

## 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
9	9	4	9

$$\begin{array}{r} 9949 \\ - 7304 \\ \hline \end{array}$$

2

Th	H	T	O
9	7	4	4

$$\begin{array}{r} 9744 \\ - 7587 \\ \hline \end{array}$$

3

Th	H	T	O
1	8	1	9

$$\begin{array}{r} 1819 \\ - 1120 \\ \hline \end{array}$$

**INDEPENDENT PRACTICE** Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 4476 \\ - 1905 \\ \hline \end{array}$$

2

$$\begin{array}{r} 5994 \\ - 5875 \\ \hline \end{array}$$

3

$$\begin{array}{r} 3485 \\ - 3479 \\ \hline \end{array}$$

4

$$\begin{array}{r} 9463 \\ - 9204 \\ \hline \end{array}$$

5

$$\begin{array}{r} 9514 \\ - 7873 \\ \hline \end{array}$$

6

$$\begin{array}{r} 2651 \\ - 1491 \\ \hline \end{array}$$

7

$$\begin{array}{r} 6262 \\ - 1149 \\ \hline \end{array}$$

8

$$\begin{array}{r} 7720 \\ - 4543 \\ \hline \end{array}$$

9

$$\begin{array}{r} 7179 \\ - 2420 \\ \hline \end{array}$$

**PROVE IT** Check with addition.

1  $6504 + \square = 8762$

2  $2041 + \square = 2505$

3  $6628 + \square = 8511$

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
9	9	4	9

$$\begin{array}{r} 9949 \\ - 7304 \\ \hline 2645 \end{array}$$

2

Th	H	T	O
9	7	4	4

$$\begin{array}{r} 9744 \\ - 7587 \\ \hline 2157 \end{array}$$

3

Th	H	T	O
1	8	1	9

$$\begin{array}{r} 1819 \\ - 1120 \\ \hline 699 \end{array}$$

**INDEPENDENT PRACTICE** Subtract. Keep your columns aligned.

1

$$\begin{array}{r} 4476 \\ - 1905 \\ \hline 2571 \end{array}$$

2

$$\begin{array}{r} 5994 \\ - 5875 \\ \hline 119 \end{array}$$

3

$$\begin{array}{r} 3485 \\ - 3479 \\ \hline 6 \end{array}$$

4

$$\begin{array}{r} 9463 \\ - 9204 \\ \hline 259 \end{array}$$

5

$$\begin{array}{r} 9514 \\ - 7873 \\ \hline 1641 \end{array}$$

6

$$\begin{array}{r} 2651 \\ - 1491 \\ \hline 1160 \end{array}$$

7

$$\begin{array}{r} 6262 \\ - 1149 \\ \hline 5113 \end{array}$$

8

$$\begin{array}{r} 7720 \\ - 4543 \\ \hline 3177 \end{array}$$

9

$$\begin{array}{r} 7179 \\ - 2420 \\ \hline 4759 \end{array}$$

**PROVE IT** Check with addition.

1  $6504 + \underline{2258} = 8762$

2  $2041 + \underline{464} = 2505$

3  $6628 + \underline{1883} = 8511$

**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