



Screening 4+

Classroom Implementation Instructions

Printable version



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Overview

This manual provides the teacher instructions for the items of the screening test to be administered either at the **end of Grade 4** or at **the beginning of Grade 5**.

The Screening 4+ covers the following content areas:

- 1 Writing numbers
- 2 Comparing numbers
- 3a Adding $1/10/100$ together with bundling
- 3b Taking away $1/10/100$ together with unbundling
- 4 Numbers on the number line
- 5 Halving numbers up to 10,000
- 6a Mental calculation: Addition and subtraction
- 6b Mental calculation: Dealing with zeroes
- 7a Written addition
- 7b Written subtraction
- 8 Operational understanding of addition/subtraction
- 9 Basic number facts – multiplication
- 10 Basic number facts – division
- 11 Mental calculation: Dealing with zeroes
- 12 Operational understanding: Representations
- 13 Operational understanding: Word problems

Before and During the Distribution of Test Booklets

Explain to the children that at the end of Grade 4 / beginning of Grade 5 you would like to find out what they already know and can do.

Tell them that each child will now receive a booklet with tasks to complete one after another.

Emphasize that it is important for each child to work independently and that copying from a neighbour is not helpful. Another child's answer might be wrong, and most importantly, you want to know what each child can already do well on their own and where they might still need help. If necessary and possible, place school bags (or similar items) between children during the test to make copying more difficult.

Ask the children to write with a pencil. Since erasing takes time, they should simply cross out any mistakes and write the correct answer next to them. You may wish to demonstrate this briefly on the board.

You will lead them through the tasks one by one and explain what to do for each task. It is important that they pay attention and listen carefully to your instructions.

Tell the children that the tasks are to be done one after another, and that you will always explain what to do before they start. Sometimes there will also be an example. Remind them not to continue on their own, even if they finish a task earlier than others. They should only turn the page when you tell them to do so.

Make sure all desks are empty and that each child has only one sharpened pencil in front of them.

Some tasks have a **time limit**. To avoid stress, do not announce this in advance. Instead, tell them that you expect that they will solve some of the tasks rather quickly because they probably already know them by heart. Announce that when they have worked for some time on a task, you may say STOP, and then everyone should indeed stop writing. Emphasize that it is not a problem if someone has not finished at that point of time. For all the screening, the goal is a calm, stress-free environment.

For **tasks without a time limit**, use your own judgement about when to say STOP. This may be advisable for some tasks, once most children have finished. Some children may take considerably longer than the big majority, and even with more time, might not complete the task. However, if others have to wait too long, restlessness may arise. Therefore, it might be better to say STOP and assure those who have not finished that it does not matter, and praise the children for their efforts.

Now hand out the booklets. Emphasize that they must remain closed on the desks until you tell the children to turn to the first task. Ask them first to write their name on the cover page.

1 Writing numbers

No example for this task

Screening task

a) _____
b) _____
c) _____

No time limit!

“Now please turn your page over to the first task.”

„You see three empty lines a) to c).”

„I will dictate three numbers to write down on the lines one below the other.”

„These are the three numbers:”

→ *Read each number twice!*

After the first/second number, say: „Now listen to the next number.”

a) **five thousand and eighty-nine** (5,089)

b) **forty-three thousand and five** (43,005)

c) **three-hundred thousand five-hundred** (300,500)

„Now let us look at the next task. Do not yet turn the page!”

2 Comparing numbers

Example

→ write the following examples on the board

500 550

600 550

“Let us compare the first pair of numbers: 500 is *smaller* than 550.
So we write the sign for *smaller than* in between: $500 < 550$ ”

→ write the $<$ symbol between the first number pair

„Now let’s look at the second pair of numbers. 600 is bigger than 550.
So we write the sign for *bigger than* in between: $600 > 550$ ”

→ write the $>$ symbol between the second number pair

Screening task

No time limit!

“Now please turn your page over to the next task.

Here you see three other number pairs. Compare the numbers and write the correct symbol in between.

a) 6,001 5,999

b) 7,955 7,599

c) 99,899 102,101

Once you are finished, put your pen down.

Now I explain to you the next task. Do NOT yet turn the page!”

Editorial note: Check if the four-digit numbers are written with the dot or space in your country!

3a Adding 1/10/100 together with bundling

Example

“The next task is about what is more than a given number.
I give you an example:”

→ write 1 more than 236: _____ on the board

„**One more** than 236 is ... (let the students answer first) .. 237.”

→ write 237 on the line beside of 236

Next example:

→ write 10 more than 350: _____ on the board

„**Ten more** than 350 is ... (let the students answer first) ... 360.”

→ write 360 on the line beside of 350

Last example:

→ write 100 more than 570: _____ on the board

„**Hundred more** than 570 is ... (let the students answer first) ... 670.”

→ write 670 on the line beside of 570

Screening task

No time limit!

“Now please turn your page over to the task.

Here you see three numbers.

Your task is to find out what is *1 more*, then *10 more*, then *100 more*.

Think carefully and write the correct numbers on the lines.

a) 1 more than 9,899: _____

b) 10 more than 4,590: _____

c) 100 more than 3,900: _____

Once you are finished, put your pen down.

Now I explain to you the next task. Do NOT yet turn the page!”

3b Take away 1/10/100 together with unbundling

Example

“This next one is similar to the one you just made.
But this time it is always about what is less than the given number.”

Here is an example:

→ write 1 less than 236: _____ on the board
„**One less** than 236 is ... (let the students answer first) .. 235.”
→ write 235 on the line beside of 236

Next example:

→ write 10 less than 350: _____ on the board
„**Ten less** than 350 is ... (let the students answer first) ... 340.”
→ write 340 on the line beside of 350

Last example:

→ write 100 less than 570: _____ on the board
„**Hundred less** than 570 is ... (let the students answer first) ... 470.”
→ write 470 on the line beside of 570

Screening task

No time limit!

“Now please turn your page over to the next task.

Here you see three numbers.

You have to find out what is 1 less, then 10 less, then 100 less.

Write the correct numbers on the lines.

- | | |
|----|----------------------------|
| a) | 1 less than 7,000: _____ |
| b) | 10 less than 3,500: _____ |
| c) | 100 less than 4,000: _____ |

Once you are finished, put your pen down.

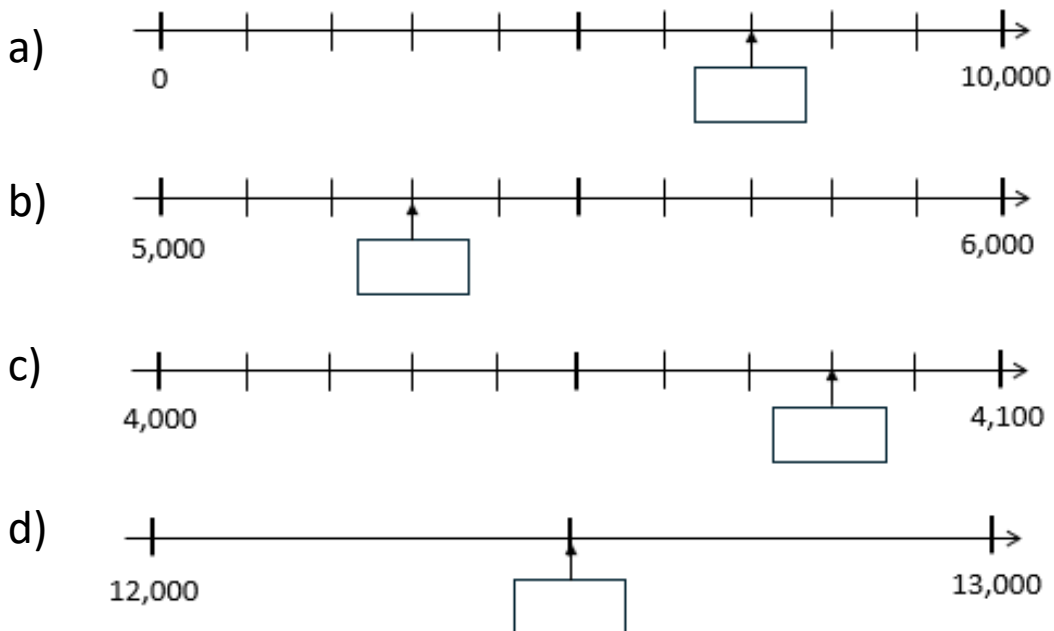
Now we go to the next task. This time, we do not need an example.
Please turn over to the next page.”

4 Numbers on the number line

No example needed

Screening task

No time limit!



“Here you see four different number lines.
Write the missing numbers in the boxes.
The arrow points to the number you are looking for.

But look carefully! The number lines are all different.

On each number line, mind the numbers that are already written
and how many marks there are between these numbers!

Once you are finished, put down your pen please.

Do not turn the page yet. First, I will explain the next task to you.”

5 Halving numbers up to 10,000

Example

„The next task is about halving.
Here is an example“:

→ write half of 400: ____ on the board

„Half of 400 is (let the students answer first) .. 200.“

→ write half of 400: 200 on the board

Screening task

a) Half of 1,000: _____

b) Half of 500: _____

c) Half of 700: _____

d) Half of 3,000: _____

Time limit: 40 sec

“Now please turn your page over to the new task.”

„You see four more numbers.

Write down the half of these four numbers.

Start now!”

→ Count to 40 in your head!

„Now lay down your pencil. It doesn't matter, if you have not yet finished. Please do not write anymore on this page but listen to me. I will explain the next task to you. Do NOT yet turn the page.“

6a Mental calculation: Addition and subtraction

No example needed

Screening task

a) $248 + 52 =$ _____

b) $637 + 99 =$ _____

c) $723 - 24 =$ _____

d) $453 - 99 =$ _____

Time limit: 60 sec

“Our next task is about adding and subtracting.
On the next page, you will see two addition and two subtraction tasks.”

„Have a good look at the **numbers, before you start calculating.**
These are special numbers, try to find an **easy** way to calculate.”

„Calculate in your head and just write down the results.”

„**Now turn the page to the next task.**

As said: Look at the numbers, before you calculate, and be careful:
First there are two addition tasks, then two subtraction tasks.
Start now.”

→ *Count to 60 in your head!*

„Please lay down your pencil now.
Once more, it doesn't matter, if you have not yet finished!
Please do not write anymore on this page but listen to me.”

„I will explain the next task to you.”

6b Mental calculation: Dealing with zeroes

No example needed

Screening task

a) $3,600 + 900 =$ _____

b) $56,000 + 8,000 =$ _____

c) $3,200 - 700 =$ _____

d) $54,000 - 5,000 =$ _____

Time limit: 60 sec

“On the next page, you will find some more tasks.”

„Turn the page now to the next task.”

„Again: Take a good look at the numbers,
and pay attention to the plus and the minus sign.”

„Start now.”

→ *Count to 60 in your head!*

„Please lay down your pencil now.
Once more, it doesn't matter, if you have not yet finished!”

„Please turn over to the next page.”

7a Written addition

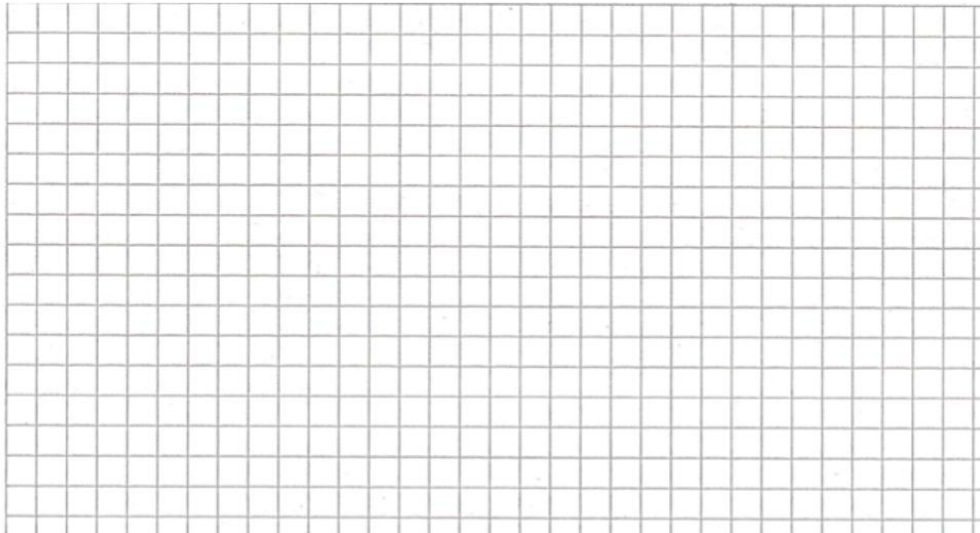
No example needed

Screening task

No time limit!

a) $548 + 36$

b) $760 + 564$



“Here you find two more addition tasks.”

„This time, they should be done using **long** addition.”

„Begin each task by writing the two numbers one below the other and then do the calculation.”

„Once you are finished, put down your pen please.
Do not yet turn over to the next page.”

7b Written subtraction

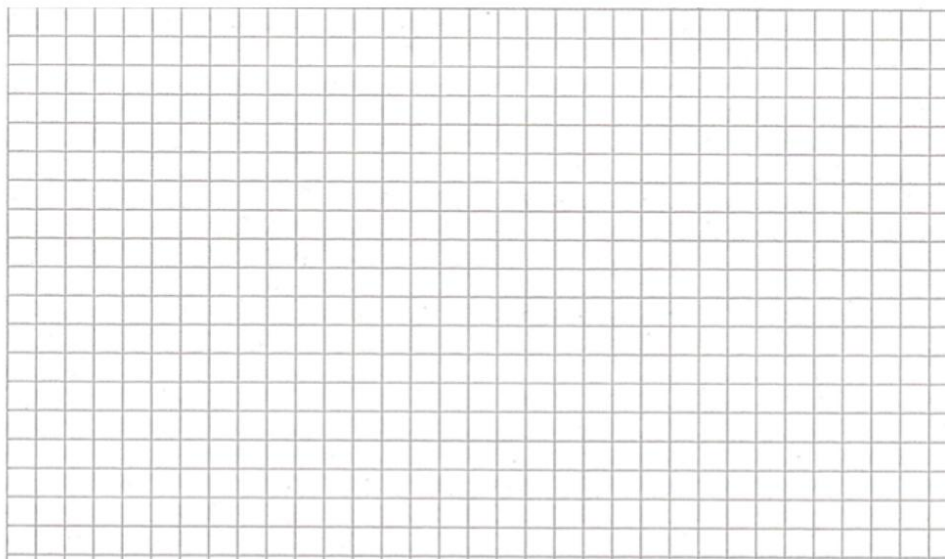
No example needed

Screening task

No time limit!

a) $711 - 67$

b) $806 - 534$



“Now please turn your page over. You find two more tasks, this time it is about subtraction.”

„The tasks should be done using **long** subtraction.”

„Begin each task by writing the two numbers one below the other and then do the calculation.”

„Once you are finished, put down your pen please. Do not yet turn to the next page but wait until I tell you to do so.”

8 Operational understanding of addition/subtraction

No example needed

Screening task

David is 35 years old.
He is 4 years older than Helen.
How old is Helen?

Calculation: _____

Answer: Helen is _____ years old

No time limit!

“Now please turn your page over.
The next task is a word problem. I read it to you:”

„David is 35 years old. He is 4 years older than Helen.
How old is Helen?”

→ ***Read it out TWICE!***

„Write down your calculation and your answer.
It is not enough to write only the result, you must also show the calculation!”

„Once you are finished, please put your pencil down and wait.”

„Before you turn the page, I explain the next task.
It is about the multiplication.”

„Try to write down the results as quick as you can but also try to
have all results correct!”

9 Basic number facts multiplication

No example needed

Screening task

a) $6 \times 1 =$ _____

b) $10 \times 8 =$ _____

c) $8 \times 4 =$ _____

d) $7 \times 9 =$ _____

e) $9 \times 0 =$ _____

f) $7 \times 5 =$ _____

Time limit: 30 sec

“Now you can turn the page.”

„Here are the tasks you should solve. Start now!”

→ *Count to 30 in your head!*

„Please lay down your pencil now.

Don't stress yourselves, it doesn't matter, if you have not yet finished all the tasks!„

„Do not write anymore on this page, I explain the next task.”

„On the next page, you will find some division tasks.”

„Again, try to write down the results as quick as you can but also try to have all results correct!

And no stress – just do it the best you can!”

„Turn the page to the next task now!”

10 Basic number facts division

No example needed

Screening task

a) $80 : 10 =$ _____

b) $6 : 6 =$ _____

c) $28 : 4 =$ _____

d) $72 : 9 =$ _____

e) $30 : 5 =$ _____

f) $7 : 1 =$ _____

Time limit: 30 sec

“Here are the division tasks. Start now!”

→ *Count to 30 in your head!*

„Please lay down your pencil now.“

„Once more: It is absolutely no problem if you have not yet finished all the tasks!”

„Please turn over to the next page!”

11 Mental calculation: Dealing with zeroes

No example needed

Screening task

No time limit!

a) $7 \times 5,000 =$ _____

b) $50 \times 20 =$ _____

c) $60,000 : 100 =$ _____

d) $3,000 : 5 =$ _____

“Here you see two multiplication and two division tasks. This time, the numbers are big, so it is OK if you take some more time. **Pay attention to the zeros!**”

„Do the tasks in your head and write down only the result. Be careful: First, there are two multiplications, but then there are two division tasks!”

„Start now. Once you are finished, please put you pencil down and wait.”

„Well done! Now you really did a lot of computing!”

„We will move on. There are only a few more tasks to do, and no more calculations to compute.”

„Please turn over to the next page.”

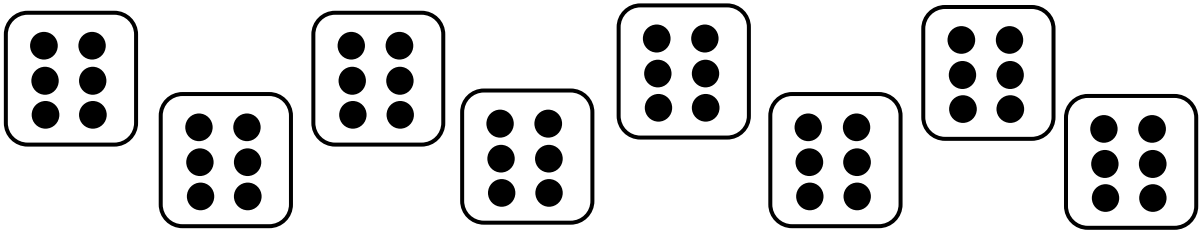
12 Operational understanding: Representations

No example needed

No time limit!

Screening task

There is a calculation to figure out the total number of dots below.



Write down a multiplication task that fits the picture!
You do not need to write the resulting total number of dots!

Calculation : _____

“Look at this picture. Here you can see 8 dice that are equal!
To figure out the total number of dots, you could count all the dots, but this is rather tedious. But it is also possible to find this total number of dots with a calculation.”

„Your task is to write down a **multiplication task** that fits the picture!
You do not have to write the result, but just the calculation that leads to the total number of dots shown in the picture!”

„Write down the calculation on the line!”

„Once you are finished, put down your pen please, and wait.”

...

„Now turn over to the next page. It is our last task.
Let me first explain it to you.”

13 Operational understanding: Word problems

No example needed

No time limit!

Screening task

a)	A baker buys 24 packets of eggs. In each packet there are 6 eggs. How many eggs does the baker buy?	$24 : 6$	1
		$24 - 6$	2
b)	24 eggs are packed into packets. Each packet holds 6 eggs. How many packets get filled?	24×6	3
c)	There are 24 eggs in the fridge. The cook takes 6 eggs out of the fridge. How many eggs remain in the fridge?	$24 + 6$	4

“Here you see three different word problems and four different calculations, all with the same numbers.”

„I will first read out the three word problems shown here on the lefthand side.”

→ *Read them out one after the other!*

„On the righthand side you see four calculations.

Which calculation fits to each of the three word problems?

Draw a line between each word problems and the matching calculation. You do not have to calculate and write the result.

Just connect each problem with the fitting calculation.

Of course, one of the calculation does not fit to any of the problems!”

„Once you are finished, put down your pen please and close your booklet. I will come around and collect it.”

→ *After collecting all the booklets thank the children for their hard work and award them with a game or ...*

Evaluation and Scoring *DiToM* Screening 4+ (max. 16 points)

1	Writing numbers	1 P. 0,5 P. 0 P.	all three numbers correct (5,089, 43,005, 300,500) two numbers correct all other solutions
2	Comparing numbers	1 P. 0,5 P. 0 P.	all three symbols correct (>, >, <) two correct all other solutions
3a	Adding 1/10/100 together with bundling	1 P. 0,5 P. 0 P.	all three numbers correct (9,900, 4,600, 4,000) two numbers correct all other solutions
3b	Taking away 1/10/100 together with unbundling	1 P. 0,5 P. 0 P.	all three numbers correct (6,999, 3,490, 3,900) two numbers correct all other solutions
4	Numbers on the number line	1 P. 0,5 P. 0 P.	all four numbers correct (7,000, 5,300, 4,080, 12,500) three numbers correct all other solutions
5	Halving numbers up to 10,000	1 P. 0,5 P. 0 P.	all four numbers correct (500, 250, 350, 1,500) three numbers correct all other solutions
6a	Mental calculation: Addition and subtraction	1 P. 0,5 P. 0 P.	all four numbers correct (300, 736, 699, 354) three numbers correct all other solutions
6b	Mental calculation: Dealing with zeroes	1 P. 0,5 P. 0 P.	all four numbers correct (4,500, 64,000, 2.500, 49,000) three numbers correct all other solutions
7a	Written addition	1 P. 0,5 P. 0 P.	both results correct (584, 1,324) one result correct all other solutions
7b	Written subtraction	1 P. 0,5 P. 0 P.	both results correct (644, 272) one result correct all other solutions
8	Operational understanding of addition/subtraction	1 P. 0,5 P. 0 P.	correct term and result ($35 - 4 = 31$) either the task OR the result was noted correctly all other solutions
9	Basic number facts multiplication	1 P. 0,5 P. 0 P.	all six numbers correct (6, 80, 32, 63, 0, 35) five numbers correct all other solutions
10	Basic number facts division	1 P. 0,5 P. 0 P.	all six numbers correct (8, 1, 7, 8, 6, 7) five numbers correct all other solutions
11	Mental calculation: Dealing with zeroes	1 P. 0,5 P. 0 P.	all four numbers correct (35,000, 1,000, 600, 600) three numbers correct all other solutions
12	Operational understanding: Representations	1 P. 0 P.	correct multiplication ($8*6$ OR $6*8$) all other solutions
13	Operational understanding: Word problems	1 P. 0,5 P. 0 P.	all three correct ($a - 3$, $b - 1$, $c - 2$) two correct all other solutions

Name: _____

Date: _____

Evaluation form DiToM Screening 4+

Item	Right answer	Check right/wrong	Points
1.a	5.089		
1.b	43.005		
1.c	300.500		
2.a	>		
2.b	>		
2.c	<		
3a.a	9.900		
3a.b	4.600		
3a.c	4.000		
3b.a	6.999		
3b.b	3.490		
3b.c	3.900		
4.a	7.000		
4.b	5.300		
4.c	4.080		
4.d	12.500		
5.a	500		
5.b	250		
5.c	350		
5.d	1.500		
6a.a	300		
6a.b	736		
6a.c	699		
6a.d	354		
6b.a	4.500		
6b.b	64.000		
6b.c	2.500		
6b.d	49.000		

Item	Right answer	Check right/wrong	Points
7a.a	584		
7a.b	1.324		
7b.a	644		
7b.b	272		
8 part 1	35-4		
8 part 2	31		
9.a	6		
9.b	80		
9.c	32		
9.d	63		
9.e	0		
9.f	35		
10.a	8		
10.b	1		
10.c	7		
10.d	8		
10.e	6		
10.f	7		
11.a	35.000		
11.b	1.000		
11.c	600		
11.d	600		
12	8*6 or 6*8		
13.a	a) - 3		
13.b	b) - 1		
13.c	c) - 2		

 Total points achieved out of 16

Comment: _____

Valuation:

Items 1 to 3b and 13

all 3 correct = 1 point; 2 correct = 0.5 points; 1,0 correct or missing = 0 points

Items 4 to 6b and 11

all 4 correct = 1 point; 3 correct = 0.5 points; 2,1,0 correct or missing = 0 points

Items 7a to 8

all 2 correct = 1 point; 1 correct = 0.5 point; 0 correct or missing = 0 points

Item 9 and 10

all 6 correct = 1 point; 5 correct = 0.5 points; 4,3,2,1,0 correct or missing = 0 points

Item 12

correct = 1 point; wrong = 0 points