

Training Multiplication

**An exercise program
for children with dyscalculia**

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Introduction

The multiplication table is often introduced briefly in elementary school at the end of the second grade and finally practiced intensively in the third grade. It is important that school children perform well in this area so that they also have the chance of getting sufficiently good grades in classwork. Most of the children learn the multiplication tables relatively easily, but some children have difficulty practicing. This is especially true of children with dyscalculia, with the exceptions of very few.

A strategy that is often used by children with dyscalculia is to solve tasks of multiplication by adding. So, the task becomes 3×8 for these children with $8 + 8 + 8$ calculated. An estimated 50 percent of students with dyscalculia have a calculation error in the result, again the solution process is taking too long for the other half of the students.

In general, the problems in children with multiplication table deficit are in the failure to use efficient solution strategies (e.g., in the 9 series) and in a missing of automation. It is precisely on these two problem areas that this training is concentrated and train these two areas within a few weeks.

The training multiplication

- practices the necessary arithmetic strategies for solving multiplication tables
- and automates numerous tasks.

This allows children with significant difficulties to make good progress in this area as well.

Requirements

These requirements are necessary in order to make good progress with the Training Multiplication:

- The child has sufficient skills in addition and subtraction, so can usually correctly solve problems like $35 + 7$ and $70 - 7$. If these are not yet available, you should first measure in the area of addition and subtraction are carried out (e.g., with the Munich Arithmetic Training).
- The learning partner (usually one parent) and the child are able to learn for some weeks three to five times the multiplication exercises for 10 to 15 minutes at home to continue practicing.

- If the Training Multiplication is used as part of a learning therapy, it is crucial to the progress of the children that also at home - according to the instructions of the Learning therapists - is practiced intensively enough. Here it is important that the parents are responsible for the training to be practiced accordingly.

The principle of this training

The multiplication tables are practiced in this training using two strategies:

- **Memorize:** By practicing regularly, children memorize numerous tasks. Furthermore, so-called anchor tasks are formed by practicing, which are ultimately automated. Based on the anchor tasks the neighboring tasks can be solved more easily. So, this is a strategy to memorize tasks.
- **Learn arithmetic strategies:** In addition to memorizing by heart, arithmetic strategies are also used for individual rows practiced. With that, the child can come to the correct solution if they do not find the answer to the appropriate task by heart.

Every child is able to master the 10 series (8x10) after they have been shown the solution. But they have problems with the 9 series. The task 9x8 can be solved as follows: first, calculate 10x8 and then subtract an 8 (since I only have to calculate 9x8). The described procedure represents a calculation strategy and is used in the exercises for series 9 and is practiced accordingly.

Other features of this training

The children practice the individual rows one after the other. Only when a row has been mastered sufficiently, they will continue with the next row.

The children get to know the rows in a meaningful way so they can learn in the easiest way.

Furthermore, the children have the opportunity to use the associated computer program to continue practicing tasks, which many children like to do.

New or revised in this edition

- The so-called "preliminary exercises" are new. The results of a series are to be recited here.
- Another new feature is that the "inversion tasks" are now explicitly practiced for every row.

- The number of tasks in the mixed task has been increased from 10 to 12.
- The 4-row and the 6-row are now learned by default without any trick (reference to the 5-row) but can be carried out optionally.
- The fun numbers have been renamed fun tasks, which fits better in terms of content.

Implementation instructions for learning therapists

In dyscalculia therapy work through the training program as indicated. Per week one chapter can be worked on (e.g., 3-series). First, work with the child on the content of a chapter (including the information boxes) and then decide how the child will complete the tasks in a series. There are basically three options for this:

- Make copies of the individual exercise blocks.
- Set the tasks orally
- Practice on the PC

Depending on the child and the therapy situation, you choose the appropriate way to learn. Also, a combination is of course possible (e.g., first learn it orally and then train it further on the PC).

It is important that the child learns the corresponding row again as homework, here - if possible - should be practiced 3 to 5 times. The daily exercise time should be limited to 10 minutes. Often the child learns orally with one of the parents.

The following applies to the therapy session: Check how well you have mastered the series you have learned (repeat if necessary) then tackle the next multiplication table.

Implementation instructions for parents

Decide for yourself when is the best time to start exercising. This can be done tomorrow or maybe in 1 or 2 weeks. Remember, you do the next four through eight weeks and should practice with the child regularly.

Discuss with the child that you want to work to do an exercise program that lasts 3 to 5 weeks and after this time you can solve multiplication tables much better.

Together, think about the best possible time for the daily training, e.g., before dinner or after homework. The advantage of a fixed point in time is that it is a more binding appointment and avoids unnecessary discussions.

Install the exercise program on the PC, click through the program a little and print out these pages.

Method

You work through the series in the given order of this training. After the child has processed pages in writing, they continue to solve the tasks of the corresponding series on the computer or orally. First, the child calculates the tasks of the easy part (approx. 18 tasks) then the tasks of the hard part (also 18 tasks) and finally the mixed tasks. If a computer is not available, you work with the child only orally. Practice the lower tasks (1x, 2x, 3x, 4x 5x) and the upper one's tasks (5x, 6x, 7x, 8, 9, 10x) separately. Only when these are mastered do you set tasks from the entire row. Of course, the printed worksheets of the series to be practiced can also be used several times to be edited.

All rows are practiced accordingly. Remember that you have to practice two to four days per row (does not apply to the 1 and 10 rows). You can on the second or third day also briefly practice the previous row again. Very important, mistakes are allowed. Your child will get better and better, but not the whole multiplication table is perfected overnight.

In general, the following applies: Practice in a row until you have mastered it with almost no errors while practicing and the child knows the individual tasks by heart or has mastered the arithmetic strategies they have learned very well.

The next day, the content from the previous day can be briefly repeated (preferably on the computer or orally) before practicing the new set of subjects.

The total exercise time for a new row should not exceed 20 minutes on the first day. One training session that is only carried out orally or on the PC should not be longer than 10 minutes.

The most effective way is certainly to do the oral exercises. The principle remains the same. First, they practiced the lower part of a row, then the upper and finally the entire row. The advantage of oral practice means that the learning partner is able to repeat the difficult tasks as many times as necessary.

In the case of very great difficulties, for example, if severe dyscalculia is diagnosed, the practice time is increased from 4 to 5 practice days per row. For children with great memory problems, it is important to ensure that the relevant strategies are mastered, so that the child can get the desired results.

After the first part of the training, where you learn one row after another, you continue working with the second part. In the second part, you concentrate on two rows at the same time. However, if there are individual weaknesses in the series, these should be specifically repeated before you move to the second part.

After the entire training program has been worked through, your child will grow up with a very large probability to be significantly better. However, keep practicing if there are still weaknesses in the individual tasks or series. Then practice these series or tasks more intensively and do not neglect the ranks that are already quite well mastered.

The following sentences always apply: the learning partner should praise a lot. Every correctly solved task should be praised (positively reinforced). This increases motivation, promotes self-efficiency and ensures during learning more joy in the child, which in turn is also good for the adult.

Notes on the individual rows

1-series and 10-series:

The first chapter represents a very gentle introduction to the multiplication table. Depending on the time available you can continue working with the 2 series.

2-series:

For the 2-row it is recommended to turn the task around. So, instead of 6×2 (or 4×2) we calculate 2×6 (or 2×4). We solve this task via the calculation path $6 + 6$ (or $4 + 4$).

The tasks should be practiced intensively so that the child no longer calculates the intermediate step with $6 + 6$ and can produce immediately the result. The aim is that the tasks are automatized.

3-series:

The 3-series is learned the classical way. The tasks and solutions are memorized and learned. Orientation within the 3-row helps. Accordingly, the "preliminary exercise" is an important exercise, here the series is recited 3, 6, 9, 12, ...

The division of the tasks into a lower and upper area is also helpful.

4-series:

The 4-series is now learned by default without any trick. Children however, who do very well in the 5-series can solve tasks of the 4-series as follows:

"There is a trick you can use with the 4-series if you have a good command of the 5-series. For example, calculation for 4×6 goes like this: you first take 5×6 which is 30 and then subtract a 6 again ($30 - 6$) so the result is 24.

Or for the 4×7 task, you do the math 5×7 first which equals 35 and then subtract the number 7, because you should only calculate 4×7 and not 5×7 . So, if you calculate $35 - 7$ you get 28.

So, take another look at the 5-series before you continue calculating here."

5-series:

The 5-series is very central and is therefore learned immediately after the 2-series. It is comparatively easy to learn, as the results on the unit's position can only take the digits one or zero. The 5-series should be learned very well, as you can also use it to learn the results of the 4-series and 6-series that can be derived from that series.

6-series:

The 6-series, like the 4-series, is now learned in the 3rd revised edition without any trick. In individual cases, however, it can make sense by using the old way of doing things. Here is the corresponding wording:

"You can also use a trick with the 6-series. Again, we refer to the 5-series. For example, for the task 6×8 you first calculate 5×8 which is 40 and then add an 8 ($40 + 8$). The result of the calculation 6×8 is 48.

You can also do the 6×4 task in the same way. First calculate 5×4 which is 20 and then count a 4 in addition, since you have to take the 4 six times. So, the result of this task is 24.

As you can see, the 5 Series is quite useful for other tasks as well. Maybe you will still see it once again."

7-series and 8-series:

These two rows are quite difficult as there are no special arithmetic tricks for them. The 7×8 task is presented to the children as the most difficult task of the multiplication table, which encourages the children to memorize.

9-series:

The 9th-row trick is well understood by all children and happily used.

Dear student,

I have the following pages designed to help you solve multiplication tables tasks. With this approach already many children with very big problems in arithmetic have great progress in the multiplication table. Why not you too?



It is important that you work through the sheets well and also try to understand the math tricks.

I have already met children who have the complete 1x1 memorized by heart. So, learning multiplication tables also means learn by heart. Just like learning a poem by heart. I'm curious what helps you more the tricks or the learning by heart.

Did you know that when you learn repeating, what is most important? It looks like a tough job at the third working though it isn't that difficult anymore. Best you work on this course several days a week. So, you should invest between 10 to 20 minutes a day. You can put a clock next to you! Remember to practice regularly, especially when it comes to memorizing. And even if you do not believe it now, solving multiplication tables can be fun too!

I wish you much success

Rainer Mohr

First Part

The individual rows of the multiplication table

Welcome to the Training Multiplication. We are here to learn the multiplication tables together and I am sure that you will soon be much better. In total, we have 10 rows to learn. The 1-series, the 2-series, the 3-series... and also the 10-series. If you do the exercise program with your parents, we want to take care of every fourth day to learn a new series, so in four weeks we will be very far. Let's go with the 1 and 10 series kick-off.

Work through this training as completely as possible and leave nothing out.

1 and 10 series

What does exercise $10 \cdot 5$ actually mean? I want to show you how to calculate

$$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$$

So, it is a very long plus task. Since the people are all very lazy, they invented multiplication. We just write instead of the long plus task

$$10 \cdot 5.$$

In the textbook you may find the following spelling:

$$10 \cdot 5 = 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$$

This calculation means that the left side of the equals sign has exactly the same value as the right side of the equal sign.

Task:

Can you complete the following tasks so that they are correct?

$$10 \cdot 5 = 5 + 5 + 5 + 5 + 5 + \dots$$

$$10 \cdot 4 = 4 + 4 + 4 + 4 + 4 + \dots$$

$$10 \cdot 3 = 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + \dots$$

$$10 \cdot 2 = 2 + \dots$$



Please make the effort and do the math for a long time plus task in mind from:

$$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 =$$

If you did the math correctly, 20 should come out. Calculate also the following task:

$$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 =$$

Here too, the result is a tens namely 50. So, we can conclude from

this that in multiplication tasks where you have a number e.g., that takes 2 or 5 times 10, you can get very easily the result

$10 \cdot 2$ is 20 and $10 \cdot 5$ is 50

Task:

Do the math!

$$10 \cdot 2 =$$

$$10 \cdot 5 =$$

$$10 \cdot 3 =$$

$$10 \cdot 4 =$$

$$10 \cdot 6 =$$

$$10 \cdot 7 =$$

$$10 \cdot 8 =$$

$$10 \cdot 9 =$$

$$10 \cdot 10 =$$

Now we want to deal with the 1-series. What do the tasks mean?

$1 \cdot 5 =$

$1 \cdot 4 =$

$1 \cdot 3 =$

$1 \cdot 2 =$

There is not much to add here. You have to do the $1 \cdot 5$ task by writing the 5 after the equal sign. Just one time and not more often. At the same time, that is also the result of the task $1 \cdot 5$.

Task:

Do the math!

$1 \cdot 2 =$

$1 \cdot 7 =$

$1 \cdot 5 =$

$1 \cdot 8 =$

$1 \cdot 3 =$

$1 \cdot 9 =$

$1 \cdot 4 =$

$1 \cdot 10 =$

$1 \cdot 6 =$

Congratulations, we can solve the tasks of the 1- and 10-series!
Now it goes on with the 2-series.



The 2 series

What does $5 \cdot 2$ or $6 \cdot 2$ actually mean? Add the following tasks.

$$1 \cdot 2 = 2$$

$$6 \cdot 2 = 2 + 2 + 2 + 2 + 2 + 2$$

$$2 \cdot 2 = 2 + 2$$

$$7 \cdot 2 =$$

$$3 \cdot 2 = 2 + 2 + 2$$

$$8 \cdot 2 =$$

$$4 \cdot 2 =$$

$$9 \cdot 2 =$$

$$5 \cdot 2 =$$

$$10 \cdot 2 =$$

You can turn over multiplication tasks like plus tasks. So, $4 \cdot 2$ is exactly as much as $2 \cdot 4$ and $7 \cdot 2$ is exactly as much as $2 \cdot 7$.

$$7 \cdot 2 = 2 + 2 + 2 + 2 + 2 + 2 + 2$$

$$2 \cdot 7 = 7 + 7$$

It is allowed to turn multiplication tasks over. Do this especially with the 2-series. Then the tasks are much easier!

Task:

Write down the result! Do the math!

$$2 \cdot 1 = 2$$

$$2 \cdot 3 =$$

$$2 \cdot 2 = 4$$

$$2 \cdot 4 =$$

$2 \cdot 5 =$

$2 \cdot 8 =$

$2 \cdot 6 =$

$2 \cdot 9 =$

$2 \cdot 7 =$

$2 \cdot 10 =$

For the task $2 \cdot 3$ you have to calculate $3 + 3$ and for the task $2 \cdot 8$ just $8 + 8$.

We now want to do some of the 2-series exercises by calculating in order to better memorize the results:

$2 \cdot 2 =$

$2 \cdot 4 =$

$2 \cdot 3 =$

$2 \cdot 2 =$

$2 \cdot 4 =$

$2 \cdot 3 =$

$2 \cdot 1 =$

$2 \cdot 2 =$

$2 \cdot 5 =$

$2 \cdot 5 =$



And now more tasks for the 2-series:

$2 \cdot 5 =$

$2 \cdot 8 =$

$2 \cdot 10 =$

$2 \cdot 7 =$

$2 \cdot 6 =$

$2 \cdot 8 =$

$2 \cdot 7 =$

$2 \cdot 9 =$

$2 \cdot 8 =$

$2 \cdot 6 =$

Now there are tasks from the entire 2-series:

$2 \cdot 5 =$

$2 \cdot 8 =$

$2 \cdot 10 =$

$2 \cdot 7 =$

$2 \cdot 6 =$

$2 \cdot 8 =$

$2 \cdot 7 =$

$2 \cdot 9 =$

$2 \cdot 8 =$

$2 \cdot 6 =$

$2 \cdot 3 =$

$2 \cdot 4 =$

The 5 series

What does $3 \cdot 5$ or $7 \cdot 5$ actually mean? Add the following tasks!

$$1 \cdot 5 = 5$$

$$6 \cdot 5 =$$

$$2 \cdot 5 = 5 + 5$$

$$7 \cdot 5 =$$

$$3 \cdot 5 =$$

$$8 \cdot 5 =$$

$$4 \cdot 5 =$$

$$9 \cdot 5 =$$

$$5 \cdot 5 =$$

$$10 \cdot 5 =$$

Do the math!

$$1 \cdot 5 =$$

$$6 \cdot 5 =$$

$$2 \cdot 5 =$$

$$7 \cdot 5 =$$

$$3 \cdot 5 =$$

$$8 \cdot 5 =$$

$$4 \cdot 5 =$$

$$9 \cdot 5 =$$

$$5 \cdot 5 =$$

$$10 \cdot 5 =$$

You've probably noticed that in the results of the units position is either a 5 or a 0. Other results such as 24 or 41 cannot be used for tasks from the 5 times table.

The results of the 5-series the units position is always a 5 or a 0, for example 30, 20, 15, 45.

In the results of the 5-series the units position is always a 5 or a 0, for example 30, 20, 15, 45.



Preliminary exercise: Before we start arithmetic, please say the solutions for the 5-series, i.e., 5, 10, 15,

Please forward a total of 3 times, if it's not too difficult for you.

We now also want to calculate some tasks for the 5-series in order to be able to memorize the results better:

$2 \cdot 5 =$

$4 \cdot 5 =$

$3 \cdot 5 =$

$2 \cdot 5 =$

$4 \cdot 5 =$

$3 \cdot 5 =$

$1 \cdot 5 =$

$2 \cdot 5 =$

$5 \cdot 5 =$

$5 \cdot 5 =$

And now more tasks for the 5-series:

$6 \cdot 5 =$

$9 \cdot 5 =$

$5 \cdot 5 =$

$7 \cdot 5 =$

$6 \cdot 5 =$

$8 \cdot 5 =$

$7 \cdot 5 =$

$9 \cdot 5 =$

$10 \cdot 5 =$

$6 \cdot 5 =$

Now there are more tasks from the entire 5-series:

$2 \cdot 5 =$

$8 \cdot 5 =$

$4 \cdot 5 =$

$10 \cdot 5 =$

$5 \cdot 5 =$

$9 \cdot 5 =$

$3 \cdot 5 =$

$8 \cdot 5 =$

$6 \cdot 5 =$

$7 \cdot 5 =$

$8 \cdot 5 =$

$3 \cdot 5 =$

And finally, we turn the tasks around. You know that this is allowed.

$5 \cdot 2 =$

$5 \cdot 8 =$

$5 \cdot 1 =$

$5 \cdot 6 =$

$5 \cdot 10 =$

$5 \cdot 5 =$

$5 \cdot 4 =$

$5 \cdot 9 =$

$5 \cdot 3 =$

$5 \cdot 7 =$

Congratulations! We have already processed four series, namely the 1-row, 2-row, 5-row and the 10-row. Next let's look at the 9-series, which is with a little trick that's not difficult at all.

The 9-series

like we were doing in the other series, we want to imagine what e.g., $8 \cdot 9$ actually means. Because of that add the following calculations!

$$1 \cdot 9 = 9$$

$$6 \cdot 9 =$$

$$2 \cdot 9 = 9 + 9$$

$$7 \cdot 9 =$$

$$3 \cdot 9 =$$

$$8 \cdot 9 =$$

$$4 \cdot 9 =$$

$$9 \cdot 9 =$$

$$5 \cdot 9 =$$

$$10 \cdot 9 =$$

The trick for the 9-series is as follows: For the task $7 \cdot 9$ first turn the problem over so that you get $9 \cdot 7$. Then do the math $10 \cdot 7$ first, which is 70 and then subtract the number 7 because you only have to calculate $9 \cdot 7$. So do the math $70 - 7$ and then you get the result for the multiplications task that is 63.

For $9 \cdot 4$ do the math $10 \cdot 4$, which is 40 and then subtract the number 4 because you only need to calculate $9 \cdot 4$. So do the math $40 - 4$ and you get the result 36.

For the task $9 \cdot 6$ you calculate $10 \cdot 6 = 60$ and then subtract 6. $60 - 6$ is equal to 54.

Do the math!

$1 \cdot 9 =$

$6 \cdot 9 =$

$2 \cdot 9 =$

$7 \cdot 9 =$

$3 \cdot 9 =$

$8 \cdot 9 =$

$4 \cdot 9 =$

$9 \cdot 9 =$

$5 \cdot 9 =$

$10 \cdot 9 =$

First turn the task around first. Then calculate the 10s task of the corresponding number and then subtract the corresponding number again.

We now want to calculate some tasks for the 9- series, so that we can better memorize the results.

Attention: Since we calculate in the following sections for example $9 \cdot 3$ instead of $3 \cdot 9$, all the tasks are already flipped.

$9 \cdot 3 =$

$9 \cdot 5 =$

$9 \cdot 2 =$

$9 \cdot 3 =$

$9 \cdot 1 =$

$9 \cdot 4 =$

$9 \cdot 4 =$

$9 \cdot 2 =$

$9 \cdot 5 =$

$9 \cdot 4 =$



And now more tasks for the 9-series:

$9 \cdot 6 =$

$9 \cdot 9 =$

$9 \cdot 5 =$

$9 \cdot 7 =$

$9 \cdot 6 =$

$9 \cdot 8 =$

$9 \cdot 7 =$

$9 \cdot 7 =$

$9 \cdot 10 =$

$9 \cdot 6 =$

Now we calculate tasks from the entire 9-series:

$9 \cdot 2 =$

$9 \cdot 8 =$

$9 \cdot 4 =$

$9 \cdot 7 =$

$9 \cdot 5 =$

$9 \cdot 9 =$

$9 \cdot 3 =$

$9 \cdot 8 =$

$9 \cdot 6 =$

$9 \cdot 6 =$

$9 \cdot 7 =$

$9 \cdot 4 =$

So now we turn the tasks around. Do this arithmetic too!

$4 \cdot 9 =$

$7 \cdot 9 =$

$6 \cdot 9 =$

$3 \cdot 9 =$

$8 \cdot 9 =$

$2 \cdot 9 =$

$3 \cdot 9 =$

$5 \cdot 9 =$

$9 \cdot 9 =$

$6 \cdot 9 =$



The 3-series

There is no trick to the 3-series. But remember that we already know some solutions to the tasks, namely the corresponding tasks of the series that we have already worked on. For example, from the 1-row $1 \cdot 3$, from the 5-row $5 \cdot 3$, from the 9-row $9 \cdot 3$ and from the 10-row $10 \cdot 3$. You know that you can reverse multiplication tables.

Now add the following calculations.

$$1 \cdot 3 = 3$$

$$6 \cdot 3 =$$

$$2 \cdot 3 =$$

$$7 \cdot 3 =$$

$$3 \cdot 3 = 3 + 3 + 3$$

$$8 \cdot 3 =$$

$$4 \cdot 3 =$$

$$9 \cdot 3 =$$

$$5 \cdot 3 =$$

$$10 \cdot 3 =$$

Preliminary exercise: Before we start arithmetic, please say the solutions for the 3-series, i.e., 3, 6, 9,

Please do it two or three times.



Do the math!

$1 \cdot 3 =$

$6 \cdot 3 =$

$2 \cdot 3 =$

$7 \cdot 3 =$

$3 \cdot 3 =$

$8 \cdot 3 =$

$4 \cdot 3 =$

$9 \cdot 3 =$

$5 \cdot 3 =$

$10 \cdot 3 =$

For this series use the results that you have already learned from the other series.

We now want to calculate some tasks for the 3-series to be able to memorize the results better:

$3 \cdot 3 =$

$5 \cdot 3 =$

$2 \cdot 3 =$

$4 \cdot 3 =$

$1 \cdot 3 =$

$3 \cdot 3 =$

$4 \cdot 3 =$

$2 \cdot 3 =$

$5 \cdot 3 =$

$4 \cdot 3 =$

And now more tasks for the 3-series:

$6 \cdot 3 =$

$9 \cdot 3 =$

$5 \cdot 3 =$

$7 \cdot 3 =$

$6 \cdot 3 =$

$8 \cdot 3 =$

$7 \cdot 3 =$

$9 \cdot 3 =$

$10 \cdot 3 =$

$6 \cdot 3 =$

Now there are tasks from the entire 3-series.

$2 \cdot 3 =$

$8 \cdot 3 =$

$4 \cdot 3 =$

$10 \cdot 3 =$

$5 \cdot 3 =$

$9 \cdot 3 =$

$8 \cdot 3 =$

$8 \cdot 3 =$

$3 \cdot 3 =$

$3 \cdot 3 =$

$6 \cdot 3 =$

$7 \cdot 3 =$

This is where we have a look at the flipped tasks for the 3-series.
Calculate this too!

$3 \cdot 9 =$

$3 \cdot 8 =$

$3 \cdot 4 =$

$3 \cdot 5 =$

$3 \cdot 7 =$

$3 \cdot 2 =$

$3 \cdot 3 =$

$3 \cdot 7 =$

$3 \cdot 6 =$

$3 \cdot 9 =$

The 4-series

There is no trick for the tasks of the 4-series either. We already know some solutions for the 4-series, e.g., $2 \cdot 4$, $5 \cdot 4$ or $9 \cdot 4$.

Complete the following calculations.

$1 \cdot 4 = 4$

$6 \cdot 4 =$

$2 \cdot 4 = 4 + 4$

$7 \cdot 4 =$

$3 \cdot 4 =$

$8 \cdot 4 =$

$4 \cdot 4 =$

$9 \cdot 4 =$

$5 \cdot 4 =$

$10 \cdot 4 =$

Preliminary exercise: Before we start arithmetic, please say the solutions of the 4-series, i.e., 4, 8, 12,

If it's possible two or three times.

Do the math!

$1 \cdot 4 =$

$6 \cdot 4 =$

$2 \cdot 4 =$

$7 \cdot 4 =$

$3 \cdot 4 =$

$8 \cdot 4 =$

$4 \cdot 4 =$

$9 \cdot 4 =$

$5 \cdot 4 =$

$10 \cdot 4 =$

Memorize the exercises in the 4 times multiplication table well. Tasks of the other series will help you. Also, remember that you can flip the multiplication tasks.

We now want to calculate some tasks for the 4-series to be able to memorize the results better:

$3 \cdot 4 =$

$5 \cdot 4 =$

$2 \cdot 4 =$

$4 \cdot 4 =$

$1 \cdot 4 =$

$3 \cdot 4 =$

$4 \cdot 4 =$

$2 \cdot 4 =$

$5 \cdot 4 =$

$4 \cdot 4 =$

And now more tasks for the 4-series:

$6 \cdot 4 =$

$9 \cdot 4 =$

$5 \cdot 4 =$

$7 \cdot 4 =$

$6 \cdot 4 =$

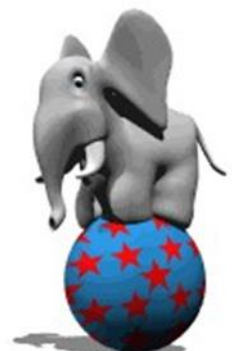
$8 \cdot 4 =$

$7 \cdot 4 =$

$9 \cdot 4 =$

$10 \cdot 4 =$

$6 \cdot 4 =$



Now there are tasks from the entire 4-series.

$2 \cdot 4 =$

$8 \cdot 4 =$

$4 \cdot 4 =$

$7 \cdot 4 =$

$5 \cdot 4 =$

$2 \cdot 4 =$

$7 \cdot 4 =$

$8 \cdot 4 =$

$9 \cdot 4 =$

$4 \cdot 4 =$

$3 \cdot 4 =$

$9 \cdot 4 =$

Here are the flipped tasks for the 4-series. Calculate this too!

$4 \cdot 2 =$

$4 \cdot 4 =$

$4 \cdot 9 =$

$4 \cdot 7 =$

$4 \cdot 5 =$

$4 \cdot 3 =$

$4 \cdot 6 =$

$4 \cdot 8 =$

$4 \cdot 8 =$

$4 \cdot 1 =$

We have already worked on the following series:

1-series

2-series

3-series

4-series

5-series

9-series

10-series

They are still missing:

6-series

7-series

8-series

But we will cope with these three series also and then we will have revised every series and we are able to do the multiplication tables well.

Remember, you can always learn the series with the computer, or your learning partner gives you tasks.

The fun tasks

Before we move on to the next row, let's practice the fun tasks. Here each number marked with itself is taken which is kind of funny and that's why these tasks are called "fun tasks". There are 10 tasks in total, whereby we have already gotten to know some tasks.

Those are the fun tasks. Add the following tasks.

$1 \cdot 1 = 1$

$6 \cdot 6 =$

$2 \cdot 2 = 2 + 2$

$7 \cdot 7 =$

$3 \cdot 3 = 3 + 3 + 3$

$8 \cdot 8 =$

$4 \cdot 4 =$

$9 \cdot 9 =$

$5 \cdot 5 =$

$10 \cdot 10 =$

Just learn these tasks by heart.



Write down the result. Let your learning partner help you with the tasks that you still don't know.

Do the math!

$1 \cdot 1 =$

$6 \cdot 6 =$

$2 \cdot 2 =$

$7 \cdot 7 =$

$3 \cdot 3 =$

$8 \cdot 8 =$

$4 \cdot 4 =$

$9 \cdot 9 =$

$5 \cdot 5 =$

$10 \cdot 10 =$

Try to solve the following tasks!

$2 \cdot 2 =$

$4 \cdot 4 =$

$5 \cdot 5 =$

$2 \cdot 2 =$

$3 \cdot 3 =$

$4 \cdot 4 =$

$3 \cdot 3 =$

$3 \cdot 3 =$

$5 \cdot 5 =$

$3 \cdot 3 =$

$2 \cdot 2 =$

$5 \cdot 5 =$

$5 \cdot 5 =$

$4 \cdot 4 =$

And now these tasks!

$6 \cdot 6 =$

$8 \cdot 8 =$

$7 \cdot 7 =$

$8 \cdot 8 =$

$8 \cdot 8 =$

$9 \cdot 9 =$

$7 \cdot 7 =$

$8 \cdot 8 =$

$7 \cdot 7 =$

$7 \cdot 7 =$

$6 \cdot 6 =$

$9 \cdot 9 =$

$7 \cdot 7 =$

$9 \cdot 9 =$

And also these tasks!

$6 \cdot 6 =$

$3 \cdot 3 =$

$1 \cdot 1 =$

$7 \cdot 7 =$

$9 \cdot 9 =$

$4 \cdot 4 =$

$2 \cdot 2 =$

$6 \cdot 6 =$

$8 \cdot 8 =$

$5 \cdot 5 =$

$3 \cdot 3 =$

$4 \cdot 4 =$

So we've practiced the fun tasks enough. I hope you now know some by heart. Otherwise edit this chapter again.

We have already worked on these series:

1-series

2-series

3-series

4-series

5-series

9-series

10-series

Now we are only missing three rows namely the 6, 7 and the 8-series.



The 6-series

So now we have to learn the tasks of the 6-series. The good thing is that we already know a lot of tasks from the other series because you can flip the tasks.

We already know the tasks $2 \cdot 6$ from the 2-series (there learned as $6 \cdot 2$) and $5 \cdot 6$ from the 5-series (there learned as $6 \cdot 5$).

You no longer have to do the hard work. But look again at what the tasks mean.

$$1 \cdot 6 = 6$$

$$6 \cdot 6 = 6+6+6+6+6+6$$

$$2 \cdot 6 = 6 + 6$$

$$7 \cdot 6 = 6+6+6+6+6+6+6$$

$$3 \cdot 6 = 6 + 6 + 6$$

$$8 \cdot 6 = 6+6+6+6+6+6+6+6$$

$$4 \cdot 6 = 6 + 6 + 6 + 6$$

$$9 \cdot 6 = 6+6+6+6+6+6+6+6+6$$

$$5 \cdot 6 = 6 + 6 + 6 + 6 + 6$$

$$10 \cdot 6 = 6+6+6+6+6+6+6+6+6+6$$

Preliminary exercise: Before we start arithmetic, please say the solutions for the 6-series, i.e., 6, 12,

Please forward a total of 2 or 3 times.



Do the math!

$1 \cdot 6 =$

$6 \cdot 6 =$

$2 \cdot 6 =$

$7 \cdot 6 =$

$3 \cdot 6 =$

$8 \cdot 6 =$

$4 \cdot 6 =$

$9 \cdot 6 =$

$5 \cdot 6 =$

$10 \cdot 6 =$

Just learn the difficult tasks of the 6-series by heart.

We now want to calculate some tasks for the 6-series as well, in order to be able to memorize the results better:

$3 \cdot 6 =$

$5 \cdot 6 =$

$2 \cdot 6 =$

$4 \cdot 6 =$

$1 \cdot 6 =$

$3 \cdot 6 =$

$4 \cdot 6 =$

$2 \cdot 6 =$

$5 \cdot 6 =$

$4 \cdot 6 =$

Further tasks for the 6-series:

$6 \cdot 6 =$

$9 \cdot 6 =$

$5 \cdot 6 =$

$7 \cdot 6 =$

$6 \cdot 6 =$

$8 \cdot 6 =$

$7 \cdot 6 =$

$9 \cdot 6 =$

$10 \cdot 6 =$

$6 \cdot 6 =$

These are tasks from the entire 6-series.

$5 \cdot 6 =$

$9 \cdot 6 =$

$9 \cdot 6 =$

$8 \cdot 6 =$

$6 \cdot 6 =$

$3 \cdot 6 =$

$4 \cdot 6 =$

$4 \cdot 6 =$

$7 \cdot 6 =$

$6 \cdot 6 =$

$2 \cdot 6 =$

$7 \cdot 6 =$

Now we learn the flipped multiplication tables. Calculate this too!

$6 \cdot 5 =$

$6 \cdot 7 =$

$6 \cdot 6 =$

$6 \cdot 8 =$

$6 \cdot 2 =$

$6 \cdot 3 =$

$6 \cdot 9 =$

$6 \cdot 6 =$

$6 \cdot 4 =$

$6 \cdot 3 =$

We have already worked on the following series:

1-series

2-series

3-series

4-series

5-series

6-series

9-series

10-series

Only the 7-series and the 8-series are missing.



The 7-series

The 7-series is quite difficult, there is no trick. However, we already know many tasks from the other Rows: $4 \cdot 7$ from the 4-series (there learned as $7 \cdot 4$) and $3 \cdot 7$ from the 3-series (there learned as $7 \cdot 3$). Remember that you can flip the tasks of the multiplication tables.

Here again is the representation of what the individual multiplication tasks mean. Look at the tasks.

$$1 \cdot 7 = 7$$

$$6 \cdot 7 = 7+7+7+7+7+7$$

$$2 \cdot 7 = 7 + 7$$

$$7 \cdot 7 = 7+7+7+7+7+7+7$$

$$3 \cdot 7 = 7 + 7 + 7$$

$$8 \cdot 7 = 7+7+7+7+7+7+7+7$$

$$4 \cdot 7 = 7 + 7 + 7 + 7$$

$$9 \cdot 7 = 7+7+7+7+7+7+7+7+7$$

$$5 \cdot 7 = 7 + 7 + 7 + 7 + 7$$

$$10 \cdot 7 = 7+7+7+7+7+7+7+7+7+7$$



Preliminary exercise: Before we start arithmetic, please say the solutions for the 7-series, i.e., 7, 14,

Please forward a total of 2 or 3 times.

Do the math and write down the results!

$1 \cdot 7 =$

$6 \cdot 7 =$

$2 \cdot 7 =$

$7 \cdot 7 =$

$3 \cdot 7 =$

$8 \cdot 7 =$

$4 \cdot 7 =$

$9 \cdot 7 =$

$5 \cdot 7 =$

$10 \cdot 7 =$

Let's do the math in order to be able to memorize the results better:

$3 \cdot 7 =$

$5 \cdot 7 =$

$2 \cdot 7 =$

$4 \cdot 7 =$

$1 \cdot 7 =$

$4 \cdot 7 =$

$5 \cdot 7 =$

$2 \cdot 7 =$

$4 \cdot 7 =$

$3 \cdot 7 =$

Further tasks for the 7-series:

$5 \cdot 7 =$

$9 \cdot 7 =$

$6 \cdot 7 =$

$8 \cdot 7 =$

$5 \cdot 7 =$

$7 \cdot 7 =$

$9 \cdot 7 =$

$8 \cdot 7 =$

$7 \cdot 7 =$

$6 \cdot 7 =$

Now there are tasks from the entire 7-series.

$8 \cdot 7 =$

$9 \cdot 7 =$

$3 \cdot 7 =$

$3 \cdot 7 =$

$7 \cdot 7 =$

$4 \cdot 7 =$

$2 \cdot 7 =$

$5 \cdot 7 =$

$6 \cdot 7 =$

$8 \cdot 7 =$

$4 \cdot 7 =$

$6 \cdot 7 =$

Now the flipped multiplication tables come to the 7-series.
Calculate this too!

$7 \cdot 5 =$

$7 \cdot 7 =$

$7 \cdot 3 =$

$7 \cdot 4 =$

$7 \cdot 9 =$

$7 \cdot 8 =$

$7 \cdot 6 =$

$7 \cdot 5 =$

$7 \cdot 2 =$

$7 \cdot 6 =$

Now all that is missing is the 8-series, then we have all rows worked through.

The 8-series

Many children feel that the 8-series is more difficult. But here too, we know many tasks from the other series: $8 \cdot 8$ was a fun task and $3 \cdot 8$ we know from the 3-series (there learned as $8 \cdot 3$). Again, remember that you can turn the multiplication tables around.

Here for the last time of what the individual multiplication tasks mean. Look at the tasks.

$$1 \cdot 8 = 8$$

$$6 \cdot 8 = 8+8+8+8+8+8$$

$$2 \cdot 8 = 8 + 8$$

$$7 \cdot 8 = 8+8+8+8+8+8+8$$

$$3 \cdot 8 = 8 + 8 + 8$$

$$8 \cdot 8 = 8+8+8+8+8+8+8+8$$

$$4 \cdot 8 = 8 + 8 + 8 + 8$$

$$9 \cdot 8 = 8+8+8+8+8+8+8+8+8$$

$$5 \cdot 8 = 8 + 8 + 8 + 8 + 8$$

$$10 \cdot 8 = 8+8+8+8+8+8+8+8+8+8$$

Preliminary exercise: Before we start arithmetic, please say the solutions of the 8-series, i.e., 8, 16,

Please forward a total of 2 or 3 times, if not too difficult.



Please remember that you can turn all the tasks of the 8-series.

Do the math and write down the results!

$1 \cdot 8 =$

$6 \cdot 8 =$

$2 \cdot 8 =$

$7 \cdot 8 =$

$3 \cdot 8 =$

$8 \cdot 8 =$

$4 \cdot 8 =$

$9 \cdot 8 =$

$5 \cdot 8 =$

$10 \cdot 8 =$

Let's do some exercises to be able to memorize the results better:

$3 \cdot 8 =$

$5 \cdot 8 =$

$2 \cdot 8 =$

$4 \cdot 8 =$

$1 \cdot 8 =$

$4 \cdot 8 =$

$5 \cdot 8 =$

$2 \cdot 8 =$

$4 \cdot 8 =$

$3 \cdot 8 =$

Further tasks for the 8-series:

$5 \cdot 8 =$

$9 \cdot 8 =$

$6 \cdot 8 =$

$8 \cdot 8 =$

$6 \cdot 8 =$

$7 \cdot 8 =$

$8 \cdot 8 =$

$8 \cdot 8 =$

$7 \cdot 8 =$

$6 \cdot 8 =$

Now there are tasks from the entire series of 8:

$8 \cdot 8 =$

$5 \cdot 8 =$

$7 \cdot 8 =$

$6 \cdot 8 =$

$3 \cdot 8 =$

$4 \cdot 8 =$

$2 \cdot 8 =$

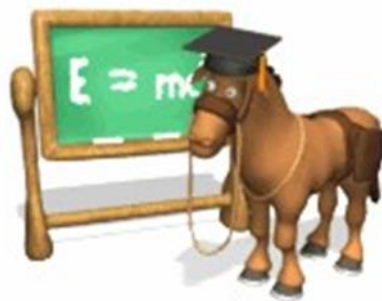
$8 \cdot 8 =$

$4 \cdot 8 =$

$2 \cdot 8 =$

$7 \cdot 8 =$

$9 \cdot 8 =$



Now the flipped multiplication tables come to the 8-series.
Calculate this too!

$8 \cdot 9 =$

$8 \cdot 7 =$

$8 \cdot 2 =$

$8 \cdot 4 =$

$8 \cdot 5 =$

$8 \cdot 8 =$

$8 \cdot 7 =$

$8 \cdot 6 =$

$8 \cdot 3 =$

$8 \cdot 9 =$

Congratulations, you have reached the end
of the first part of the training!

Second Part

We keep practicing!

In the first part we got to know all the rows, but we need to keep practicing so that we can do the multiplication tables really well.

To practice means to repeat and that's what we want to do in the second part!

The 2 and 3-series

Now we want to practice the 2 and 3-series at the same time.

First of all, here are a few tasks only from the 2-series:

$1 \cdot 2 =$

$9 \cdot 2 =$

$4 \cdot 2 =$

$8 \cdot 2 =$

$2 \cdot 2 =$

$3 \cdot 2 =$

$5 \cdot 2 =$

$7 \cdot 2 =$

$6 \cdot 2 =$

$10 \cdot 2 =$



And here are tasks from the 3-series. Do the math!

$3 \cdot 3 =$

$7 \cdot 3 =$

$5 \cdot 3 =$

$6 \cdot 3 =$

$6 \cdot 3 =$

$8 \cdot 3 =$

$4 \cdot 3 =$

$9 \cdot 3 =$

$8 \cdot 3 =$

$3 \cdot 3 =$

Now we practice tasks from the 2 and 3-series. Just do it!

$1 \cdot 3 =$

$9 \cdot 2 =$

$4 \cdot 3 =$

$8 \cdot 3 =$

$2 \cdot 2 =$

$3 \cdot 2 =$

$5 \cdot 2 =$

$7 \cdot 3 =$

$6 \cdot 3 =$

$10 \cdot 2 =$

$5 \cdot 3 =$

$8 \cdot 2 =$

$10 \cdot 2 =$

$7 \cdot 3 =$

$9 \cdot 3 =$

$4 \cdot 2 =$

Let your learning partner give you more exercises or repeat the exercise above one more time or make the corresponding exercise in the computer program!

The 4 and 5-series

Here we repeat the 4 and 5-series. First the exercise of the 5-series:

$5 \cdot 5 =$

$9 \cdot 5 =$

$4 \cdot 5 =$

$8 \cdot 5 =$

$6 \cdot 5 =$

$5 \cdot 5 =$

$3 \cdot 5 =$

$7 \cdot 5 =$

$2 \cdot 5 =$

$6 \cdot 5 =$

And now the tasks of the 4-series. Do the math!

$3 \cdot 4 =$

$7 \cdot 4 =$

$5 \cdot 4 =$

$6 \cdot 4 =$

$6 \cdot 4 =$

$8 \cdot 4 =$

$4 \cdot 4 =$

$9 \cdot 4 =$

$8 \cdot 4 =$

$3 \cdot 4 =$

Here we practice tasks from the 4 and 5-series mixed up! Do the math.

$3 \cdot 4 =$

$3 \cdot 4 =$

$8 \cdot 4 =$

$4 \cdot 4 =$

$6 \cdot 5 =$

$5 \cdot 5 =$

$9 \cdot 5 =$

$2 \cdot 5 =$

$5 \cdot 4 =$

$7 \cdot 5 =$

$9 \cdot 4 =$

$8 \cdot 5 =$

Let your learning partner give you more exercises or do the corresponding exercise in the computer program!

If a single row doesn't work out well, repeat from the first part or practice with help of the computer.



The 6 and 7-series

Now we want to practice the 6 and 7-series. It will be a little bit harder, so don't be disappointed if it doesn't work so well at the beginning.

Just keep practicing vigorously!

$6 \cdot 6 =$

$9 \cdot 6 =$

$5 \cdot 6 =$

$6 \cdot 6 =$

$3 \cdot 6 =$

$4 \cdot 6 =$

$4 \cdot 6 =$

$8 \cdot 6 =$

$2 \cdot 6 =$

$7 \cdot 6 =$



And now exercises from the 7-series. Do the math!

$1 \cdot 7 =$

$9 \cdot 7 =$

$4 \cdot 7 =$

$6 \cdot 7 =$

$2 \cdot 7 =$

$8 \cdot 7 =$

$3 \cdot 7 =$

$7 \cdot 7 =$

$5 \cdot 7 =$

$8 \cdot 7 =$

Now we practice tasks from the 6 and 7-series

mixed up! Do the math.

$3 \cdot 6 =$

$3 \cdot 7 =$

$8 \cdot 6 =$

$4 \cdot 7 =$

$6 \cdot 7 =$

$5 \cdot 6 =$

$8 \cdot 7 =$

$2 \cdot 7 =$

$5 \cdot 6 =$

$7 \cdot 6 =$

$9 \cdot 6 =$

$6 \cdot 6 =$

If a single row doesn't work out well, repeat from the first part or practice with help of the computer.

Let your learning partner give you other tasks or learn with the computer program that you can get better.

Can you also solve the following tasks? Remember that you can always turn the tasks around in multiplication tables: $6 \cdot 3 = 3 \cdot 6$.

Do the following tasks.

$7 \cdot 6 =$

$6 \cdot 4 =$

$6 \cdot 5 =$

$6 \cdot 9 =$

$6 \cdot 2 =$

$7 \cdot 7 =$

$6 \cdot 8 =$

$6 \cdot 4 =$

$7 \cdot 5 =$

$6 \cdot 3 =$

$7 \cdot 8 =$

$7 \cdot 9 =$

The 8 and 9-series

Now we are only missing the 8 and 9-series. First the 8 series:

$8 \cdot 8 =$

$9 \cdot 8 =$

$5 \cdot 8 =$

$8 \cdot 8 =$

$3 \cdot 8 =$

$4 \cdot 8 =$

$4 \cdot 8 =$

$6 \cdot 8 =$

$2 \cdot 8 =$

$7 \cdot 8 =$

And now tasks from the 9-series. Do the math!

$1 \cdot 9 =$

$9 \cdot 9 =$

$4 \cdot 9 =$

$6 \cdot 9 =$

$2 \cdot 9 =$

$8 \cdot 9 =$

$3 \cdot 9 =$

$9 \cdot 9 =$

$5 \cdot 9 =$

$8 \cdot 9 =$

Now we are practicing tasks from the 8 and 9-series mixed up! Do the math.

$2 \cdot 9 =$

$5 \cdot 9 =$

$3 \cdot 9 =$

$9 \cdot 9 =$

$4 \cdot 8 =$

$8 \cdot 9 =$

$7 \cdot 8 =$

$5 \cdot 8 =$

$6 \cdot 8 =$

$2 \cdot 9 =$

$5 \cdot 9 =$

$1 \cdot 8 =$

The reversal task can also help you with the following tasks. Just turn the task around and then maybe it's easier for you!

$9 \cdot 7 =$

$8 \cdot 6 =$

$8 \cdot 5 =$

$9 \cdot 6 =$

$9 \cdot 6 =$

$7 \cdot 8 =$

$9 \cdot 8 =$

$8 \cdot 2 =$

$9 \cdot 5 =$

$9 \cdot 4 =$

$8 \cdot 8 =$

$8 \cdot 3 =$

Practice further tasks from the 8 and 9 -series with the help of the computer!



Congratulations you have this training completely practiced. If you are still not sure continue practicing and do some more exercises.