

## Writing Formulas

Use the *Sales Forecast* worksheet in the *Forecast.xlsx* workbook to practice writing formulas. The spreadsheet forecasts the growth in sales of various categories of DVDs based on the percentage annual growth rate entered in cell **A3** (Fig. 1) and a set of Year 1 values.

	A	B	C	D	E	F	G	H
1	10 Year DVD Sales and Profit Forecast							
2								
3		5 Annual Percentage Growth Rate						
4								
5	Sales							
6		<i>Drama</i>	<i>Action</i>	<i>Comedy</i>	<i>Sci-Fi</i>	<i>Classic Films</i>	<i>Childrens</i>	<i>Total</i>
7	Year 1	250,000	450,000	300,000	350,000	200,000	500,000	
8	Year 2							
9	Year 3							
10	Year 4							
11	Year 5							
12	Year 6							
13	Year 7							
14	Year 8							
15	Year 9							
16	Year 10							

Fig. 1 The Sales Forecast spreadsheet.

1. Your first task is to create a formula in cell **B8** that increases the value shown in cell **B7** by the number of percent shown in cell **A3**. (HINT: You can use the % sign in calculations or, if you prefer you can divide by 100 to get a percentage.)
2. Now copy the formula down the column (as far as Year 10) so that each cell shows the same percentage increase on the cell above. (HINT: Use the "copy dot" to save time. Did you remember to create an absolute reference for the percent cell? – Use the [F4] key.)
3. Do the same for all the DVD categories by filling columns **C** to **G**. (HINT: Use the copy dot again.)
4. Add a total for each row in the Total column **H** (HINT: You can use the AutoSum tool) then format the cells to show commas between thousands and zero decimal places. The completed spreadsheet should look something like this (Fig. 2):

	A	B	C	D	E	F	G	H
1	10 Year DVD Sales and Profit Forecast							
2								
3		5 Annual Percentage Growth Rate						
4								
5	Sales							
6		<i>Drama</i>	<i>Action</i>	<i>Comedy</i>	<i>Sci-Fi</i>	<i>Classic Films</i>	<i>Childrens</i>	<i>Total</i>
7	Year 1	250,000	450,000	300,000	350,000	200,000	500,000	2,050,000
8	Year 2	262,500	472,500	315,000	367,500	210,000	525,000	2,152,500
9	Year 3	275,625	496,125	330,750	385,875	220,500	551,250	2,260,125
10	Year 4	289,406	520,931	347,288	405,169	231,525	578,813	2,373,131
11	Year 5	303,877	546,978	364,652	425,427	243,101	607,753	2,491,788
12	Year 6	319,070	574,327	382,884	446,699	255,256	638,141	2,616,377
13	Year 7	335,024	603,043	402,029	469,033	268,019	670,048	2,747,196
14	Year 8	351,775	633,195	422,130	492,485	281,420	703,550	2,884,556
15	Year 9	369,364	664,855	443,237	517,109	295,491	738,728	3,028,784
16	Year 10	387,832	698,098	465,398	542,965	310,266	775,664	3,180,223

Fig. 2 The completed calculations.

5. In the lower part of the worksheet you can calculate projected profits based on the different percentages shown for each category of DVD. (HINT: Each column has its own percentage which must be multiplied by the relevant year's projected sales.)
6. Test the spreadsheet by changing the number in cell **A3**.
7. Add a drop-down list to cell **A3** that allows the user to choose a number from a list (Fig. 3). (HINT: make a list of numbers then use the Data Validation tool on the Data tab of the ribbon – choose List).

	A	B	C	D	E	F	G	H
1	10 Year DVD Sales and Profit Forecast							
2								
3		5 Annual Percentage Growth Rate						
4								
5								
6		<i>Drama</i>	<i>Action</i>	<i>Comedy</i>				
7	Year 1	250,000	450,000	300,000				
8	Year 2	262,500	472,500	315,000				
9	Year 3	275,625	496,125	330,750				
10	Year 4	289,406	520,931	347,288				
11	Year 5	303,877	546,978	364,652				

Fig. 3 Add a drop-down list.

8. Create some charts to display the results. Try several different charts such as those shown below (Fig. 4) and decide which types works best for different selections of data.

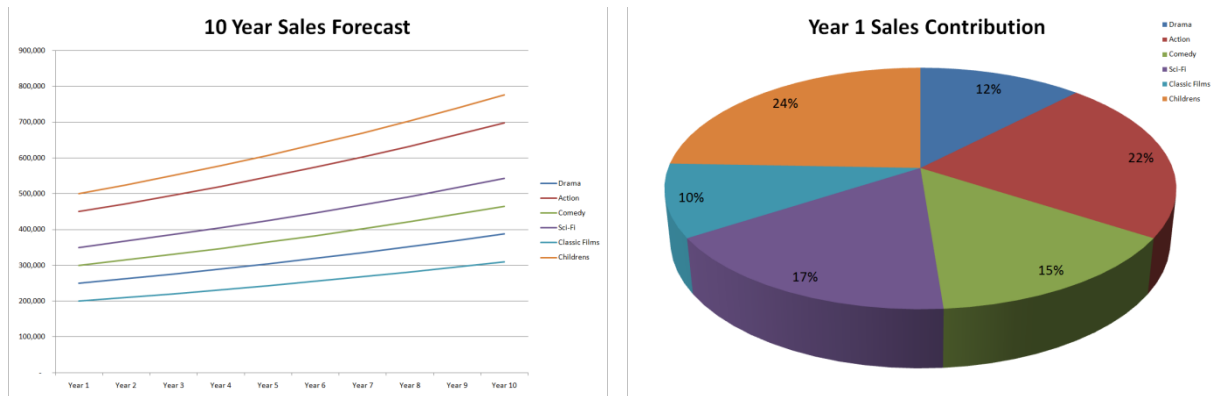


Fig. 4 Create charts from the data.

## Analysing Data

These exercises use simple Excel data analysis functions to extract useful information from large volumes of data. Use the *Sales.xlsx* workbook. This workbook contains two worksheets containing data from a company selling bicycles and cycling equipment: the *Sales Data* worksheet contains over 32,000 rows of data each representing an individual sale; the *Customer Data* worksheet contains demographic data from a survey of 78 customers.

Try to answer the following questions using Excel functions. Excel has a number of functions to help you: SUMIF, COUNTIF, AVERAGEIF, SUMIFS, COUNTIFS, AVERAGEIFS (the last four are new to Excel 2007) and of course SUM, AVERAGE and COUNT.

Using the data on the *Sales Data* worksheet calculate:

1. How many sales were there for Helmets? .....
2. What was the total value of sales for Mountain Bikes? .....
3. What was the average value for a sale in the Tires and Tubes category? .....
4. How many Water Bottles were sold? .....
5. What was the total value of clothing sales (Jerseys, Shorts and Caps)? .....

Using the data on the *Customer Data* worksheet calculate:

6. How many people had more than two cars? .....
7. What was the average age of the people in the survey? .....
8. What is the average income of the female customers? .....
9. What percentage of customers surveyed were over 45 years old? .....
10. How many customers are home-owners? .....