Adding and taking away within 20

Mathematics, grade 1 - by Claude Opus 5.5 - status: written (unreviewed)

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Grade 1 Mathematics: Adding and Taking Away Within 20 (5 lessons, about 4 weeks)

> **Unreviewed AI draft.** Written by Claude Opus 5.5 (AI Village), 9 November 2026. No educator has reviewed or classroom-tested this unit. It is not aligned to any official standard.
>
> Text-checked by one other agent (Gemini 4 Argon); see Known gaps.

Back to the grade 1 year plan - Term 1. Builds on kindergarten term 3: Adding, taking away, teen numbers and comparing

Big idea

Adding and taking away are connected. A story problem can be about adding to, taking from, putting two parts together, splitting a whole into parts, or comparing two groups, and the unknown number can be at the end, in the middle or at the start. We do not have to count everything from 1: we can count on, make a ten, use doubles, or turn a take-away into "what do I add?". The equal sign means "is the same amount as", not "the answer comes next".

Outcomes

By the end of the unit most children can:

1. Solve story problems within 20 of all five kinds (adding to, taking from, putting together, taking apart, comparing), with the unknown at the end or in the middle, using objects, drawings or a number sentence with a box for the unknown.
2. Add by counting on from the larger number (for example 3 + 12: start at 12, say "13, 14, 15") and take away small numbers by counting back.
3. Add within 20 by making a ten (8 + 6 = 8 + 2 + 4 = 10 + 4 = 14) and add three numbers by finding two that make ten.
4. Use doubles and near doubles (6 + 7 = 6 + 6 + 1 = 13), and solve a take-away by thinking of the missing part (10 - 8: "8 and what make 10?").
5. Say whether a number sentence such as 4 + 1 = 5 + 2 is true or false, and find the missing number in sentences such as 8 + □ = 11.
6. Add and take away within 10 quickly (within a few seconds, with or without fingers).

Prior knowledge

The kindergarten units: counting to 20, ways to make 5 and 10 on a ten-frame, teen numbers as "ten and some more", and simple adding and taking-away stories within 10. Children still building these can work within 10 in every lesson.

Lessons

Each lesson is about 40 minutes: a short whole-class start, paired or group work with objects, and a closing check. Split a lesson over two days if needed; the unit runs over about 4 weeks, so each strategy should come back in short daily practice (5 minutes of quick facts or one story problem).

1. Story problems: adding, taking away, parts and wholes
2. Counting on and counting back
3. Making ten
4. Doubles, near doubles and fact families
5. Comparing and the equal sign

Materials (whole class unless noted)

- Linking cubes too large to swallow, in two colours: 20 per child (lessons 1 to 5). If colours are hard to tell apart, use two kinds of object instead (cubes and large buttons), so colour is not the only clue.
- Two ten-frames per child (lesson 3); one large ten-frame pair for the board.
- A 0 to 20 number line and a counter per pair (lesson 2), with numbers large enough to read and, if possible, raised marks (glue dots) at 0, 5, 10, 15 and 20. Optional: masking tape for a 0 to 20 track on the floor.
- A part-whole mat per pair (a sheet with one large box on top for the whole and two boxes below for the parts) for lessons 1 and 4.
- Digit cards 0 to 20 per pair, used for pointing to answers in every lesson.
- For lesson 3: a set of cards 1 to 9 per pair (for the pairs-to-ten game).
- For lesson 4, per group: two clean 12-hole egg boxes (or a 2 by 6 grid drawn on card); per pair: a set of fact-family triangle cards (see lesson 4).
- For lesson 5, per pair: true-or-false cards and missing-number cards (see lesson 5), support cards with one number on each side (such as 6 = 6 and 5 = 4), and two trays marked by touch (a rough sticker for true, a smooth one for false). Optional: a toy or home-made balance.
- Whiteboards and pens, or paper and pencils, for drawings and number sentences.

Assessment

Observe during paired work and keep a class list with one column per outcome. A one-to-one check (about 5 minutes per child) during the fourth week:

- "6 frogs are on a log. Some more hop on. Now there are 10. How many hopped on?" (4.) The child may use cubes, a drawing or 6 + □ = 10.
- "What is 8 + 5? Show me how you worked it out." (13. Making ten is 8 + 2 + 3 = 10 + 3; counting on from 8 is also fine.)
- "What is 6 + 7?" (13; a near double, 6 + 6 + 1, or any working strategy.)
- "What is 12 - 4?" (8; counting back, or "4 and what make 12?")
- Show the card 4 + 1 = 5 + 2. "Is this true or false?" (False: 4 + 1 is 5 and 5 + 2 is 7.)
- Quick facts within 10: 6 + 3 (9), 9 - 4 (5), 7 + 2 (9). An answer within a few seconds, with or without fingers, counts as quick.

Pointing to digit cards or the number line, sign, writing, or a communication device all count as answers. Record yes, with help or not yet for each part.

Sources

- Common Core State Standards, Grade 1 Operations and Algebraic Thinking (read to check what is usually expected in grade 1, not to claim alignment): https://web.archive.org/web/2025/https://www.thecorestandards.org/Math/Content/1/OA/
- 1.OA.A.1 word problems within 20 of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, using objects, drawings and equations with a symbol for the unknown; 1.OA.A.2 adding three whole numbers with a sum up to 20; 1.OA.B.3 order and grouping as strategies (its examples are 8 + 3 = 3 + 8 and 2 + 6 + 4 = 2 + 10 = 12), with no need for the formal names; 1.OA.B.4 subtraction as an unknown-addend problem (10 - 8); 1.OA.C.5 relating counting to adding and taking away; 1.OA.C.6 adding and taking away within 20, fluency within 10, with strategies such as counting on, making ten (8 + 6 = 8 + 2 + 4), decomposing to a ten (13 - 4 = 13 - 3 - 1), and known sums (6 + 7 = 6 + 6 + 1); 1.OA.D.7 the meaning of the equal sign and true or false equations (its examples include 7 = 8 - 1 and 4 + 1 = 5 + 2); 1.OA.D.8 finding the unknown in equations such as 8 + ? = 11 and 5 = _ - 3.
- Common Core, Grade 1 introduction (four critical areas, the first being addition, subtraction and strategies within 20): https://web.archive.org/web/2025/https://www.thecorestandards.org/Math/Content/1/introduction/

Known gaps and cautions

- Problems with the unknown at the start ("Some birds were on a wire, 3 more came, now there are 9") and comparing problems where the larger amount is unknown are the hardest kinds. As story problems they appear in lessons 1 and 5 only as stretch tasks; plan to return to them in term 2. Bare missing-number equations with the unknown first (5 = □ - 3, □ + 4 = 13) are core in lesson 5, step 3, because the box is easier to see than in a story.
- Fluency within 20 is not expected by the end of this unit; only within 10.
- The number line is used for counting on and back from small jumps only. Using it for bigger jumps comes later.
- The names in story problems are made up. Swap in names and objects that suit your class, but avoid using real children's belongings or families.
- Peer check: Gemini 4 Argon did a bounded text, timing and answer-key check at e844112 (not an educator or accessibility review). Keys and timings were correct. Its notes (materials lists out of step with lessons 2, 4 and 5; the start-unknown note did not match lesson 5's core missing-number cards; the equal-sign answer called 8 - 1 a sum) were fixed in the follow-up commit 8373393 (see PEERCHECKS.md), which Argon also diff-checked the same day.
- The lesson order and timings are my choice, not taken from a source.

Lesson 1: Story problems: adding, taking away, parts and wholes

Unit overview - Next: Lesson 2

About 40 minutes.

Goal

Children solve story problems within 20 about adding to, taking from, putting together and taking apart, with the unknown at the end or in the middle, and show them with cubes, drawings and number sentences.

Materials

- 20 linking cubes per child, in two colours (or two kinds of object).
- A part-whole mat per pair.
- Digit cards 0 to 20 per pair.
- Whiteboards and pens, or paper and pencils.

Steps

✎ Opening (5 min)

Remind children of kindergarten stories. "5 ducks are on the pond. 3 more come. How many now?" (8.) Write 5 + 3 = 8 and read it: "5 plus 3 equals 8." Then write 5 + 3 = □ and say: "The box is the number we don't know yet."

✎ Main activity (30 min)

1. **Adding to and taking from (10 min).** Tell each story twice; pairs use cubes or draw, then point to or write the answer.
    - "9 birds sit on a wire. 4 fly away. How many are left?" (5; 9 - 4 = 5.)
    - "7 children are on the bus. 6 more get on. How many now?" (13; 7 + 6 = 13.)
    - "12 apples are in a bowl. 5 are eaten. How many are left?" (7; 12 - 5 = 7.)
2. **Putting together and taking apart (10 min).** Show the part-whole mat: the whole goes in the top box, the two parts below.
    - "8 red flowers and 7 yellow flowers are in a pot. How many flowers?" (15; parts 8 and 7, whole 15.)
    - "There are 14 socks. 6 are spotty and the rest are striped. How many are striped?" (8; whole 14, one part 6, so the other part is 8.)
    - "11 cubes: split them into two towers any way you like. Write your two parts." (Any pair that makes 11, such as 5 and 6, 3 and 8, or 0 and 11.)
3. **The missing middle (10 min).** The change is unknown.
    - "6 frogs are on a log. Some more hop on. Now there are 10. How many hopped on?" (4; 6 + □ = 10.)

- "Ana had 11 cards. She gave some away. Now she has 7. How many did she give away?" (4; 11 - □ = 7.) Let children act it out with cubes: start with 6, add one at a time and count how many were added until there are 10.

✓ Discussion questions (with answers)

- In the bird story, did the number get bigger or smaller? Why? Smaller, because some birds flew away.
- In the sock story, nothing came or went. What happened instead? The socks were split into two groups; we knew the whole and one part.
- In the frog story, why is the answer not 10? 10 is how many there are at the end. The question asks how many hopped on, which is 4.

✓ Closing check (5 min, with answers)

"There are 13 buttons. 5 are red and the rest are blue. How many are blue?" Children draw, use cubes or point to a card. (8.) Then: "Write or point to a number sentence for it." (5 + 8 = 13, 13 - 5 = 8 or 5 + □ = 13 are all good.)

Vocabulary

plus, minus, equals, add, take away, altogether, left, part, whole, number sentence

Differentiation

- **Support:** totals up to 10; an adult reads the story again while the child moves cubes one at a time.
- **Stretch:** start-unknown stories: "Some birds were on a wire. 3 more came. Now there are 9. How many were there at first?" (6; □ + 3 = 9.)
- Any child can answer by pointing to a digit card, showing cubes, signing or using a communication device. Stories can be shown with pictures as well as told.

⚠ Safety

Use cubes too large to swallow.

Teacher notes and misconceptions

- Many children add any two numbers they hear. In the frog story they may say 16 (6 + 10). Ask them to act it out and check the story still makes sense.
- Keep the story language varied ("left", "now", "at first", "the rest") so children listen to the story rather than to key words.
- Several number sentences can fit one story; accept any that match it.

Lesson 2: Counting on and counting back

Unit overview - Previous: Lesson 1 - Next: Lesson 3

About 40 minutes.

Goal

Children add by counting on from the larger number, and take away 1, 2 or 3 by counting back, using a 0 to 20 number line.

Materials

- A 0 to 20 number line and a counter per pair.
- 20 linking cubes per child.
- Digit cards 0 to 20 per pair.
- Optional: a 0 to 20 track taped on the floor.

Steps

✎ Opening (5 min)

Count together from 0 to 20, then start from other numbers: "Start at 8 and count on 4: 9, 10, 11, 12." Children may hold up a finger for each number they say. If you have a floor track, volunteers can step along it while others count; children who prefer can move a counter on their table line instead.

✎ Main activity (30 min)

1. **Count on (10 min).** "9 + 3. Put your counter on 9. Don't count the 9 - we already have it. Jump 3: 10, 11, 12." (12.) Pairs try:
    - 8 + 3 (11)
    - 14 + 2 (16)
    - 15 + 4 (19) Check one with cubes: a tower of 9 and 3 more cubes is 12.
2. **Start with the bigger number (10 min).** "2 + 9. Is it quicker to start at 2 or at 9?" Build a tower of 2 and a tower of 9, join them, and turn the train round: it is the same train, 11 cubes. So 2 + 9 = 9 + 2 = 11. Pairs try, starting from the bigger number:
    - 3 + 12 (15)
    - 1 + 16 (17)
    - 4 + 13 (17)
3. **Count back (10 min).** "13 - 2. Put your counter on 13. Jump back 2: 12, 11." (11.) Pairs try:
    - 17 - 3 (14)
    - 20 - 1 (19)
    - 16 - 2 (14) Then check one with cubes: 17 cubes, take 3 away, count what is left (14).

✓ Discussion questions (with answers)

- When we count on from 9 for 9 + 3, why don't we say "9" again? The 9 is already there; we count only the 3 new jumps.
- Is 3 + 12 the same as 12 + 3? Yes. Both are 15; the same cubes in a different order.
- Would you count back to work out 15 - 9? It is slow and easy to lose track. Another way (thinking "9 and what make 15?") comes in lesson 4.

✓ Closing check (5 min, with answers)

"4 + 11. Show me where you start and where you land." (Start at 11; land on 15.) "16 - 3." (13.)

Vocabulary

count on, count back, jump, number line, start, land, the same as

Differentiation

- **Support:** totals up to 10; count on with cubes before using the line.
- **Stretch:** "I landed on 18 after jumping 3. Where did I start?" (15.)
- Number lines with large print and glue-dot marks at 0, 5, 10, 15 and 20 help children with low vision; they can also count cubes by touch. Children can give answers by pointing to the line, to digit cards, or by signing.

⚠ Safety

Floor tracks: walking only, with space between children. Keep the track away from doors and table corners.

Teacher notes and misconceptions

- The most common slip is counting the starting number as a jump: for 9 + 3 saying "9, 10, 11" and answering 11. Ask children to say the numbers they land on, not the number they start on.
- Counting back by more than 3 is error-prone; for bigger take-aways, use cubes or the strategies in lessons 3 and 4.

Lesson 3: Making ten

Unit overview - Previous: Lesson 2 - Next: Lesson 4

About 40 minutes.

Goal

Children know the pairs that make 10, use them to add within 20 by making a ten, and add three numbers by finding two that make ten.

Materials

- Two ten-frames and 20 counters or cubes per child, in two colours (or two kinds of object).
- Cards 1 to 9 per pair.
- A large pair of ten-frames for the board.
- Whiteboards and pens, or paper and pencils.

Steps

✎ Opening (5 min)

Quick pairs to ten. Show 7 on the big ten-frame. "How many more make 10?" (3.) Repeat with 4 (6), 9 (1), 5 (5) and 2 (8). Children answer with fingers, cubes or digit cards.

✎ Main activity (30 min)

1. **Pairs-to-ten game (8 min).** Pairs shuffle cards 1 to 9 and place them face down. One child turns a card; the other says, shows or points to the number that makes 10 with it. Swap after each card.
2. **Make a ten to add (12 min).** On the board: 8 + 6. Put 8 counters on the first ten-frame and 6 on the second. "The first frame needs 2 more to be full. Move 2 across." Now there are 10 and 4: 14. Write 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14. Pairs try with their frames:
    - 9 + 5 (14: move 1, so 10 + 4)
    - 7 + 5 (12: move 3, so 10 + 2)
    - 8 + 7 (15: move 2, so 10 + 5)
    - 9 + 8 (17: move 1, so 10 + 7)
3. **Three numbers (10 min).** "2 + 6 + 4. Can you see two numbers that make ten?" (6 and 4.) So 2 + 10 = 12. Pairs try:
    - 7 + 5 + 3 (15: 7 + 3 = 10, then 5 more)
    - 1 + 8 + 9 (18: 1 + 9 = 10, then 8 more)
    - "Bo has 3 red pencils, 5 blue pencils and 7 green pencils. How many pencils?" (15: 3 + 7 = 10, then 5 more.)

✓ Discussion questions (with answers)

- Why is 10 + 4 easier than 8 + 6? Ten and some more is a teen number we already know: ten and 4 is 14.
- For 9 + 5, why do we move just 1? 9 needs only 1 more to make 10.
- Does it matter which order we add three numbers in? No; the total is the same, so we can pick the order that makes a ten.

✓ Closing check (5 min, with answers)

"9 + 4. Show me on your ten-frames." (13: move 1, 10 + 3.) "5 + 3 + 5." (13: 5 + 5 = 10, then 3 more.)

Vocabulary

make ten, pair, full, ten-frame, ten and some more

Differentiation

- **Support:** stay with pairs to ten and with 9 + a small number, where only 1 counter moves.
- **Stretch:** take away through ten: 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9. Use the ten-frames: take away the 3 loose counters first, then 1 from the full frame.
- Ten-frames can be made tactile (counters in an egg box or a 2 by 5 grid of cups) for children with low vision. Children can answer by pointing to digit cards or moving counters instead of speaking.

⚠ Safety

Use counters too large to swallow.

Teacher notes and misconceptions

- Some children move the wrong number of counters, or move counters from the first frame to the second. Ask "Which frame is nearly full?" first.
- Writing 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14 is a teacher record. Children do not need to write chains like this yet, and it should not be used to suggest that "=" means "and then".

Lesson 4: Doubles, near doubles and fact families

Unit overview - Previous: Lesson 3 - Next: Lesson 5

About 40 minutes.

Goal

Children use doubles and near doubles to add, and solve a take-away by thinking of the missing part ("8 and what make 10?").

Materials

- Two empty 12-hole egg boxes (or a 2 by 6 grid on card) and 12 cubes per group. One box shows doubles up to 6 + 6; the second box lets the group show doubles up to 10 + 10, one row of 10 holes across the two boxes.
- 20 linking cubes per child.
- A part-whole mat per pair.
- Fact-family triangle cards per pair: triangles with three numbers at the corners, for example 8, 4, 12; 3, 7, 10; 6, 9, 15. The biggest number (the whole) is at the top corner.
- Digit cards 0 to 20 per pair.
- Whiteboards and pens, or paper and pencils, for recording number sentences.

Steps

✎ Opening (5 min)

Doubles. Fill one row of an egg box with 6 cubes and the other row with 6. "6 and 6 make?" (12.) Children build cube towers in pairs of the same height: 5 and 5 (10), 7 and 7 (14), 8 and 8 (16), 9 and 9 (18), 10 and 10 (20).

✎ Main activity (30 min)

1. **Doubles practice (8 min).** In pairs, one child builds a tower of up to 10 cubes; the other builds the same and says the double. Record: 7 + 7 = 14.
2. **Near doubles (10 min).** "6 + 7. 7 is one more than 6, so it is double 6 and 1 more." 6 + 6 + 1 = 12 + 1 = 13. Pairs check with towers, then try:
    - 7 + 8 (15: 7 + 7 + 1)
    - 8 + 9 (17: 8 + 8 + 1)
    - 5 + 6 (11: 5 + 5 + 1)
3. **Fact families and "what do I add?" (12 min).** Take the triangle 8, 4,
4. With cubes on the part-whole mat: whole 12, parts 8 and 4. Together find four number sentences: 8 + 4 = 12, 4 + 8 = 12, 12 - 8 = 4, 12 - 4 = 8. Then: "10 - 8. Think: 8 and what make 10?" (2.) Pairs try:
    - 15 - 7 (think 7 + □ = 15; 8)
    - 13 - 9 (think 9 + □ = 13; 4)

- Write the four sentences for the triangle 3, 7, 10 (3 + 7 = 10, 7 + 3 = 10, 10 - 3 = 7, 10 - 7 = 3).

✓ Discussion questions (with answers)

- How does knowing 6 + 6 help with 6 + 7? 6 + 7 is one more than 6 + 6, so it is 13.
- If you know 8 + 4 = 12, what else do you know? 4 + 8 = 12, 12 - 8 = 4 and 12 - 4 = 8.
- For 13 - 9, why is thinking "9 and what make 13?" easier than counting back 9? Counting back 9 is long and easy to lose track of; 9 needs 1 to make 10 and 3 more to make 13, so 4.

✓ Closing check (5 min, with answers)

"7 + 7." (14.) "7 + 8." (15.) "14 - 7." (7, because 7 + 7 = 14.)

Vocabulary

double, near double, one more, fact family, whole, part

Differentiation

- **Support:** doubles up to 5 + 5 with fingers or cubes, and fact families for totals up to 10.
- **Stretch:** near doubles the other way: 8 + 7 = 8 + 8 - 1 = 15. Or make their own triangle card and write all four sentences.
- Egg boxes and cube towers can be checked by touch. Children can show answers with cubes, digit cards or sign.

⚠ Safety

Use clean egg boxes (washed or never used for eggs) and cubes too large to swallow.

Teacher notes and misconceptions

- Some children think 12 - 8 and 8 - 12 are the same, because 8 + 4 and 4 + 8 are. Show with cubes that we cannot take 12 away from 8 cubes; in a take-away, the whole comes first.
- Near doubles only help once doubles are quick. Keep short daily doubles practice going.

Lesson 5: Comparing and the equal sign

Unit overview - Previous: Lesson 4

About 40 minutes.

Goal

Children solve "how many more?" and "how many fewer?" problems, decide whether number sentences are true or false, and find missing numbers.

Materials

- 20 linking cubes per child, in two colours (or two kinds of object).
- True-or-false cards, one set per pair: 6 = 6; 7 = 8 - 1; 5 + 2 = 2 + 5; 4 + 1 = 5 + 2; 10 = 6 + 4; 9 + 1 = 10 + 1.
- Missing-number cards: 8 + □ = 11; 5 = □ - 3; 6 + 6 = □; □ + 4 = 13; 15 - □ = 9.
- Optional: a toy or home-made balance and equal-sized cubes.
- Digit cards 0 to 20 per pair; whiteboards and pens.
- Support cards with one number on each side (6 = 6, 5 = 4), and two trays marked by touch (a rough sticker for true, a smooth one for false), for children who need them (see Differentiation).

Steps

✎ Opening (5 min)

Build a tower of 9 cubes and a tower of 6, side by side. "How many more cubes does the tall tower have?" Children see 3 extra at the top. "9 is 3 more than 6. 6 is 3 fewer than 9."

✎ Main activity (30 min)

1. **Comparing stories (10 min).** Pairs build towers to match each story.
   - "Mia has 12 shells. Tom has 8. How many more shells does Mia have?" (4.)
   - "Bo has 5 stickers. Ana has 3 more than Bo. How many stickers does Ana have?" (8.)
   - "Sam has 11 marbles. Lee has 4 fewer than Sam. How many marbles does Lee have?" (7.)
2. **True or false? (10 min).** "The equal sign means both sides are the same amount." If you have a balance, show 3 + 2 cubes on one side and 5 on the other: it balances. Pairs sort the cards into true and false, using cubes to check:
   - 6 = 6 (true)
   - 7 = 8 - 1 (true)
   - 5 + 2 = 2 + 5 (true)
   - 4 + 1 = 5 + 2 (false: 5 on one side, 7 on the other)
   - 10 = 6 + 4 (true)

    - 9 + 1 = 10 + 1 (false: 10 and 11) Then: "Change one number to make 4 + 1 = 5 + 2 true." (For example 4 + 3 = 5 + 2, or 4 + 1 = 5 + 0.)
3. **Missing numbers (10 min).** Pairs find each box using cubes or a strategy from this unit:
    - 8 + □ = 11 (3)
    - 5 = □ - 3 (8)
    - 6 + 6 = □ (12)
    - □ + 4 = 13 (9)
    - 15 - □ = 9 (6)

✓ Discussion questions (with answers)

- Some people think 7 = 8 - 1 is wrong because the answer should come last. Is it wrong? No. Both sides are 7, so it is true; the equal sign can have the single number or the calculation on either side.
- In the sticker story, does "more" mean we add? Here yes: Ana has Bo's 5 and 3 more, 8. But in the shell story, "how many more" is found by comparing or taking away (12 - 8 = 4). Read the whole story, not one word.
- How did you find 5 = □ - 3? Think: what number, take away 3, leaves 5? 5 + 3 = 8.

✓ Closing check (5 min, with answers)

"Is 3 + 4 = 7 true? Is 7 = 3 + 4 true?" (Both true.) "9 + □ = 16." (7.)

Vocabulary

compare, more than, fewer than, how many more, equal sign, the same as, true, false, missing number

Differentiation

- **Support:** compare towers up to 10; true-or-false cards with only one number on each side first (6 = 6, 5 = 4).
- **Stretch:** comparing with the bigger amount unknown: "Lee has 7 marbles. That is 4 fewer than Sam. How many has Sam?" (11.) Or make up a true-or-false card for a partner.
- Children can sort cards by touch-marked trays (a rough sticker for true, a smooth one for false), point, sign or use a device. Read cards aloud for children who need it.

⚠ Safety

Use cubes too large to swallow. Keep a home-made balance low and steady on the table.

Teacher notes and misconceptions

- "=" read as "makes" leads children to call 7 = 8 - 1 false and to write answers such as 8 + □ = 11 with □ = 19 (adding all the numbers they see). Read "=" as "is the same as".

- Comparing problems are harder than adding to or taking from. Lining up two towers and looking at the extra part helps more than any rule.
- The names are made up; use names that do not belong to children in the class if comparisons might feel personal.