

**important****Allow for formatting characters when using the LEFT RIGHT and MID functions**

Consider a cell that contains the value 28 in cell A1 and has been formatted as *currency* using the dollar currency prefix. The cell would display the value:

\$28.00

But the actual value in the cell (and displayed on the formula bar) would be:

28

If you were to extract the first character using the LEFT function

=LEFT(A1, 1)

...you would extract 2 and not \$ because the \$ character is simply displayed as a result of the cell's formatting and is not part of the value in the cell.

## Lesson 3-20: Extract text from fixed width strings using the LEFT, RIGHT and MID functions

In *Lesson 2-1: Split fixed width data using Text to Columns*, you learned how to extract fixed width data using Excel's *Text to Columns* feature. You are also able to use Excel 2013's new *Flash Fill* feature (see sidebar facing page). While these methods work well, you'll often need to extract data dynamically using a formula. In this lesson, you'll use the LEFT, RIGHT and MID functions to do just that.

### 1 Open *Best Selling Books-1* from your sample files folder.

This worksheet lists some of the bestselling fiction books of all time:

	A	B	C	D	E
3	<b>Title</b>	<b>Author</b>	<b>Year</b>	<b>Copies (millions)</b>	<b>ISBN-13</b>
4	A Tale of Two Cities	Charles Dickens	1859	200	978-0141439600
5	The Lord of the Rings	J.R.R. Tolkein	1954	150	978-0618640157
6	And Then There Were None	Agatha Christie	1939	100	978-0312330873

For this lesson, the interesting data is in column E; the *International Standard Book Number* (ISBN-13).

ISBN numbers are a good example of fixed width strings. At first they simply seem to be a jumble of numbers but they actually contain four discrete pieces of data:

	A	B	C	D	E
17	<b>Anatomy of an ISBN Number</b>				
18	Digits 1-3	EAN (European Article Number)			
19	Digit 4	Group Identifier (country or language code)			
20	Digits 5-12	publisher prefix and title identifier			
21	Digit 13	Check digit (proves accuracy)			
22					

### 2 Use a LEFT function to extract the EAN from the ISBN code.

You know that the leftmost three digits represent the EAN. The LEFT function extracts a given number of digits from the left part of a string.

1. Click in cell F4.
2. Click: Formulas → Function Library → Text → Left.
3. Complete the dialog as follows:

<b>Text</b>	E4		= "978-0141439600"
<b>Num_chars</b>	3		= 3

4. Click the OK button.

The EAN is extracted into cell F4.

**Best Selling  
Books-1**

**tip****Multiply by one to convert a text result to a numerical result**

In this lesson, you extract several numeric codes from an ISBN number.

Notice that the results are left formatted in each cell. This tells you that they are textual, rather than numeric values.

Often you will wish the results to be numeric values.

To convert the textual return value of a formula to a true number, simply multiply the result of the formula by 1.

For example, to return the EAN as a numeric value you would use the following formula:

```
=LEFT(E4,3)*1
```

It is interesting to note that there are many other mathematical operations that will achieve the same result, such as adding 0 (+0), dividing by 1 (/1) adding two negative signs in front of the number (--), and even raising to the power of 1 (^1).

**note****Other ways to split delimited data****Flash Fill**

This new Excel 2013 feature is covered comprehensively in Session 2 of the *Essential Skills* book in this series.

It is the simplest way to split delimited data.

You can read lessons from the 2013 Essential Skills course free online at the [ExcelCentral.com](http://ExcelCentral.com) web site.

**Using Text to Columns**

Excel's *Text to Columns* tool was covered in: *Lesson 2-1: Split fixed width data using Text to Columns*.

**3 Use a RIGHT function to extract the Check Digit from the ISBN code.**

You know that the rightmost single digit represents the Check Digit. The RIGHT function extracts a given number of digits from the right part of a string.

1. Click in cell I4.
2. Click: Formulas→Function Library→Text→Right.
3. Complete the dialog as follows:

<b>Text</b>	E4	=	"978-0141439600"
<b>Num_chars</b>	1	=	1

4. Click the OK button.

The Check Digit is extracted into cell I4.

**4 Use a MID function to extract the Group from the ISBN code.**

The MID function extracts text from within a string. You know that digit 4 is the *Group Identifier* that indicates the language that the book is written in. Because the ISBN has a dash between the third and fourth digits, you'll have to extract a single character from position five in the string.

1. Click in cell G4.
2. Click: Formulas→Function Library→Text→Mid.
3. Complete the dialog as follows:

<b>Text</b>	E4	=	"978-0141439600"
<b>Start_num</b>	5	=	5
<b>Num_chars</b>	1	=	1

4. Click the OK button.

The Group is extracted into cell G4.

**5 Use a MID function to extract the *Publisher and Title* code from the ISBN code.**

This time, the correct arguments for the dialog will be:

<b>Text</b>	E4	=	"978-0141439600"
<b>Start_num</b>	6	=	6
<b>Num_chars</b>	8	=	8

**6 Autofill the formulas in cells F4:I4 to cells F15:I15.**

You can now see from the Group (country or language code) that *Le Petit Prince* was published in French and *Heidis Lehr- und Wanderj* was published in German.

**7 Save your work as *Best Selling Books-2*.**