <input type="text"/> + <input type="text"/>	$4 \times 4 =$ <input type="text"/>
6.	5×4	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 4 =$ <input type="text"/>
7.	6×4	$4+4+4 + 4+4+4 =$ <input type="text"/> + <input type="text"/>	$6 \times 4 =$ <input type="text"/>
8.	7×4	$4+4+4+4+4 + 4+4 =$ <input type="text"/> + <input type="text"/>	$7 \times 4 =$ <input type="text"/>
9.	8×4	$4+4+4+4 + 4+4+4+4 =$ <input type="text"/> + <input type="text"/>	$8 \times 4 =$ <input type="text"/>
10.	9×4	(<input type="text"/> \times <input type="text"/>) - 4	$9 \times 4 =$ <input type="text"/>
11.	10×4	$4 \times 10 =$ <input type="text"/> tens	$10 \times 4 =$ <input type="text"/>

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Practice Grouping Fives



Practice grouping 5s in groups ranging in size from 0 to 10. This contrasts with finding 5 times a number, which means putting numbers into groups of 5.

Example. 2×5 means "a group of 2 fives" or $5+5$
 5×2 means "a group of 5 twos" or $2+2+2+2+2$

Think Smart			Think Quick
1.	0×5	a group of <input type="text"/> fives	$0 \times 5 =$ <input type="text"/>
2.	1×5	a group of <input type="text"/> five	$1 \times 5 =$ <input type="text"/>
3.	2×5	double <input type="text"/>	$2 \times 5 =$ <input type="text"/>
4.	3×5	$5+5 + 5 =$ <input type="text"/> + <input type="text"/>	$3 \times 5 =$ <input type="text"/>
5.	4×5	$5+5 + 5+5 =$ <input type="text"/> + <input type="text"/>	$4 \times 5 =$ <input type="text"/>
6.	5×5	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 5 =$ <input type="text"/>
7.	6×5	$5+5+5 + 5+5+5 =$ <input type="text"/> + <input type="text"/>	$6 \times 5 =$ <input type="text"/>
8.	7×5	$5+5+5+5+5 + 5+5 =$ <input type="text"/> + <input type="text"/>	$7 \times 5 =$ <input type="text"/>
9.	8×5	$5+5+5+5 + 5+5+5+5 =$ <input type="text"/> + <input type="text"/>	$8 \times 5 =$ <input type="text"/>
10.	9×5	(<input type="text"/> \times <input type="text"/>) - 5	$9 \times 5 =$ <input type="text"/>
11.	10×5	$5 \times 10 =$ <input type="text"/> tens	$10 \times 5 =$ <input type="text"/>

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Practice Grouping Sixes



Practice grouping 6s in groups ranging in size from 0 to 10. This contrasts with finding 6 times a number, which means putting numbers into groups of 6.

Example. 3×6 means "a group of 3 sixes" or $6+6+6$
 6×3 means "a group of 6 threes" or $3+3+3 + 3+3+3$

	Think Smart		Think Quick
1.	0×6	a group of <input type="text"/> sixes	$0 \times 6 =$ <input type="text"/>
2.	1×6	a group of <input type="text"/> six	$1 \times 6 =$ <input type="text"/>
3.	2×6	double <input type="text"/>	$2 \times 6 =$ <input type="text"/>
4.	3×6	$6+6 + 6 =$ <input type="text"/> + <input type="text"/>	$3 \times 6 =$ <input type="text"/>
5.	4×6	$6+6 + 6+6 =$ <input type="text"/> + <input type="text"/>	$4 \times 6 =$ <input type="text"/>
6.	5×6	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 6 =$ <input type="text"/>
7.	6×6	$6+6+6 + 6+6+6 =$ <input type="text"/> + <input type="text"/>	$6 \times 6 =$ <input type="text"/>
8.	7×6	$6+6+6+6+6 + 6+6 =$ <input type="text"/> + <input type="text"/>	$7 \times 6 =$ <input type="text"/>
9.	8×6	$6+6+6+6 + 6+6+6+6 =$ <input type="text"/> + <input type="text"/>	$8 \times 6 =$ <input type="text"/>
10.	9×6	(<input type="text"/> \times <input type="text"/>) - 6	$9 \times 6 =$ <input type="text"/>
11.	10×6	$6 \times 10 =$ <input type="text"/> tens	$10 \times 6 =$ <input type="text"/>

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Practice Grouping Sevens



Practice grouping 7s in groups ranging in size from 0 to 10. This contrasts with finding 7 times a number, which means putting numbers into groups of 7.

Example. 4×7 means "a group of 4 sevens" or $7+7+7+7$
 7×4 means "a group of 7 fours" or $4+4+4+4+4+4+4$

Think Smart			Think Quick
1.	0×7	a group of <input type="text"/> sevens	$0 \times 7 =$ <input type="text"/>
2.	1×7	a group of <input type="text"/> seven	$1 \times 7 =$ <input type="text"/>
3.	2×7	double <input type="text"/>	$2 \times 7 =$ <input type="text"/>
4.	3×7	$7+7 + 7 =$ <input type="text"/> + <input type="text"/>	$3 \times 7 =$ <input type="text"/>
5.	4×7	$7+7 + 7+7 =$ <input type="text"/> + <input type="text"/>	$4 \times 7 =$ <input type="text"/>
6.	5×7	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 7 =$ <input type="text"/>
7.	6×7	$7+7+7 + 7+7+7 =$ <input type="text"/> + <input type="text"/>	$6 \times 7 =$ <input type="text"/>
8.	7×7	$7+7+7+7+7 + 7+7 =$ <input type="text"/> + <input type="text"/>	$7 \times 7 =$ <input type="text"/>
9.	8×7	$7+7+7+7 + 7+7+7+7 =$ <input type="text"/> + <input type="text"/>	$8 \times 7 =$ <input type="text"/>
10.	9×7	(<input type="text"/> \times <input type="text"/>) - 7	$9 \times 7 =$ <input type="text"/>
11.	10×7	$7 \times 10 =$ <input type="text"/> tens	$10 \times 7 =$ <input type="text"/>

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Practice Grouping Eights



Practice grouping 8s in groups ranging in size from 0 to 10. This contrasts with finding 8 times a number, which means putting numbers into groups of 8.

Example. 2×8 means "a group of 2 eights" or $8+8$

8×2 means "a group of 8 twos" or $2+2+2+2 + 2+2+2+2$

Think Smart			Think Quick
1.	0×8	a group of <input type="text"/> eights	$0 \times 8 =$ <input type="text"/>
2.	1×8	a group of <input type="text"/> eight	$1 \times 8 =$ <input type="text"/>
3.	2×8	double <input type="text"/>	$2 \times 8 =$ <input type="text"/>
4.	3×8	$8+8 + 8 =$ <input type="text"/> + <input type="text"/>	$3 \times 8 =$ <input type="text"/>
5.	4×8	$8+8 + 8+8 =$ <input type="text"/> + <input type="text"/>	$4 \times 8 =$ <input type="text"/>
6.	5×8	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 8 =$ <input type="text"/>
7.	6×8	$8+8+8 + 8+8+8 =$ <input type="text"/> + <input type="text"/>	$6 \times 8 =$ <input type="text"/>
8.	7×8	$8+8+8+8+8 + 8+8 =$ <input type="text"/> + <input type="text"/>	$7 \times 8 =$ <input type="text"/>
9.	8×8	$8+8+8+8 + 8+8+8+8 =$ <input type="text"/> + <input type="text"/>	$8 \times 8 =$ <input type="text"/>
10.	9×8	(<input type="text"/> \times <input type="text"/>) - 8	$9 \times 8 =$ <input type="text"/>
11.	10×8	$8 \times 10 =$ <input type="text"/> tens	$10 \times 8 =$ <input type="text"/>

Name:	Date:
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Practice Grouping Nines



Practice grouping 9s in groups ranging in size from 0 to 10. This contrasts with finding 9 times a number, which means putting numbers into groups of 9.

Example. 3×9 means "a group of 3 nines" or $9+9+9$
 9×3 means "a group of 9 threes" or $3+3+3 + 3+3+3 + 3+3+3$

Think Smart			Think Quick
1.	0×9	a group of <input type="text"/> nines	$0 \times 9 =$ <input type="text"/>
2.	1×9	a group of <input type="text"/> nine	$1 \times 9 =$ <input type="text"/>
3.	2×9	double <input type="text"/>	$2 \times 9 =$ <input type="text"/>
4.	3×9	$9+9 + 9 =$ <input type="text"/> + <input type="text"/>	$3 \times 9 =$ <input type="text"/>
5.	4×9	$9+9 + 9+9 =$ <input type="text"/> + <input type="text"/>	$4 \times 9 =$ <input type="text"/>
6.	5×9	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 9 =$ <input type="text"/>
7.	6×9	$9+9+9 + 9+9+9 =$ <input type="text"/> + <input type="text"/>	$6 \times 9 =$ <input type="text"/>
8.	7×9	$9+9+9+9+9 + 9+9 =$ <input type="text"/> + <input type="text"/>	$7 \times 9 =$ <input type="text"/>
9.	8×9	$9+9+9+9 + 9+9+9+9 =$ <input type="text"/> + <input type="text"/>	$8 \times 9 =$ <input type="text"/>
10.	9×9	(<input type="text"/> \times <input type="text"/>) - 9	$9 \times 9 =$ <input type="text"/>
11.	10×9	$9 \times 10 =$ <input type="text"/> tens	$10 \times 9 =$ <input type="text"/>

Name:	Date:
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Practice Grouping Tens



Practice grouping 10s in groups ranging in size from 0 to 10. This contrasts with finding 10 times a number, which means putting numbers into groups of 10.

Example. 4×10 means "a group of 4 tens" or $10+10+10+10$
 10×4 means "a group of 10 fours" or $4+4+4+4+4 + 4+4+4+4+4$

Think Smart			Think Quick
1.	0×10	a group of <input type="text"/> tens	$0 \times 10 =$ <input type="text"/>
2.	1×10	a group of <input type="text"/> ten	$1 \times 10 =$ <input type="text"/>
3.	2×10	double <input type="text"/>	$2 \times 10 =$ <input type="text"/>
4.	3×10	$10+10 + 10 =$ <input type="text"/> + <input type="text"/>	$3 \times 10 =$ <input type="text"/>
5.	4×10	$10+10 + 10+10 =$ <input type="text"/> + <input type="text"/>	$4 \times 10 =$ <input type="text"/>
6.	5×10	$1/2$ of (<input type="text"/> \times <input type="text"/>)	$5 \times 10 =$ <input type="text"/>
7.	6×10	$10+10+10 + 10+10+10 =$ <input type="text"/> + <input type="text"/>	$6 \times 10 =$ <input type="text"/>
8.	7×10	$10+10+10+10+10 + 10+10 =$ <input type="text"/> + <input type="text"/>	$7 \times 10 =$ <input type="text"/>
9.	8×10	$10+10+10+10 + 10+10+10+10 =$ <input type="text"/> + <input type="text"/>	$8 \times 10 =$ <input type="text"/>
10.	9×10	(<input type="text"/> \times <input type="text"/>) - 10	$9 \times 10 =$ <input type="text"/>
11.	10×10	$10 \times 10 =$ <input type="text"/> hundred	$10 \times 10 =$ <input type="text"/>

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 1



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×8 $8+8+8 + 8+8+8 = \boxed{} + \boxed{}$	$6 \times 8 = \boxed{}$
2.	9×9 $(\boxed{} \times \boxed{}) - 9$	$9 \times 9 = \boxed{}$
3.	5×10 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 10 = \boxed{}$
4.	1×6 a group of $\boxed{}$ six	$1 \times 6 = \boxed{}$
5.	4×2 $2+2 + 2+2 = \boxed{} + \boxed{}$	$4 \times 2 = \boxed{}$
6.	7×0 $0+0+0+0+0 + 0+0 = \boxed{} + \boxed{}$	$7 \times 0 = \boxed{}$
7.	0×4 a group of $\boxed{}$ fours	$0 \times 4 = \boxed{}$
8.	3×7 $7+7 + 7 = \boxed{} + \boxed{}$	$3 \times 7 = \boxed{}$
9.	8×5 $5+5+5+5 + 5+5+5+5 = \boxed{} + \boxed{}$	$8 \times 5 = \boxed{}$
10.	2×1 double $\boxed{}$	$2 \times 1 = \boxed{}$
11.	10×3 $3 \times 10 = \boxed{}$ tens	$10 \times 3 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 2



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×9 $9+9+9 + 9+9+9 = \boxed{} + \boxed{}$	$6 \times 9 = \boxed{}$
2.	9×10 $(\boxed{} \times \boxed{}) - 10$	$9 \times 10 = \boxed{}$
3.	5×0 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 0 = \boxed{}$
4.	1×7 a group of $\boxed{}$ seven	$1 \times 7 = \boxed{}$
5.	4×3 $3+3 + 3+3 = \boxed{} + \boxed{}$	$4 \times 3 = \boxed{}$
6.	7×1 $1+1+1+1+1 + 1+1 = \boxed{} + \boxed{}$	$7 \times 1 = \boxed{}$
7.	0×5 a group of $\boxed{}$ fives	$0 \times 5 = \boxed{}$
8.	3×8 $8+8 + 8 = \boxed{} + \boxed{}$	$3 \times 8 = \boxed{}$
9.	8×6 $6+6+6+6 + 6+6+6+6 = \boxed{} + \boxed{}$	$8 \times 6 = \boxed{}$
10.	2×2 double $\boxed{}$	$2 \times 2 = \boxed{}$
11.	10×4 $4 \times 10 = \boxed{}$ tens	$10 \times 4 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 3



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×10 $10+10+10 + 10+10+10 = \boxed{} + \boxed{}$	$6 \times 10 = \boxed{}$
2.	9×0 $(\boxed{} \times \boxed{}) - 0$	$9 \times 0 = \boxed{}$
3.	5×1 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 1 = \boxed{}$
4.	1×8 a group of $\boxed{}$ eight	$1 \times 8 = \boxed{}$
5.	4×4 $4+4 + 4+4 = \boxed{} + \boxed{}$	$4 \times 4 = \boxed{}$
6.	7×2 $2+2+2+2+2 + 2+2 = \boxed{} + \boxed{}$	$7 \times 2 = \boxed{}$
7.	0×6 a group of $\boxed{}$ sixes	$0 \times 6 = \boxed{}$
8.	3×9 $9+9 + 9 = \boxed{} + \boxed{}$	$3 \times 9 = \boxed{}$
9.	8×7 $7+7+7+7 + 7+7+7+7 = \boxed{} + \boxed{}$	$8 \times 7 = \boxed{}$
10.	2×3 double $\boxed{}$	$2 \times 3 = \boxed{}$
11.	10×5 $5 \times 10 = \boxed{}$ tens	$10 \times 5 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 4



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×0 $0+0+0 + 0+0+0 = \boxed{} + \boxed{}$	$6 \times 0 = \boxed{}$
2.	9×1 $(\boxed{} \times \boxed{}) - 1$	$9 \times 1 = \boxed{}$
3.	5×2 $1/2 \text{ of } (\boxed{} \times \boxed{})$	$5 \times 2 = \boxed{}$
4.	1×9 a group of $\boxed{}$ nine	$1 \times 9 = \boxed{}$
5.	4×5 $5+5 + 5+5 = \boxed{} + \boxed{}$	$4 \times 5 = \boxed{}$
6.	7×3 $3+3+3+3+3 + 3+3 = \boxed{} + \boxed{}$	$7 \times 3 = \boxed{}$
7.	0×7 a group of $\boxed{}$ sevens	$0 \times 7 = \boxed{}$
8.	3×10 $10+10 + 10 = \boxed{} + \boxed{}$	$3 \times 10 = \boxed{}$
9.	8×8 $8+8+8+8 + 8+8+8+8 = \boxed{} + \boxed{}$	$8 \times 8 = \boxed{}$
10.	2×4 double $\boxed{}$	$2 \times 4 = \boxed{}$
11.	10×6 $6 \times 10 = \boxed{}$ tens	$10 \times 6 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 5



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×1 $1+1+1 + 1+1+1 = \boxed{} + \boxed{}$	$6 \times 1 = \boxed{}$
2.	9×2 $(\boxed{} \times \boxed{}) - 2$	$9 \times 2 = \boxed{}$
3.	5×3 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 3 = \boxed{}$
4.	1×10 a group of $\boxed{}$ ten	$1 \times 10 = \boxed{}$
5.	4×6 $6+6 + 6+6 = \boxed{} + \boxed{}$	$4 \times 6 = \boxed{}$
6.	7×4 $4+4+4+4+4 + 4+4 = \boxed{} + \boxed{}$	$7 \times 4 = \boxed{}$
7.	0×8 a group of $\boxed{}$ eights	$0 \times 8 = \boxed{}$
8.	3×0 $0+0 + 0 = \boxed{} + \boxed{}$	$3 \times 0 = \boxed{}$
9.	8×9 $9+9+9+9 + 9+9+9+9 = \boxed{} + \boxed{}$	$8 \times 9 = \boxed{}$
10.	2×5 double $\boxed{}$	$2 \times 5 = \boxed{}$
11.	10×7 $7 \times 10 = \boxed{}$ tens	$10 \times 7 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 6



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×2 $2+2+2 + 2+2+2 = \boxed{} + \boxed{}$	$6 \times 2 = \boxed{}$
2.	9×3 $(\boxed{} \times \boxed{}) - 3$	$9 \times 3 = \boxed{}$
3.	5×4 $1/2 \text{ of } (\boxed{} \times \boxed{})$	$5 \times 4 = \boxed{}$
4.	1×0 a group of $\boxed{}$ zero	$1 \times 0 = \boxed{}$
5.	4×7 $7+7 + 7+7 = \boxed{} + \boxed{}$	$4 \times 7 = \boxed{}$
6.	7×5 $5+5+5+5+5 + 5+5 = \boxed{} + \boxed{}$	$7 \times 5 = \boxed{}$
7.	0×9 a group of $\boxed{}$ nines	$0 \times 9 = \boxed{}$
8.	3×1 $1+1 + 1 = \boxed{} + \boxed{}$	$3 \times 1 = \boxed{}$
9.	8×10 $10+10+10+10 + 10+10+10+10 = \boxed{} + \boxed{}$	$8 \times 10 = \boxed{}$
10.	2×6 double $\boxed{}$	$2 \times 6 = \boxed{}$
11.	10×8 $8 \times 10 = \boxed{}$ tens	$10 \times 8 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 7



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×3 $3+3+3 + 3+3+3 = \boxed{} + \boxed{}$	$6 \times 3 = \boxed{}$
2.	9×4 $(\boxed{} \times \boxed{}) - 4$	$9 \times 4 = \boxed{}$
3.	5×5 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 5 = \boxed{}$
4.	1×1 a group of $\boxed{}$ one	$1 \times 1 = \boxed{}$
5.	4×8 $8+8 + 8+8 = \boxed{} + \boxed{}$	$4 \times 8 = \boxed{}$
6.	7×6 $6+6+6+6+6 + 6+6 = \boxed{} + \boxed{}$	$7 \times 6 = \boxed{}$
7.	0×10 a group of $\boxed{}$ tens	$0 \times 10 = \boxed{}$
8.	3×2 $2+2 + 2 = \boxed{} + \boxed{}$	$3 \times 2 = \boxed{}$
9.	8×0 $0+0+0+0 + 0+0+0+0 = \boxed{} + \boxed{}$	$8 \times 0 = \boxed{}$
10.	2×7 double $\boxed{}$	$2 \times 7 = \boxed{}$
11.	10×9 $9 \times 10 = \boxed{}$ tens	$10 \times 9 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 8



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×4 $4+4+4 + 4+4+4 = \boxed{} + \boxed{}$	$6 \times 4 = \boxed{}$
2.	9×5 $(\boxed{} \times \boxed{}) - 5$	$9 \times 5 = \boxed{}$
3.	5×6 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 6 = \boxed{}$
4.	1×2 a group of $\boxed{}$ two	$1 \times 2 = \boxed{}$
5.	4×9 $9+9 + 9+9 = \boxed{} + \boxed{}$	$4 \times 9 = \boxed{}$
6.	7×7 $7+7+7+7+7 + 7+7 = \boxed{} + \boxed{}$	$7 \times 7 = \boxed{}$
7.	0×0 a group of $\boxed{}$ zeroes	$0 \times 0 = \boxed{}$
8.	3×3 $3+3 + 3 = \boxed{} + \boxed{}$	$3 \times 3 = \boxed{}$
9.	8×1 $1+1+1+1 + 1+1+1+1 = \boxed{} + \boxed{}$	$8 \times 1 = \boxed{}$
10.	2×8 double $\boxed{}$	$2 \times 8 = \boxed{}$
11.	10×10 $10 \times 10 = \boxed{}$ hundred	$10 \times 10 = \boxed{}$

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Assessment 9



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×5 $5+5+5 + 5+5+5 = \boxed{} + \boxed{}$	$6 \times 5 = \boxed{}$
2.	9×6 $(\boxed{} \times \boxed{}) - 6$	$9 \times 6 = \boxed{}$
3.	5×7 $1/2$ of $(\boxed{} \times \boxed{})$	$5 \times 7 = \boxed{}$
4.	1×3 a group of $\boxed{}$ three	$1 \times 3 = \boxed{}$
5.	4×10 $10+10 + 10+10 = \boxed{} + \boxed{}$	$4 \times 10 = \boxed{}$
6.	7×8 $8+8+8+8+8 + 8+8 = \boxed{} + \boxed{}$	$7 \times 8 = \boxed{}$
7.	0×1 a group of $\boxed{}$ ones	$0 \times 1 = \boxed{}$
8.	3×4 $4+4 + 4 = \boxed{} + \boxed{}$	$3 \times 4 = \boxed{}$
9.	8×2 $2+2+2+2 + 2+2+2+2 = \boxed{} + \boxed{}$	$8 \times 2 = \boxed{}$
10.	2×9 double $\boxed{}$	$2 \times 9 = \boxed{}$
11.	10×0 $0 \times 10 = \boxed{}$ tens	$10 \times 0 = \boxed{}$

Name:	Date:
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Assessment 10



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×6 $6+6+6 + 6+6+6 = \boxed{} + \boxed{}$	$6 \times 6 = \boxed{}$
2.	9×7 $(\boxed{} \times \boxed{}) - 7$	$9 \times 7 = \boxed{}$
3.	5×8 $1/2 \text{ of } (\boxed{} \times \boxed{})$	$5 \times 8 = \boxed{}$
4.	1×4 a group of $\boxed{}$ four	$1 \times 4 = \boxed{}$
5.	4×0 $0+0 + 0+0 = \boxed{} + \boxed{}$	$4 \times 0 = \boxed{}$
6.	7×9 $9+9+9+9+9 + 9+9 = \boxed{} + \boxed{}$	$7 \times 9 = \boxed{}$
7.	0×2 a group of $\boxed{}$ twos	$0 \times 2 = \boxed{}$
8.	3×5 $5+5 + 5 = \boxed{} + \boxed{}$	$3 \times 5 = \boxed{}$
9.	8×3 $3+3+3+3 + 3+3+3+3 = \boxed{} + \boxed{}$	$8 \times 3 = \boxed{}$
10.	2×10 double $\boxed{}$	$2 \times 10 = \boxed{}$
11.	10×1 $1 \times 10 = \boxed{}$ ten	$10 \times 1 = \boxed{}$

Name:	Date:
Teacher:	Part 1: Learning the Basic Times Tables

Assessment 11



Mastery of basic multiplication facts means being able to both quickly recall *and* quickly derive every answer. This requires a lot of practice and hard work, so practice these worksheets until you can do them *fast*!

	Think Smart	Think Quick
1.	6×7 $7+7+7 + 7+7+7 = \boxed{} + \boxed{}$	$6 \times 7 = \boxed{}$
2.	9×8 $(\boxed{} \times \boxed{}) - 8$	$9 \times 8 = \boxed{}$
3.	5×9 $1/2 \text{ of } (\boxed{} \times \boxed{})$	$5 \times 9 = \boxed{}$
4.	1×5 a group of $\boxed{}$ five	$1 \times 5 = \boxed{}$
5.	4×1 $1+1 + 1+1 = \boxed{} + \boxed{}$	$4 \times 1 = \boxed{}$
6.	7×10 $10+10+10+10+10 + 10+10 = \boxed{} + \boxed{}$	$7 \times 10 = \boxed{}$
7.	0×3 a group of $\boxed{}$ threes	$0 \times 3 = \boxed{}$
8.	3×6 $6+6 + 6 = \boxed{} + \boxed{}$	$3 \times 6 = \boxed{}$
9.	8×4 $4+4+4+4 + 4+4+4+4 = \boxed{} + \boxed{}$	$8 \times 4 = \boxed{}$
10.	2×0 double $\boxed{}$	$2 \times 0 = \boxed{}$
11.	10×2 $2 \times 10 = \boxed{}$ tens	$10 \times 2 = \boxed{}$

Answer Key



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|---------------------------------------|---------------------------------------|
| 1. $0 \times 2 = 0$ twos = 0 | 5. $0 \times 6 = 0$ sixes = 0 |
| 2. $0 \times 3 = 0$ threes = 0 | 6. $0 \times 7 = 0$ sevens = 0 |
| 3. $0 \times 4 = 0$ fours = 0 | 7. $0 \times 8 = 0$ eights = 0 |
| 4. $0 \times 5 = 0$ fives = 0 | 8. $0 \times 9 = 0$ nines = 0 |

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|---------------------------------------|---------------------------------------|
| 1. $1 \times 2 = 1$ twos = 2 | 5. $1 \times 6 = 1$ sixes = 6 |
| 2. $1 \times 3 = 1$ threes = 3 | 6. $1 \times 7 = 1$ sevens = 7 |
| 3. $1 \times 4 = 1$ fours = 4 | 7. $1 \times 8 = 1$ eights = 8 |
| 4. $1 \times 5 = 1$ fives = 5 | 8. $1 \times 9 = 1$ nines = 9 |

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|---------------------------------------|--|
| 1. $2 \times 2 = 2$ twos = 4 | 5. $2 \times 6 = 2$ sixes = 12 |
| 2. $2 \times 3 = 2$ threes = 6 | 6. $2 \times 7 = 2$ sevens = 14 |
| 3. $2 \times 4 = 2$ fours = 8 | 7. $2 \times 8 = 2$ eights = 16 |
| 4. $2 \times 5 = 2$ fives = 10 | 8. $2 \times 9 = 2$ nines = 18 |

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|--|--|
| 1. 2 tens + 0 ones = 20 | 5. 5 tens + 0 ones = 50 |
| 2. 3 tens + 0 ones = 30 | 6. 6 tens + 0 ones = 60 |
| 3. 4 tens + 0 ones = 40 | 7. 7 tens + 0 ones = 70 |
| 4. 5 tens + 0 ones = 50 | 8. 8 tens + 0 ones = 80 |

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|--|---|
| 1. 0 sevens = 0 | 6. 1 three = 3 |
| 2. 1 six = 6 | 7. double 9 = 18 |
| 3. double 4 = 8 | 8. 7 tens + 0 ones = 70 |
| 4. 5 tens + 0 ones = 50 | 9. double 8 = 16 |
| 5. 0 eights = 0 | 10. 6 tens + 0 ones = 60 |

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|-------------------------------|-------------------------------|
| 1. $3 \times 2 = 4 + 2 = 6$ | 5. $3 \times 6 = 12 + 6 = 18$ |
| 2. $3 \times 3 = 6 + 3 = 9$ | 6. $3 \times 7 = 14 + 7 = 21$ |
| 3. $3 \times 4 = 8 + 4 = 12$ | 7. $3 \times 8 = 16 + 8 = 24$ |
| 4. $3 \times 5 = 10 + 5 = 15$ | 8. $3 \times 9 = 18 + 9 = 27$ |

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|--------------------------------|--------------------------------|
| 1. $4 \times 2 = 4 + 4 = 8$ | 5. $4 \times 6 = 12 + 12 = 24$ |
| 2. $4 \times 3 = 6 + 6 = 12$ | 6. $4 \times 7 = 14 + 14 = 28$ |
| 3. $4 \times 4 = 8 + 8 = 16$ | 7. $4 \times 8 = 16 + 16 = 32$ |
| 4. $4 \times 5 = 10 + 10 = 20$ | 8. $4 \times 9 = 18 + 18 = 36$ |

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| 1. $5 \times 2 = \frac{1}{2}$ of 20 = 10 | 5. $5 \times 6 = \frac{1}{2}$ of 60 = 30 |
| 2. $5 \times 3 = \frac{1}{2}$ of 30 = 15 | 6. $5 \times 7 = \frac{1}{2}$ of 70 = 35 |
| 3. $5 \times 4 = \frac{1}{2}$ of 40 = 20 | 7. $5 \times 8 = \frac{1}{2}$ of 80 = 40 |
| 4. $5 \times 5 = \frac{1}{2}$ of 50 = 25 | 8. $5 \times 9 = \frac{1}{2}$ of 90 = 45 |

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|-------------------------------|-------------------------------|
| 1. $9 \times 2 = 20 - 2 = 18$ | 5. $9 \times 6 = 60 - 6 = 54$ |
| 2. $9 \times 3 = 30 - 3 = 27$ | 6. $9 \times 7 = 70 - 7 = 63$ |
| 3. $9 \times 4 = 40 - 4 = 36$ | 7. $9 \times 8 = 80 - 8 = 72$ |
| 4. $9 \times 5 = 50 - 5 = 45$ | 8. $9 \times 9 = 90 - 9 = 81$ |

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|--|--|
| 1. $3 \times 7 = 14 + 7 = 21$ | 6. $4 \times 7 = 14 + 14 = 28$ |
| 2. $4 \times 6 = 12 + 12 = 24$ | 7. $5 \times 6 = \frac{1}{2}$ of 60 = 30 |
| 3. $5 \times 5 = \frac{1}{2}$ of 50 = 25 | 8. $9 \times 5 = 50 - 5 = 45$ |
| 4. $9 \times 4 = 40 - 4 = 36$ | 9. $5 \times 7 = \frac{1}{2}$ of 70 = 35 |
| 5. $3 \times 8 = 16 + 8 = 24$ | 10. $9 \times 6 = 60 - 6 = 54$ |

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|--------------------------------|--------------------------------|
| 1. $6 \times 2 = 6 + 6 = 12$ | 5. $6 \times 6 = 18 + 18 = 36$ |
| 2. $6 \times 3 = 9 + 9 = 18$ | 6. $6 \times 7 = 21 + 21 = 42$ |
| 3. $6 \times 4 = 12 + 12 = 24$ | 7. $6 \times 8 = 24 + 24 = 48$ |
| 4. $6 \times 5 = 15 + 15 = 30$ | 8. $6 \times 9 = 27 + 27 = 54$ |

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|--------------------------------|--------------------------------|
| 1. $7 \times 2 = 10 + 4 = 14$ | 5. $7 \times 6 = 30 + 12 = 42$ |
| 2. $7 \times 3 = 15 + 6 = 21$ | 6. $7 \times 7 = 35 + 14 = 49$ |
| 3. $7 \times 4 = 20 + 8 = 28$ | 7. $7 \times 8 = 40 + 16 = 56$ |
| 4. $7 \times 5 = 25 + 10 = 35$ | 8. $7 \times 9 = 45 + 18 = 63$ |

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|--------------------------------|--------------------------------|
| 1. $8 \times 2 = 10 + 4 = 14$ | 5. $8 \times 6 = 30 + 12 = 42$ |
| 2. $8 \times 3 = 15 + 6 = 21$ | 6. $8 \times 7 = 35 + 14 = 49$ |
| 3. $8 \times 4 = 20 + 8 = 28$ | 7. $8 \times 8 = 40 + 16 = 56$ |
| 4. $8 \times 5 = 25 + 10 = 35$ | 8. $8 \times 9 = 45 + 18 = 63$ |

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|--------------------------------|---------------------------------|
| 1. $6 \times 5 = 15 + 15 = 30$ | 6. $8 \times 4 = 16 + 16 = 32$ |
| 2. $7 \times 4 = 20 + 8 = 28$ | 7. $6 \times 7 = 21 + 21 = 42$ |
| 3. $8 \times 3 = 12 + 12 = 24$ | 8. $7 \times 6 = 30 + 12 = 42$ |
| 4. $6 \times 6 = 18 + 18 = 36$ | 9. $8 \times 5 = 20 + 20 = 40$ |
| 5. $7 \times 5 = 25 + 10 = 35$ | 10. $7 \times 7 = 35 + 14 = 49$ |

Answer Key



page 22, grouping 0s

1. $0 \times 0 = 0$ zeroes = 0
2. $1 \times 0 = 1$ zero = 0
3. $2 \times 0 =$ double 0 = 0
4. $3 \times 0 = 0 + 0 = 0$
5. $4 \times 0 = 0 + 0 = 0$
6. $5 \times 0 = \frac{1}{2}$ of 0 = 0
7. $6 \times 0 = 0 + 0 = 0$
8. $7 \times 0 = 0 + 0 = 0$
9. $8 \times 0 = 0 + 0 = 0$
10. $9 \times 0 = 0 - 0 = 0$
11. $10 \times 0 = 0$ tens = 0

page 26, grouping 4s

1. $0 \times 4 = 0$ fours = 0
2. $1 \times 4 = 1$ four = 4
3. $2 \times 4 =$ double 4 = 8
4. $3 \times 4 = 8 + 4 = 12$
5. $4 \times 4 = 8 + 8 = 16$
6. $5 \times 4 = \frac{1}{2}$ of 40 = 20
7. $6 \times 4 = 12 + 12 = 24$
8. $7 \times 4 = 20 + 8 = 28$
9. $8 \times 4 = 16 + 16 = 32$
10. $9 \times 4 = 40 - 4 = 36$
11. $10 \times 4 = 4$ tens = 40

page 30, grouping 8s

1. $0 \times 8 = 0$ eights = 0
2. $1 \times 8 = 1$ eight = 8
3. $2 \times 8 =$ double 8 = 16
4. $3 \times 8 = 16 + 8 = 24$
5. $4 \times 8 = 16 + 16 = 32$
6. $5 \times 8 = \frac{1}{2}$ of 80 = 40
7. $6 \times 8 = 24 + 24 = 48$
8. $7 \times 8 = 40 + 16 = 56$
9. $8 \times 8 = 32 + 32 = 64$
10. $9 \times 8 = 80 - 8 = 72$
11. $10 \times 8 = 8$ tens = 80

page 23, grouping 1s

1. $0 \times 1 = 0$ ones = 0
2. $1 \times 1 = 1$ one = 1
3. $2 \times 1 =$ double 1 = 2
4. $3 \times 1 = 2 + 1 = 3$
5. $4 \times 1 = 2 + 2 = 4$
6. $5 \times 1 = \frac{1}{2}$ of 10 = 5
7. $6 \times 1 = 3 + 3 = 6$
8. $7 \times 1 = 5 + 2 = 7$
9. $8 \times 1 = 4 + 4 = 8$
10. $9 \times 1 = 10 - 1 = 9$
11. $10 \times 1 = 1$ ten = 10

page 27, grouping 5s

1. $0 \times 5 = 0$ fives = 0
2. $1 \times 5 = 1$ five = 5
3. $2 \times 5 =$ double 5 = 10
4. $3 \times 5 = 10 + 5 = 15$
5. $4 \times 5 = 10 + 10 = 20$
6. $5 \times 5 = \frac{1}{2}$ of 50 = 25
7. $6 \times 5 = 15 + 15 = 30$
8. $7 \times 5 = 25 + 10 = 35$
9. $8 \times 5 = 20 + 20 = 40$
10. $9 \times 5 = 50 - 5 = 45$
11. $10 \times 5 = 5$ tens = 50

page 31, grouping 9s

1. $0 \times 9 = 0$ nines = 0
2. $1 \times 9 = 1$ nine = 9
3. $2 \times 9 =$ double 9 = 18
4. $3 \times 9 = 18 + 9 = 27$
5. $4 \times 9 = 18 + 18 = 36$
6. $5 \times 9 = \frac{1}{2}$ of 90 = 45
7. $6 \times 9 = 27 + 27 = 54$
8. $7 \times 9 = 45 + 18 = 63$
9. $8 \times 9 = 36 + 36 = 72$
10. $9 \times 9 = 90 - 9 = 81$
11. $10 \times 9 = 9$ tens = 90

page 24, grouping 2s

1. $0 \times 2 = 0$ twos = 0
2. $1 \times 2 = 1$ two = 2
3. $2 \times 2 =$ double 2 = 4
4. $3 \times 2 = 4 + 2 = 6$
5. $4 \times 2 = 4 + 4 = 8$
6. $5 \times 2 = \frac{1}{2}$ of 20 = 10
7. $6 \times 2 = 6 + 6 = 12$
8. $7 \times 2 = 10 + 4 = 14$
9. $8 \times 2 = 8 + 8 = 16$
10. $9 \times 2 = 20 - 2 = 18$
11. $10 \times 2 = 2$ tens = 20

page 28, grouping 6s

1. $0 \times 6 = 0$ sixes = 0
2. $1 \times 6 = 1$ six = 6
3. $2 \times 6 =$ double 6 = 12
4. $3 \times 6 = 12 + 6 = 18$
5. $4 \times 6 = 12 + 12 = 24$
6. $5 \times 6 = \frac{1}{2}$ of 60 = 30
7. $6 \times 6 = 18 + 18 = 36$
8. $7 \times 6 = 30 + 12 = 42$
9. $8 \times 6 = 24 + 24 = 48$
10. $9 \times 6 = 60 - 6 = 54$
11. $10 \times 6 = 6$ tens = 60

page 32, grouping 10s

1. $0 \times 10 = 0$ tens = 0
2. $1 \times 10 = 1$ ten = 10
3. $2 \times 10 =$ double 10 = 20
4. $3 \times 10 = 20 + 10 = 30$
5. $4 \times 10 = 20 + 20 = 40$
6. $5 \times 10 = \frac{1}{2}$ of 100 = 50
7. $6 \times 10 = 30 + 30 = 60$
8. $7 \times 10 = 50 + 20 = 70$
9. $8 \times 10 = 40 + 40 = 80$
10. $9 \times 10 = 100 - 10 = 90$
11. $10 \times 10 = 10$ tens = 100

page 25, grouping 3s

1. $0 \times 3 = 0$ threes = 0
2. $1 \times 3 = 1$ three = 3
3. $2 \times 3 =$ double 3 = 6
4. $3 \times 3 = 6 + 3 = 9$
5. $4 \times 3 = 6 + 6 = 12$
6. $5 \times 3 = \frac{1}{2}$ of 30 = 15
7. $6 \times 3 = 9 + 9 = 18$
8. $7 \times 3 = 15 + 6 = 21$
9. $8 \times 3 = 12 + 12 = 24$
10. $9 \times 3 = 30 - 3 = 27$
11. $10 \times 3 = 3$ tens = 30

page 29, grouping 7s

1. $0 \times 7 = 0$ sevens = 0
2. $1 \times 7 = 1$ seven = 7
3. $2 \times 7 =$ double 7 = 14
4. $3 \times 7 = 14 + 7 = 21$
5. $4 \times 7 = 14 + 14 = 28$
6. $5 \times 7 = \frac{1}{2}$ of 70 = 35
7. $6 \times 7 = 21 + 21 = 42$
8. $7 \times 7 = 35 + 14 = 49$
9. $8 \times 7 = 28 + 28 = 56$
10. $9 \times 7 = 70 - 7 = 63$
11. $10 \times 7 = 7$ tens = 70

Answer Key



page 33, assessment 1

1. $6 \times 8 = 24 + 24 = 48$
2. $9 \times 9 = (10 \times 9) - 9 = 81$
3. $5 \times 10 = \frac{1}{2} \text{ of } (10 \times 10) = 50$
4. $1 \times 6 = 1 \text{ six} = 6$
5. $4 \times 2 = 4 + 4 = 8$
6. $7 \times 0 = 0 + 0 = 0$
7. $0 \times 4 = 0 \text{ fours} = 0$
8. $3 \times 7 = 14 + 7 = 21$
9. $8 \times 5 = 20 + 20 = 40$
10. $2 \times 1 = \text{double } 1 = 2$
11. $10 \times 3 = 3 \text{ tens} = 30$

page 34, assessment 2

1. $6 \times 9 = 27 + 27 = 54$
2. $9 \times 10 = (10 \times 10) - 10 = 90$
3. $5 \times 0 = \frac{1}{2} \text{ of } (10 \times 0) = 0$
4. $1 \times 7 = 1 \text{ seven} = 7$
5. $4 \times 3 = 6 + 6 = 12$
6. $7 \times 1 = 5 + 2 = 7$
7. $0 \times 5 = 0 \text{ fives} = 0$
8. $3 \times 8 = 16 + 8 = 24$
9. $8 \times 6 = 24 + 24 = 48$
10. $2 \times 2 = \text{double } 2 = 4$
11. $10 \times 4 = 4 \text{ tens} = 40$

page 35, assessment 3

1. $6 \times 10 = 30 + 30 = 60$
2. $9 \times 0 = (10 \times 0) - 0 = 0$
3. $5 \times 1 = \frac{1}{2} \text{ of } (10 \times 1) = 5$
4. $1 \times 8 = 1 \text{ eight} = 8$
5. $4 \times 4 = 8 + 8 = 16$
6. $7 \times 2 = 10 + 4 = 14$
7. $0 \times 6 = 0 \text{ sixes} = 0$
8. $3 \times 9 = 18 + 9 = 27$
9. $8 \times 7 = 28 + 28 = 56$
10. $2 \times 3 = \text{double } 3 = 6$
11. $10 \times 5 = 5 \text{ tens} = 50$

page 36, assessment 4

1. $6 \times 0 = 0 + 0 = 0$
2. $9 \times 1 = (10 \times 1) - 1 = 9$
3. $5 \times 2 = \frac{1}{2} \text{ of } (10 \times 2) = 10$
4. $1 \times 9 = 1 \text{ nine} = 9$
5. $4 \times 5 = 10 + 10 = 20$
6. $7 \times 3 = 15 + 6 = 21$
7. $0 \times 7 = 0 \text{ sevens} = 0$
8. $3 \times 10 = 20 + 10 = 30$
9. $8 \times 8 = 32 + 32 = 64$
10. $2 \times 4 = \text{double } 4 = 8$
11. $10 \times 6 = 6 \text{ tens} = 60$

page 37, assessment 5

1. $6 \times 1 = 3 + 3 = 6$
2. $9 \times 2 = (10 \times 2) - 2 = 18$
3. $5 \times 3 = \frac{1}{2} \text{ of } (10 \times 3) = 15$
4. $1 \times 10 = 1 \text{ ten} = 10$
5. $4 \times 6 = 12 + 12 = 24$
6. $7 \times 4 = 20 + 8 = 28$
7. $0 \times 8 = 0 \text{ eights} = 0$
8. $3 \times 0 = 0 + 0 = 0$
9. $8 \times 9 = 36 + 36 = 72$
10. $2 \times 5 = \text{double } 5 = 10$
11. $10 \times 7 = 7 \text{ tens} = 70$

page 38, assessment 6

1. $6 \times 2 = 6 + 6 = 12$
2. $9 \times 3 = (10 \times 3) - 3 = 27$
3. $5 \times 4 = \frac{1}{2} \text{ of } (10 \times 4) = 20$
4. $1 \times 0 = 1 \text{ zero} = 0$
5. $4 \times 7 = 14 + 14 = 28$
6. $7 \times 5 = 25 + 10 = 35$
7. $0 \times 9 = 0 \text{ nines} = 0$
8. $3 \times 1 = 2 + 1 = 3$
9. $8 \times 10 = 40 + 40 = 80$
10. $2 \times 6 = \text{double } 6 = 12$
11. $10 \times 8 = 8 \text{ tens} = 80$

page 39, assessment 7

1. $6 \times 3 = 9 + 9 = 18$
2. $9 \times 4 = (10 \times 4) - 4 = 36$
3. $5 \times 5 = \frac{1}{2} \text{ of } (10 \times 5) = 25$
4. $1 \times 1 = 1 \text{ one} = 1$
5. $4 \times 8 = 16 + 16 = 32$
6. $7 \times 6 = 30 + 12 = 42$
7. $0 \times 10 = 0 \text{ tens} = 0$
8. $3 \times 2 = 4 + 2 = 6$
9. $8 \times 0 = 0 + 0 = 0$
10. $2 \times 7 = \text{double } 7 = 14$
11. $10 \times 9 = 9 \text{ tens} = 90$

page 40, assessment 8

1. $6 \times 4 = 12 + 12 = 24$
2. $9 \times 5 = (10 \times 5) - 5 = 45$
3. $5 \times 6 = \frac{1}{2} \text{ of } (10 \times 6) = 30$
4. $1 \times 2 = 1 \text{ two} = 2$
5. $4 \times 9 = 18 + 18 = 36$
6. $7 \times 7 = 35 + 14 = 49$
7. $0 \times 0 = 0 \text{ zeroes} = 0$
8. $3 \times 3 = 6 + 3 = 9$
9. $8 \times 1 = 4 + 4 = 8$
10. $2 \times 8 = \text{double } 8 = 16$
11. $10 \times 10 = 10 \text{ tens} = 100$

page 41, assessment 9

1. $6 \times 5 = 15 + 15 = 30$
2. $9 \times 6 = (10 \times 6) - 6 = 54$
3. $5 \times 7 = \frac{1}{2} \text{ of } (10 \times 7) = 35$
4. $1 \times 3 = 1 \text{ three} = 3$
5. $4 \times 10 = 20 + 20 = 40$
6. $7 \times 8 = 40 + 16 = 56$
7. $0 \times 1 = 0 \text{ ones} = 0$
8. $3 \times 4 = 8 + 4 = 12$
9. $8 \times 2 = 8 + 8 = 16$
10. $2 \times 9 = \text{double } 9 = 18$
11. $10 \times 0 = 0 \text{ tens} = 0$

page 42, assessment 10

1. $6 \times 6 = 18 + 18 = 36$
2. $9 \times 7 = (10 \times 7) - 7 = 63$
3. $5 \times 8 = \frac{1}{2} \text{ of } (10 \times 8) = 40$
4. $1 \times 4 = 1 \text{ four} = 4$
5. $4 \times 0 = 0 + 0 = 0$
6. $7 \times 2 = 10 + 4 = 14$
7. $0 \times 2 = 0 \text{ twos} = 0$
8. $3 \times 5 = 10 + 5 = 15$
9. $8 \times 3 = 12 + 12 = 24$
10. $2 \times 10 = \text{double } 10 = 20$
11. $10 \times 1 = 1 \text{ ten} = 10$

page 43, assessment 11

1. $6 \times 7 = 21 + 21 = 42$
2. $9 \times 8 = (10 \times 8) - 8 = 72$
3. $5 \times 9 = \frac{1}{2} \text{ of } (10 \times 9) = 45$
4. $1 \times 5 = 1 \text{ five} = 5$
5. $4 \times 1 = 2 + 2 = 4$
6. $7 \times 10 = 50 + 20 = 70$
7. $0 \times 3 = 0 \text{ threes} = 0$
8. $3 \times 6 = 12 + 6 = 18$
9. $8 \times 4 = 16 + 16 = 32$
10. $2 \times 0 = \text{double } 0 = 0$
11. $10 \times 2 = 2 \text{ tens} = 20$