

# INSTRUCTIONAL GUIDANCE: NUMBER SEQUENCE

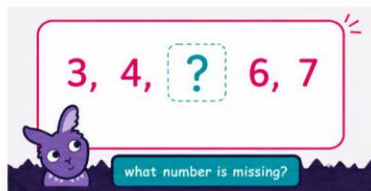
## Vocabulary, Representations and Stem Sentences

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### Relevant mathematical vocabulary

The purpose of this vocabulary list is to support teachers to model precise mathematical language and help students use simple, high-utility language during instruction.

| Vocabulary        | Definition                                                          | Questions / Stem Sentences                                                      |
|-------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------|
| After             | A number that comes later in the counting order.                    | "___ comes after ___." / "I know 8 is more than 7 because I say 8 after 7."     |
| Next              | The number that comes immediately after another number.             | "The next number after ___ is ___."                                             |
| Before            | A number that comes earlier in the counting order.                  | "___ comes before ___." / "I know 9 is less than 12 because I say 9 before 12." |
| Order             | To put numbers in the correct arrangement.                          | "I put the numbers in order." / "The numbers are in order from ___ to ___."     |
| Sequence          | A set of numbers arranged in order by a pattern or counting rule.   | "___ completes the sequence." / "The counting rule is ___."                     |
| Compare           | To decide which number or quantity is larger, smaller, or the same. | "I compared ___ and ___." / "___ is larger than ___."                           |
| Forwards          | Moving to later numbers in the counting order.                      | "I counted forwards from ___ to ___."                                           |
| Backwards         | Moving to earlier numbers in the counting order.                    | "I counted backwards from ___ to ___."                                          |
| Missing number    | The number that is not shown in a sequence.                         | "The missing number is ___." / "The missing number between 56 and 58 is 57."    |
| Between           | A number that comes after one number and before another.            | "___ comes between ___ and ___."                                                |
| Beginning / Start | The first number or place in a sequence.                            | "___ is at the beginning of the sequence."                                      |
| End / Last        | The final number or place in a sequence.                            | "___ is at the end of the sequence."                                            |



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#### Using stem sentences

Stem sentences should be used throughout instruction. They help all students participate, rehearse mathematical language, and explain their thinking.

##### 1. Choral response

The whole class says the sentence together.

##### 2. Partner rehearsal

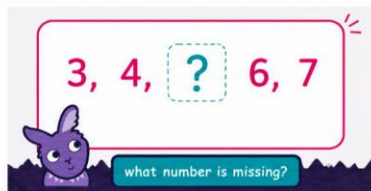
Students turn to a partner and complete the sentence before sharing.

##### 3. Individual response after rehearsal

The teacher selects one or two students to share after all students have practised. This is preferable to relying on hands-up responses from only a few students.

#### Examples:

- ▶ \_\_\_ comes after \_\_\_.
- ▶ \_\_\_ comes before \_\_\_.
- ▶ \_\_\_ comes between \_\_\_ and \_\_\_.
- ▶ The missing number is \_\_\_ because it comes after \_\_\_ and before \_\_\_.
- ▶ The numbers are counting forwards/backwards by \_\_\_.
- ▶ After \_\_\_ comes \_\_\_. The missing number is \_\_\_.



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### Representations and stem sentences

Use a range of representations to help students identify the number that comes before, after, or between other numbers. For number sequence work, the most useful supports are number tracks, number paths, number lists or strips, number cards, hundreds charts, and Base-10 materials for decade transitions.

| Representation                                                                                                                    | Purpose                                                                                                                                     | Example teacher prompt                                      | Stem sentence                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  <p>Cardinality charts</p>                       | Connect the number sequence to quantity. Best for early work within 10 or 20.                                                               | "Here are 6 cubes. If we add one more, what comes next?"    | "___ comes after ___ because it is one more."                                     |
|  <p>Number track</p>                             | Shows each number in a fixed, countable place in the ordered sequence. Useful for before, after, between, and covering/building quantities. | "Point to 8. What comes before 8? What comes after 8?"      | "___ comes before ___. ___ comes after ___."                                      |
|  <p>Number paths</p>                             | Makes each number in the count sequence visible. Useful for covering one numeral and asking students to identify the missing number.        | "One number is covered. What is missing? How do you know?"  | "The missing number is ___ because it comes after ___ and before ___."            |
|  <p>Number cards</p>                           | Supports ordering numerals and identifying missing numerals without relying on a fixed chart. Useful for flexible practice.                 | "Put these number cards in order. Which number is missing?" | "The numbers are increasing by ___. The missing number is ___."                   |
|  <p>Mathematically accurate hundreds chart</p> | Supports counting patterns, decade transitions, and identifying numbers before/after within 100.                                            | "What comes after 59? What changes?"                        | "After 59 comes 60. The ones reset to 0 and the tens increase by 1."              |
|  <p>Base-10 materials / place-value chart</p>  | Supports tens-and-ones reasoning for larger numbers, especially across decades.                                                             | "Show 59. What happens if we add one more?"                 | "59 is 5 tens and 9 ones. One more makes 6 tens and 0 ones, so the number is 60." |
|  <p>Number list or strip</p>                   | Shows numerals in order. Useful for quick before/after practice and reading numerals.                                                       | "Point to 12. What comes before 12? What comes after 12?"   | "___ comes before ___. ___ comes after ___."                                      |