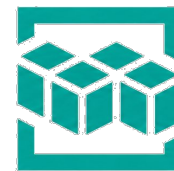




SUPPLEMENTAL ACTIVITY



Composing New Units

Place-Value Addition

Composing a new unit of 10 or 100 in 3-digit addition



Grade 2



1–2 days



Class or group



Supports Lesson 8

About this activity



What it teaches

- A short 1–2 day lesson on composing a new unit of 10 or a new unit of 100 when adding three-digit numbers.
- Students build each addend with identical unit squares and exchange to compose new units.
- Anchored by two worked examples, then varied practice worksheets for each day.



Why it matters

- Composing a new unit is the step students most often rush; a model slows it down.
- Connects place value, expanded form, and the partial-sums strategy.
- Supports Unit 5, Lesson 8 — use it just before or right after the core lesson.

Materials & terms



Materials

- Unit squares (base-ten pieces), or paper to draw them.
- A place-value mat or blank paper for each student.
- The two worked-example pages (4 and 7) to project or display.
- Four varied practice worksheets (pages 5–6 and 8–9), printed.
- The quick-check page (10) and pencils.



Terms

unit

a unit of 1, a unit of 10, or a unit of 100

compose

put ten equal units together to make one larger unit

decompose

break a number into units of 100, 10, and 1

combine like units

add units of 1 with units of 1, units of 10 with units of 10

exchange

trade ten of one unit for one larger unit

expanded form

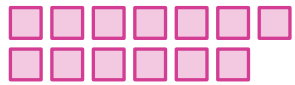
write 138 as $100 + 30 + 8$



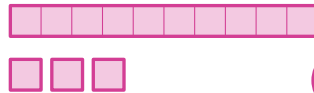
Day 1 — Composing a new unit of 10

Worked example: $138 + 45$

8 units of 1 + 5 units of 1 = 13 units of 1



exchange →



one unit of 10 + three units of 1

1

Build 138 and 45 with unit squares.

2

Combine the like units: $8 + 5 = 13$ units of 1, $30 + 40 = 70$, $100 + 0 = 100$.

3

Ten units of 1 come together — exchange them for one unit of 10.

4

Add the totals: $100 + 80 + 3 = 183$. So $138 + 45 = 183$.

CRITICAL IDEA

You can only combine like units — units of 1 with units of 1, units of 10 with units of 10, units of 100 with units of 100.

Worksheet 1 — build & find the total

Build each problem with unit squares, combine like units, compose the new unit of 10, then find the total.

Problem	Build & combine	New unit(s)	Total
128 + 44			
135 + 27			
116 + 68			
143 + 29			

Worksheet 2 — in context

Read each story, build it with unit squares, and find the total. Watch for a new unit of 10.

1

Maya read 118 pages last week and 45 pages this week. How many pages in all?

Build it, then write the total: _____

2

A shelf holds 126 books. A teacher adds 37 more. How many books are there now?

Build it, then write the total: _____

3

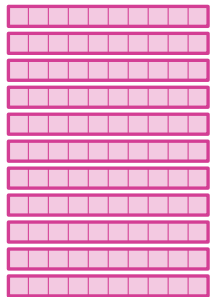
There are 154 red beads and 29 blue beads. How many beads altogether?

Build it, then write the total: _____

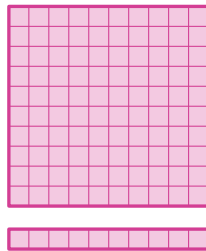
Day 2 — Composing a new unit of 100

Worked example: $163 + 152$

6 units of 10 + 5 units of 10 = 11 units of 10



exchange →



one unit of 100 + one unit of 10

1

Build 163 and 152 with unit squares.

2

Combine the like units: $3 + 2 = 5$, $60 + 50 = 110$, $100 + 100 = 200$.

3

Ten units of 10 come together — exchange them for one unit of 100.

4

Add the totals: $300 + 10 + 5 = 315$. So $163 + 152 = 315$.

WATCH FOR

A problem can compose two new units — a new unit of 10 AND a new unit of 100. Check every place.

Worksheet 1 — build & find the total

Build each problem, combine like units, and compose new units. Some make a new unit of 100 — check every place.

Problem	Build & combine	New unit(s)	Total
163 + 152			
138 + 125			
156 + 149			
174 + 158			

Worksheet 2 — in context

Read each story, build it with unit squares, and find the total. Watch for a new unit of 100.

1

A store sold 191 muffins on Saturday and 124 on Sunday. How many muffins in all?

Build it, then write the total: _____

2

The team scored 156 points in game one and 149 in game two. How many points in total?

Build it, then write the total: _____

3

A garden has 172 tulips and 158 daffodils. How many flowers altogether?

Build it, then write the total: _____

Quick check

Without finding the total, decide what each sum composes, and explain how you know.

a. $142 + 135$ Composes _____ because _____

b. $128 + 46$ Composes _____ because _____

c. $173 + 154$ Composes _____ because _____

CONNECT BACK TO LESSON 8

Bring this build-and-compose routine into the partial-sums work on the Lesson 8 worksheets.

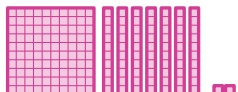
ANSWER KEY

Answer key — Day 1

Each total is shown as an area model — units of 100 (10×10), units of 10 (10×1), and units of 1.

WORKSHEET 1 • build & find the total

$$128 + 44 = 172$$



one unit of 10

$$135 + 27 = 162$$



one unit of 10

$$116 + 68 = 184$$



one unit of 10

$$143 + 29 = 172$$



one unit of 10

WORKSHEET 2 • in context

$$118 + 45 = 163$$



one unit of 10

$$126 + 37 = 163$$



one unit of 10

$$154 + 29 = 183$$



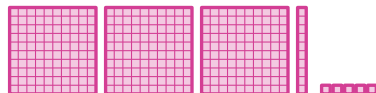
one unit of 10

ANSWER KEY

Answer key — Day 2

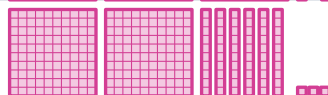
WORKSHEET 1 • build & find the total

$$163 + 152 = 315$$



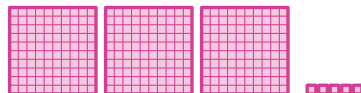
one unit of 100

$$138 + 125 = 263$$



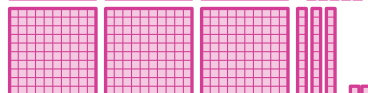
one unit of 10

$$156 + 149 = 305$$



both

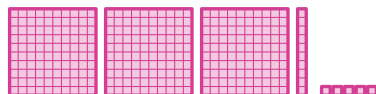
$$174 + 158 = 332$$



both

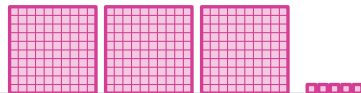
WORKSHEET 2 • in context

$$191 + 124 = 315$$



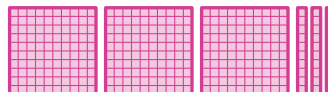
one unit of 100

$$156 + 149 = 305$$



both

$$172 + 158 = 330$$



both

QUICK CHECK

- a. $142 + 135$ — no new unit. b. $128 + 46$ — one unit of 10 ($8 + 6 = 14$ units of 1). c. $173 + 154$ — one unit of 100 ($7 + 5 = 12$ units of 10).

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