

Find the Digits

Why

To practice identifying the value of numerals based on their position in a mathematical statement

- These activities contribute to understanding of place value and positional value.

85

For example, in the problem $85 - 37$, or $\underline{-37}$ it is important for a child to recognize that the 7 must be taken away from the 5 and that it will be necessary to rename the 5 to 15 before this can be done.

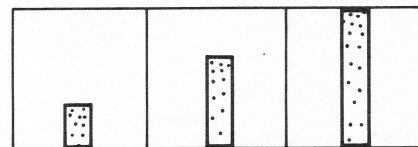
Problems with missing digits are often used to check a child's understanding of the operations of addition, subtraction, multiplication and division, and may be found in some tests. ◀

How

- Tell your children this story:

One day Aunt Bebe greeted her young friends Sue and Arlene at the door with a long face. When they asked her what was the matter, she said that somebody had given her a nice sheet of arithmetic problems, all solved; and the most terrible thing had happened to it!! The dog had come in from a swim, given a big shake, and had splattered water all over the sheet. Many of the numbers had just melted away! She didn't know what to do, because the person who had given her the sheet had worked hard to get all those problems right. Of course Sue and Arlene offered to help her right away. Working together, they found all of the missing numbers in short order! Can you?

- Put out the number squares, and have your family move the numbers around on the problems, so that if a number is in the wrong place it can be moved easily instead of having to be erased. Saves a lot of erasure holes in the paper!



Grade Level

TOOLS

Several sets of number squares, 0-9

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9



- When all of the numerals are in place for a particular problem, discuss the reasons for putting them in those places. Here is an example:

$$\begin{array}{r} 56\Box \\ + 7\Box 1 \\ \hline \Box 308 \end{array}$$

- What number goes in the top box?
(It has to be 7, since $7+1=8$.)
- What number goes in the box between the 7 and 1?
(It has to be 4, because $6+4=10$.)
- That means that the number in the bottom box will be 1, since $5+7+1=13$. The 1 comes from the ten, carried into the next column.
- Try these problems:

$$\begin{array}{r} 14\Box 0 \\ - 754 \\ \hline 71\Box \end{array}$$

$$\begin{array}{r} 3\Box \\ \times 5 \\ \hline 1\Box 5 \end{array}$$

$$\begin{array}{r} 28 \\ + 3\Box \\ \hline \Box 1 \end{array}$$

- Have your children work together, with you or with each other, to solve the problems on the next page.

More Ideas

- Have children make up missing digit problems. Write down any arithmetic problem, and draw boxes around some of the numbers (not too many at first!). Then rewrite the problem on another sheet of paper, with the boxed numbers left out.

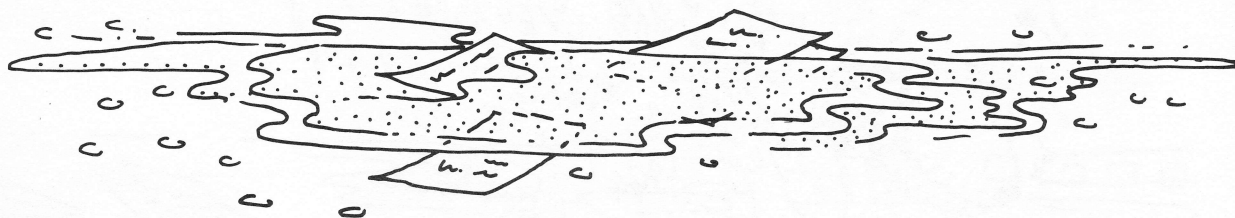
Example:

$$\begin{array}{r} 382 \\ - 74 \\ \hline 308 \end{array}$$

$$\begin{array}{r} 3\Box\Box \\ - 74 \\ \hline \Box 08 \end{array}$$

$$\begin{array}{r} 3\Box\Box \\ - 74 \\ \hline \Box 08 \end{array}$$

Have the children check that their problems are possible to do, then give them to each other to try. Do some problems have more than one solution?



FIND THE DIGITS Addition and subtraction

$$\begin{array}{r} 518 \\ + 3\Box3 \\ \hline \Box61 \end{array}$$

$$\begin{array}{r} 173 \\ + \Box4 \\ \hline 267 \end{array}$$

$$\begin{array}{r} \Box27 \\ + 59\Box \\ \hline 15\Box1 \end{array}$$

$$\begin{array}{r} 12\Box2 \\ - 433 \\ \hline 85\Box \end{array}$$

$$\begin{array}{r} 1\Box6 \\ - 5\Box \\ \hline \Box34 \end{array}$$

$$\begin{array}{r} 2532 \\ - \Box81\Box \\ \hline \Box16 \end{array}$$

$$\begin{array}{r} 65\Box \\ + 8\Box5 \\ \hline 1508 \end{array}$$

$$\begin{array}{r} 64\Box \\ - \Box\Box8 \\ \hline 349 \end{array}$$

$$\begin{array}{r} \Box035 \\ - 63\Box \\ \hline 3\Box8 \end{array}$$

$$\begin{array}{r} 57\Box \\ \Box6 \\ + 243 \\ \hline \Box96 \end{array}$$

$$\begin{array}{r} 8\Box2 \\ \Box46 \\ + \Box \\ \hline \Box384 \end{array}$$

$$\begin{array}{r} \Box\Box53 \\ 537 \\ + 6\Box2 \\ \hline 489\Box \end{array}$$

FIND THE DIGITS Addition, multiplication, division

$$\begin{array}{r} 3 \square \\ \times 3 \\ \hline \square 0 5 \end{array}$$

$$\begin{array}{r} 3 \ 5 \ \square \ 5 \\ 8 \ 1 \ \square \\ + \square \ 6 \ 7 \\ \hline \square \ 2 \ 2 \ 6 \end{array}$$

$$\begin{array}{r} \square \square \\ \times 7 \\ \hline 9 \ 8 \end{array}$$

$$\begin{array}{r} \square \ 4 \ \square \\ \times 3 \\ \hline 4 \ 4 \ 4 \end{array}$$

$$\begin{array}{r} 6 \\ 8 \overline{) \square \square} \\ \underline{\square \square} \\ 0 \end{array}$$

$$\begin{array}{r} \square \ 2 \\ 7 \overline{) 2 \square 4} \\ \underline{2 \ 1} \\ \square \ 4 \\ \underline{\square \ 4} \end{array}$$

$$\begin{array}{r} 6 \ 4 \\ 5 \overline{) \square 2 0} \\ \underline{\square \square} \\ \square \square \\ \underline{\square \square} \\ 0 \end{array}$$

- Have the children take three of the number squares, say the 1, 2, and 3.

Put the number squares together in every possible way, finding all the different arithmetic problems, and their answers, that they can make with those three numbers. Use addition, subtraction, multiplication, or division, as appropriate.

For example, these problems:

$$\begin{array}{r} 12 \\ \times 3 \\ \hline 36 \end{array} \quad \begin{array}{r} 13 \\ - 2 \\ \hline 11 \end{array} \quad \begin{array}{r} 31 \\ + 2 \\ \hline 33 \end{array}$$

will become these problems when rewritten:

Use 1, 2, and 3:

$$\begin{array}{r} \square\square \\ \times \square \\ \hline 36 \end{array} \quad \begin{array}{r} \square\square \\ - \square \\ \hline 11 \end{array} \quad \begin{array}{r} \square\square \\ + \square \\ \hline 33 \end{array}$$

What other combinations can be made from 1, 2, and 3?

Use other numbers, such as 3, 5, and 7, to make up problems.

- Try making up some problems that use fractions, decimals, and percents.

For example

$$10\% \text{ of } \square 50 = 15, \text{ or}$$

$$1/\square \text{ of } 2\square = 8, \text{ or}$$

$$23.\square + 5.2 = \square 8.7$$

