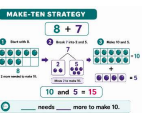


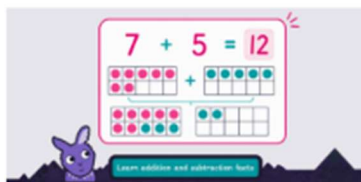


# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Explicit instruction routines

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|                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Use partner cards, dot patterns, fingers, counters, or part-part-whole mats to show related facts, such as <math>3 + 1 = 4</math>, <math>1 + 3 = 4</math>, <math>4 - 3 = 1</math>, and <math>4 - 1 = 3</math>.</p>                                                                                  | <p>is 1 left. 4 take away 3 is equal to 1."</p>                                                                                                                                                                                                                                                                                                                                      | <p>action: "Addition puts parts together. Subtraction starts with the whole and takes a part away." If students mismatch a number and a quantity, point to the dots and the numerals at the same time.</p>                                                                                                                                                                                                                                     | <p>visible parts to covered or missing parts, then to number sentences.</p>                                                                                                                                                                                                                                                                     |
| <p><b>Make-ten for addition within 20</b></p>  <p>Display facts such as <math>8 + 7</math> or <math>9 + 6</math> using two ten-frames and counters.</p>                                                               | <p>"When one number is close to 10, we can break apart the other number to make 10 first." Display <math>8 + 7</math>. "8 needs 2 more to make 10. I can break 7 into 2 and 5. I move 2 to make 10. There are 5 left. 10 and 5 is 15. So, 8 add 7 is equal to 15."</p>                                                                                                               | <p>Display <math>9 + 6</math>. Ask: "How many more does 9 need to make 10? How can we break 6? What is 10 and the rest?" Students respond: "9 needs 1 more. 6 breaks into 1 and 5. 10 and 5 is 15." Correction: If students break apart the second addend incorrectly, return to the ten-frame: "The frame has ____ empty space/s, so we need ____ to make 10. Now break the other number into ____ and ____."</p>                             | <p>Students solve make-ten facts using ten-frames with counters, then ten-frame drawings, then numeral-only equations. Prompt: "How many more to make 10?" "How will you break apart the other number?" "What is 10 and the rest?" Once accurate, include a small set of make-ten facts in brief review routines.</p>                           |
| <p><b>Using efficient strategies beyond counting-by-ones</b></p> <p>Display facts suited to a taught strategy, such as doubles, near doubles, count-on, count-back, count-up for difference, or tens-and-ones reasoning.</p>                                                                           | <p>"I want to solve this efficiently. I will think about a fact or relationship I already know." Example: <math>6 + 7</math>. "I know <math>6 + 6 = 12</math>. 7 is one more than 6, so <math>6 + 7</math> is one more than 12. That is 13." Example: <math>9 - 6</math>. "I can count up from 6 to 9 to find the difference: 7, 8, 9. That is 3 counts, so 9 take away 6 is 3."</p> | <p>Display a similar fact. Ask: "What do you already know that could help? Is this a double, near double, make-ten, count-on, or count-up problem?" Students explain the strategy before giving the answer. Correction: If students revert to inefficient counting-by-ones when a taught strategy is available, model the efficient relationship again and have students repeat the strategy sentence.</p>                                     | <p>Students sort or solve facts by strategy type, then explain one or two examples orally or on mini-whiteboards. Prompt: "What strategy did you use?" "What known fact helped?" "Can you say the whole number sentence?" As students become accurate, move from strategy explanation to brief fluency practice and cumulative review.</p>      |
| <p><b>Cover-Copy-Compare for accurate rehearsal of taught facts</b></p> <p>Use after students have been explicitly taught a small fact set or strategy, but still need support to respond accurately. Display a small set of correctly completed facts, such as +1 facts or a related fact family.</p> | <p>"First I read the number fact: 7 add 1 is equal to 8." "Now I cover it. I will write it from memory: 7 add 1 is equal to 8." "Now I compare my answer with the model. It matches, so I keep going." If modelling an error: "My answer does not match. I correct it straight away by copying the correct fact and reading it again."</p>                                           | <p>Students complete one fact at a time: look, cover, write, compare, correct. Ask: "Did your fact match the model?" "If it did not match, what do you need to correct?" Correction: If students repeatedly copy inaccurately or cannot recall the fact after covering, reduce the fact set and return to the representation or strategy. "Let's show this fact again first. 7 add 1 means the next number after 7. The next number is 8."</p> | <p>Students practise a small set of already-taught facts using Cover-Copy-Compare. They check each response against the model and correct errors immediately. Use this routine to build accurate responding before moving the same fact set into faster fluency practice such as choral response, audio-paced practice, or explicit timing.</p> |



# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Review and Practice

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Daily review should be brief: about 5–10 minutes. Use active participation strategies so all students respond, every time.

Arithmetic review should focus on a **small set of already-taught facts** that students can solve accurately but not yet fluently. Students should not practise unfamiliar facts for speed. If students are fast but inaccurate, pause the fluency routine and return to explicit modelling, guided practice, immediate feedback, and a smaller fact set.

Teachers should use professional judgement when deciding when a fact set has been mastered and is ready to be practised less often. Some fact sets may need one or two days of focused review; others may require several days.

### Core review routines for arithmetic facts

Use these routines after students have been explicitly taught the relevant strategy or fact set. The goal is to move from accurate strategy use towards fluent and increasingly automatic recall.

Check the Addition and Subtraction: Resources for a slide bank that can be used to support these review and practice routines.

### Related Fact Set Review

#### Purpose

Students practise reading, completing, remembering, and recalling a small set of related addition and subtraction facts.

#### Use for

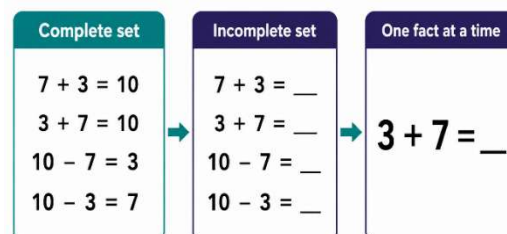
Whole-class daily review of a small, already-taught fact set, such as +1 facts, doubles, make-ten facts, or a fact family.

#### Materials

Displayed number facts, mini-whiteboards or response cards if needed.

#### Teacher note

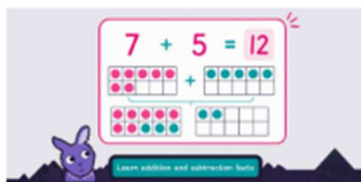
Use full number sentences during choral response so students rehearse the relationship, not just the answer. For example, students say, “Three add seven equals ten,” rather than only saying “ten.”



| Step                                     | Teacher move                                                                                                                                                                     | Student response                                                                                                            |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 1. Show a small set of related facts     | Display a small collection of related number facts, such as: $7 + 3 = 10$ ; $3 + 7 = 10$ ; $10 - 7 = 3$ ; $10 - 3 = 7$ .                                                         | Students look and prepare to read.                                                                                          |
| 2. Read the facts together               | “Read these with me.”                                                                                                                                                            | “Seven add three equals ten. Three add seven equals ten. Ten subtract seven equals three. Ten subtract three equals seven.” |
| 3. Read and complete incomplete facts    | Remove the answers: $7 + 3 = \underline{\quad}$ ; $3 + 7 = \underline{\quad}$ ; $10 - 7 = \underline{\quad}$ ; $10 - 3 = \underline{\quad}$ . “Read and complete these with me.” | Students read each full number sentence with the missing answer included.                                                   |
| 4. Remember and recite the facts         | Remove the display or cover the answers. “Now say them from memory.”                                                                                                             | Students recite the full facts from memory.                                                                                 |
| 5. Practise the facts out of order       | Display one fact at a time. Provide wait time using a clear response signal, such as an outstretched hand. “Get ready. Wait for my signal.”                                      | Students respond chorally with the full number sentence, such as “Three add seven equals ten.”                              |
| 6. Intersperse previously mastered facts | Repeat step 5, mixing today’s focus facts with facts practised in previous sets.                                                                                                 | Students respond to a mix of current and previously mastered facts.                                                         |

### Correction routine

If many students are inaccurate, stop the fast review. Return to the representation or strategy: “Let’s show the parts and whole again.” “What fact do we know that helps?” “Now say the full number sentence with me.”



# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Review and Practice

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### Explicit Timing: Personal Best

#### Purpose

Students build fluency with a small set of facts they can already solve accurately.

#### Use for

Facts that have been explicitly taught and practised to accuracy, but are not yet fluent.

#### Materials

Short practice sheet, mini-whiteboard set, or digital fact display using only the taught fact set.

#### Teacher note

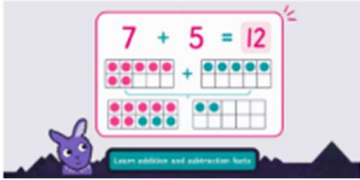
Explicit timing should be personal-best focused, not competitive. Keep goals private. Use 30–60 seconds. If students are inaccurate, stop timing and return to modelling, feedback, and a smaller fact set.

### Brief example routine: +1 facts within 10

- Give students a short practice sheet containing only taught +1 facts, such as  $3 + 1$ ,  $7 + 1$ ,  $5 + 1$ , and  $9 + 1$ .
- Say: “You will have 30 seconds. Work carefully and accurately. Try to beat your own last score.”
- Students complete as many facts as they can in 30 seconds.
- Say: “Stop. Put your pencil down. Check your answers.”
- Students count the number correct and record it privately.
- Review one or two missed facts: “When we add 1, we say the next number.  $7 + 1 = 8$ .”
- Later in the week, students repeat the same or a slightly expanded fact set and try to improve their own score.

### Correction routine

If students are answering quickly but making errors, say: “We are not ready to practise this set for speed yet. Let’s go back to solving carefully and accurately.”



# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Review and Practice

### Audio-Paced Practice

#### Purpose

Students practise retrieving known facts efficiently, with immediate checking and correction.

#### Use for

Small, already-taught fact sets that students can solve accurately but need to retrieve more efficiently.

#### Materials

Teacher voice, recording, slideshow, or audio file.

#### Teacher note

The pace should be brisk but not stressful. Students should have enough time to respond before the answer is given. Use only facts students have already been taught.

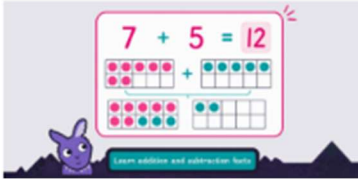
#### Example routine: audio-paced +1 facts

| Teacher/audio prompt | Student response                      |
|----------------------|---------------------------------------|
| "3 add 1..." pause   | Students say or write "4."            |
| "4."                 | Students check and correct if needed. |
| "7 add 1..." pause   | Students say or write "8."            |
| "8."                 | Students check and correct if needed. |
| "5 add 1..." pause   | Students say or write "6."            |
| "6."                 | Students check and correct if needed. |



#### Correction routine

If students cannot respond before the answer is given, slow the pace, reduce the fact set, or return to explicit modelling of the strategy.



## INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

### Review and Practice

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#### Goal Setting

##### Purpose

Students build motivation and attention during fluency practice by working towards a clear, achievable personal goal.

##### Use for

Students who are practising a small set of facts they can already solve accurately.

##### Teacher note

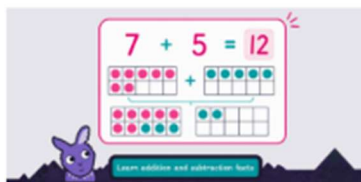
Goals should be private and personal-best focused, not competitive. The aim is to increase correct responses over time while maintaining accuracy.

##### Example

A student records, "Yesterday I answered 12 facts correctly. Today my goal is 14."

##### Correction routine

If a student increases speed but loses accuracy, reset the goal around accuracy: "Today your goal is to answer carefully and get all of the practised facts correct."



# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Review and Practice

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### Cumulative Review

As facts are mastered, they should continue to be reviewed with reduced frequency. Cumulative review helps students retain facts over time while allowing the teacher to focus most practice on the current fact set.

For example, in a set of 20 review facts, the teacher might include:

| Review type    | Number of facts                         |
|----------------|-----------------------------------------|
| Today's facts  | 8 facts, such as 4 facts repeated twice |
| 1-day review   | 2 facts                                 |
| 3-day review   | 2 facts                                 |
| 7-day review   | 2 facts                                 |
| 14-day review  | 2 facts                                 |
| 30-day review  | 2 facts                                 |
| 60-day review  | 1 fact                                  |
| 120-day review | 1 fact                                  |

### CUMULATIVE REVIEW SCHEDULE

A little bit each day keeps learning strong.

|  |                                                                          |            |
|--|--------------------------------------------------------------------------|------------|
|  | <b>TODAY'S FACTS</b><br>New learning from today.                         | <b>8</b>   |
|  | <b>YESTERDAY / 1-DAY</b><br>Review yesterday's facts.                    | <b>2-4</b> |
|  | <b>THIS WEEK / 3-DAY / 7-DAY</b><br>Review facts from earlier this week. | <b>2-4</b> |
|  | <b>OLDER FACTS</b><br>Review older facts to keep them strong.            | <b>1-2</b> |

**TEACHER TIP:** Adjust the numbers as needed for your class. Consistency and spacing lead to long-term retention!

A simpler classroom version is:

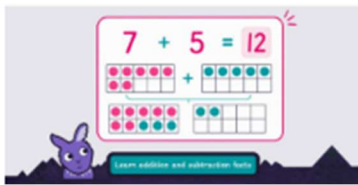
| Review type        | Number of facts                         |
|--------------------|-----------------------------------------|
| Today's facts      | 8 facts, such as 4 facts repeated twice |
| Yesterday's facts  | 4 facts                                 |
| This week's facts  | 4 facts                                 |
| This month's facts | 2 facts                                 |
| Older facts        | 2 facts                                 |

### Teacher note

Cumulative review should remain accurate and efficient. If older facts are no longer accurate, return them briefly to explicit modelling or supported practice before including them again in fluency review.

### Moving review forward

When students are accurate and fluent with a small fact set, reduce the frequency of practice for that set and introduce a new related fact set. Continue to include previously mastered facts in cumulative review so students maintain accuracy, fluency, and retrieval over time.



# INSTRUCTIONAL GUIDANCE: ADDITION & SUBTRACTION

## Implementation Summary

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- The goal is developing efficient and increasingly fluent addition and subtraction strategies.
- Students need to be able to explain how they solved addition and subtraction problems.
- Previous work on part-part-whole relationships and early place value understanding supports them to do this.
- Progress gradually from smaller, highly familiar number facts to larger calculations and two-digit problems requiring place-value understanding.
- Support students to move beyond counting-by-ones towards efficient mental strategies. As they develop their skills, students will be more likely to use flexible decomposition strategies if they can retrieve a bank of facts from memory.
- Use frequent, daily arithmetic practice sessions initially before moving to less frequent cumulative review.