

PLACE VALUE & SUBTRACTION

Algorithm Lab • Tens, Ones, and Exchange

Objective: *Subtract by place value, exchanging units without changing the quantity.*

DO THIS Show each number by place value. Exchange a unit when you need to, then subtract.

EXCHANGE One ten is ten ones — the quantity does not change.

EXAMPLE

T	O
5	2

1 ten becomes 10 ones

$$\begin{array}{r} 52 \\ - 28 \\ \hline 24 \end{array}$$

$$52 = 40 + 12.$$

Exchange one ten for ten ones, then subtract.

BUILD & SUBTRACT Show the number, then subtract by place value.

1

Th	H	T	O
4	6	6	3

$$\begin{array}{r} 4663 \\ - 3026 \\ \hline \end{array}$$

2

Th	H	T	O
3	5	3	3

$$\begin{array}{r} 3533 \\ - 2551 \\ \hline \end{array}$$

3

Th	H	T	O
7	4	0	2

$$\begin{array}{r} 7402 \\ - 6011 \\ \hline \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 1920 \\ - 1785 \\ \hline \end{array}$$

2

$$\begin{array}{r} 5549 \\ - 2307 \\ \hline \end{array}$$

3

$$\begin{array}{r} 4246 \\ - 2667 \\ \hline \end{array}$$

4

$$\begin{array}{r} 4599 \\ - 1510 \\ \hline \end{array}$$

5

$$\begin{array}{r} 7633 \\ - 1873 \\ \hline \end{array}$$

6

$$\begin{array}{r} 2424 \\ - 2043 \\ \hline \end{array}$$

7

$$\begin{array}{r} 4115 \\ - 1443 \\ \hline \end{array}$$

8

$$\begin{array}{r} 6536 \\ - 4932 \\ \hline \end{array}$$

9

$$\begin{array}{r} 7242 \\ - 1489 \\ \hline \end{array}$$

PROVE IT Check with addition.

1 $5897 + \square = 8892$

2 $1329 + \square = 2573$

3 $6343 + \square = 9502$

To subtract I: exchanged a unit kept columns aligned checked with addition

TEACHER EDITION

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Objective: *Subtract by place value, exchanging units without changing the quantity.*

DO THIS Show each number by place value. Exchange a unit when you need to, then subtract.

EXCHANGE One ten is ten ones — the quantity does not change.

EXAMPLE

T	O
5	2

$$\begin{array}{r} 52 \\ - 28 \\ \hline 24 \end{array}$$

1 ten becomes 10 ones

$52 = 40 + 12.$

Exchange one ten for ten ones, then subtract.

BUILD & SUBTRACT Show the number, then subtract by place value.

1

Th	H	T	O
4	6	6	3

$$\begin{array}{r} 4663 \\ - 3026 \\ \hline 1637 \end{array}$$

2

Th	H	T	O
3	5	3	3

$$\begin{array}{r} 3533 \\ - 2551 \\ \hline 982 \end{array}$$

3

Th	H	T	O
7	4	0	2

$$\begin{array}{r} 7402 \\ - 6011 \\ \hline 1391 \end{array}$$

INDEPENDENT PRACTICE Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 1920 \\ - 1785 \\ \hline 135 \end{array}$$

2

$$\begin{array}{r} 5549 \\ - 2307 \\ \hline 3242 \end{array}$$

3

$$\begin{array}{r} 4246 \\ - 2667 \\ \hline 1579 \end{array}$$

4

$$\begin{array}{r} 4599 \\ - 1510 \\ \hline 3089 \end{array}$$

5

$$\begin{array}{r} 7633 \\ - 1873 \\ \hline 5760 \end{array}$$

6

$$\begin{array}{r} 2424 \\ - 2043 \\ \hline 381 \end{array}$$

7

$$\begin{array}{r} 4115 \\ - 1443 \\ \hline 2672 \end{array}$$

8

$$\begin{array}{r} 6536 \\ - 4932 \\ \hline 1604 \end{array}$$

9

$$\begin{array}{r} 7242 \\ - 1489 \\ \hline 5753 \end{array}$$

PROVE IT Check with addition.

1 $5897 + \underline{2995} = 8892$

2 $1329 + \underline{1244} = 2573$

3 $6343 + \underline{3159} = 9502$

TEACHER NOTES Answer key & guidance

Answers: aligned vertical differences
Common error: Subtracting the smaller digit from the larger in each column

Strategy: Rename one unit as ten of the next-smaller unit
Prompt: "Do you have enough ones, or must you exchange a ten?"

To subtract I: exchanged a unit kept columns aligned checked with addition