

# Mathematics through play



**CD-10 | Children show understanding of numbers and quantities during play and other activities.**

Younger preschool: 36-48 months Older preschool: 48-60+ months

A complete developmental-goal resource: exact indicators, seven short-session teaching sections, original printable play tools, observation rubrics, evidence records and family extension.

Use across days in brief, flexible play opportunities. No independent reading or written test is required. Adult support and accessible ways to communicate are built in.

North Carolina Foundations for Early Learning and Development (2013). Preschool developmental expectations, not K-12 Standard Course of Study codes or fixed mastery deadlines.

# Free sample | Contents

CD-10 | PreK mathematics

This sample contains 20 complete selected pages from the 29-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-11, 16-19, 25-29

Representative activities

P01: sample PDF page(s) 10; original page(s) 9

P02: sample PDF page(s) 11; original page(s) 10

P03: sample PDF page(s) 12; original page(s) 11

Supporting printable materials: original page(s) 16-19, 25-29

Using this sample

Read the preparation and access guidance before using a selected activity.  
Keep teacher keys and private preparation pages separate from student copies.  
Use the original resource contents to see the scope of the complete packet.

Complete paid download

The complete resource includes the full PDF task bank and teaching materials.

## TEACHER GUIDE

# Contents and teaching route

03 Exact goal and age-specific indicators

07 Preparation, access and safety

08 Coverage and selected-core route

09 Seven teaching sections

16 Four reusable printable play tools

20 Observation rubric and examples

22 Individual evidence record

23 Family extension and next steps

24 Sources and edition notes

Print the four play-tool pages and evidence record as needed. Keep teacher models and sample responses out of the child-facing materials. Adult prepares any pieces; children may use intact sheets with large classroom materials.

Suggested rhythm: days 1-2 invite, model and explore; days 3-4 centers and individual observation; later days targeted support and reflection. Each section is a 5-10 minute invitation, shorter if needed. Never combine this bank into prolonged seatwork.

Visual supplement: pp. 25-29. P02 quick-look cards (25), straight-line collections for younger 1-5 (26) and older 1-10 (26-27), and large movable block/food cards (28-29) for P03/P05 and mats on pp. 17/19. Original page references stay unchanged.

## YOUNGER PRESCHOOL | 36-48 MONTHS

# Exact developmental indicators

CD-10: Children show understanding of numbers and quantities during play and other activities.

**CD-10j**

Rote count in order to 10 with increasing accuracy.

**CD-10k**

Count up to 5 objects arranged in a line using one-to-one correspondence with increasing accuracy, and answer the question “How many?”

**CD-10l**

Compare visually two groups of objects that are obviously equal or unequal in quantity and communicate that they are the same or different, and which one has more (choose a plate with four cookies rather than a plate with one cookie).

**CD-10m**

Show they understand that adding objects to a group will make a bigger group, and taking away objects will make a smaller group.

Use these indicators to plan responsive experiences and notice development over time. They are not a test, official score cutoff or deadline for every child.

## OLDER PRESCHOOL | 48-60+ MONTHS

# Exact developmental indicators

CD-10: Children show understanding of numbers and quantities during play and other activities.

**CD-10n**

Rote count in order to 20 with increasing accuracy.

**CD-10o**

Without counting, state the number of objects in a small collection (1-3) (when a friend holds up two fingers, look at her hand and say, “Two fingers” without counting).

**CD-10p**

Count up to 10 objects arranged in a line using one-to-one correspondence with increasing accuracy, and answer the question “How many?”

**CD-10q**

Given a number 0-5, count out that many objects.

Use these indicators to plan responsive experiences and notice development over time. They are not a test, official score cutoff or deadline for every child.

## OLDER PRESCHOOL | 48-60+ MONTHS

# Exact developmental indicators

CD-10: Children show understanding of numbers and quantities during play and other activities.

**CD-10r**

Compare the amount of items in small sets of objects (up to 5 objects) by matching or counting and use language such as “more than” and “less than” to describe the sets of objects.

**CD-10s**

Show they understand that putting two groups of objects together will make a bigger group and that a group of objects can be taken apart into smaller groups.

**CD-10t**

Write numerals or number-like forms during play and daily activities.

**CD-10u**

Match numerals 1-5 to sets of objects, with guidance and support.

Use these indicators to plan responsive experiences and notice development over time. They are not a test, official score cutoff or deadline for every child.

## OLDER PRESCHOOL | 48-60+ MONTHS

# Exact developmental indicators

CD-10: Children show understanding of numbers and quantities during play and other activities.

**CD-10v**

Recognize some numerals and attempt to write them during play and daily activities.

**CD-10w**

Show understanding of first, next, and last during play and daily activities (answer questions about who is first and last to slide down the slide; say, “The engine is first, and the caboose is last” when making a train).

Use these indicators to plan responsive experiences and notice development over time. They are not a test, official score cutoff or deadline for every child.

## TEACHER GUIDE

# Prepare for purposeful play

## Before the invitation

Observe how each child already communicates, explores materials and joins play. No prerequisite screening is required. Choose familiar objects and a meaningful problem. Keep number ranges and age-band expectations on the activity card.

## Materials and safety

Use only large, age-appropriate, intact blocks, toys and paper cards. Avoid small counters, beads, coins and other choking hazards. Adult supervises and prepares pieces; keep scissors away unless separately supervised. Use lightweight stable structures and unobstructed accessible floor/table space. Never ask children to climb constructions.

## Access and communication

Offer spoken language, home language, sign, gesture, AAC, pointing, eye-gaze, drawing or construction as valid responses when they show the target idea. Provide tactile boundaries and high-contrast materials as appropriate. Record adult positioning or motor assistance separately from mathematical decisions.

## Teacher stance

Say: I wonder what you notice. Show me your idea. How could we check? Wait for a response before adding a prompt. Describe effort and strategy without ranking children. Follow the child interest and stop or switch when engagement ends.

## Observation practice

Write what the child actually said or did, the materials and quantities, and the support offered. Keep observations private. Ask before taking or sharing photographs when permission is not already established. Never fill an evidence record with the hypothetical examples in this packet.

## TEACHER GUIDE

# Coverage and selected-core route

P01 | Invite and explore | page 9

Counting parade Indicators: CD-10j, CD-10n

P02 | Adult model | page 10

One home for each bear Indicators: CD-10k, CD-10p, CD-10o

P03 | Shared exploration | page 11

Order for the toy cafe Indicators: CD-10q, CD-10t, CD-10u, CD-10v

P04 | Partner and center play | page 12

Same or more picnic Indicators: CD-10l, CD-10r

P05 | Individual observation | page 13

Make a group, change a group Indicators: CD-10m, CD-10s

P06 | Targeted support | page 14

Train station support Indicators: CD-10w, CD-10k, CD-10p

P07 | Reflect and revisit | page 15

Our cafe reopens Indicators: CD-10j, CD-10k, CD-10l, CD-10m, CD-10n, CD-10o, CD-10p, CD-10q, CD-10r, CD-10s, CD-10t, CD-10u, CD-10v, CD-10w

Each indicator is explicitly taught or revisited above. Use the exact age-band pages to distinguish younger and older expectations; mixed-age play does not make older indicators requirements for younger children. Collect evidence over multiple contexts, with fresh individual opportunities.

## P01 | INVITE AND EXPLORE | 5-10 FLEXIBLE MINUTES

# Counting parade

Targets: CD-10j, CD-10n

## Set up

Open floor space; optional large numeral display.

## Invite | first minute

Say: “Let us count as our pretend train moves. You can speak, sign, or use your counting device.”

## Adult model | about 1-2 minutes

Say and do: “I say one number for each slow beat: 1, 2, 3, 4, 5. Now I continue to 10. For older preschool, continue 11 through 20 without restarting.”

## Explore together, then play | about 2-4 minutes

Take turns leading a slow counting parade while seated or standing. Younger: practice the sequence through 10; older: through 20. Count aloud without objects so this evidence is about the number-word sequence.

## Notice one child | about 1-2 minutes

Invite one child to lead a fresh sequence. Record the exact last correct sequence and any skipped/repeated number; do not infer object-counting skill.

## Respond and support

If 6 is skipped, echo 4, 5, 6, 7 slowly, then invite a new turn later. Use rhythmic cues, home-language counting or AAC; note the support.

## Reflect or extend | optional final minute

Invite children to notice where a partner restarted or paused, without ranking children.

## P02 | ADULT MODEL | 5-10 FLEXIBLE MINUTES

# One home for each bear

Targets: CD-10k, CD-10p, CD-10o

## Set up

Five large toy animals for younger; ten for older; row mat; three large circle cards.

## Invite | first minute

Say: “Each animal needs one home. Touch each animal once and tell me how many.”

## Adult model | about 1-2 minutes

Say and do: “Move four animals onto four row spaces: one, two, three, four. Four tells how many altogether. I do not count an empty space. Briefly show two large circles: I see two without counting.”

## Explore together, then play | about 2-4 minutes

Younger partners arrange and count 1-5 animals in a line. Older partners count 1-10 in a line, then play quick-look with collections of 1-3. Do not show larger quick-look sets as an expectation.

## Notice one child | about 1-2 minutes

Ask each child How many? after their count. For older children show a fresh 1-3 collection without counting aloud; record whether the response was immediate or counted.

## Respond and support

If a child double-counts, separate animals and slide each counted animal forward. Accept eye-gaze or partner-assisted pointing; record who controlled each selection.

## Reflect or extend | optional final minute

Change the spacing of a line and recount; discuss whether moving objects changed how many.

## P03 | SHARED EXPLORATION | 5-10 FLEXIBLE MINUTES

# Order for the toy cafe

Targets: CD-10q, CD-10t, CD-10u, CD-10v

## Set up

Large toy food or blocks; numeral cards 0-5; paper menus; thick crayons.

## Invite | first minute

Say: “The puppet orders three pretend rolls. Can you prepare that many and make an order mark?”

## Adult model | about 1-2 minutes

Say and do: “With the 3 card, I count out three blocks and stop. For 0 I leave the tray empty. I match 3 to my set. I write a 3 on the order slip, saying that number-like marks can carry our message.”

## Explore together, then play | about 2-4 minutes

Older children take cafe roles: adult says a number 0-5; child counts out a set, matches numeral 1-5 with guidance, and attempts a numeral or number-like mark. Separately invite recognition of a familiar numeral. Younger children may play freely; these are older-band targets.

## Notice one child | about 1-2 minutes

Collect the child-created slip and record the spoken order, actual set, match support, numeral named and attempted form. Recognition, matching and mark-making are separate evidence.

## Respond and support

If the child keeps serving, repeat the requested quantity and offer a stopping tray. Present two numeral choices only as support. Do not require conventional handwriting or correct stroke order.

## Reflect or extend | optional final minute

Ask the child to create a new order and explain their marks to a partner.

## PLAY TOOL 1 | USE LARGE CLASSROOM OBJECTS

# A home for each object

Move one object to each home. Tell how many.

|   |   |   |   |    |
|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5  |
| 6 | 7 | 8 | 9 | 10 |

Adult: cover the second row for younger preschool. Use one straight row of up to 5 objects; for older preschool, place objects in a single line beside this sheet when counting 6-10. Printed numerals are supports, not required reading.

## PLAY TOOL 2 | COMPARE, JOIN OR SEPARATE

# Group A and group B

Show your groups. What changes?

Group A

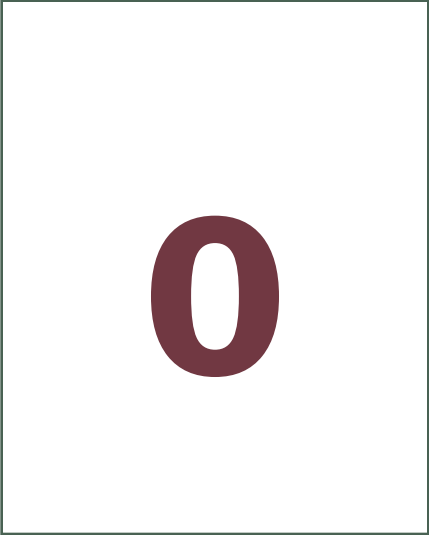
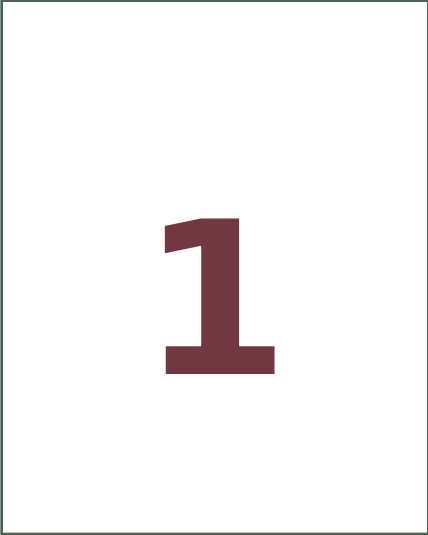
Group B

Together

PLAY TOOL 3 | ADULT PREPARES LARGE CARDS

## Cafe numeral cards

Match a card to your collection.

A white rectangular card with a thin black border, featuring the numeral 0 in a large, bold, dark red font centered on the card.A white rectangular card with a thin black border, featuring the numeral 1 in a large, bold, dark red font centered on the card.A white rectangular card with a thin black border, featuring the numeral 2 in a large, bold, dark red font centered on the card.A white rectangular card with a thin black border, featuring the numeral 3 in a large, bold, dark red font centered on the card.A white rectangular card with a thin black border, featuring the numeral 4 in a large, bold, dark red font centered on the card.A white rectangular card with a thin black border, featuring the numeral 5 in a large, bold, dark red font centered on the card.

PLAY TOOL 4 | MARKS, DRAWINGS OR DICTATION

# My cafe order

Make an order. Tell someone about it.

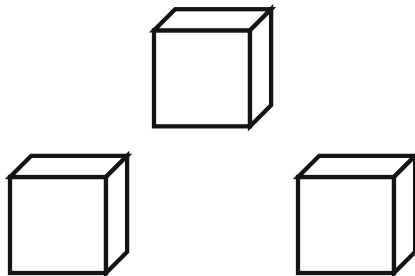
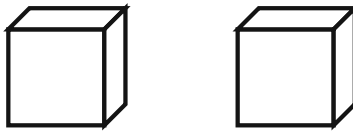
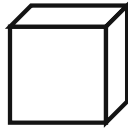
My order marks

My objects or drawing

## PICTURE TOOLS | SUPPORTED PLAY

# Quick-look block cards

P02 | Older preschool quick looks. Adult cuts the large cards apart. Show one card briefly; invite a response without counting aloud. Record recognition or counting. The card faces have no numeral labels.



## PICTURE TOOLS | SUPPORTED PLAY

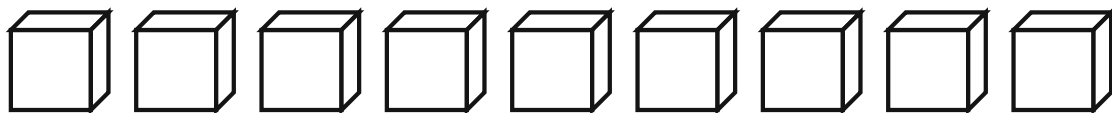
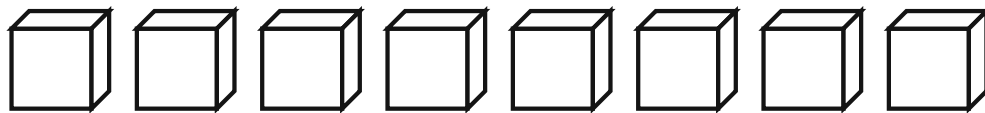
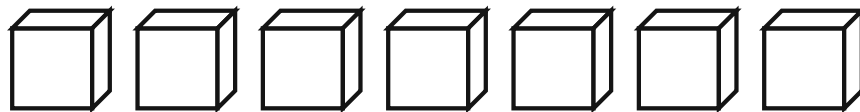
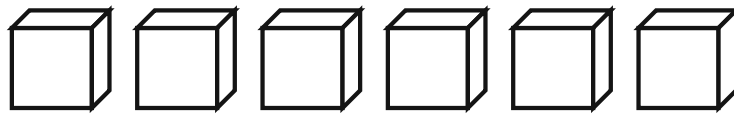
# Cafe collection cards

P02/P03 | Younger: count a line of 1-5. Older: match these collections with the numeral cards on p. 18. Adult separates large cards; show one at a time. Keep real objects for moving, making a requested set and checking correspondence.



## Longer counting lines

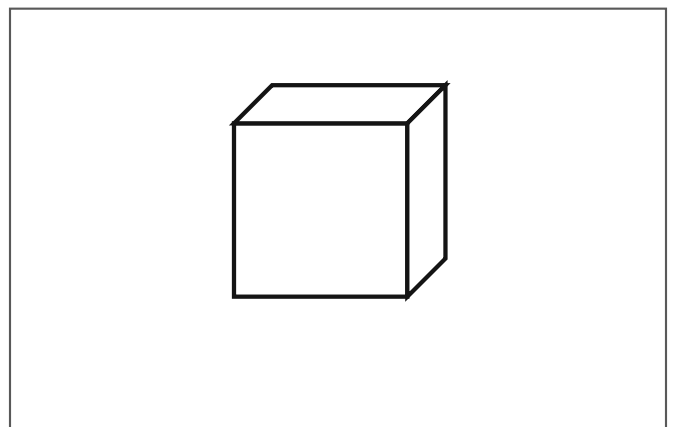
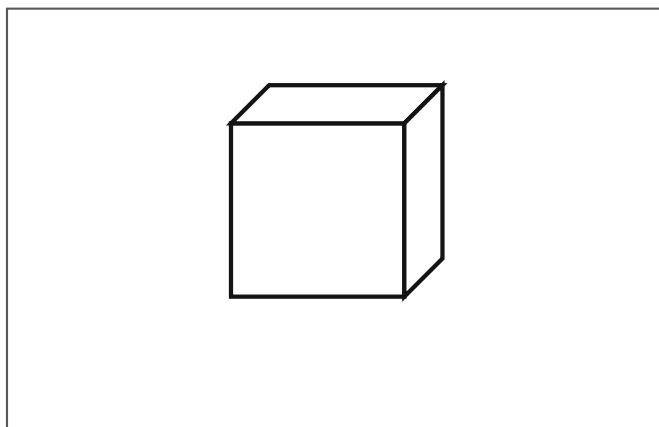
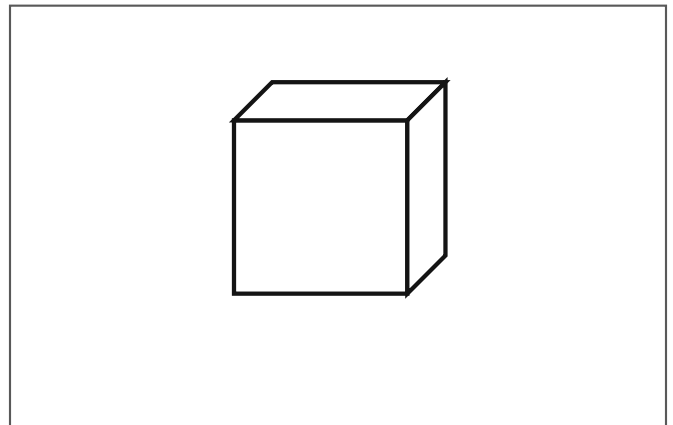
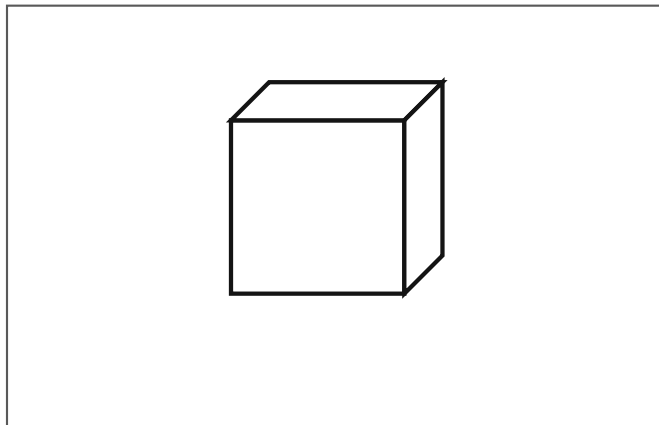
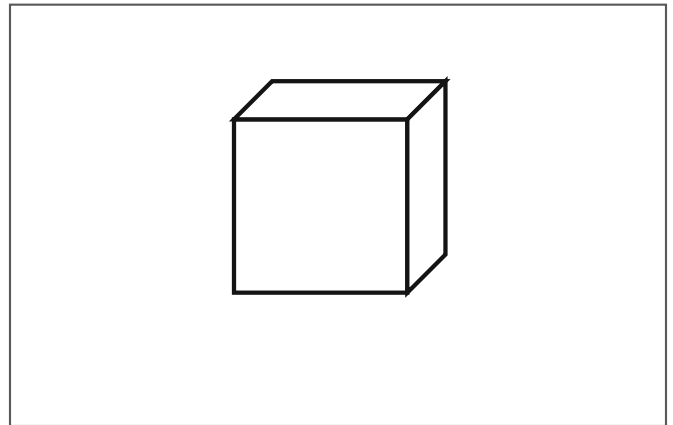
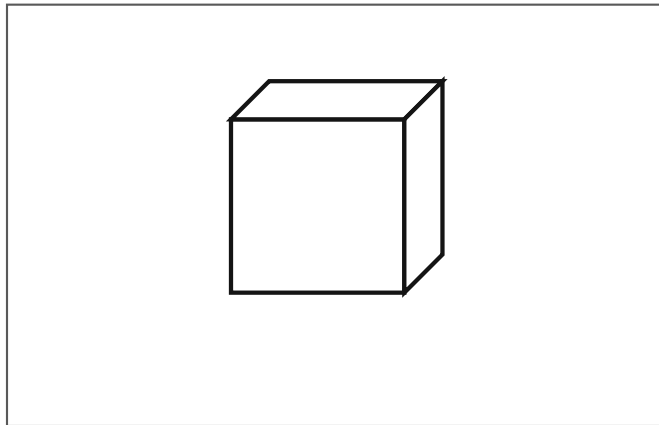
P02 | Older preschool: use these lines with the 1-5 collections on p. 26 for practice through 10. Touch each block once and tell how many. These are counting cards, not quick looks or younger-band expectations. Keep P01 oral counting separate.



## PICTURE TOOLS | SUPPORTED PLAY

# Large movable block cards

P03/P05 | Adult cuts OUTER rectangles only. Keep each picture on its large card. Copy another sheet for a larger supply; do not give only the requested number. Use with the open group/cafe mats (pp. 17/19); let the child choose and move pieces. Prefer large real objects for physical counting evidence.



## PICTURE TOOLS | SUPPORTED PLAY

# Large pretend-food cards

P03/P05 | Adult cuts OUTER rectangles only. Keep each picture on its large card. Copy another sheet for a larger supply; do not give only the requested number. Use with the open group/cafe mats (pp. 17/19); let the child choose and move pieces. Prefer large real objects for physical counting evidence.

