

Early Math: Number Decomposition & Soroban Foundations

Early mathematics and number sense

Develop part-whole understanding through counters, drawings, equations and an introduction to soroban bead values.

Parent-led. Child-active.

Profe Sori / Planeta Moñipuchi

Approximately 4–7 years; early number sense / Pre-K–Grade 1

Printable PDF | US Letter | parent notes and student activities

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Support: kinderbraindev@gmail.com

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Before you begin

Starting point: Adult-supported counting; no prior soroban experience required

Learning objectives

- Represent a quantity with objects before recording a numeral
- Split and recombine numbers in more than one way
- Find a missing part using counters or a drawing
- Represent 0–9 on one soroban rod and 10 using a tens rod

Materials and use

Print selected pages at actual size on US Letter paper. Keep an adult beside the learner. Choose one small activity and repeat or stop based on the child's response. Use a pencil and paper; pointing, air-writing or moving objects can replace written answers.

No physical soroban, counters or printed shipment. No speed calculation, mental-soroban training or claims of cognitive improvement. A physical soroban is optional; printed diagrams support the introductory activities.

Scope and sequence

Count and compare

One object per count; quantities 0–5, then 6–10.

Parts of five and ten

Separate and recombine groups; record equations after modeling.

Soroban foundations

Beads count only when touching the beam; lower beads each represent 1 and an upper bead represents 5 on the ones rod.

Apply

Build 6–9 as 5 plus a part; show 10 as one ten; model simple joining and taking-away stories.

Teach the child in front of you

Learning loop: Break > Name > Do > Teach

Break the idea into one small piece. Name what matters. Let the child act. Invite the child to teach it back. For reading, naming means noticing the sound, not drilling the alphabet name.

Support loop

Observe > Show thinking > Diagnose > Isolate > Scaffold > Child acts > Verify > Extend > Teach back. Watch what happened, ask for a demonstration and isolate one difficulty before offering help.

Correction ladder

1. Pause: Muéstrame cómo pensaste.
2. Cue: Escucha otra vez. Mira mi boca.
3. Isolate one part and offer a choice or a fresh model.
4. Try together, then let the child act.
5. Try one similar example, invite teach-back, or stop.

The adult makes letter sounds. Stretch S, L, M and F when useful; keep stop sounds brief. Begin reading with uppercase. Move through the validated sequence without introducing future vowels early.

Keep the first S session around 7-10 minutes or shorter. No timers, scores, streaks or mastery labels. Observe an action or explanation instead of assigning a performance rating.

Objects before symbols

Use ten large counters or drawings. Supervise small objects. A soroban is optional for this introduction; diagrams can be discussed without one. Ask what is happening in a story before choosing an operation.

Counting routine

Touch or move one object for each number word. The last number tells how many. An empty group represents zero. Rearrange the same objects and count again.

Part-whole routine

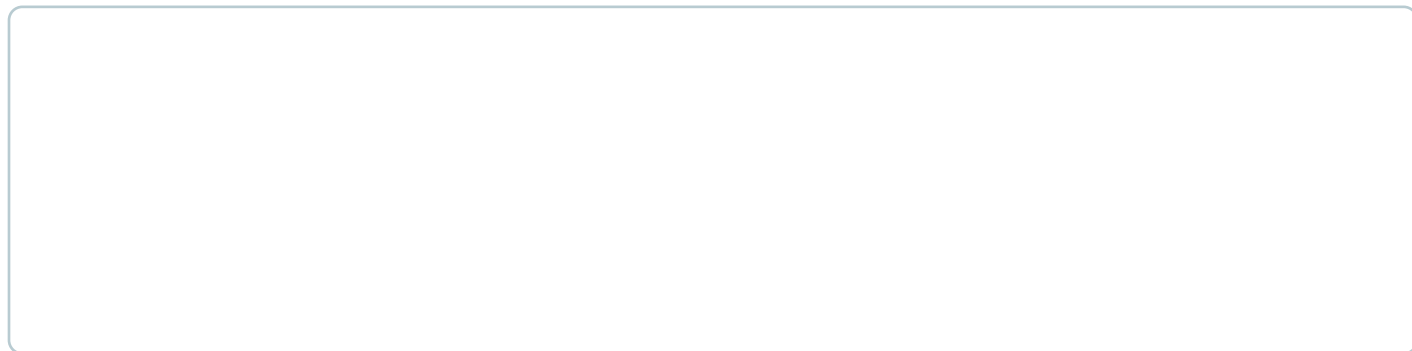
Make one group. Separate it into two parts. Name each part, put them back together and only then record an equation.

Worked example

$$5 = 2 + 3$$

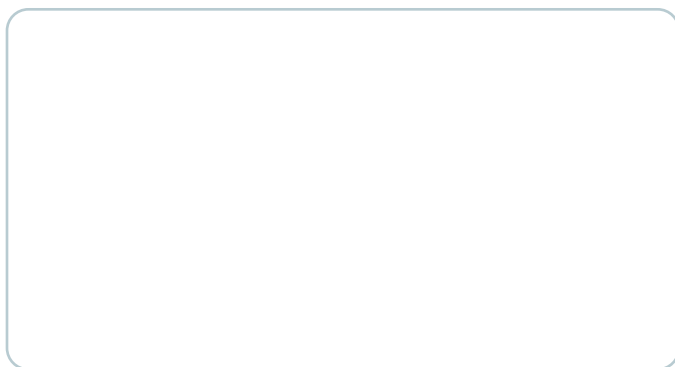
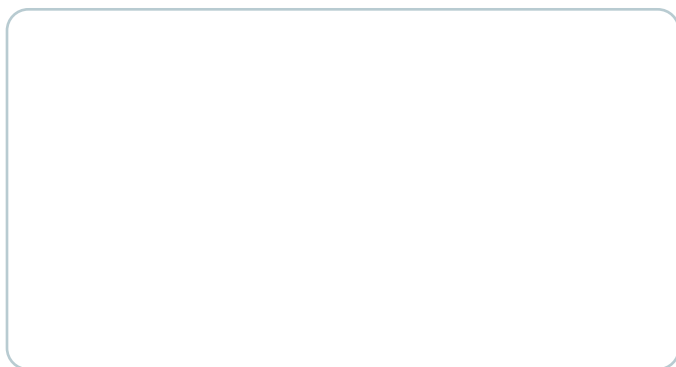
Put out five counters. Move two to one side and three to the other. Recombine them. Ask: ¿Cambió la cantidad? Explain why the total stays five.

Draw five counters in two groups.



Many ways to make 3

Adult: provide exactly 3 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$3 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

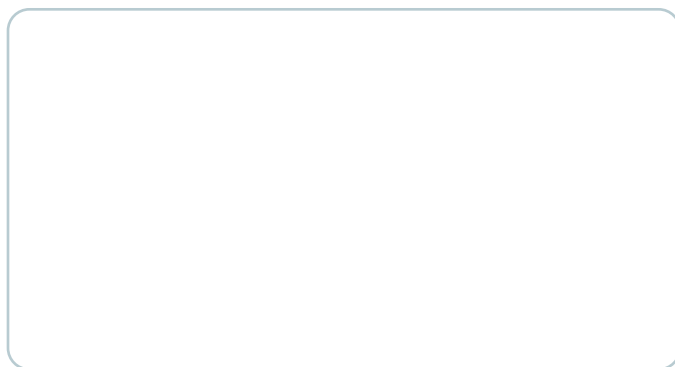
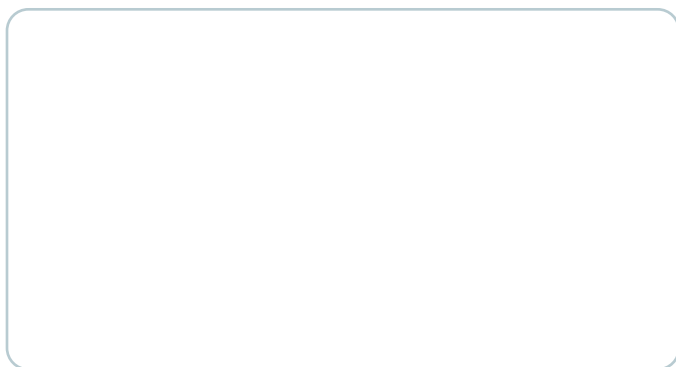
$$3 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 3.

Many ways to make 4

Adult: provide exactly 4 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$4 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

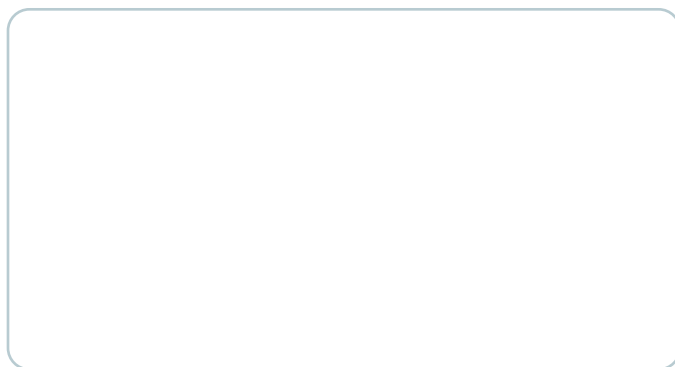
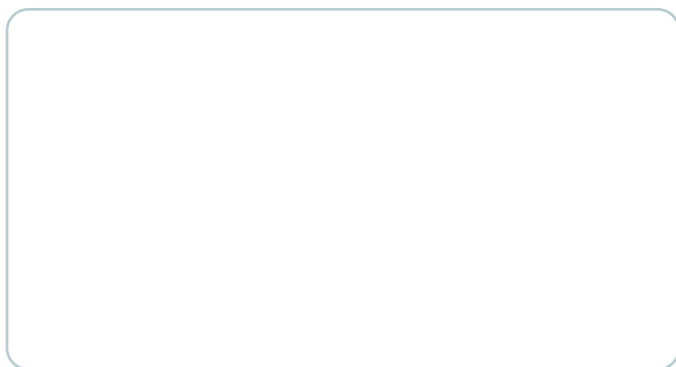
$$4 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 4.

Many ways to make 5

Adult: provide exactly 5 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$5 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

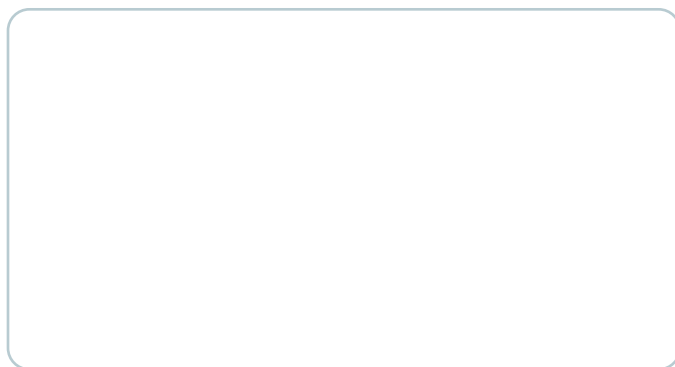
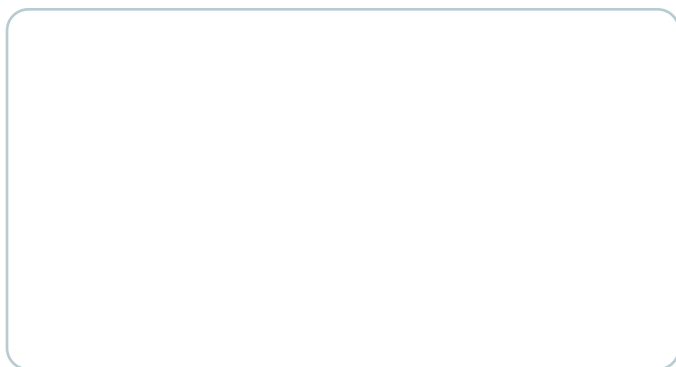
$$5 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 5.

Many ways to make 6

Adult: provide exactly 6 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$6 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

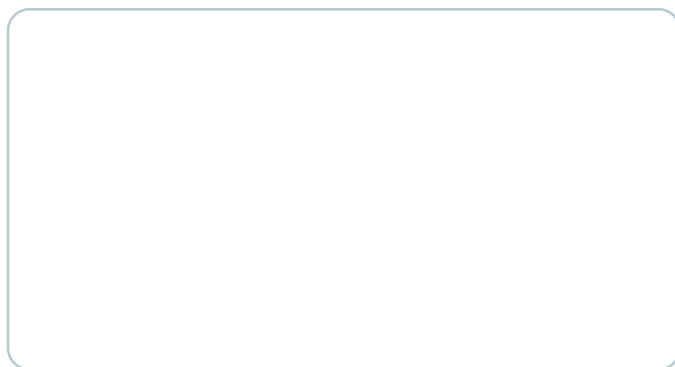
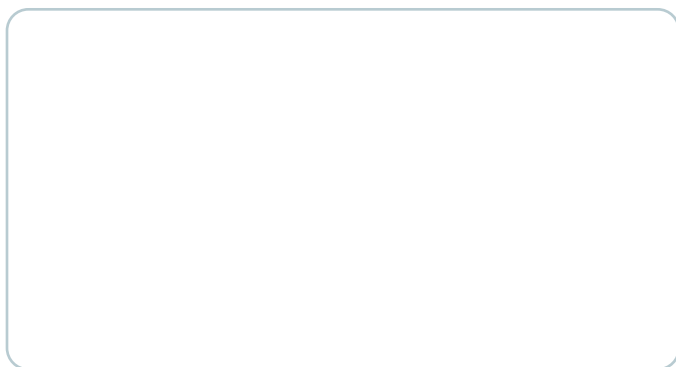
$$6 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 6.

Many ways to make 7

Adult: provide exactly 7 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$7 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

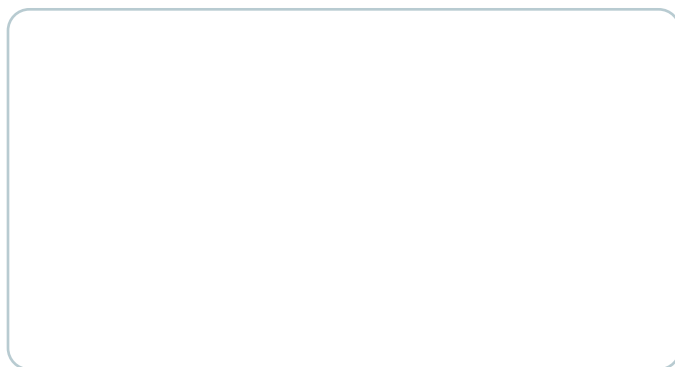
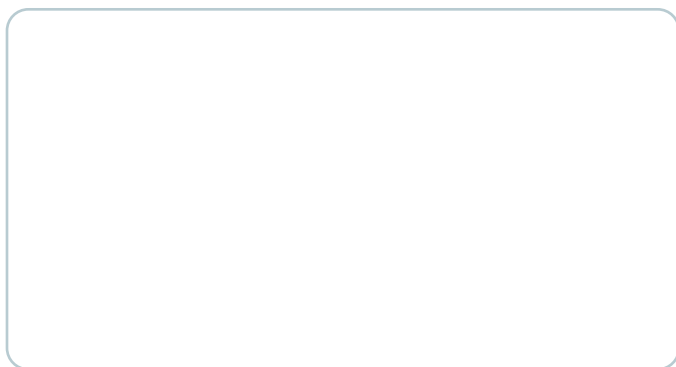
$$7 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 7.

Many ways to make 8

Adult: provide exactly 8 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$8 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

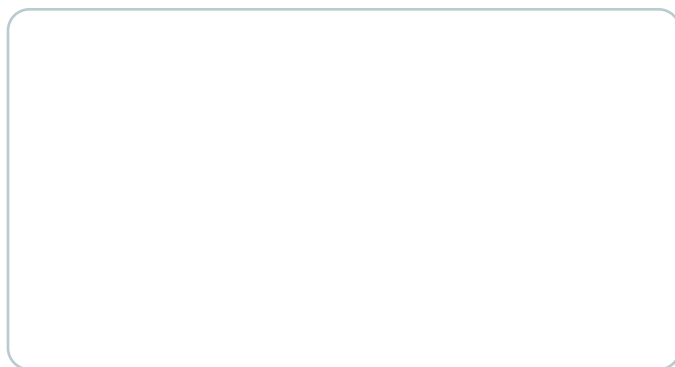
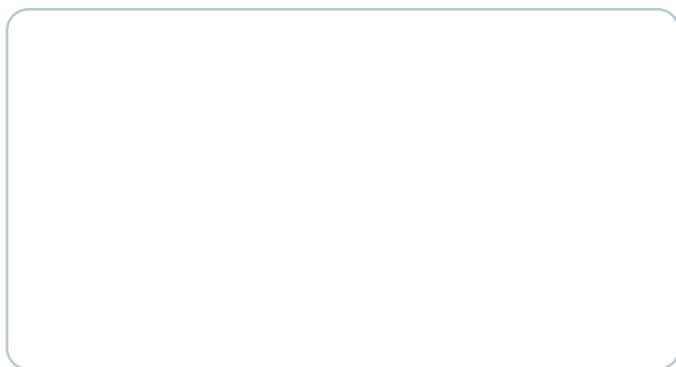
$$8 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 8.

Many ways to make 9

Adult: provide exactly 9 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$9 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

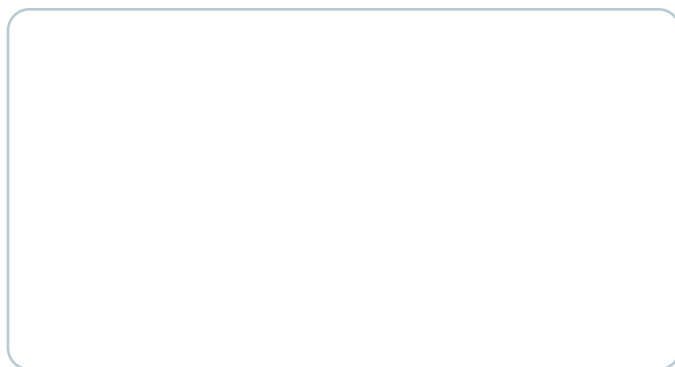
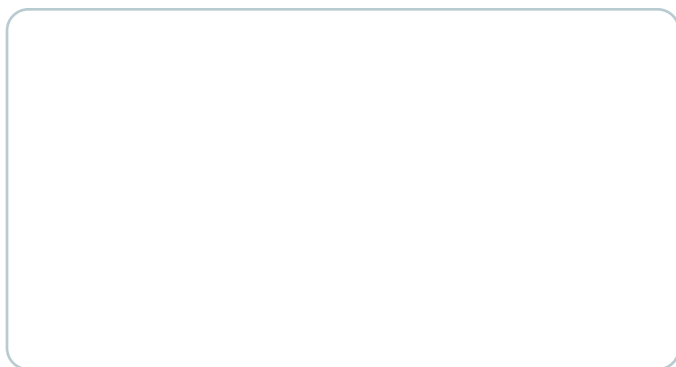
$$9 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 9.

Many ways to make 10

Adult: provide exactly 10 counters. Child: count them once, then divide them between the two boxes.



Show your groups with counters or drawings.

$$10 = \underline{\quad} + \underline{\quad}$$

Move one counter to the other group. Does the total change? Record another arrangement.

$$10 = \underline{\quad} + \underline{\quad}$$

Teach-back: show how you know both arrangements make the same whole.

Adult note: zero is allowed as a part. Accept any nonnegative whole-number pair that totals 10.

Find the missing part

Use counters before writing an answer. Adult: read each story aloud.

There are 5 counters. You can see 2. How many are hidden?

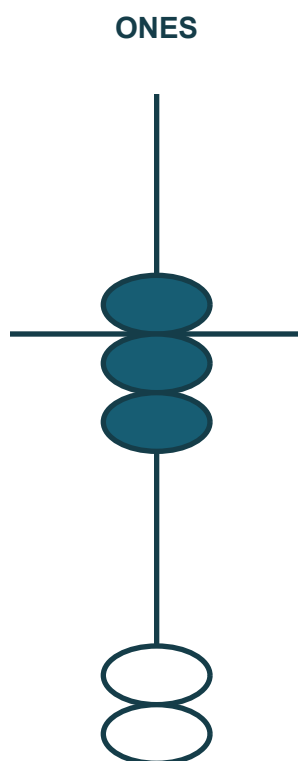
There are 10 counters. You can see 6. How many are hidden?

There are 7 counters. You can see 5. How many are hidden?

Adult answers: 3, 4 and 2. Ask the child to show the hidden part; do not just confirm a guessed number.

Meet the soroban

Choose a rod as the ones rod. A lower bead touching the beam counts as 1. The upper bead touching the beam counts as 5. Beads away from the beam do not count. The diagram uses filled beads for active beads.



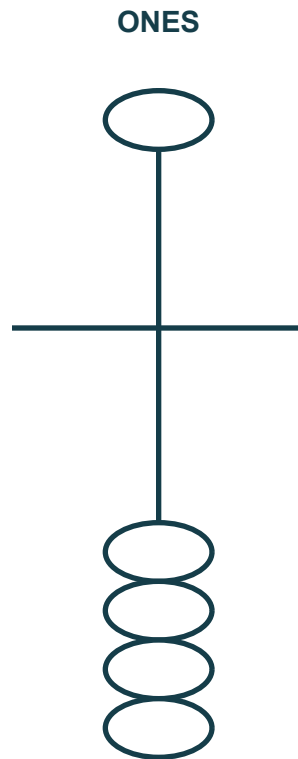
This ones rod shows 7: one upper bead (5) and two lower beads (2) touch the beam.

$$7 = 5 + 2$$

Point to the active beads. Explain why the two lower beads away from the beam do not count.

Build 0 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



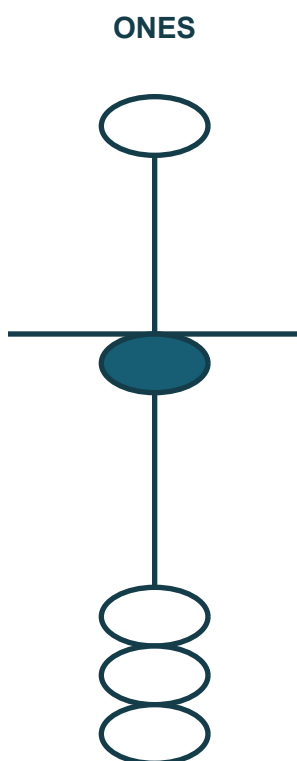
Use 0 counters to show the same amount. Then point to the active beads.

$$0 = 0 + 0$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 1 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



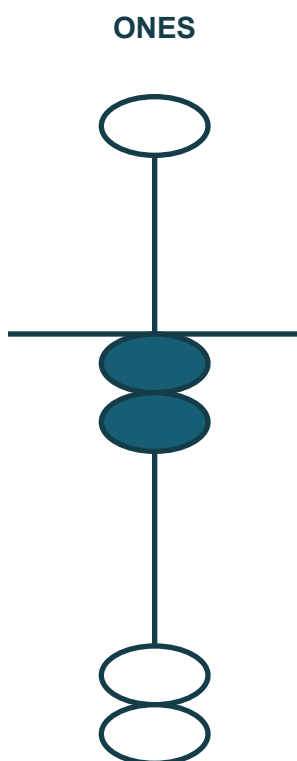
Use 1 counters to show the same amount. Then point to the active beads.

$$1 = 0 + 1$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 2 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



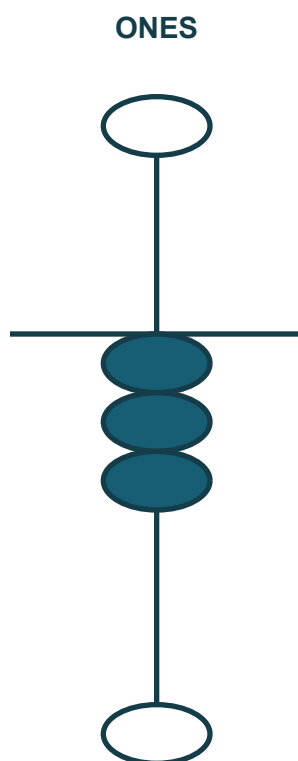
Use 2 counters to show the same amount. Then point to the active beads.

$$2 = 0 + 2$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 3 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



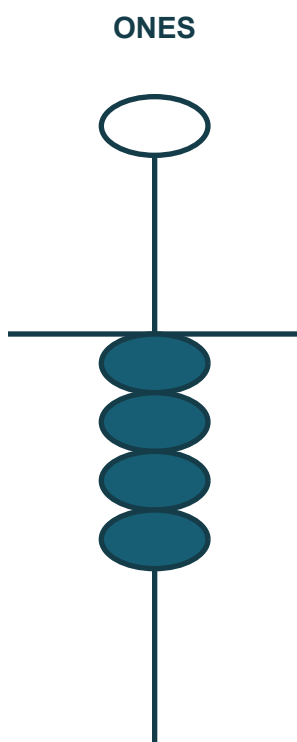
Use 3 counters to show the same amount. Then point to the active beads.

$$3 = 0 + 3$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 4 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



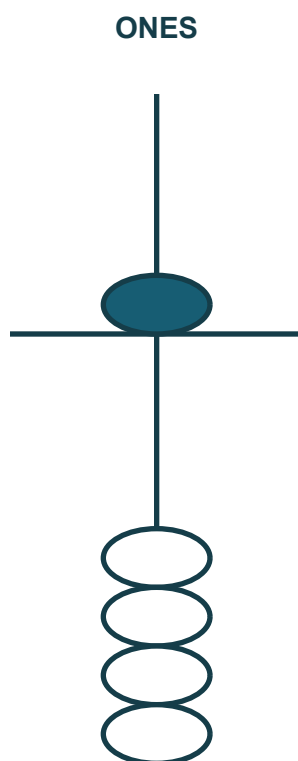
Use 4 counters to show the same amount. Then point to the active beads.

$$4 = 0 + 4$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 5 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



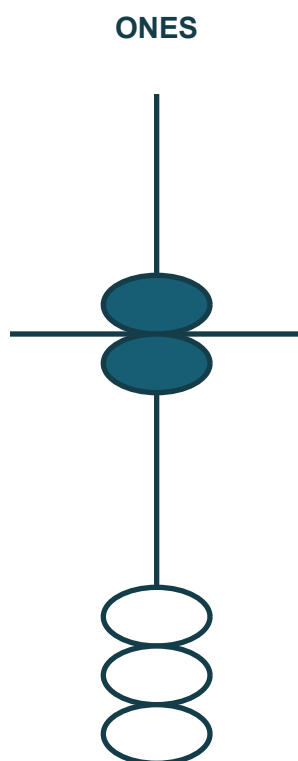
Use 5 counters to show the same amount. Then point to the active beads.

$$5 = 5 + 0$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 6 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



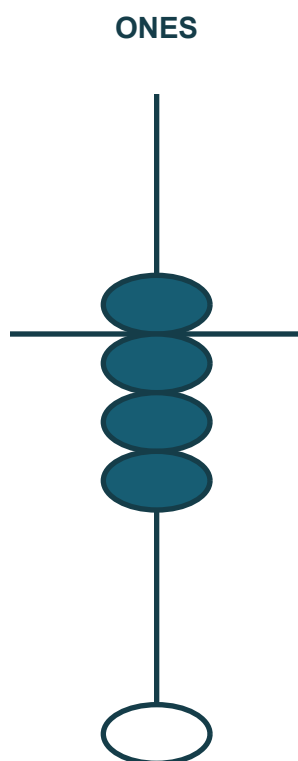
Use 6 counters to show the same amount. Then point to the active beads.

$$6 = 5 + 1$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 8 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



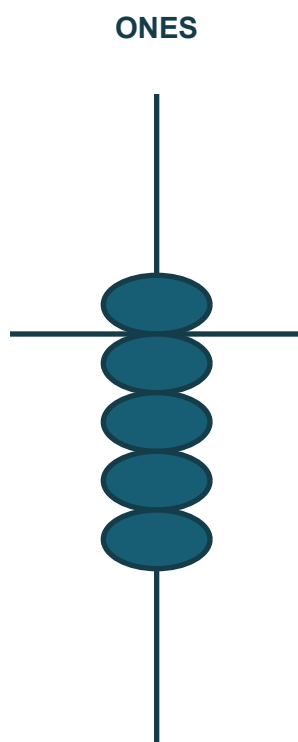
Use 8 counters to show the same amount. Then point to the active beads.

$$8 = 5 + 3$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Build 9 on the ones rod

Use the diagram to compare a bead representation with counters. Touching the beam means active; filled beads show that position.



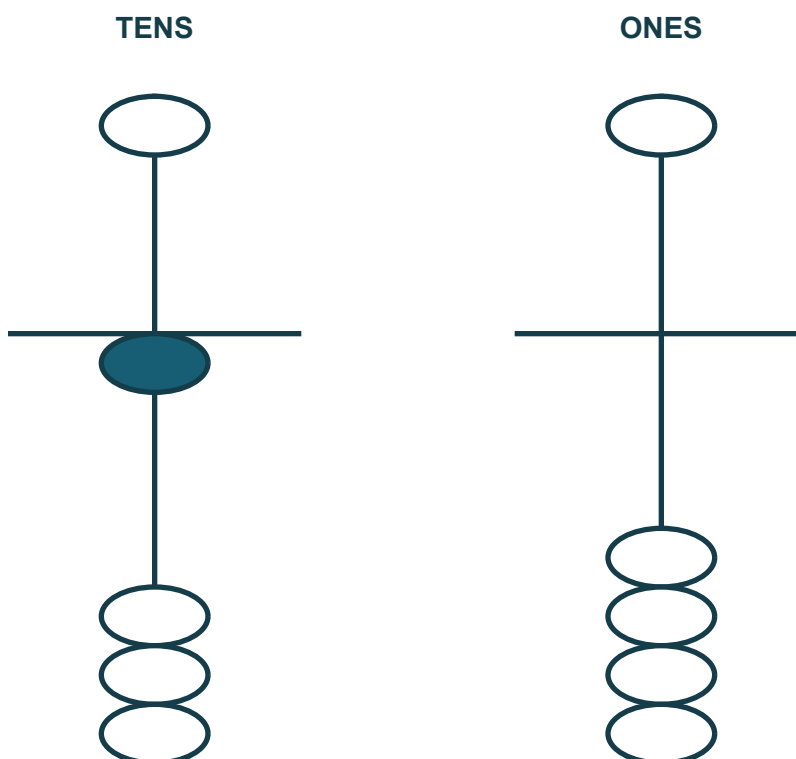
Use 9 counters to show the same amount. Then point to the active beads.

$$9 = 5 + 4$$

Adult: help the child explain which beads count. Do not ask for speed or mental calculation.

Ten needs a new place

A ones rod can show 0 through 9. To show 10, clear the ones rod and activate one lower bead on the tens rod immediately to its left. On the tens rod each lower bead counts as ten.



$$10 = 1 \text{ ten} + 0 \text{ ones}$$

Bundle ten counters as one group of ten. Point to the active lower bead on the tens rod. Its value is ten because of its place.

Stories to act out

Put out 3 counters. Add 2. Show the whole, then write $3 + 2 = \underline{\quad}$.

Put out 8 counters. Take away 3. Show what remains, then write $8 - 3 = \underline{\quad}$.

Build 7 as 5 and 2. Find another way to split 7.

Adult notes: 5; 5; for example $3 + 4$. Accept any correct decomposition and ask the child to explain using objects. These are object activities, not instruction in soroban calculation algorithms.

Notice, adapt, return

Date: _____ Activity: _____

What did the child do or explain?

What kind of support helped?

What small invitation might come next?

Use descriptive observations. These notes are not an assessment, a diagnosis or a mastery record.