

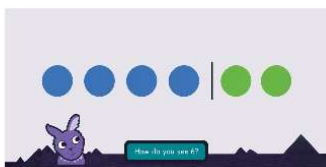
INSTRUCTIONAL GUIDANCE: DECOMPOSING NUMBERS

Vocabulary, representations & stem sentences

Representations and stem sentences

Use a range of representations to help students identify the whole, the known part or visible parts, and the missing part. Begin with concrete and visual materials, then gradually move towards drawings, numerals and mental responses as students become accurate and fluent.

	Representation	Purpose	Example teacher prompt	Stem sentence
	Counters or blocks	Help students physically build the whole and separate it into parts. Useful when students are first learning that numbers can be broken apart and recombined.	"Build 5. Now break it into two parts."	"___ can be broken into ___ and ___."
	Part-part-whole mat	Makes the relationship between the whole, known part and missing part explicit. Especially useful for missing-part tasks.	"The whole is 5. One part is 2. What is the missing part?"	"The whole is ___. One part is ___. The missing part is ___."
	Dot patterns or domino-style cards	Support quick recognition of parts within a whole without counting every item. Useful for brief whole-class review.	"How many altogether? How do you see it?"	"I see ___ and ___."
	Five-frames	Support combinations within 5 and help students see small quantities as structured parts.	"How do you see 4 in the five-frame?"	"___ is ___ and ___."
	Ten-frames	Support combinations within 10, especially benchmark relationships such as 5 and some more, or combinations that make 10.	"How do you see 7?"	"___ is 5 and ___."
	Fingers	Provide an accessible body-based representation for showing small part-whole combinations. Useful for active whole-class responding.	"Show 6 as 5 and some more."	"___ and ___ make ___."
	Number track (e.g. Stern number track)	Supports counting-on to find a missing part, especially when the whole and one part are known.	"Start at 5 and count on to 7. How many more?"	"I need ___ more to make ___."
	Mini-whiteboards	Support quick whole-class responses once students can represent decompositions with drawings, numerals or equations.	"Write one way to make 6."	"Another way to make ___ is ___ and ___."
	Number sentences	Connect part-whole understanding to symbolic addition and subtraction. Use after students understand the quantities represented.	"What is missing in $5 = 2 + \underline{\quad}$?"	"I know ___ and ___ make ___, so the missing part is ___."
	Story contexts with objects	Help students connect decomposition to joining, separating and missing-part situations.	"There are 5 birds. 2 are on the branch. The rest are on the ground. How many are on the ground?"	"There are ___ altogether. ___ are ___. ___ are ___."



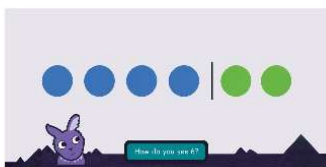
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Relevant mathematical vocabulary

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	Simple Definition	Questions / Stem Sentences
whole	The total amount	What is the whole?
part	One piece of the whole	What are the parts?
missing part	The part we cannot see yet	What part is missing?
add	To join parts together	What do the parts make altogether?
break apart	To split a whole into parts	How can we break apart the whole?
combine	To put parts together	What happens when we combine the parts?
equals	The same value as	___ equals ___
number sentence	A maths equation using numbers and symbols	Can you write the number sentence?
count on	Start at a number and count forward	Can you count on to find the missing part?
count all	Count every object one-by-one	Can you count all the blocks?
double	Two equal parts	Is it a double?
explain	Tell how you worked it out	How did you work it out?
hidden	Something cannot be seen because it is covered, missing, or kept out of sight	Which part is covered?



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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.

Learning intention

We are learning to break numbers into parts and work out missing parts.

Success criteria

- ▶ I can identify the whole quantity.
- ▶ I can identify the known part or visible parts.
- ▶ I can work out the missing part.
- ▶ I can explain how the parts combine to make the whole.
- ▶ I can say or write a matching part-whole sentence or number sentence.

Using these routines

Decomposition is the number operations task used in ENSSA for Foundation. It focuses on students' ability to work out a hidden or missing part when they know the whole and one part.

In Foundation, use concrete and visual materials such as counters, blocks, fingers, dot patterns, five-frames, ten-frames, part-part-whole mats, and number tracks. Begin with smaller quantities within 5, then extend towards quantities within 10 as students become more accurate.

In Year 1, decomposition remains important because part-part-whole understanding supports addition, subtraction, mental computation, and arithmetic fluency. Students may still need review using concrete or visual representations, but should gradually connect these relationships to number sentences and more efficient mental strategies.