# Screening 2+

Teacher Manual

Overview

This manual provides the teacher instructions for the items of the screening test to be administered either at the end of Grade 2 or at the beginning of Grade 3.

The Screening 2+ covers the following content areas:

1. Counting

2. Tens-ones-representations

3. Forwards and backwards in the number sequence

4. Writing two-digit numbers

5. Halving two-digit numbers

6. Numbers on number lines

7. Splitting numbers up to 10

8. Addition

9. Subtraction

10. Word problem 1 (addition)

11. Word problem 2 (subtraction)

12. Core multiplication tables

13. Interpreting a representation as multiplication

14. Word problem 3 (quotitive problem)

15. Word problem 4 (sharing)

Before the distribution of the test booklets

- Explain to the children that at the end of Grade 2 / beginning of Grade 3 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 neighbor 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.
- 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.
- Explain that it's important for everyone to pay close attention and listen carefully to your instructions.
- 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 must 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.
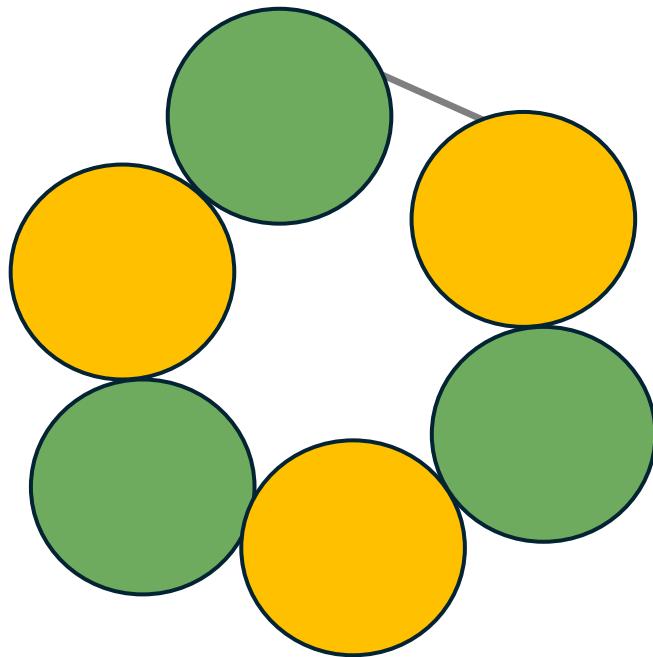
6 beads
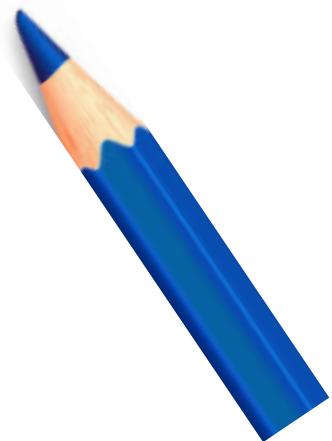
1 Counting

Example

6
_____ beads
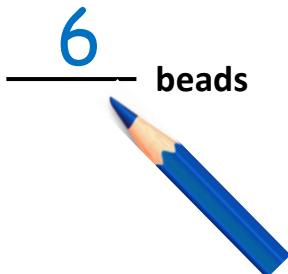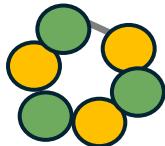
"Look at this bracelet. There are six beads in this bracelet.
Therefore, we write the number **6** down here."

→ *point to the line with the pen*

"There are six beads, so we write down 6, because there are 6 beads."

Screening task

No time limit.

_____ beads

"Now please turn your page over to the first task."

"Here you see another bracelet.
Count the beads in this bracelet **quietly**!"

"Write the number of beads on the line below. Count silently and then write the number on the line."

"Once you are finished, please put your pencil on your desk."
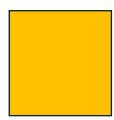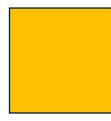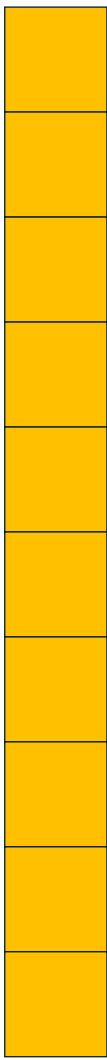
13

2 Tens-ones-representations

Example
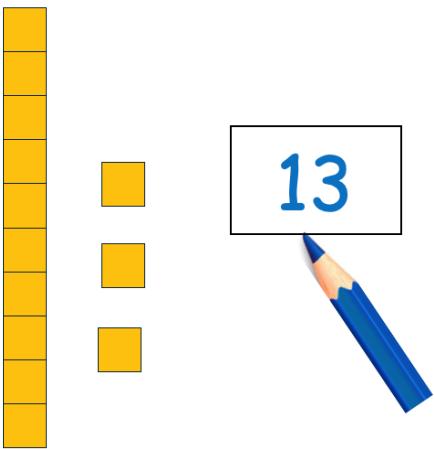
"Look at this picture. It shows the number **thirteen**. **Ten** here and **three** here.
There are always 10 in a rod, so that is 10 and three single ones."

→ *point to the rod first and then to the cubes*

"So we have 10 and 3. Together this is 13. Therefore, we write the number **13** into the box."

→ *point to the box and the pen*

Screening task

a)

"Please turn your page over to the next task."

b)
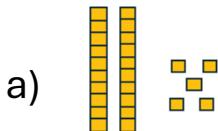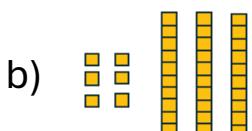
"Here you see three other number pictures. Write each number in the box next to the picture. Start now."

→ *count to 30 in your head*

c)
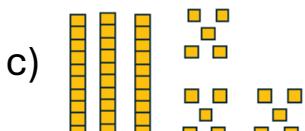
"We move on to the next task. It doesn't matter if you have not yet finished."

"Please look at this picture."

→ *point to the example for Item 3*

12 13 14 15

3 Forwards and backwards in the number sequence

Example

| 12 | 13 | 14 | 15 |
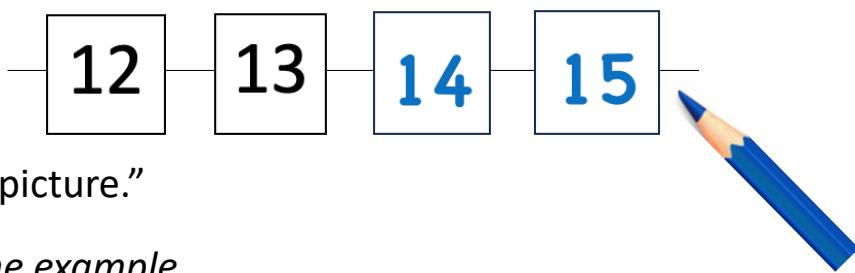
"Look at this picture."

→ *point to the example*

"There are four numbers in the row. It starts with twelve, thirteen and the number after that is **fourteen**, this is why 14 is written in the next box. And after fourteen comes **15**, so 15 is written in the following box."

→ *first point at 14 then at 15*

"The four numbers in this row are 12, 13, **14** and **15**."

Screening task   No time limit.

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

"Here, we always have five numbers in a row. Write the missing numbers in the empty boxes."

"Pay attention: Sometimes you will need to find the number that comes before another number!"

"Once you have finished, put your pencil down on the desk."

a) | 37 | 38 | | | |

b) | | 87 | 88 | | |

c) | | | | 61 | 62 |
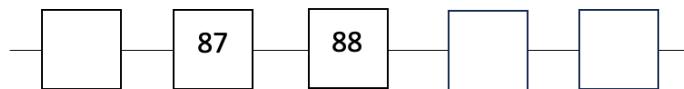
22

18
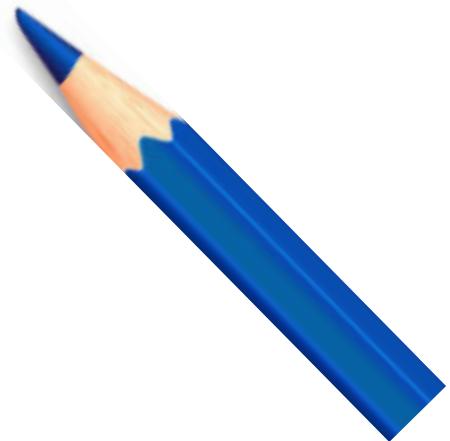
4 Writing two-digit numbers

Example

$$\underline{22}$$

"When we want to write 'twenty-two' we write it like this."

→ *point to the number 22*

$$\underline{18}$$

"And when we want to write the number 'eighteen', we write it like this."

→ *point to the number 18*

Screening task

No time limit.

"Now I want you to write down more numbers."

a) _____

"Please turn your page over to the new task. You see five lines a) to e), one below the other."

b) _____

"I am telling you 5 numbers. One after the other. Listen carefully and write down the number:

c) _____

d) _____

a) thirty-four (34)
b) fifteen (15)
c) forty-three (43)
d) fifty (50)
e) sixty-seven (67)"

e) _____

"Now, let us have a look at the next task."

Half of 10: _5_
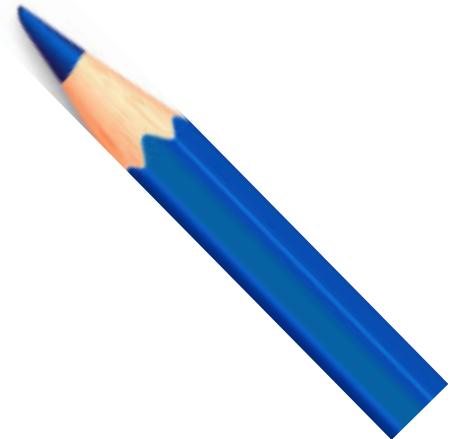
5 Halving two-digit numbers

Example

Half of 10: _5_

"Half of ten is five."

→ *point to the example task*

"This is why we write 5."

Screening task

a) Half of 12: _____

b) Half of 16: _____

"Please turn your page. You see five numbers. Write down what is **half** of these numbers."

"Start now!"

→ *count to 30 in your head*

c) Half of 60: _____

d) Half of 80: _____

"Let us move on to the next task. It doesn't matter, if you could not finish."

e) Half of 50: _____

→ *point to the example for Item 6.*

20   30

24
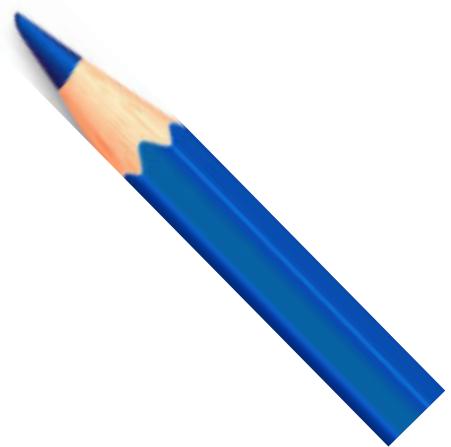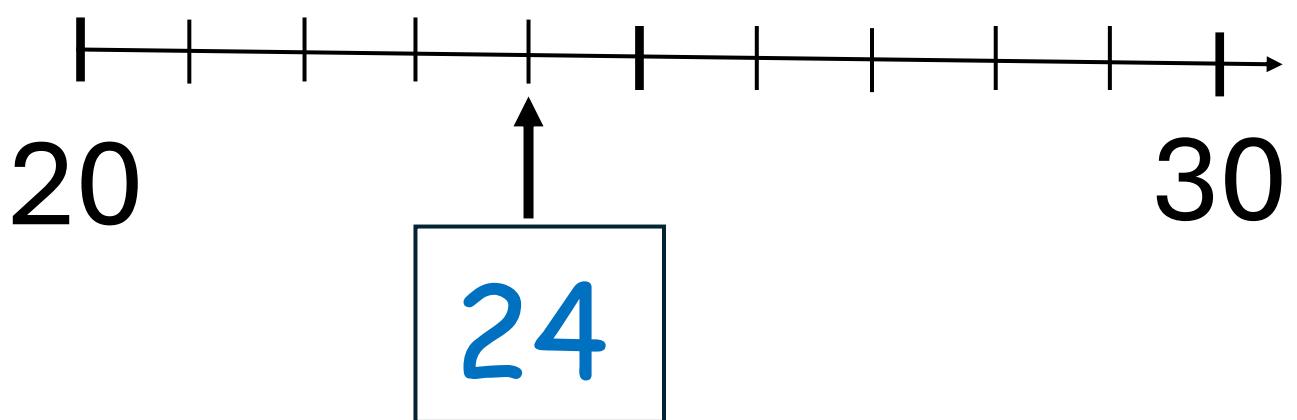
6 Numbers on number lines

Example
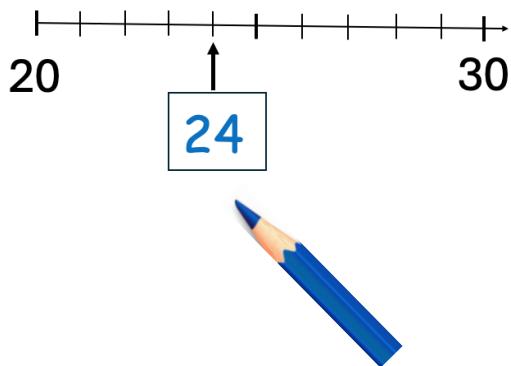
"Here you see the number line from 20 to 30."

→ *point it out by moving your finger along the line from 20 to 30*

"We are looking for the number that belongs in the box."

→ *point to the box*

"Check for yourself – it is the number 24. This is why 24 is written in the box."

Screening task

No time limit.

"Please turn the page over to find your new task. Here you see three different number lines."

"Pay attention to numbers already written on each number line!"

„For each line, look carefully and write the correct number in the box."

"Once you are finished, put your pencil down please."

a)

b)

c)
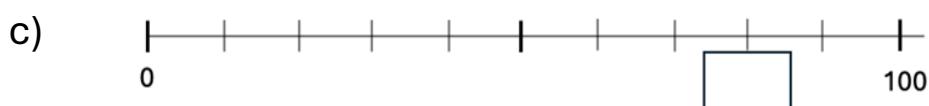
5	
3	2
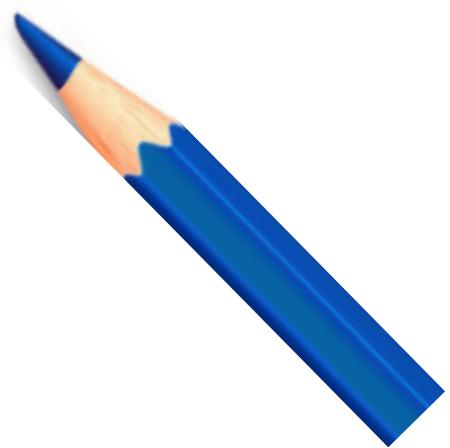
7 Splitting numbers up to 10

Example

5	
3	2

"Here you see the number 5 in the top box."

→ *point your finger to the number 5*

"As you know, we can split the number 5 in two numbers. If one of the numbers is 3 …"

→ *point to the number 3*

"… then the missing number is 2, as 3 plus 2 is 5."

→ *point to the numbers as you speak*

"So, the number 5 can be split into the numbers 3 and 2. Together 2 and 3 make 5."

Screening task

Time limit: 30 sec

a)

6	
1	

b)

7	
3	

c)

8	
2	

d)

8	
5	

e)

9	
2	

f)

9	
4	

"Now please turn your page over. Here you find more numbers to split."

"Look carefully on the numbers at the top and then write the missing number in the empty box. The two numbers in the bottom add up to the number on the top."

"Please start now!"

→ *count to 30 in your head*

"Please stop. It doesn't matter, if you could not finish all numbers."

no example

8 Addition

Screening task

a) $32 + 7 =$

b) $6 + 74 =$

c) $60 + 30 =$

d) $27 + 40 =$

e) $25 + 8 =$

"For the next task, we do not need an example, because you all know what to do. We are now doing **addition**."

"Please turn over the page in your booklet and you will see some addition tasks."

"Do them now!"

"Once you have finished, please put you pencil down."

"So far you have done really good, and we have already done more than half of the tasks. Stand up and shake your arms, hands and legs for a moment. " → *you do the same*
"That feels good, right? Now please sit down again."

no example

9 Subtraction

no example

a)   48 − 6 =

"Now please turn your page and you will see some ***subtraction*** tasks."

b)   37 − 7 =

"We are doing subtraction now. Keep that in mind."

c)   20 − 9 =

"Now do the subtraction tasks!"

d)   56 − 30 =

"Once you have finished, please put your pencil down."

e)   25 − 8 =

no example

10 Word problem 1 (addition)

no example

Screening task

"Now please turn over the page and look at the next task. I will read it for you."

→ *read the word problem* ***twice*** *to the class, stress the words in bold*

On the way to school:

There are **12** children on the school bus.

At the next stop, **6 more** children get on.

How many children are now on the bus?

My Calculation: _____

Answer: Now there are _____ children on the bus.

"Now do the problem. It is important that you also write your calculation with the result on the line. Then fill in the result in the answer."

"Once you have finished, please put down your pencil."

no example

11 Word problem 2 (subtraction)

no example

Screening task

"Please turn over the page and look at the next problem."

"Now school is out, and the bus takes the children back home."

→ *read the word problem **twice** to the class, stress the words in bold*

On the way home:

There are **28** children on the school bus.

At the first stop, **3** children get off.

How many children are still on the bus?

My Calculation: _____

Answer: Now there are _____ children on the bus.

"Now do the problem. Again, it is important that you also write your calculation with the result on the line. Then fill in the result in the answer."

"Once you have finished, please put down your pencil."

no example

12 Core multiplication facts

no example

Time limit: 30 sec

a) $7 \times 2 =$

b) $4 \times 5 =$

c) $8 \times 10 =$

d) $9 \times 2 =$

e) $10 \times 7 =$

f) $5 \times 6 =$

"For the next task, we do not need an example, because you all know what to do."

"We are now doing multiplication."

"Please turn over the page in your booklet and you will see some multiplication tasks."

"Do them now!"

→ *count to 30 in your head*

"Please stop now. It does not matter, if you have not finished all the tasks. We will move on now."

no example

13 Interpreting a representation as multiplication

no example

Screening task

"Please turn over the page and have look at the next problem."

_____
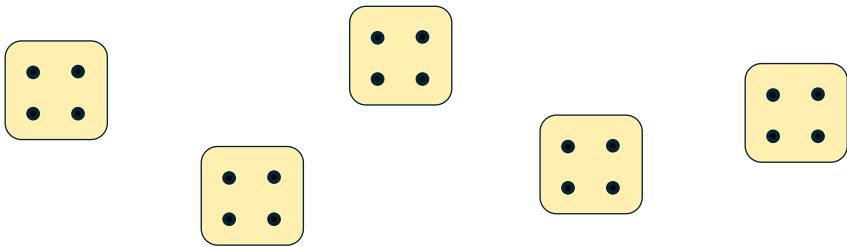
"Look carefully at the picture. It shows a **multiplication** task."

"Write this **multiplication** task on the line under the picture."

"If you know it, you can also write down the result. But this is voluntary. It is more important that you write the matching task."

"Once you have finished, please put down your pencil."

no example

14 Word problem 3 (quotitive problem)

no example as it would give away the solution strategy

Screening task

"We have two more problems left and so far, you have done great. Let us look at the second last problem. Please turn over the page."

→ *read the word problem to the class **twice**, stress the words in bold*

This morning the farmer has picked up **18 eggs**.

6 eggs fit in an egg carton.

How many egg cartons can he fill?
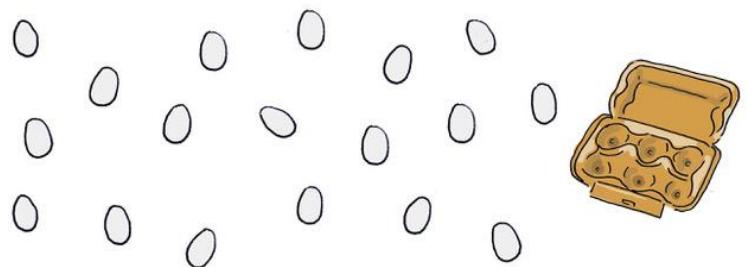
Answer: The Farmer can fill _____ egg cartons.

"Now solve this problem. You can draw the solution using the picture or you can write down your calculation next to the eggs.
It is important that you write down your solution number in the answer."

"Once you have finished, please put your pencil down."

no example

15 Word problem 4 (sharing)

no example as it would give away the solution strategy

Screening task

<div style="float:right">No time limit.</div>

"Now please turn over to the last page. We have only one problem left."

→ *read the word problem to the class **twice**, stress the words in bold*

Grandma has bought **15 chocolate eggs** to give them to her **3 grandchildren**.

Everyone get the same number.

How many chocolate eggs does each child get?
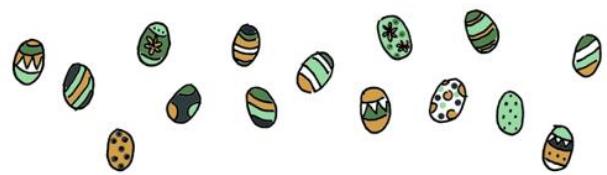
Answer: Each child gets _____ eggs.

"Please solve this last problem. Again, you can draw the solution using the picture or you can write down your calculation next to the eggs. It is important that you write down your solution number in the answer."

"Once you are finished, please put you pencil down, close your booklet and I will come around and collect it."

→ *After collecting all the booklets: Thank the children for their hard work and cooperation and treat them with a run around the school yard or a game or whatever you find appropriate as a reward!*

How to evaluate the screening

Student responses can be evaluated in three ways using the prepared evaluation forms. You can choose the method that suits you best:

1. A **paper and pencil** evaluation **per class** (PDF file on the website)

2. A **paper and pencil** evaluation **per student** (PDF file on the website)

3. A **digital evaluation** (Excel file on the website)

The Excel file has two tables, one on the sheet named „**qualitative**" and another on the sheet „**quantitative**". Using the Excel file enables automatic computer-based scoring for each student. Students' answers should be entered as they are (that is, for example, the number that the child has written as his/her solution) into the table on the sheet „*qualitative*". The table on the sheet „*quantitative*" will then automatically be filled, with 0 in the case of a wrong answer and with 1 in the case of a correct answer. **You should not enter any data into the quantitative sheet manually!** If a student did not answer a question, enter 999 in the table „*qualitative*". The results for each student will be summarized and displayed in the table „*quantitative*" in the columns BO (Total number of points) and BP (Percentage of correct answers).

All the files for evaluation can be downloaded from the DiToM website (ditom.org). They include additional instructions for the evaluation.

For more detailed information on evaluation and scoring see the Handbook for Teachers, Section 4.

Evaluation and Scoring DiToM Screening 2+ (max. 15 points)

1	Counting	1 P.	correct quantity (23)
		0 P.	all other solutions
2	Tens-ones-representations	1 P.	all three numbers correct (25, 36, 45)
		0,5 P.	two numbers correct
		0 P.	all other solutions
3	Forwards and backwards in the number sequence	1 P.	all three rows correct (39,40, 41) (86 .. 89, 90) (58, 59, 60 …)
		0,5 P.	two rows entirely correct
		0 P.	all other solutions
4	Writing two-digit numbers	1 P.	all five numbers correct (34, 15, 43, 50, 67)
		0,5 P.	four numbers correct
		0 P.	all other solutions
5	Halving two-digit numbers	1 P.	all five numbers correct (6, 8, 30, 40, 25)
		0,5 P.	four numbers correct
		0 P.	all other solutions
6	Numbers on number lines	1 P.	all three numbers correct (67, 15, 80)
		0,5 P.	two numbers correct
		0 P.	all other solutions
7	Splitting numbers up to 10	1 P.	all six numbers correct (5, 4, 6, 3, 7, 5)
		0,5 P.	five numbers correct
		0 P.	all other solutions
8	Addition	1 P.	all five results correct (39, 80, 90, 67, 33)
		0,5 P.	four results correct
		0 P.	all other solutions
9	Subtraction	1 P.	all five results correct (42, 30, 11, 26, 17)
		0,5 P.	four results correct
		0 P.	all other solutions
10	Word problem 1 (addition)	1 P.	correct term and result (12 + 6 = 18)
		0,5 P.	either the term OR the result was noted correctly
		0 P.	all other solutions
11	Word problem 2 (subtraction)	1 P.	correct term and result (28 − 3 = 25)
		0,5 P.	either the task OR the result was noted correctly
		0 P.	all other solutions
12	Core multiplication facts	1 P.	all six results correct (14, 20, 80, 18, 70, 30)
		0,5 P.	four or five results correct
		0 P.	all other solutions
13	Interpreting a representation as multiplication	1 P.	correct term (5 × 4 or 4 × 5), result is irrelevant
		0 P.	all other solutions
14	Word problem 3 (quotitive problem)	1 P.	correct answer (3 egg cartons), drawing is irrelevant
		0,5 P.	bundles of six are circled, but answer „3" was not noted
		0 P.	all other solutions
15	Word problem 3 (sharing)	1 P.	correct answer (5 chocolate eggs), drawing is irrelevant
		0,5 P.	correct drawing, but answer „5" was not noted
		0 P.	all other solutions

Class Overview DiToM Screening 2+   (max. 15 P.)

Child's name	Age Y;M	Individual notes	1 Counting	2 Tens-ones-representations	3 Numbers forward and bac-ward	4 Writing two-digit numbers	5 Halving two-digit numbers	6 Number line	7 Number splitting	8 Additon	9 Subtraction	10 Word problem 1 (addition)	11 Word problem 2 (subtraction)	12 Core mutipli-cation facts	13 Representation of multiplication	14 Word problem 3 (quotative)	15 Word problem 4 (sharing)	Overall score

Name: _____

Date: _____

Evaluation form DiToM Screening 2+

Item	Right answer	Check right/wrong	Points		Item	Right answer	Check right/wrong	Points
1	23				**8.a**	39		
2.a	25				**8.b**	80		
2.b	36				**8.c**	90		
2.c	45				**8.d**	67		
3.a	394041				**8.e**	33		
3.b	868990				**9.a**	42		
3.c	585960				**9.b**	30		
4.a	34				**9.c**	11		
4.b	15				**9.d**	26		
4.c	43				**9.e**	17		
4.d	50				**10 part 1**	12+6=18		
4.e	67				**10 part 2**	18		
5.a	6				**11 part 1**	28-3=25		
5.b	8				**11 part 2**	25		
5.c	30				**12.a**	14		
5.d	40				**12.b**	20		
5.e	25				**12.c**	80		
6.a	67				**12.d**	18		
6.b	15				**12.e**	70		
6.c	80				**12.f**	30		
7.a	5				**13**	5*4 or 4*5		
7.b	4				**14**	3		
7.c	6				**15**	5		
7.d	3							
7.e	7							
7.f	5							

Total points achieved out of 15

Comment: _____

Valuation:

Items 1 and 13	correct = 1 point; incorrect or missing = 0 points
Items 2, 3 and 6	all 3 correct = 1 point; 2 correct = 0.5 points; 1,0 correct or missing = 0 points
Items 4, 5, 8, 9	all 5 correct = 1 point; 4 correct = 0.5 points; 3,2,1,0 correct or missing = 0 points
Item 7	all 6 correct = 1 point; 5 correct = 0.5 points; 4,3,2,1,0 correct or missing = 0 points
Items 10 and 11	all 2 correct = 1 point; 1 correct: 0.5 point; 0 correct or missing: 0 points
Item 12	all 6 correct = 1 point; 5 or 4 correct = 0.5 points; 3,2,1,0 correct or missing = 0 points
Items 14 and 15	correct =1 point; not answered but circled correctly = 0.5 points; otherwise = 0 points