Home Connection

In Chapter 6, your child will learn the standard algorithm for division, which adults may think of as "long division". Just as with the multiplication algorithm, students begin by using place-value discs in class to develop a conceptual understanding of the steps in the algorithm before they work with just the process and numbers.

Division with Partial Quotients

Students begin by looking at the value of each partial quotient.

$396 \div 3$

300 90   6

3 hundreds ÷ 3 = 1 hundred
9 tens ÷ 3 = 3 tens
6 ones ÷ 3 = 2 ones
So 396 ÷ 3 = 132
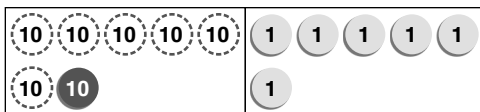
H	T	O
1	3	2

3) 3 9 6

Division with Regrouping

Students next learn the steps in long division. In each case, we divide each digit from the highest place, then regroup.
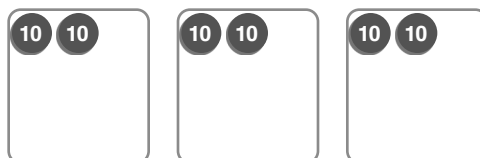
$76 \div 3 = ?$
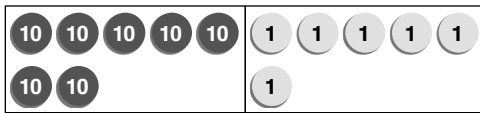
Divide 7 tens by 3.
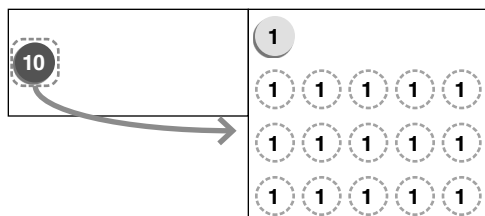

Record the number in each group in the quotient, and the number of tens divided in the tens column.
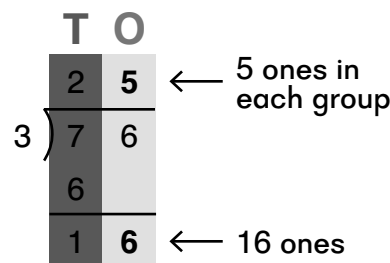
There is one ten remaining to be divided.

T	O
2	

3) 7 6

6   ← 2 tens × 3
1   ← 1 ten still to divide

← 2 tens in each group

Regroup the remaining tens as ones:

There are now 16 ones.

You may have been taught this as "bringing down".

```
      T  O
      2  5  ←  5 ones in
   _____   each group
 3 ) 7  6
      6
      _____
      1  6  ←  16 ones
```
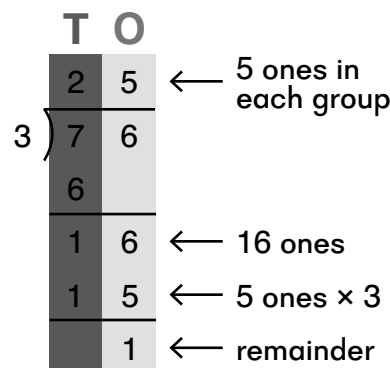
Divide the 16 ones by 3:
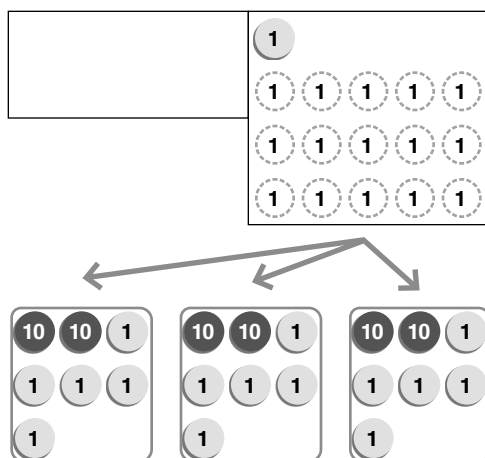
Record the number in each group in the quotient and the number of ones divided in the ones column.

There is 1 one remaining.
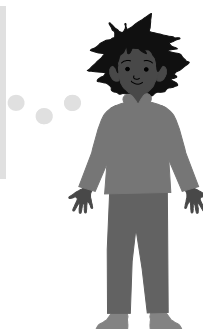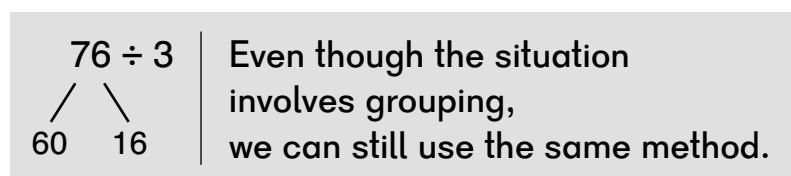
76 ÷ 3 is 25 with a remainder of 1.

```
      T  O
      2  5  ←  5 ones in
   _____   each group
 3 ) 7  6
      6
      _____
      1  6  ←  16 ones
      1  5  ←  5 ones × 3
      _____
         1  ←  remainder
```

We can check our answer with multiplication: 25 × 3 + 1 = 76

Some students can see that we can use a mental math method that is similar to the method they use for multiplication by breaking apart the whole into numbers they already know:

$$76 \div 3$$
$$60 \quad 16$$

Even though the situation involves grouping, we can still use the same method.

60 ÷ 3 = 20

16 ÷ 3 = 5 with a remainder 1

So, 76 ÷ 3 = 20 + 5 with a remainder 1

The advantage of this algorithm is that the process repeats regardless of the number of places. Your child will continue practicing the long division algorithm using place-value discs up to three-digit numbers. Later in Dimensions Math 3B, your child will revisit and further practice this division algorithm as they learn the facts for 6 through 9.

What can we do at home?

Long division is much easier for students who know their multiplication and division facts. Keep practicing these if they are not yet automatic for your child.

Encourage your child to practice long division using the place-value language. Divide the highest place, regroup any remainder, divide the next greatest place, regroup any remainder…

Avoid using shortcuts to help your child to remember the steps. For example, avoid **D**ivide, **S**ubtract, **M**ultiply, **B**ring Down, or even the mnemonic **D**ad, **M**other, **S**ister **B**rother, **R**over (for **R**emainder), as they can be confusing for students.