

What to print

- **Once, for yourself:** run.pdf, 1 page. Hold it while you run the session.
- **One copy per girl:** sheets.pdf, 3 pages. Sheet A and Sheet B. That is 2 pages per girl. Sheet C is optional.
- **You do not need:** pages 5 to 7 of this guide, the key. The session runs without it.

Guide, Counting What We Have

Group 4 to 30 · Materials: paper, pencil, found objects · SDG 4, 5 · EN edition · Released · Nameet Potnis, author and English editor

Before you enter the room

- **One move, one word. Nothing counted twice, nothing missed.**
- Gather about twenty objects per pair before the session. If you cannot, the first five minutes are the gathering.
- Nothing that fits inside a ring made by your thumb and first finger. Count every object back in at the end.
- Sheet C is for the 60 minute session only. For 30 or 45 minutes, print Sheets A and B.
- If you cut anything, never cut the heap: "Moving them did not change how many there are."

Read this once at home. In the room you only need the run sheet. Where this says "you", it means whoever is running the session: a teacher, a volunteer, an older sister.

Who it is for

- **For ages 4 to 7.** Girls who can say some number words and are learning to make those words match real things.
- **Numbers.**
- **Group size.** 4 to 30 girls, working in pairs.
- **Different levels in one room.** Change the size of the pile, never the task. A girl who is still learning the number words gets five objects and counts them until the answer stops changing. A girl who is secure to twenty gets twenty, and the job of checking her partner's count by a different route, for example counting in twos. Everyone is doing the same activity on the same floor with the same objects.

What you need

- Small found objects, about twenty per pair: pebbles and flat stones that fill a palm, large bottle tops, twigs snapped to a similar length, folded paper squares, leaves
- One learner sheet per girl, or plain paper
- One pencil per girl, or one shared between two
- **Free and optional:** a flat surface, which can be a desk, a mat, a cloth or swept ground
- **Nothing here costs money.**

Gather the objects before the session if you can. If you cannot, the first step becomes the gathering step and the session still works. Where the ground is windy or sloped, use folded paper squares torn from one sheet: they stay put where pebbles roll.

Why the session is shaped this way

Pair a confident counter with a girl who finds it hard. Tell the confident one that her job is to wait, not to help fast. Watching without speaking is a real job, and it is what stops one girl counting the whole pile for both of them.

The guess comes before the count. "A guess is not a mistake. We are about to find out." A girl who has guessed has already committed to a number, so the counting has a point. Take three guesses aloud so the group hears that guesses differ from each other.

One move, one word. Moving each object as the number word is said is the whole method. Nothing counted twice, nothing missed. Walk the room watching hands, not answers. The girl whose finger moves faster than her voice is the one to sit beside.

"So how many are there?" Ask it straight after every count. If she has to count again to answer, that is the thing to practise, and it is worth more of your minutes than a bigger pile. Knowing that the last word you said is the total is a separate step from counting accurately, and a girl can have one without the other.

The heap is the heart of the session. Push the counted objects together and ask how many there are now. Many girls will want to count again, so let them. Then ask: "Did we take any away?" and say it plainly: "Moving them did not change how many there are." When you are short of time, cut the last step, never this one.

The matched line makes the comparison honest. A spread out set looks bigger than the same number in a tight pile. Lining the two sets up one object across from one takes the illusion away, and the leftovers at the end of the longer line are the answer, and can be counted: "Three have nobody across from them, so she has three more."

Including everyone

A girl who cannot yet read. Nothing in this session needs reading. Every instruction is spoken, and every space on the sheets takes a number, a tally mark or a drawing. If she cannot write numerals, she draws one mark per object in the marks box and you write the numeral beside her marks. Counting aloud is the whole skill of this pack and she can do all of it, at the same standard as anyone else in the room.

A girl who joins late. Give her objects and add her to a pair, making a three. Tell her the task in one sentence: "Count your pile by moving one at a time." Every step stands on its own, so she can start at whichever one the room has reached and she has missed nothing she needs. Do not make her work through the earlier steps, and do not ask her to account for being late.

Boys in the room. Boys do the same activity and the same sheets. Watch two things so the session stays centred on the girls: who is holding the objects, and who answers "how do you know". If any confident girl or boy has taken over a pair's pile, hand the pile back to the other child and give the confident one the watcher job, which is a real job.

If it goes wrong

She counts faster than she touches, and gets a different answer every time. The number words are running ahead of her hands, so she skips some objects and counts others twice. Put your hand gently over hers and count three objects together, moving each one. Then give her five objects only, and let her count them until the answer is the same three times running. Do not tell her the correct number and do not count it for her. Shrink the pile, hold the rule "one move, one word", and grow the pile again when the answer stops changing.

The group decides that the spread out set has more. Objects scattered across a wide space look like more than the same number pushed into a heap, and a whole room can agree on this at once. Do not tell them the answer. Take the two sets, line them up in matched pairs in front of everyone, and ask again. If you have the minutes, spread one set out, ask, push it back together, ask again, and let them see that the number did not move. This is worth the time: it is the idea the rest of number work sits on.

Adapting it

- Use whatever the ground gives you. Palm-sized stones, large bottle tops, twigs, folded paper, leaves all work, and mixing them is fine, as long as each one passes the mouth check below.
- Shrink the pile for a girl who needs it and grow it for a girl who is ready. The task does not change.
- A girl who counts in twos is using a real method. Let her, then ask her to check it in ones.

Running it shorter or longer

30 minutes. 0 to 4 gather and guess, 4 to 12 count by moving, 12 to 18 group in fives, 18 to 26 compare two sets, 26 to 30 close. The piles stay at twelve objects rather than twenty, and the fives step gets cut to one round, so most girls meet the idea that moving objects does not change how many there are only once, which is rarely enough.

45 minutes. The clock on the run sheet.

60 minutes. 0 to 6 gather and guess, 6 to 18 count by moving, 18 to 30 group in fives, 30 to 44 compare two sets, 44 to 60 make twenty and close. In the last stretch each pair builds a set of exactly twenty on Sheet C, borrowing from a neighbouring pair if they need to. They arrange it as four fives, then as two tens, then check that it is still twenty. Each pair says one true sentence about twenty, for example "twenty is two tens".

Closing, in every version. Go round the group and each girl says one true number sentence about her own set: "I had fourteen", or "I had three more than my partner". Repeating what somebody else said is allowed. Gather the objects into one pile and count that pile together as a group if it is under twenty. If it is over twenty, say so, and say that bigger numbers come in a later session.

Keeping it safe

Objects are the whole material here, so check them first. Nothing goes in the mouth. Before you hand anything out, check it cannot fit inside a child's mouth: if it fits inside a ring made by your thumb and first finger it is too small for this room. Seeds, beads, coins and small bottle caps are out. Count what you handed out back in at the end. Folded paper squares, large bottle tops and flat stones that fill a palm all work and are safe. A four-year-old still puts things in her mouth when she is concentrating, so walk the room rather than watching from the front.

CC BY 4.0 · Potnis Family / potnis.org. Written and edited in English by Nameet Potnis. Copy, print, adapt and share with credit.

Key and facilitation cues

Answers and what to say, Counting What We Have

Answers

The numbers depend on the pile in front of each pair, so there is no answer sheet. What tells you a right answer from a lucky one is these four checks, and each takes about five seconds per girl.

Check	A secure answer looks like this
The count matches the objects	She counts the same set twice and gets the same number twice
The last word is the total	Asked "how many are there", she says her last number without counting again
Rearranging does not change it	After the heap in step 9, she gives the number without recounting, or she recounts and is unsurprised
Comparing is done by matching	She explains "more" by pointing at leftover objects, not at how big the pile looks

A girl can pass the first check and fail the second, so ask "so how many are there?" straight after every count.

Sheet A. Any guess is fine and is never wrong. The count box is correct if it matches her pile, and if it does not, do not write the right number: ask her to count again while you watch her hands. Her marks should number the same as her numeral, and where they disagree she has shown you exactly where the difficulty is. Lines of five times five, plus the left over, should equal her count, and a left over of five or more means another line of five is hiding in it. The heap count should match her first count. If it does not, the idea in step 10 has not landed yet, which is normal and takes more than one session.

Sheet B. More, fewer or same is correct if it matches her two numbers, even when her counting was wrong: judge the comparing, not the counting. How many more is the difference, and it should match the leftovers in the matched line. Accept a count of the leftovers even if she cannot subtract. For "how do you know", accept pointing, accept "these three had nobody next to them", accept "I counted fourteen and she counted eleven", and write her words for her if she wants them written. Make sure at least one pair in the room ends up with two equal sets, so the group meets the "same" case.

Sheet C. Any true statement about twenty counts: two tens, four fives, ten and ten, nineteen and one more, five more than fifteen. A girl who writes "twenty is a lot" has answered honestly. Ask one follow

up, "how many tens is that?", and accept what comes.

What you might see

What is on the page	What to offer next
Count box and marks box disagree, and the number changes each time she counts	A pile of five, counted until the answer holds still. Grow it to ten next session. The rule is one move, one word
Count is right, but she recounts whenever you ask how many	Ask "so how many?" straight after every count, every time, until she answers without recounting
Count, fives and comparison all hold, with a reason given for more or fewer	Twenty objects, counting in twos to check a partner, and Sheet C

Sticky points

What happens	What to say or do
She skips objects, or counts one twice	Hand over hand, three objects together, then a pile of five on her own
She says the number words out of order	Chant the count aloud as a group before she counts alone
She gets a different answer when the objects move	Repeat steps 9 and 10 with a small set. Give it time, not correction
She counts in twos and loses her place	Say that counting in twos is a real method, then ask her to check it in ones
She leaves the guess box empty for fear of being wrong	Write a deliberately silly guess of your own beside it, and move on
A confident partner counts the pile for her	Hand the pile back to her and give the confident one the watcher job
She asks whether she is good at maths	"You counted fourteen things and got it right twice. That is what counting is." Then move on

Say what you saw, never what she lacks: "Let us count these five together slowly", not "you keep making mistakes".

After the session

Keep the objects in a bag or a tin so the next numbers session starts without gathering. Sheet A tells you at a glance who needs a smaller pile next time: look for the girls whose count box and marks box disagree.

CC BY 4.0 · Potnis Family / potnis.org