Multiplication Combinations

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One of your goals in math class this year is to review and practice all the multiplication combinations up to 12×12.

1 x 1	1 x 2	1 x 3	1 x 4	1 x 5	1 x 6	1 x 7	1 x 8	1 x 9	1 x 10	1 x 11	1 x 12
2 x 1	2 x 2	2 x 3	2 x 4	2 x 5	2 x 6	2 x 7	2 x 8	2 x 9	2 x 10	2 x 11	2 x 12
3 x 1	3 x 2	3 x 3	3 x 4	3 x 5	3 x 6	3 x 7	3 x 8	3 x 9	3 x 10	3 x 11	3 x 12
4 x 1	4 x 2	4 x 3	4 x 4	4 x 5	4 x 6	4 x 7	4 x 8	4 x 9	4 x 10	4 x 11	4 x 12
5 x 1	5 x 2	5 x 3	5 x 4	5 x 5	5 x 6	5 x 7	5 x 8	5 x 9	5 x 10	5 x 11	5 x 12
6 x 1	6 x 2	6 x 3	6 x 4	6 x 5	6 x 6	6 x 7	6 x 8	6 x 9	6 x 10	6 x 11	6 x 12
7 x 1	7 x 2	7 x 3	7 x 4	7 x 5	7 x 6	7 x 7	7 x 8	7 x 9	7 x 10	7 x 11	7 x 12
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10 x 1	10 x 2	10 x 3	10 x 4	10 x 5	10 x 6	10 x 7	10 x 8	10 x 9	10 x 10	10 x 11	10 x 12
11 x 1	11 x 2	11 x 3	11 x 4	11 x 5	11 x 6	11 x 7	11 x 8	11 x 9	11 x 10	11 x 11	11 x 12
12 x 1	12 x 2	12 x 3	12 x 4	12 x 5	12 x 6	12 x 7	12 x 8	12 x 9	12 x 10	12 x 11	12 x 12

There are 144 multiplication combinations on this chart. You may think that remembering all of them is a challenge, but you should not worry. On the next few pages you will find some suggestions for learning many of them.
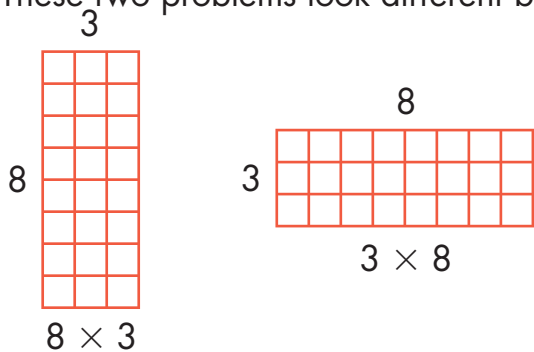
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Learning Two Combinations at a Time

To help you review multiplication combinations, think about two combinations at a time, such as 8×3 and 3×8.

These two problems look different but have the same answer.

3

8

8×3

8

3

3×8

When you know that $8 \times 3 = 24$, you also know that $3 \times 8 = 24$.

You've learned two multiplication combinations!

By "turning around" combinations and learning them two at a time, the chart of multiplication combinations is reduced from 144 to 78 combinations to learn.

1 x 1	1 x 2	1 x 3	1 x 4	1 x 5	1 x 6	1 x 7	1 x 8	1 x 9	1 x 10	1 x 11	1 x 12
2 x 1 1 x 2	2 x 2	2 x 3	2 x 4	2 x 5	2 x 6	2 x 7	2 x 8	2 x 9	2 x 10	2 x 11	2 x 12
3 x 1 1 x 3	3 x 2 2 x 3	3 x 3	3 x 4	3 x 5	3 x 6	3 x 7	3 x 8	3 x 9	3 x 10	3 x 11	3 x 12
4 x 1 1 x 4	4 x 2 2 x 4	4 x 3 3 x 4	4 x 4	4 x 5	4 x 6	4 x 7	4 x 8	4 x 9	4 x 10	4 x 11	4 x 12
5 x 1 1 x 5	5 x 2 2 x 5	5 x 3 3 x 5	5 x 4 4 x 5	5 x 5	5 x 6	5 x 7	5 x 8	5 x 9	5 x 10	5 x 11	5 x 12
6 x 1 1 x 6	6 x 2 2 x 6	6 x 3 3 x 6	6 x 4 4 x 6	6 x 5 5 x 6	6 x 6	6 x 7	6 x 8	6 x 9	6 x 10	6 x 11	6 x 12
7 x 1 1 x 7	7 x 2 2 x 7	7 x 3 3 x 7	7 x 4 4 x 7	7 x 5 5 x 7	7 x 6 6 x 7	7 x 7	7 x 8	7 x 9	7 x 10	7 x 11	7 x 12
8 x 1 1 x 8	8 x 2 2 x 8	8 x 3 3 x 8	8 x 4 4 x 8	8 x 5 5 x 8	8 x 6 6 x 8	8 x 7 7 x 8	8 x 8	8 x 9	8 x 10	8 x 11	8 x 12
9 x 1 1 x 9	9 x 2 2 x 9	9 x 3 3 x 9	9 x 4 4 x 9	9 x 5 5 x 9	9 x 6 6 x 9	9 x 7 7 x 9	9 x 8 8 x 9	9 x 9	9 x 10	9 x 11	9 x 12
10 x 1 1 x 10	10 x 2 2 x 10	10 x 3 3 x 10	10 x 4 4 x 10	10 x 5 5 x 10	10 x 6 6 x 10	10 x 7 7 x 10	10 x 8 8 x 10	10 x 9 9 x 10	10 x 10	10 x 11	10 x 12
11 x 1 1 x 11	11 x 2 2 x 11	11 x 3 3 x 11	11 x 4 4 x 11	11 x 5 5 x 11	11 x 6 6 x 11	11 x 7 7 x 11	11 x 8 8 x 11	11 x 9 9 x 11	11 x 10 10 x 11	11 x 11	11 x 12
12 x 1 1 x 12	12 x 2 2 x 12	12 x 3 3 x 12	12 x 4 4 x 12	12 x 5 5 x 12	12 x 6 6 x 12	12 x 7 7 x 12	12 x 8 8 x 12	12 x 9 9 x 12	12 x 10 10 x 12	12 x 11 11 x 12	12 x 12

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Another helpful way to learn multiplication combinations is to think about one category at a time. Here are some categories you may have seen before.

Learning the ×1 Combinations

You may be thinking about only one group.

1 group of 9 equals 9.

→ $1 \times 9 = 9$

You may also be thinking about several groups of 1.

6 groups of 1 equal 6.

→ $6 \times 1 = 6$

Learning the ×2 Combinations

Multiplying by 2 is the same as doubling a number.

→ $8 + 8 = 16$

→ $2 \times 8 = 16$

Learning the ×10 and ×5 Combinations

You can learn these combinations by skip counting by 10s and 5s.

10, 20, 30, 40, 50, 60 → $6 \times 10 = 60$

5, 10, 15, 20, 25, 30 → $6 \times 5 = 30$

Another way to find a ×5 combination is to remember that it is half of a ×10 combination.

10
6
$6 \times 10 = 60$

5
6
$6 \times 5 = 30$
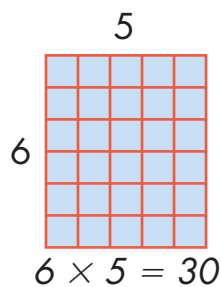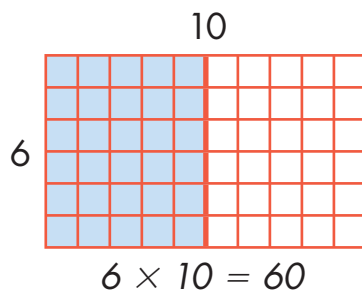
6 x 5 (or 30) is half of 6 x 10 (or 60).

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Here are some more categories to help you learn the multiplication combinations.

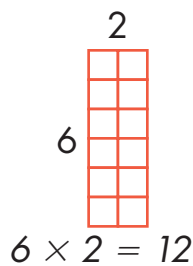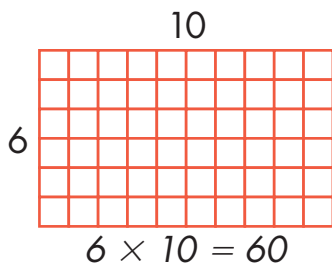### Learning the ×11 Combinations

Many students learn these combinations by noticing the double-digit pattern they create.

$$\begin{array}{r} 11 \\ \times\,3 \\ \hline 33 \end{array} \qquad \begin{array}{r} 11 \\ \times\,4 \\ \hline 44 \end{array} \qquad \begin{array}{r} 11 \\ \times\,5 \\ \hline 55 \end{array} \qquad \begin{array}{r} 11 \\ \times\,6 \\ \hline 66 \end{array} \qquad \begin{array}{r} 11 \\ \times\,7 \\ \hline 77 \end{array}$$

Learning the ×12 Combinations

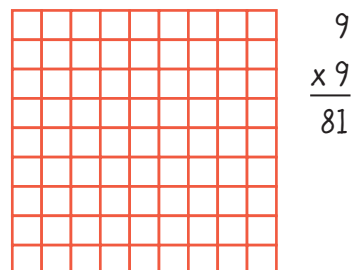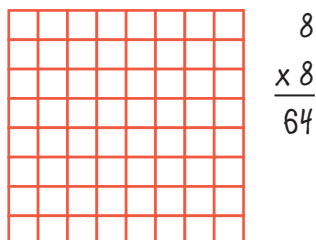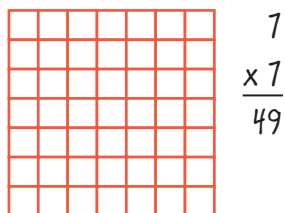Many students multiply by 12 by breaking the 12 into 10 and 2.
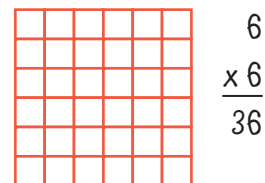
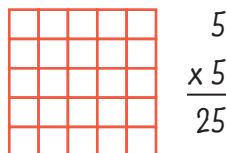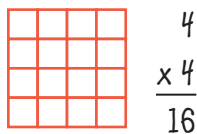$6 \times 10 = 60$ $6 \times 2 = 12$

$6 \times 12 = (6 \times 10) + (6 \times 2)$
$6 \times 12 = 60 + 12$
$6 \times 12 = 72$

Learning the Square Numbers

Many students remember the square number combinations by building the squares with tiles or drawing them on grid paper.

$$\begin{array}{r} 3 \\ \times\,3 \\ \hline 9 \end{array} \qquad \begin{array}{r} 4 \\ \times\,4 \\ \hline 16 \end{array} \qquad \begin{array}{r} 5 \\ \times\,5 \\ \hline 25 \end{array} \qquad \begin{array}{r} 6 \\ \times\,6 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 7 \\ \times\,7 \\ \hline 49 \end{array} \qquad \begin{array}{r} 8 \\ \times\,8 \\ \hline 64 \end{array} \qquad \begin{array}{r} 9 \\ \times\,9 \\ \hline 81 \end{array}$$
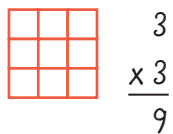
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After you have used all these categories to practice the multiplication combinations, you have only a few more to learn.

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9 x 1	9 x 2	9 x 3 3 x 9	9 x 4 4 x 9	9 x 5	9 x 6 6 x 9	9 x 7 7 x 9	9 x 8 8 x 9	9 x 9	9 x 10	9 x 11	9 x 12
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11 x 1	11 x 2	11 x 3	11 x 4	11 x 5	11 x 6	11 x 7	11 x 8	11 x 9	11 x 10	11 x 11	11 x 12
12 x 1	12 x 2	12 x 3	12 x 4	12 x 5	12 x 6	12 x 7	12 x 8	12 x 9	12 x 10	12 x 11	12 x 12

As you practice all of the multiplication combinations, there will be some that you "just know" and others that you are "working on" learning. To practice the combinations that are difficult for you to remember, think of a combination that you know as a clue to help you. Here are some suggestions.

$9 \times 8 = 72$ $8 \times 9 = 72$	Clue: 10 x 8 = 80 80 – 8 = 72
$6 \times 7 = 42$ $7 \times 6 = 42$	Clue: 6 x 5 = 30 6 x 2 = 12 30 + 12 = 42
$4 \times 8 = 32$ $8 \times 4 = 32$	Clue: 2 x 8 = 16 16 + 16 = 32