MATHEMATICAL RELATIONAL SKILLS AND COUNTING 0–20

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The "Mathematical relational skills and counting 0–20" material contains 15 teaching sessions for learning mathematical relational skills, counting sequence skills, and object counting. Practicing different number sequences and quantity-number word-number symbol correspondence is particularly emphasised.

The teaching sessions are designed to be held in small groups of 2–6 children. One teaching session lasts approximately 30–45 minutes. Each session consists mainly of active, teacher-directed activity, game-oriented work in pairs or small groups, and written individual practice.

Italicised sentences are suggestions for the teacher's verbal descriptions of the tasks or guidance for the children's work. It is not necessary to use them as written, but rather, they are meant as illustrating the thinking behind the task for the reader.

Core aims

- strengthening mathematical relational concepts
- comparing quantities and number symbols
- listing different counting sequences fluently both forwards and backwards in the number range 1–20
- strengthening the quantity-number word- number symbol correspondence
- strengthening shortened counting (the quantities do not always have to be counted one-by-one)
- strengthening the principles of counting: one-to-one correspondence, cardinality
- utilising fingers and structured dot cards systematically in illustrating quantities

Equipment needed for the entire material

- small objects (e.g., blocks, buttons, macaroni, or similar)
- objects found in the classroom (e.g., pencils, paper clips, etc.)
- building bricks that can be attached to each other (e.g., Multilink)
- counters
- dice
- an egg carton (10 cups) for each child, and one divided lengthwise (5 cups)
- paper plates
- boxes
- craft sticks
- string and 10 clothes pegs
- dot cards and number cards, game boards, and task sheets (downloadable from the ThinkMath web site)

TEACHING SESSIONS

	Central content	Equipment needed	Page
TEACHING SESSION 1	Number range 0–5 - quick recognition of small quantities - counting quantities - comparing quantities - right-left	- dice and counters - Attachments: Dot cards 1–3, Hand pictures, Animal game right-left - Worksheet: Counting quantities 1–3	5
TEACHING SESSION 2	Number range 0–5 - verbal counting 1–5 - number word-quantity correspondence - showing quantities with fingers	- dice and counters - Attachments: Number rhyme card 1–5, "Goal Game" - Worksheet: Counting quantities 1–3	9
TEACHING SESSION 3	Number range 0–5 - one-to-one correspondence, cardinality - counting quantities (structured counting) - quantity-number word-number symbol correspondence	- half an egg carton (5 cups)/child - small objects - dice and counters - Attachment: Number cards 1–5, "Recognise numbers" game - Worksheet: Quantities and number symbols B	13
TEACHING SESSION 4	Number range 0–5 - comparing quantities, introducing the comparison sign - counting quantities	- bricks (e.g., Multilink) - paper plates - dice - sticks or similar for counting dots - Attachment: Crocodile and bird - Worksheet: Comparing quantities	17
TEACHING SESSION 5	Number range 0–5 - comparing numbers, introducing the comparison sign - counting quantities	- two paper plates - small objects - sticks - Attachment: Number cards 1–5 - Worksheet: Comparing numbers	20
TEACHING SESSION 6	Number range 0–10 - number sequence 1–10 - counting quantities - quantity-number word correspondence - showing quantities with fingers	- counters for Bingo - Attachments: Number rhyme card 5–10, Bingo base 1 and 2 - Worksheet: Structuring numbers by five	23
TEACHING SESSION 7	Number range 0–10 - counting quantities - quantity-number word-number symbol correspondence - comparing quantities	- objects (see TS7) - paper plates - sticks - Attachment: Number cards 1–10, Bingo base 1 or 2 - Worksheet: Quantity–number symbol 6–10 A	27
TEACHING SESSION 8	Number range 0–10 - number sequence 1–10 forwards and backwards, skip counting by 2's - missing number in a number sequence (quantities and numbers)	- building bricks that can be attached to each other (e.g., Multilink) - numbers 1–10 written on coloured paper (see TS8) - string and 10 clothes pegs - Attachment: Number cards 1–10 - Worksheet: Dot-to-dot	30
TEACHING SESSION 9	Number range 0–10 - ordinal numbers 1.–10. - counting quantities (structured counting) - quantity-number word-number symbol correspondence - comparing quantities	- building bricks that can be attached to each other (e.g., Multilink) - small toy figure (e.g., Lego figure) - egg carton (10 cups) /child - small objects - Attachment: Number cards 1–10 - Worksheet: Quantities 6–10	33

TEACHING SESSION 10	Number range 0–10 - quick recognition of quantities(shortened counting) - quantity-number symbol correspondence	- Attachments: Dot cards 1–10, Number- - cards 1–10 - Worksheet: Quantity–number symbol 6–10 B	36
TEACHING SESSION 11	Number range 1–10 - comparing numbers - quantity-number word-number symbol correspondence - recognising number symbols	- Attachments: Number cards 1–10, (Dot cards 1–10), Ghosts - Worksheet: Quantity–number symbol 1–10	39
TEACHING SESSION 12	Number range 10-20: - counting quantities in different ways	- egg cartons - small objects in a box or juice or milk cartons, 11–19 objects in each - Attachment: Number cards 8–15 - Worksheet: Counting quantities 11–19	42
TEACHING SESSION 13	Number range 10-20: - quantity-number symbol correspondence	- 20 small objects in a box - paper plate - 2 egg cartons - Attachments: Number cards 0-20, Number cards 1–9 (black corner), Number cards 10 and 20 (black corner): 9 10-cards and one 20-card, "Dice Game" - Worksheet: Counting quantities 11–20	45
TEACHING SESSION 14	Number range 10-20: - quantity-number symbol correspondence	- Attachments: Dot cards 11-20, Number cards 1–9 (black corner), Number cards 10 and 20 (black corner): one 10-card and one 20-card, Number cards 1–20 - Worksheet: Quantity-number 11–20	48
TEACHING SESSION 15	Number range 10-20 - counting quantities 11-20 - quantity-number word-number symbol correspondence	- counters - Attachments: Dot cards 11–20, Number cards 1–20, Bingo board 11–20 - Worksheet: Counting stories	51

TEACHING SESSION 1

TEACHER-DIRECTED WORK

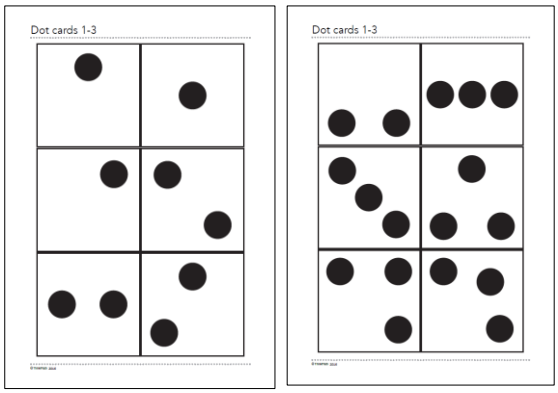
WARM-UP ACTIVITY

AIM

- quick recognition of small quantities
- counting quantities 1–3 (more than, less/fewer than, as many as)

EQUIPMENT

- Attachment: Dot cards 1–3



TASK PROCEDURE

A) Agree which quantity will be hunted: 1, 2, or 3. Turn over cards from your hand one at a time. When the child recognises the correct quantity on the card, they say "BANG!" The child who first says "bang" in the correct place gets the card. Saying "bang" for an incorrect card results in losing a card already collected. If it is unclear who said "bang" first, the card is placed under the deck, and a new dot card is turned over.

B) Place two dot cards on the table, e.g., 1 and 3. *Which card has more dots? Which card has fewer dots? How many dots more/fewer on this card than on the other card?* Repeat the procedure also with cards with the same number of dots.

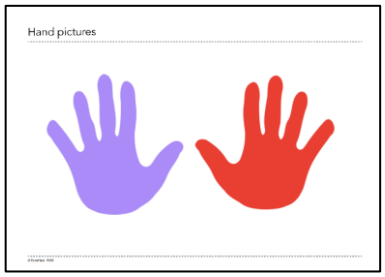
TASK 1. Right and left

AIM

- concepts: right, left, to the right, to the left
- quantities 1–5

EQUIPMENT

- Attachment: Hand pictures



TASK PROCEDURE

Name the hands: right and left. Colours will act as memory aids: red for right and lilac for left. Put the hand pictures on the board so that children can look at them for direction when doing the following tasks. In the next task, the concepts of right and left are practiced alongside small quantities.

- *Which hand do you use to draw, the right or the left? Show! How many right- / left-handed children are there in the group?*
- *Hop twice with your right foot. Hop three times with your left foot.*
- *Snap the fingers of your right hand three times. Snap the fingers of your left hand once.*
- *How many fingers are there in the right hand? What about the left hand?*
- *How many toes are there in the right foot? What about the left foot?*
- *Point to the right with your hand. Take two steps to the right.*
- *Point to the left with your hand. Jump to the left three times.*

WORKING IN PAIRS

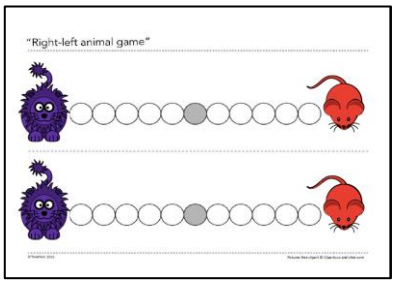
TASK 1. "Right-left animal game"

AIM

- concepts: to the right, to the left
- counting quantities 1–3
- moving on a game board

EQUIPMENT

- Attachment: ”Right-left animal game”
- two dice on the other die, the quantities are covered up with tape marked with red and lilac circles; the other die has only the quantities 1–3), a counter



TASK PROCEDURE

The players sit next to each other at the board so that the game board faces the right way up for both, so that the directions (right and left) are the same for both. The players place the shared counter on the Start square (the grey square in the middle). After this, the players take turns throwing the two dice: the colour die that shows the direction, and the dot die that shows how many ”steps” to take. For example, the player gets the colour red with one die, and the quantity two on the other: the player moves the counter two steps to the right. Before the player moves the counter, they tell what moves the dice have given, for example, ”Two to the right”. At the beginning of the game, the players can guess which animal the counter will go to at the end of the game. The game ends when the counter reaches either one of the animals.

NOTE

- Give the instructions first to all children together.
- Can the child move on the board according to the dots on the die?
- Does the child remember the directions right and left?

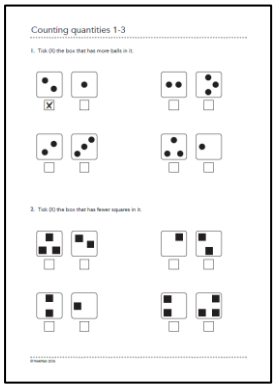
INDIVIDUAL WORK

AIM

- counting the quantities 1–3
- concepts: more, less/fewer than

EQUIPMENT

- Worksheet: Counting quantities 1–3


Counting quantities 1-3

1. Tick (☒) the box that has more balls in it.

2. Tick (☒) the box that has fewer squares in it.

TEACHING SESSION 2

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- concepts: right, left, to the right, to the left
- quantities 1–3

TASK PROCEDURE

Revising the concepts right and left, and small quantities.

- *Lift up your right hand.*
- *Wave your left hand.*
- *Shake your right foot.*
- *Skip with your left foot.*
- *How many fingers are there in the right hand? What about the left?*
- *How many toes are there in the right foot? What about the left?*
- *Point to the right with your hand. Jump to the right twice.*
- *Point to the left with your hand. Jump to the left three times.*

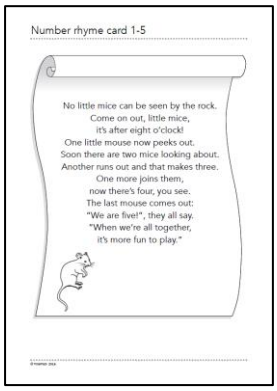
TASK 1. Number rhyme1–5

AIM

- verbal counting forwards from 1–5
- strengthening the number word – quantity correspondence
- showing quantities with the fingers in a given order

EQUIPMENT

- Attachment: Number rhyme card 1–5


Number rhyme card 1-5

No little mice can be seen by the rock.
Come on out, little mice,
it's after eight o'clock!
One little mouse now peeks out.
Soon there are two mice looking about.
Another runs out and that makes three.
One more joins them,
now there's four, you see.
The last mouse comes out;
"We are five!", they all say.
"When we're all together,
it's more fun to play."

TASK PROCEDURE

Now we are going to practice saying numbers forwards, and showing them with our fingers. Here's a little rhyme about mice (show the rhyme card)*, listen to it first.* Read the rhyme, or let one of the children read it.

Let's practice the rhyme together. We'll show the numbers in the rhyme with the fingers of our left hand. Which is the left hand? During the rhyme, direct the children to show the numbers so that at first, the hands are curled into fists, backs of the hands upwards. The children can keep their hands against the table, so they can support their hands against it f necessary. The fist is a zero/nothing, the little finger of the left hand is one, little finger and ring finger are two, and so on.

Number rhyme 1-5

No little mice can be seen by the rock.	*(hand in a fist)*
Come on out, little mice, it's after eight o'clock!	
***One** little mouse now peeks out,*	*(lift the left little finger)*
*Soon there are **two** mice looking about.*	*(lift the ring finger next)*
*Another runs out and that makes **three**.*	*(lift the middle finger)*
*One more joins them, now there are **four**, you see.*	*(lift the index finger)*
*The last mouse comes out: "We are **five**!", they all say.*	*(lift the thumb)*
"When we're all together, it's more fun to play."	

TASK 2. Show numbers with fingers

AIM

- showing quantities 1–5 with the fingers from a given number, without counting individually
- strengthening the number word–quantity -correspondence

TASK PROCEDURE

In this task, we practice showing quantities with fingers. Make a fist with your left hand. The mice will peek from their little hole. Listen, how many mice will peek at the same time. Then show the number with your fingers. Say the numbers 1–5 several times. After each number, check if everyone is holding up as many fingers. The children can also take turns saying a number.

NOTE

- Guide the children to show the numbers like in the number rhyme (1 = little finger of the left hand, 2 = little finger and ring finger, etc.).
- The aim is to learn to show the quantity directly, without individual counting.
- If the child counts the quantity individually, guide them in showing the fingers at the same time (show what "at the same time" means), first with easy numbers, such as two or five.
- Draw the children's attention to the number five, where all fingers of the hand are shown: the number five acts as an anchor for later tasks.

WORKING IN PAIRS

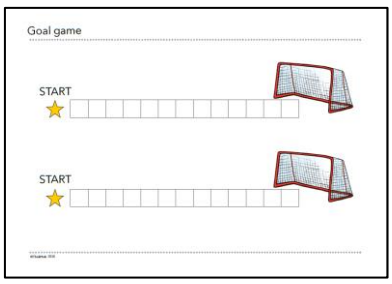
TASK 1. "Goal Game"

AIM

- recognising small quantities quickly, without individual counting
- showing quantities with fingers
- strengthening the number word-quantity correspondence

EQUIPMENT

- Attachment: "Goal Game"
- a die and counters



TASK PROCEDURE

A game for two players. The players choose their route from the game board, and place their counters in the start square. The players take turns in throwing the die, say the number of the eyes on the die, and show the corresponding quantity with their fingers. They move their counter according to the die towards the goal. If a player throws a 6, they don't move at all (i.e., 6 = 0). The one who gets their counter in the goal first wins the round.

Several rounds can be played. In this case, count can be kept of the goals won by tallying them in series of five (3 = III). The winner can, for instance, be the player who first reaches five goals (~~IIII~~).

Alternatively, counters can be collected in an empty egg carton with five cups. The player who first fills up their egg carton is the winner.

NOTE

- Give the instructions for the game and tallying to the whole group together, by first demonstrating them in a game situation with one child.

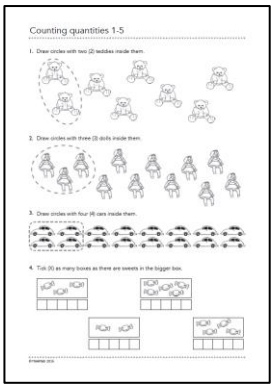
INDIVIDUAL WORK

AIM

- counting quantities 1–5
- concept: as many as

EQUIPMENT

- Worksheet: Counting quantities 1–5


Counting quantities 1-5

1. Draw circles with two (2) teddies inside them.

2. Draw circles with three (3) dolls inside them.

3. Draw circles with four (4) cars inside them.

4. Tick (X) as many boxes as there are sweets in the bigger box.

TEACHING SESSION 3

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- strengthening the number word -quantity correspondence
- concepts: more than, less/fewer than, as many as

TASK PROCEDURE

Two children are chosen for the task. Give both children one quantity between 1–5 that they are to show with their fingers. The quantities can also be the same. *Two mice peek from Mike's mouse hole. Four mice peek from Helen's mouse hole.* At the end, ask the other children, how many more or fewer peeked from the children's mouse holes. How many more or fewer mice peek from one hole than from the other?

TASK 1. Count objects in an egg carton

AIM

- getting acquainted with the five frame using an egg carton
- counting quantities 1–5

EQUIPMENT

- half an egg carton (5 cups), 5 objects

TASK PROCEDURE

I have here one half on an egg carton. How many cups does it have? How many eggs would fit into it? I also have objects. One object can be placed in each cup. Make a little mark, for example, a triangle, in the left side of the egg carton, to show from where you will always start filling the cups. Put three objects in the egg carton. *How can we find out, how many objects are there here?* (Some children may recognise the quantity directly, others may suggest counting the objects individually.) A quantity recognised directly can be checked by counting individually. *How many objects more would fit in the carton?*

Repeat the task with the quantities 1–5 so that all children get a turn.

NOTE

- Show the egg carton so that all children see it from the same angle, because in later tasks, the carton will always be filled starting from the same direction.
- Observe, whether the child points at the objects with their finger, or whether they can count just by looking.
- Can the child tell the answer by saying the last number word (cardinality)?

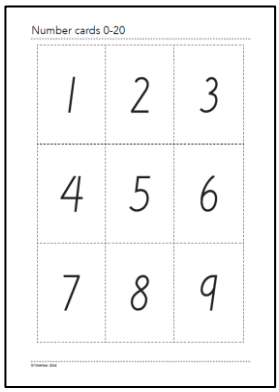
TASK 2. Count objects into an egg carton

AIM

- counting quantities of objects from a given number word or number symbol
- strengthening one-to-one correspondence and cardinality

EQUIPMENT

- half an egg carton (5 cups) for each child, approximately 20 small objects (e.g., bricks, buttons, macaroni, or similar)
- Attachment: Number cards 1–5



TASK PROCEDURE

A) Place the objects in the middle of the table so the children can reach them. *I will take two objects from the table.* Take objects one at a time and place them in the egg carton. *One, two. Now there are two objects in the carton. How many more objects would still fit in this carton?* (3)

Give each child an egg carton. *Now you can have your own egg carton. Place three objects in it.* Make sure the children start to fill the carton in order, starting from the triangle. When the children have placed the objects in the carton, ask: *How many objects are there in the carton? How many more objects would fit in the carton?* Repeat the task with quantities 1–5 several times. The egg carton is emptied between each quantity.

B) Add number symbols to the task. *Here we have number cards. Let's see what numbers you already remember.* Show the number cards one by one. If the children don't remember a number, name it, show the corresponding quantity with your fingers, and ask the children to repeat the number word. *Now, the number on the card will tell you, how many objects you should put in the carton.* Place the number cards on the table picture side down. Each child takes a card and places the corresponding number of objects in their carton. When the child has collected the objects, ask them to tell how many objects they put in their carton, and how many more would still have fit. Mix the cards, so each child gets different quantities.

At the end of the task, ask: *In what kinds of situations might someone say to you that you have to take a certain number of objects or other things, and you would have to know how to count them?* (E.g., meal times.)

NOTE

- If after counting a child is asked how many objects there are altogether, can they give as the answer the last number word that has been said?
- Does the child list the numbers in the correct order and only once?
- If the child makes mistakes when counting, demonstrate it to them: move objects and count out loud together.
- If the child doesn't know when to stop counting, count objects up until the answer he has suggested, and thus demonstrate to them the answer cannot be correct. Count the quantity again together, and finally, emphasise the quantity: *Three, that was the quantity we wanted!*

WORKING IN PAIRS

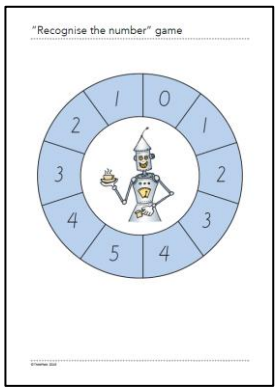
TASK 1. "Recognise the Number" game

AIM

- strengthening the number symbol-number word correspondence

EQUIPMENT

- two egg-carton halves, 10 small objects, a die and counters for each pair
- Attachment: "Recognise the Number" game



TASK PROCEDURE

The aim of the game is to recognise five number symbols correctly, and to fill one's egg carton with objects. The players place their counters on any square on the board. Both have an egg-carton half in front of them, and 10 objects altogether on the table. One of the players throws the die and moves on the board according to the count. If the player throws a six, they cannot move at all. At every square, the player says the number written there. After a correct answer, the player can put one object in their egg carton. The players change turns. The winner is the player who first fills their egg carton. Collecting objects into the egg carton also illustrates how many more correct answers the player needs to have an object in each of the five cups.

NOTE

- Explain the rules of the game first to all children together.
- Observe, whether the child recognises the number symbols: if they don't remember the corresponding number word, say it to them, and ask the child to repeat it.
- Does the child know how to move on the board as many times as the count of the die tells them to?

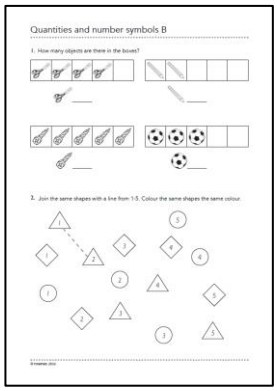
INDIVIDUAL WORK

AIM

- counting quantities 1–5
- shortened counting
- strengthening the quantity-number symbol correspondence

EQUIPMENT

- Worksheet: Quantities and number symbols B



NOTE

- When needed, give guidance in how to write the number symbols correctly.

TEACHING SESSION 4

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- concepts: more than, less/fewer than, one more, one less, as many as

EQUIPMENT

- 15 attachable bricks (e.g., Multilink) and 5 bricks for each child

TASK PROCEDURE

Make bars with the bricks to correspond to the quantities 1, 2, 3, 4, and 5. Place the bars on the table in a mixed-up order. Show the children the bar with three bricks. *Which bar has fewer bricks than this bar?* (1 and 2.) *Which bar has more bricks than this bar?* (4 and 5.) *Which bar has one brick more than this bar?* (4) *Which bar has one brick fewer than this bar?* (2)

Give each child 5 bricks. Show the bar with 2 bricks. *Build a bar with one brick more than this bar.* Think of similar building tasks with different numbers: ask the children to build bars with one brick more than, one brick fewer than, or as many as the bar you show them.

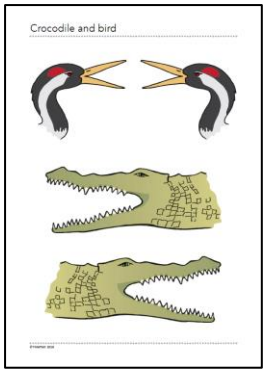
TASK 1. Comparing quantities

AIM

- comparing quantities
- concepts: more than, less/fewer than, as many as
- introducing the comparison sign

EQUIPMENT

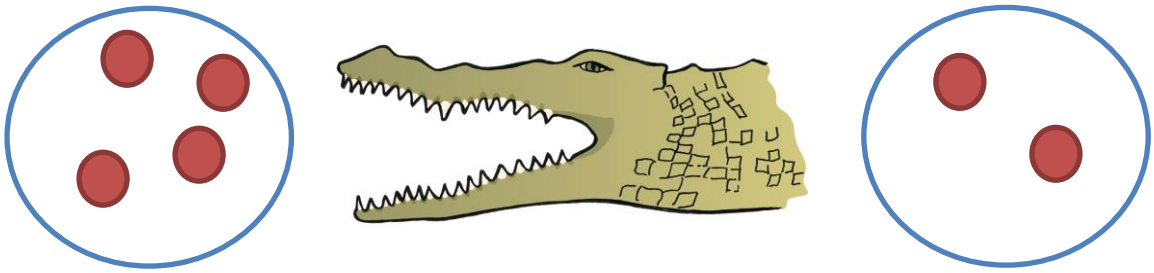
- 10 small objects, two plates
- Attachment: Crocodile and bird



TASK PROCEDURE

Tell a story about a greedy crocodile or bird – it is always hungry. When the animal is offered food, it always eats from the side where there is more food (the bird's beak and the crocodile's mouth open in that direction). Show an example: *On this plate, there are two burgers, and on this plate, there are four burgers* (use objects). *On which plate are there more burgers? Because four is more than two, the crocodile wants to eat off the plate with four burgers. Two is less than four, so the crocodile won't eat off this other plate.*

Put different amounts of food on the plates. Ask the children to tell how many bits of food there are on the plates. Give one child at a time a turn to place the crocodile or the bird so that its mouth or beak opens in the direction of more food. Ask the child to describe the comparison situation, for example, that four is more than two.



WORKING IN PAIRS

TASK 1. "Crocodile Game" or "Bird Game"

AIM

- comparing quantities
- concepts: more than, less/fewer than, as many as
- introducing the comparison sign

EQUIPMENT

- 10 small objects, 2 plates, a die (6 covered up with tape) for keeping score, e.g., ten sticks
- Attachment: Crocodile and bird

TASK PROCEDURE

Both players throw a number with the die, and collect the corresponding number of bits of food on their plate. The six on the die has been covered with tape, and this means zero. The players say how many bits of food they have. The bird or the crocodile is placed between the plates with its beak or mouth open in the direction of the plate with more food. The player whose plate has more food, gets a point (one stick). if both players get the same number, tell them that since both plates have as many bits of food on them, the bird or the crocodile doesn't know from which plate to eat, and neither player gets any points. The player who first collects five sticks is the winner.

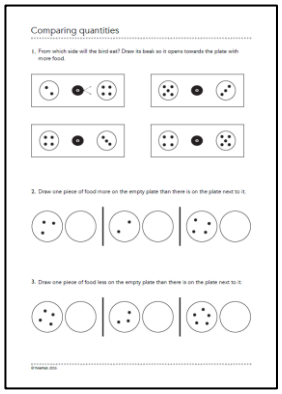
INDIVIDUAL WORK

AIM

- comparing quantities
- concepts: more than, less/fewer than, one more than, one less than

EQUIPMENT

- Worksheet: Comparing quantities


Comparing quantities

1. From which side will the bird eat? Draw its beak so it opens towards the plate with more food.

2. Draw one piece of food more on the empty plate than there is on the plate next to it.

3. Draw one piece of food less on the empty plate than there is on the plate next to it.

TEACHING SESSION 5

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- concepts: more than, less/fewer than, as many as

TASK PROCEDURE

Counting and comparing quantities found in one's own body. Which do we have more or fewer than (or as many as):

- fingers or eyes
- fingers or toes
- noses or eyes
- hands or feet (etc.)

TASK 1. Comparing with numbers

AIM

- comparing quantities, comparing numbers
- concepts: bigger than, smaller than, as big as
- introducing the comparison sign

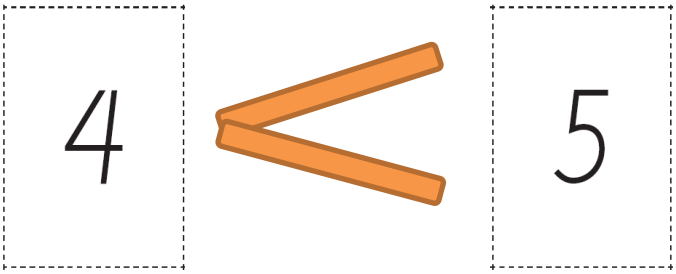
EQUIPMENT

- 2 plates, 10 small objects, 2 sticks
- Attachment: 2 x Number cards 1–5

TASK PROCEDURE

The equipment is on the table. *In this task, we will compare numbers.* Ask one child to place three objects on the plate, to take the corresponding number card, and to place it below the plate. Ask another child to place five objects on the other plate, to take the corresponding number card, and to place it below the plate. *The numbers tell us, how many objects there are on the plates. Which is the bigger number? Now, we will make the crocodile's mouth (bird's beak) in a different way. We will make it with these sticks.* The sticks are placed so it looks like "the mouth is open" towards the bigger number.

Repeat with different numbers. When the plates have the same number, the sticks are placed between the number cards so that an equals sign is formed (the bird/crocodile is surprised).



WORKING IN PAIRS

TASK 1. "Bigger Than/Smaller Than" Game

AIM

- comparing numbers
- concepts: bigger, smaller, as big as
- introducing the comparison sign

EQUIPMENT

- 2 sticks
- Attachment: 2 x Number cards 1–5

TASK PROCEDURE

Agree in the beginning whether you are playing the "bigger than" or the "smaller than" game. The number cards are shuffled and placed on the table picture side down. Both players pick a card, say the number on it, and put them next to each other on the table. The players compare the numbers and place the sticks between the numbers so that they open towards the bigger number, or if the numbers are the same, place the sticks to form an equals sign.

The player who has the bigger or the smaller number (as was agreed), gets both cards. This player will tell what the comparison situation is, e.g., four is bigger than three. If the cards are the same, the cards are shuffled back into the deck. The round ends when there are no more cards. The player with more cards wins.

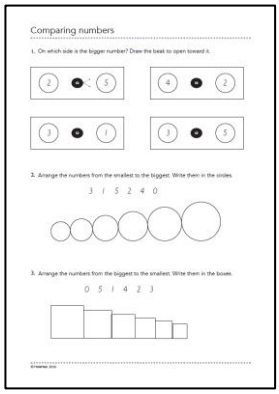
INDIVIDUAL WORK

AIM

- comparing numbers
- concepts: bigger than, smaller than, as big as

EQUIPMENT

- Worksheet: Comparing numbers


Comparing numbers

1. On which side is the bigger number? Draw the beak to open toward it.

2. Arrange the numbers from the smallest to the biggest. Write them in the circles.

3 1 5 2 4 0

3. Arrange the numbers from the biggest to the smallest. Write them in the boxes.

0 5 1 4 2 3

TEACHING SESSION 6

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- verbally counting the number sequence 1–10

TASK PROCEDURE

The children stand in a circle. Recite the numbers 1-10 so that the child whose turn it is says the next number in the sequence. When the child says the number, they also clap their hands, squat down, jump, or do some other action agreed together, for different rounds. The warm-up activity is played a few times so that the child who starts the sequence changes. Play the game also so that the number sequence is recited backwards.

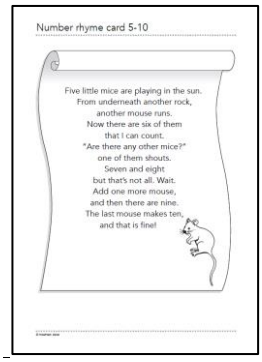
TASK 1. Number rhyme 5–10

AIM

- verbally counting the numbers 5–10 forwards
- strengthening the number word-quantity correspondence
- showing quantities with the fingers in a given order

EQUIPMENT

- Attachment: Number rhyme card5–10


Number rhyme card 5-10

Five little mice are playing in the sun.
From underneath another rock,
another mouse runs.
Now there are six of them
that I can count.
"Are there any other mice?"
one of them shouts.
Seven and eight
but that's not all. Wait.
Add one more mouse,
and then there are nine.
The last mouse makes ten,
and that is fine!

TASK PROCEDURE

Now we will practice counting numbers forwards and showing them with our fingers. Here is a little rhyme about mice (show the number rhyme card), *listen to it first.* Read the rhyme, or let one of the children read it.

Let's practice the rhyme together. The rhyme starts from the number five. Can you show the number five with your left hand? During the rhyme, direct the children to show the numbers so that first the hand is in a fist, with the back of the hand upwards. The children can have their hands on

the table, so they can support their hands on it, if needed. Six is the left hand and the thumb of the right hand, seven is the left hand and the thumb and forefinger of the right hand, and so on.

***Five** little mice are playing in the sun.*	*(show the fingers of the left hand)*
From underneath another rock, another mouse runs.	*(right thumb)*
*Now there are **six** of them that I can count.*	
"Are there any other mice?" one of them shouts.	
Seven	*(show also the right index finger)*
*and **eight***	*(the right middle finger)*
but that's not all. Wait.	
*Add one more mouse, and then there are **nine**.*	*(right ring finger)*
*The last mouse makes **ten**, and that is fine!*	*(right little finger)*

TASK 2. Showing numbers with fingers

AIM

- strengthening the number word-quantity correspondence
- showing numbers 1–10 with fingers from a given number, without individual counting

TASK PROCEDURE

In this task, we'll practice showing numbers with our fingers. The mice are peeking from their holes. Listen, how many mice are peeking at the same time. Show the number with your fingers. Say numbers between 1–10 many times. After each number, check to see if all everyone is showing the same number of fingers. Also the children can take turns saying a number.

NOTE

- Guide the children in showing the quantities in the same way as in the rhyme (left little finger = 1, little finger and ring finger = 2, etc.).
  The aim is to learn to show the quantity directly, without counting all. Draw the children's attention to number five, where all fingers on one hand are shown. If showing numbers directly is difficult, the numbers 6–9 can be shown so that five is first shown, counting on from there (5… 6, 7).

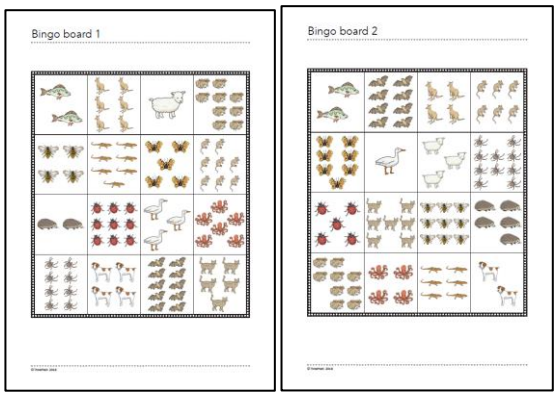
TASK 3. Bingo Game

AIM

- counting the quantity 1–10
- strengthening the number word–quantity correspondence

EQUIPMENT

- a bingo board and counters for each child
- Attachment: Bingo boards 1 and 2



TASK PROCEDURE

Give each child a bingo board and counters.

Now, we will play the Bingo game, and practice counting quantities. I will say a number, and you can then find the same number from your bingo board. Let's practice together: three. Now find the square with three pictures on your bingo board, and put a counter on it. When you have four counters in a line, say "bingo". The first to shout "bingo", is the winner of the round. You can also play bingo so that a number card 1–10 is picked, and the number is shown to everyone. The children find the corresponding number on their game board.

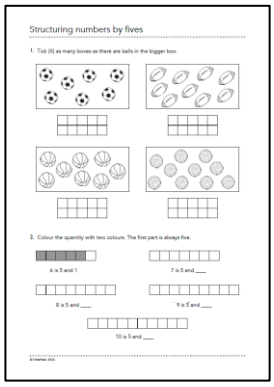
INDIVIDUAL WORK

AIM

- counting quantities 6–10, quantities 6–10 formed based on five

EQUIPMENT

- Worksheet: Structuring numbers by five


Structuring numbers by fives

1. Tick (X) as many boxes as there are balls in the bigger box.

2. Colour the quantity with two colours. The first part is always five.

6 is 5 and 1

7 is 5 and ___

8 is 5 and ___

9 is 5 and ___

10 is 5 and ___

TEACHING SESSION 7

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- number word–quantity correspondence with the numbers 5–10
- showing quantities with the fingers in a given order

EQUIPMENT

- Attachment: Bingo board 1 or 2

TASK PROCEDURE

A) Show a quantity on the Bingo board. *How many animals are in this square? Show the same number with your fingers.* Go through several pictures on the Bingo board.

B) Show with your fingers quantities 1–10 (grouped as in the rhyme). The children are to say the corresponding number word as quickly as possible. You can also give the children turns in saying the quantities, if you prefer.

TASK 1. Comparing quantities

AIM

- classifying objects
- counting quantities of objects (5–10)
- strengthening one-to-one correspondence and cardinality
- strengthening quantity-number symbol correspondence
- concepts: most, least, more, less/fewer

EQUIPMENT

- objects (e.g., 5 sticks, 6 pens, 7 erasers, 8 buttons, 9 paper clips, 10 bricks), 6 plates
- Attachment: Number cards 5–10

TASK PROCEDURE

The objects are placed on the table or on the floor and mixed up. *Here we have different objects. Your task is to arrange the objects in groups on these plates so that the same objects make up a group.* When the children have grouped the objects, they are named. After this, the objects in a group are taken away from the other groups and examined. *How many objects are there in this group?* The number cards are also brought onto the table or the floor. *Which of these numbers tell how many objects are in this group?* The number of objects in each group is counted, and the corresponding number card is found.

When the objects in all groups have been counted, compare them. Which group has the *most* objects? Which group has the fewest objects? Which group has more/fewer objects? How many more/fewer?

NOTE

- If it is difficult for the child to see which group has more objects, the objects can first be paired next to each other one by one: there will be unpaired objects in the bigger group. Because the number cards are also to hand when comparing, for instance, the quantities 5 and 7, you can also say that five comes before seven when cups are filled, so it is the smaller number (quantity).

WORKING IN PAIRS

TASK 1. "Comparing Quantities" game

AIM

- strengthening quantity–number symbol correspondence
- comparing quantities
- concepts: bigger than, smaller than, as big as
- introducing the comparison sign

EQUIPMENT

- 2 sticks, 20 small objects, 2 plates
- Attachment: 2 x Number cards 1–10

TASK PROCEDURE

At the beginning of the game, agree whether you are playing the bigger than or the smaller than game. The number cards are shuffled and placed on the table picture side down. Both players take a card, say the number, and take the corresponding number of objects on their plate. The players compare the quantities or the numbers and place the sticks between the plates so that the sticks open towards the bigger or the smaller number. If the quantities are the same, the sticks are placed to form an equals sign.

The player who has the bigger or the smaller quantity, as agreed, gets both number cards. This player will announce the comparison situation, e.g., nine is bigger than (more than) seven. If the numbers are the same, neither player gets the cards, and they are placed to one side. The round ends when the deck is used up. The player with more cards at the end of the round is the winner.

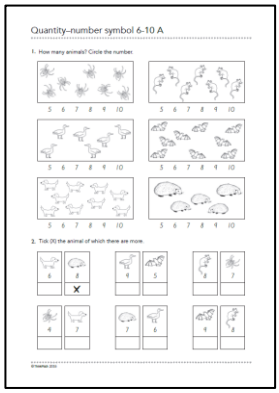
INDIVIDUAL WORK

AIM

- counting quantities 6–10, strengthening quantity-number symbol correspondence
- comparing numbers (more than)

EQUIPMENT

- Worksheet: Quantity–number symbol 6–10 A


Quantity–number symbol 6-10 A

1. How many animals? Circle the number.

5 6 7 8 9 10

5 6 7 8 9 10

5 6 7 8 9 10

5 6 7 8 9 10

5 6 7 8 9 10

5 6 7 8 9 10

2. Tick (✓) the animal of which there are more.

8 8 ✓

9 5

9 7

9 7

7 6

9 9

NOTE

- If the child cannot do the comparison straight from the number symbols in part 2, ask them to compare first the quantities (e.g., the child takes six bricks in on group and eight in the other, and compares these by placing the quantities next to each other, in one-to-one correspondence).

TEACHING SESSION 8

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- missing number in a number sequence (with quantities and numbers)
- concepts: least, most, before, after

EQUIPMENT

- 55 bricks that can be attached to each other (e.g., Multilink)
- Attachment: Number cards 1–10

TASK PROCEDURE

A) Make bars of following quantities with the bricks: 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10. Build stairs 1–10 with them. *Show which bar has the least bricks? Which bar has the most bricks? What comes after seven? What comes before nine?*

B) The children close their eyes for a moment. Remove one bar from the stairs. Which bar is missing? The children can take turns removing a bar.

C) Place the bars so that a number card easily fits below them. Place the number cards on the table, mixed up. Let the children find the corresponding number card for each bar. Read the formed number sequence. Then take away the bars and turn the number cards picture side down. Turn one number card over (e.g., 6). *Which number comes after number six?* (Turn the card over to check.) *What number comes before number six?*

TASK 1. Verbal counting forwards and backwards

AIM

- verbal counting forwards and backwards
- starting from the middle of a number sequence
- fluent and flexible use of number sequences (i.e., don't have to recite numbers always beginning with one)
- number word–number symbol correspondence

EQUIPMENT

- numbers 1–10 written on coloured paper (odd on red, even on blue), string and 10 clothes pegs
- Attachment: Number cards 0–10 for each child

TASK PROCEDURE

A) Reciting numbers forwards and backwards with the help of the coloured papers. Odd numbers have been written on red paper and even numbers on blue. String and clothes pegs are also needed.

Lets arrange these numbers on the string in the same order that we say them, when we recite them starting from one.

Can you recite the numbers also the other way (backwards)?

Can you say the numbers that are written on the red pieces of paper? (Forwards.)

Can you say the numbers on red paper in the other direction? (Backwards.)

Can you say the numbers that are written on the blue pieces of paper? (Forwards.)

Can you say the numbers on blue paper in the other direction? (Backwards.)

Can you think of a reason why some numbers are written on red and some on blue paper?

B) Each child is given their own set of number cards (0–10). The children are asked to arrange their own cards according to instructions. The children are asked to recite the number sequences after each task.

Number sequences forwards:

Arrange the cards like they are recited starting from one.

Arrange the cards so that only every other card is used. Start from two and continue from there onwards.

Arrange the cards so that only every other card is used. Start from one and continue from there onwards.

Number sequences backwards:

Arrange the cards like they are recited starting from ten and going backwards.

Arrange the cards so that only every other card is used. Start from ten and continue from there backwards.

Arrange the cards so that only every other card is used. Start from nine and continue from there backwards.

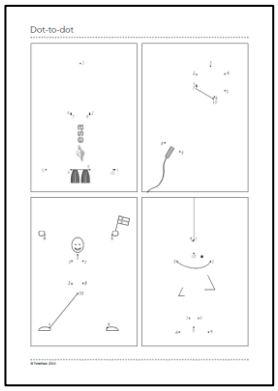
INDIVIDUAL WORK

AIM

- number sequence 1–10 forwards and backwards

EQUIPMENT

- Worksheet: Dot-to-dot



NOTE

- In two of the pictures, start joining dots from number 1 onwards, and in two pictures, from number 10 backwards.

TEACHING SESSION 9

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- ordinal numbers 1.–10.

EQUIPMENT

- 55 bricks that can be attached to each other (e.g., Multilink), a small toy figure (Lego figure, dinosaur, or similar)

TASK PROCEDURE

A) Use the bricks to make bars corresponding to the following quantities: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. Build them into stairs 1–10. The toy figure moves from one step to another. Place the toy figure on the first step. *On which step is the toy?* Move the figure first in order from one step to the next. After this, let one of the children place the toy figure onto one of the steps. The task of the children is to say on which step the toy is.

B) Put 10 bricks of the same colour in a row (unattached). Ask one child at a time to change one of the bricks into one of a different colour. For example: *Change the sixth brick into a red brick.* The children can also take turns in giving each other instructions.

TASK 1. Counting objects in egg cartons

AIM

- introducing ten-frame using an egg carton
- counting quantities (shortened counting)

EQUIPMENT

- egg carton, 10 objects

TASK PROCEDURE

I have here an egg carton. How many cups are there in it? How many eggs would fit in it? I also have objects. One object can be put in one cup. Use a marker pen to make a little mark on the left side of the egg carton, and always start filling the cups from there. Put six objects in the egg carton. The objects are always put in the carton in the same order, starting from the top left corner, and moving onto the lower row. *How can we find out how many objects are in this carton?* So the objects don't all have to be counted (aiming for shortened counting), instruct the children to count on from five. *How many objects are there in the top row? If the top row is full, there are always five*

objects there. The same as with your fingers: the fingers of one hand make five. We can start to count on straight from five: five, six. How many objects more would fit in the carton?

Let each child define a few quantities. Direct the child to begin counting from five with the quantities 6–9. Emphasise also the quantity ten. Always when both rows are full, the quantity is ten (like the fingers of two hands).

NOTE

- Show the children the egg carton so that they all see it from the same direction, because in later tasks, the egg carton is always filled and counted starting from the same direction.
- Observe whether the child points at the objects or whether they can count with their eyes.
- Can the child give as the answer the last number word said? (Cardinality.)

TASK 2. Counting objects into the egg carton

AIM

- counting quantities from a given number word
- strengthening one-to-one correspondence and cardinality

EQUIPMENT

- an egg carton and 10 small objects for each child (e.g., bricks, buttons, macaroni, or similar)

TASK PROCEDURE

Give each child their own egg carton and place the objects on the table, so that everyone can reach them. *Now put seven objects in your egg carton.* Ensure the children start filling the egg carton in order, starting from the mark. When the children have collected the objects, ask: *How many objects are there in your carton? How many objects more would fit in the carton?*

Repeat with different quantities 1–10 several times. At the end of the task, ask: *In what kinds of situations could someone tell you to take a given number of objects or other things, and you would have to know how to count them?* (E.g., meal times.)

WORKING IN PAIRS

TASK 1. Comparing quantities of objects in egg cartons

AIM

- counting quantities from a given number
- strengthening one-to-one correspondence and the concept of cardinality
- more than, less/fewer than, as many as

EQUIPMENT

- an egg carton for each child and 10 small objects (e.g., bricks, buttons, macaroni, or similar)
- Attachment: 2 x Number cards 1–10

TASK PROCEDURE

The number cards are shuffled and placed on the table as a deck with the picture side down. Both children have an egg carton and 10 objects in front of them. Both children turn over a number card and say the number on it. Both place the corresponding number of objects in their egg carton. After this, the children check to see who has the most objects in their egg carton. This can be done by observing the number of objects in the cups (if the children have placed the objects in their egg cartons in the order taught). The player with more objects in their egg carton gets the number cards. If the quantities are the same, neither player gets the number cards, and they are placed to one side. The game ends when all cards in the deck have been turned over. The winner is the player with more cards at the end of the game.

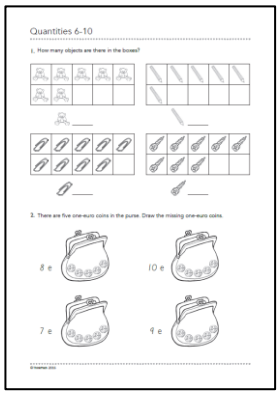
INDIVIDUAL WORK

AIM

- counting quantities 6–10

EQUIPMENT

- Worksheet: Quantities 6–10



TEACHING SESSION 10

TEACHER-DIRECTED WORK

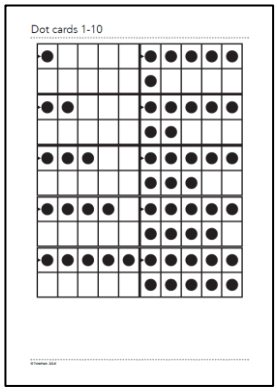
WARM-UP ACTIVITY

AIM

- quick recognition of quantities from the ten frame

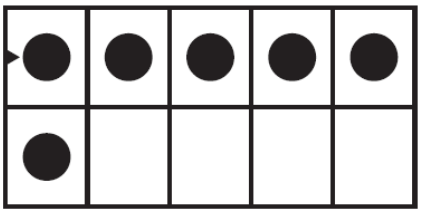
EQUIPMENT

- Attachments: Dot cards 1–10 and Number cards 1–10



TASK PROCEDURE

A) Show the children one dot card at a time in numeric order, and ask them to name the quantity. If the child doesn't immediately recognise a quantity greater than five, guide them to start counting on from five.



B) Shuffle the dot cards and place the deck on the table picture side down. Spread the number cards 1–10 on the table in order. Let each child take a turn taking a dot card and naming the quantity. After this, the child places the dot card below the corresponding number card.

TASK 1. "BANG!" Game

AIM

- strengthening the quantity–number symbol correspondence

EQUIPMENT

- Attachments: 2 x Dot cards 1–10 and one set of Number cards 1–10

TASK PROCEDURE

Dot cards and number cards are shuffled in separate decks and placed on the table. The top card in the number card deck is turned and named together. After this, the teacher turns one card at a time from the dot card deck onto the table. When the number and dot cards correspond, the child says, "BANG!" (It is a hit, i.e., the quantity and number match each other). The child who says the correct answer first gets the number card. If a child says "bang" at the wrong time, they lose on of the cards they have collected. This card will be placed at the bottom of the deck. A new card is then turned over and named, etc. When all dot cards have been turned, they are shuffled into a new deck. The game is over when all cards in the dot card deck have been played. The winner is the child with the most cards at the end of the game. If it is unclear who was the first to say "bang", the number card is placed at the bottom of the deck, and a new card is turned over.

WORKING IN PAIRS

TASK 1. Memory game

AIM

- strengthening the quantity–number symbol correspondence

EQUIPMENT

- Attachments: Dot cards 1–10, Number cards 1–10

TASK PROCEDURE

A game for 2–4 players. The aim of the game is to collect as many card pairs as possible. The dot cards and number cards are shuffled in their own decks, and they are arranged on the table picture side down, so that the dot cards and number cards are in their separate groups on the table. The players take a number card first and say the number. After this, they try to find the corresponding dot card. If the player finds a pair, they take the cards, and the players change turns. If the player does not find a pair, they turn the cards over picture side down, and the players change turns. The game is over when there are no cards left on the table. The winner is the child with most cards.

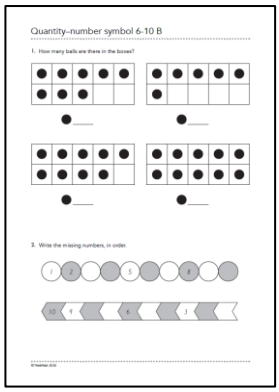
INDIVIDUAL WORK

AIM

- counting quantities 6–10
- shortened counting
- strengthening the quantity–number symbol correspondence
- number sequence 1–10 forwards and backwards

EQUIPMENT

- Worksheet: Quantity–number symbol 6–10 B


Quantity–number symbol 6-10 B

1. How many balls are there in the boxes?

2. Write the missing numbers, in order.

TEACHING SESSION 11

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- defining quantities by comparing numbers

EQUIPMENT

- Attachment: Number cards 1–10

TASK PROCEDURE

The number cards are shuffled. One of the children takes a card so the others don't see it. The others start to guess what number it is. The child with the number card is only allowed to say "bigger" or "smaller", if the number is not guessed correctly. For example, the card is 5. "Is it 7?" (Smaller.) Is it 4? (Bigger.) Is it 6? (Smaller.) Is it 5? (Yes.) Play several rounds.

TASK 1. "Poisonous Mushroom" game

AIM

- recognising the number symbols

EQUIPMENT

- 10 paper plates
- Attachment: Number cards 1–10 or Dot cards 1–10

TASK PROCEDURE

The number cards or dot cards are attached onto the paper plates with blu-tack. The plates are placed upside down on the floor.

One of the children closes their eyes or leaves the room for a moment. Meanwhile, the other children decide which of the plates is the poisonous mushroom.

The child who doesn't know the chosen poisonous mushroom plate starts turning the plates and collecting them one by one. When they turn the plate, they say the number or the quantity on it. When they pick up the plate the others have chosen as the poisonous mushroom, the others say, "Poisonous mushroom!" Once they've collected the poisonous mushroom, the child counts how many plates they collected altogether. The aim of the game is to collect as many plates as possible. The collected plates are replaced on the floor and mixed up, and another child is chosen to collect plates.

NOTE

- If the child makes mistakes in counting, demonstrate it to them: point at the dots and recite the numbers together.
- If the child does not remember the name of the number, name it for them and ask them to repeat it.

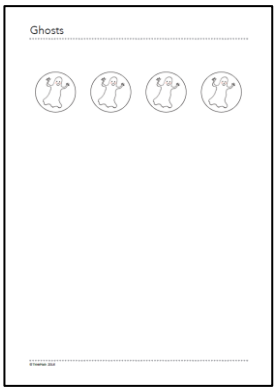
TASK 2. Ghost game

AIM

- recognising number symbols
- counting quantities

EQUIPMENT

- Attachments: 4 x Number cards 1–10, Ghosts
- blu-tack



TASK PROCEDURE

Before the game, the teacher attaches a picture of a ghost on 3–4 number cards so that the children don't know the number of ghosts. The number cards are shuffled and the deck is placed on the table.

The children take turns taking number cards from the deck. The child may take as many cards as they dare to, during their turn. After turning over the card, the child says the number. After this, they decide whether to continue taking cards. If a ghost is turned, the child loses all cards they have collected during that turn to the ghost. These cards and the ghost card are moved to a separate pile. If the child decides not to continue, they can keep the number cards, and the cards they have collected during that round are safe from the ghost during the next round. After their turn, the child can count how many cards they managed to pick. The game is over when all number cards have been turned. The winner is the child with most cards at the end of the game.

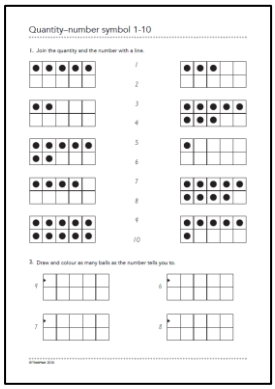
INDIVIDUAL WORK

AIM

- counting quantities 1–10, strengthening the quantity-number symbol correspondence

EQUIPMENT

- Worksheet: Quantity–number symbol 1–10


Quantity–number symbol 1-10

1. Join the quantity and the number with a line.

2. Draw and colour as many balls as the number tells you to.

TEACHING SESSION 12

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- verbal counting in the 1–20 number range starting from the middle of a number sequence

EQUIPMENT

- Attachment: Number cards 8–15

TASK PROCEDURE

The number cards have been shuffled and the deck placed on the table, picture side down. One of the children picks a card and says the number. If the child doesn't know the number, the teacher or one of the other children say it. The teacher or one of the children decides whether to count verbally forwards or backwards from the number on the card. Count verbally forwards until twenty, or if counting backwards, until zero. For example, if the card says number 9, count verbally forwards from nine: 10, 11, 12… 20.

TASK 1. Counting quantities in different ways

AIM

- illustrating different ways of counting

EQUIPMENT

- egg cartons (10 cups, without a lid), 9 boxes or milk cartons, the first of which has 11 small objects inside, the next carton 12 (etc.), and the last has 19 objects (label the cartons using e.g., letters), paper for covering

TASK PROCEDURE

In this task, we will practice counting objects in different ways. Tip the objects from one of the cartons onto the table (e.g., 16 objects) so that they are slightly on top of each other and mixed up. Let the children look at the objects for a moment, then cover them with paper, so the children won't count the objects, but rather, would estimate the quantity. *What do you think, how many objects are there on the table?* Write down the children's estimations for later use. *Next, we will try different ways of figuring out how many objects there are on the table.*

a) **Counting by looking**. Spread the objects slightly apart from each other, but so that they are still in a mixed-up order. *Now, try to count just by looking with your eyes, so you are not allowed to point or touch the objects with your finger.* If the children can count silently, they can all take part at the same time. If the children count out loud, ask one child at a time to count. *What was it like to count the objects just by looking?* Point out things that may make counting difficult when there are many objects to be counted, e.g., getting mixed up about which object has already been counted, counting the same object many times, and so on.

b) Pointing. *Next, let's try counting the same objects so that now you may point or touch the objects with your finger, but you're not allowed to move them. What was the counting like now?* Point out, e.g., that one can start counting from any object, that one can still lose count if one counts the same object twice or skips one, and so on.

c) Moving objects away. *Let's try if the counting gets easier, if you are allowed to move the objects. Move each object away from the others a little, when you've counted it.* Demonstrate the start, e.g., counting the three first objects. Let a few children or each child try. *What was the counting like now? What was different this time compared to the previous ways of counting? Is it easier to get the right answer if you count like this?* Point out things that make counting easier, e.g., that like this, one knows which objects have already been counted. However, if one loses count, one has to start counting again from the beginning.

d) Arranging into groups. *So that you don't always have to start counting again from the beginning, it's a good idea to group the objects when you are counting. Let's first count five and five, like we have practiced before with the egg carton.* Let one of the children count and arrange objects according to the ten frame. If necessary, use the egg carton for guidance. When ten objects have been counted, emphasise, *Now you know that this is ten. If you make a mistake later, you don't have to count all these objects again. Continue counting and arrange the rest of the objects in the same way.* The rest of the objects can be grouped before counting, so the final count can be done starting from ten: 10, 11, 12, 13, 14, 15, 16. The objects can also be grouped while counting. Finally, by observing the groups, you can point out that ten and six make sixteen.

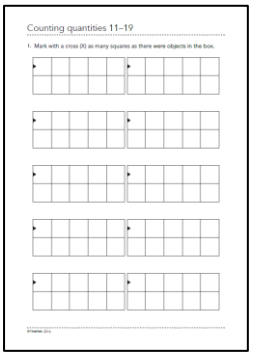
INDIVIDUAL WORK

AIM

- counting and recording quantities 11–19 in the ten frame

EQUIPMENT

- Worksheet: Counting the quantities 11–19



TASK PROCEDURE

Give each child their own box with a given number of objects (see Task 1), and a work sheet and a pencil. The child's task is to count how many objects there are in the box, and to record the answer in the record sheet as a quantity (i.e., by drawing crosses or circles in the ten frame). Circulate the boxes so that each child gets to count the contents of more than one box.

NOTE

- Encourage the child to group the objects: if the child finds it difficult to group the objects on the table, you can use the egg cartons to help them.
- With quantities greater than ten, encourage the child to start counting on from ten, or to utilise the ten frame for recognising the quantities.

TEACHING SESSION 13

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- verbal counting in the 1–20 number range starting from the middle of a number sequence, from one number to another

EQUIPMENT

- Attachment: Number cards 0–20

TASK PROCEDURE

The number cards have been shuffled so that one deck has the cards 0–10, and the other deck the cards 11–20. The decks have been placed on the table picture side down. One of the children picks a card from both decks and says the numbers on the cards. If the child does not recognise the number, the teacher or one of the other children say it. The teacher or one of the children decides, whether to count on from the smaller number to the larger number (i.e., forwards), or from the larger number to the smaller number (i.e., backwards). For example, if you have the cards 5 and 13, count on forwards 6, 7, 8… 13 or backwards 12, 11, 10… 5. Play enough rounds for each child to get a turn at turning over the cards at least once.

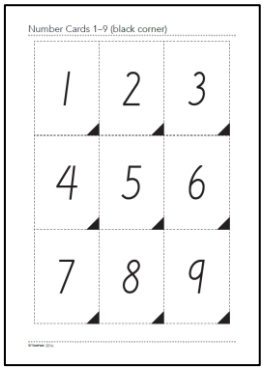
TASK 1. The structure of numbers 11–20

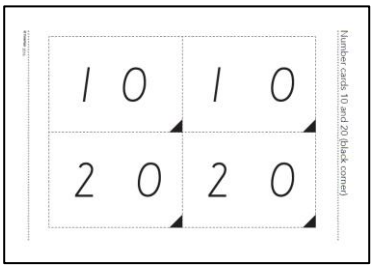
AIM

- counting quantities 11–20
- making 11–20 with number symbols

EQUIPMENT

- 20 small objects in a box, paper plate, (2 egg cartons)
- Attachments: Number cards 1–9 (black corner), Number cards 10 and 20 (black corner); 9 x 10-card and 1 x 20-card





TASK PROCEDURE

Now, we will count objects and practice making the quantity with numbers. Take 11 objects from the box onto the plate so that the children cannot count the quantity at the same time. Let one of the children count and arrange the objects on the table according to the ten-frame grouping. If necessary, the egg cartons can be used for assistance. *How many objects were there on the plate?* (11) *Next we will see how this quantity can be marked with numbers.* Place the number cards and the 10- and 20-cards on the table. Point first at the group of ten objects and ask, *How many objects are there here? Which of these number cards tells you, how many objects there are?* (10)

Then point at the group left over from ten and ask, *How many objects are there here? Which of these number cards fits with these?* (1) *Ten and one make eleven. Let's first take the ten card, and put the number card one on top of it, so that the black corners go on top of each other.* Leave the number cards on the table. The idea is to go through the numbers 12–20 next, forming the number sequence 11–20 onto the table. Let the children take turns counting the quantities and choosing the right cards.

WORKING IN PAIRS

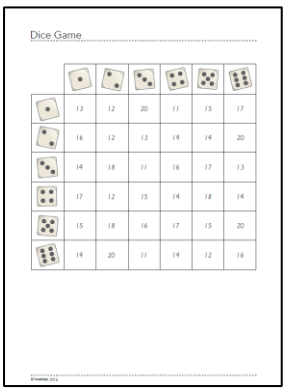
TASK 1. "Dice Game"

AIM

- recognising and naming numbers 11–20

EQUIPMENT

- counters in two different colours or two different-coloured crayons, two dice
- Attachment: Dice Game



TASK PROCEDURE

The player whose turn it is throws the two dice. They then check the game board to see what number is in the "crossroads square", i.e., where the two dice direct them, and say that number aloud. For example, having thrown 5 and 2, the player can choose to say either 14 (across from 2, down from 5) or 18 (across from 5, down from 2). If the player says the number correctly, they can put their own counter on the square, or cross it out with their crayon. If the square is already taken, the turn passes on to the other player. The game is finished when there is a counter on

each square, or when all squares have been crossed out. The winner is the player with more counters or more squares marked on the board.

NOTE

- Give the instructions first to all the children together, by demonstrating a game with one of the children.

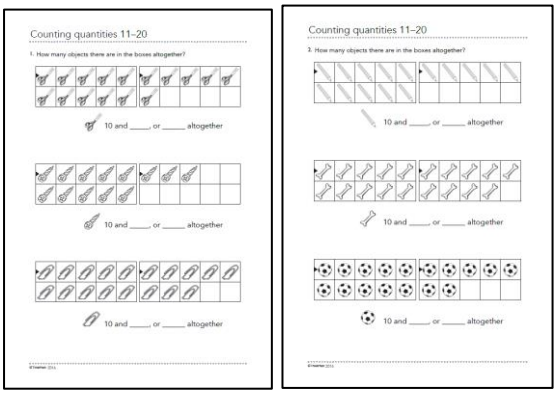
INDIVIDUAL WORK

AIM

- counting quantities 11–20, shortened counting

EQUIPMENT

- Worksheet: Counting quantities 11–20



NOTE

- If the child doesn't recognise the quantities 2–9 from the ten frame quickly, use shortened counting: ask the child to start counting onwards from ten, or through ten and fifteen (e.g., the quantity 17): *ten, fifteen, sixteen, seventeen.*

TEACHING SESSION 14

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- recognising and forming the numbers 11–19

EQUIPMENT

- Attachments: Number cards 1–9 (black corner) and number card 10 (black corner)

TASK PROCEDURE

A) The ten card is placed on the table picture side up, and the number cards 1–9 in a deck, picture side down. The children take turns picking one number card and placing it on top of the ten card, so that a number greater than ten is formed. The child says the number out loud.

B) All cards are placed on the table picture side up. The teacher or one of the children gives each child in turn a number that they should form (1–19). E.g., *Make the number 14*. (The child places the 4 card on top of the ten card.)

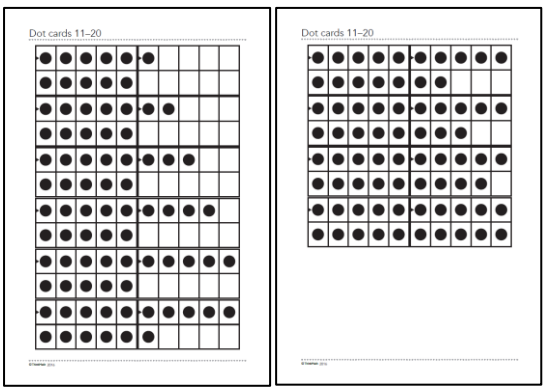
TASK 1. Numbers 11–20 with dot cards

AIM

- strengthening the quantity-number symbol correspondence

EQUIPMENT

- Attachments: Dot cards 11–20, Number cards 1–9 (black corner), Number cards 10 and 20 (black corner); one of both cards



TASK PROCEDURE

A) Shuffle the dot cards and place the deck on the table picture side down. *In this task, we will name how many dots there are quickly.* Turn over one of the cards. Cover the "ones" on the card so that only the ten dots are visible. *How many dots are there here?* Then cover the ten dots on the card. *How many dots are there here? How many dots are there altogether?* (E.g.,. 15.) *Ten and five are fifteen. I will now do the same so that you can only see the dots for a moment. You must say how many dots you saw altogether.* Show the card for a few seconds, and then turn it over. When the children have told the quantity, show it to them again, so you can check the answer. After the correct answer, you can emphasise how the quantity is formed through ten: *Ten and two are twelve.*

B) Add the number cards to the previous task. Spread the cards 1–10 and 20 onto the table. When the children have said the quantity, ask them to form the corresponding number with the number cards. The ten card is always taken first, and another card is placed on top of it so that the little triangles always go on top of each other.

NOTE

If the child doesn't recognise the quantities 2–9 from the ten frame quickly, use shortened counting: ask the child to start counting onwards from ten, or through ten and fifteen (e.g., the quantity 17): *ten, fifteen, sixteen, seventeen.*

WORKING IN PAIRS

TASK 1. A game with the dot cards and number cards

AIM

- forming a number sequence with the number cards
- strengthening the quantity-number symbol correspondence

EQUIPMENT

- Attachments: Dot cards 11–20, Number cards 11–20

TASK PROCEDURE

In this task, we will collect dot cards in order, to be pairs with the number cards. Find the smallest number from the number cards and put it on the table. Put the rest of the number cards next to it in a line, in order, from smallest to biggest. The players from the number sequence 11–20 on the table with the number cards. The dot cards are shuffled and spread on the table, picture side down. The aim is to collect the dot cards 11–20 in order, and place them below the number cards. One of the children turns over one dot card. If there are 11 dots on it, they place it, below the number card 11. If the card is another number, the child turns it over again. The children change turns.

The other child tries to find the dot card that belongs with number card in the sequence. The game can also be played so that the number cards are on the table in order from 11–20, but the dot cards are collected from 20 backwards.

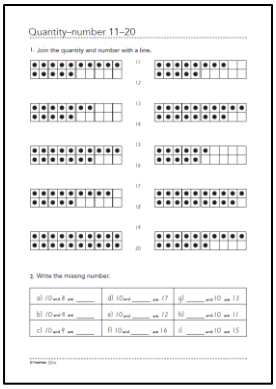
INDIVIDUAL WORK

AIM

- counting quantities 11–20, shortened counting, quantities 11–20 formed through ten

EQUIPMENT

- Worksheet: Quantity-number 11–20


Quantity–number 11–20

1. Join the quantity and number with a line.

2. Write the missing number.

a) 10 and 8 are ____	d) 10 and ____ are 17	g) ____ and 10 are 13
b) 10 and 6 are ____	e) 10 and ____ are 12	h) ____ and 10 are 11
c) 10 and 9 are ____	f) 10 and ____ are 16	i) ____ and 10 are 15

TEACHING SESSION 15

TEACHER-DIRECTED WORK

WARM-UP ACTIVITY

AIM

- recognising the missing number in a number sequence
- comparing numbers

EQUIPMENT

- Attachment: Number cards 1–20

TASK PROCEDURE

A) Place six consecutive number cards on the table so that one number is missing from the number sequence, e.g., 6, 7, 9, 10, 11, 12. Ask the children to close their eyes while you arrange the cards. *What number is missing?* Let everyone have a bit of time to think before anyone is allowed to say the answer. Repeat with different number sequences forwards and backwards.

B) Shuffle the number cards and place the deck on the table picture side down. The children get a turn picking to cards from the deck, and the task is to say which number is bigger (or smaller).

TASK 1. "BANG! Game"

AIM

- strengthening the quantity-number symbol correspondence

EQUIPMENT

- Attachments: 2 x Dot cards 11–20 and on set of Number cards 11–20

TASK PROCEDURE

The dot cards and number cards are shuffled as their own separate decks, and placed on the table. The top card from of the deck of number cards is turned over and named together. After this, the teacher turns one dot card at a time onto the table. When the number card and dot card match, the child says, "BANG!" (There's a hit, i.e., the quantity and the number symbol match.) The child who was the quickest to answer gets the number card. If someone says "bang" in the wrong place, they lose one of the number cards they have already collected. This card will be placed at the bottom of the deck of number cards. A new number card is then turned over and named, and so on. When all dot cards have been turned over, they are shuffled and made into a new deck. The game is finished when all the cards in the deck of number cards have been played. The player with the most cards at the end of the game is the winner. If it is unclear who said "bang" first, the number card is placed at the bottom of the deck, and a new number card is turned over.

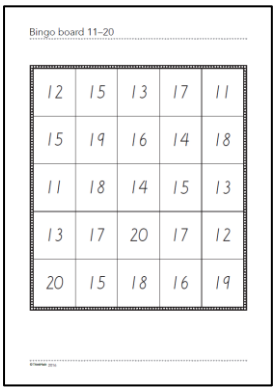
TASK 2. Bingo game

AIM

- counting quantities 11–20
- strengthening the quantity-number word- number symbol correspondence

EQUIPMENT

- counters
- Attachments: Dot cards 11–20, a Bingo board 11–20 for each player


Bingo board 11–20

12	15	13	17	11
15	19	16	14	18
11	18	14	15	13
13	17	20	17	12
20	15	18	16	19

TASK PROCEDURE

Shuffle the dot cards and hold the deck in your hand so the children don't see the quantities. Give each child a bingo board and counters.

Now, we'll play the Bingo game, and practice counting quantities quickly. I will show a dot card for a short while. Look carefully at the dots on the card. Then find the number that tells how many dots you saw, on your bingo board. Let's practice together: 13. (Show the card quickly for a few seconds.) *How many dots did you see? Now find the number thirteen on your board, and put a counter on it. When you get four counters on your board* (decide whether you are playing horizontal or vertical bingo, and show it on the game board)*, say "bingo". The first to shout "bingo" wins the round.*

NOTE

- If someone doesn't at first recognise the quantity, show the card again.
- You can emphasise the formation of the number through ten, and guide the child's attention quickly on how there is a full ten and then something else: the essential thing is to note how many more than ten there is on the card, and add that to ten. If necessary, let the child check the dots by counting; however, encourage them to count from ten (shortened counting). You can also play Bingo so that a number card 11–20 is show, and the number is said out loud. The child will find the same number on their game board.

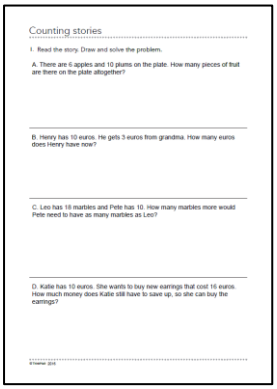
INDIVIDUAL WORK

AIM

- counting quantities 11–19
- shortened counting

EQUIPMENT

- Worksheet: Counting stories



Counting stories

I - Read the story. Draw and solve the problem.

A. There are 6 apples and 10 plums on the plate. How many pieces of fruit are there on the plate altogether?

B. Henry has 10 euros. He gets 3 euros from grandma. How many euros does Henry have now?

C. Leo has 18 marbles and Pete has 10. How many marbles more would Pete need to have as many marbles as Leo?

D. Katie has 10 euros. She wants to buy new earrings that cost 16 euros. How much money does Katie still have to save up, so she can buy the earrings?

