Setting up a model on a spreadsheet

1 Times need to be recorded from zero to some maximum (say, 12 minutes) with equal increments (say, 1 minute).

For example, if cell B11 holds the initial time (0):

- the formula for cell B12 is =B11+1
- the formula for B12 needs to be replicated down as far as, say, B23.

Alternatively, use the fill handle to generate the sequence or use the *fill series*.

2 The column of corresponding temperatures based on the initial temperature and the drop each minute needs to be calculated.

For example, if cell B11 holds the initial time, cell C11 will hold the initial temperature.

Store the initial temperature in an easily-accessible cell such as C7.

Enter the loss of temperature each minute into a cell from which it can easily be changed, for example, H7.

The temperature at time 0 will be given by =C7, and at time 1 it will be given by =C11–H7.

What happens if this formula is dragged down to cell C23?

3 Distinguish between relative and absolute cell references.

What errors were reported and why did they occur?

C11, which we want to change while dragging, is a relative cell reference while H7, which we want to stay constant, is an absolute cell reference.

4 Change cell reference to absolute.

For example, H7 is an absolute cell reference so edit the formula for C12 to read =C11–H7 and replicate this to the block C12:C23.

The <F4> key in Microsoft Excel automatically enters the reference as an absolute one. Alternatively, cell ranges can be named and referred to.

5 Data need appropriate graphical representation, e.g. scatter graph.

For example, highlight the block B11:C23 and enter the Graph Wizard.

Decide:

- on an appropriate graph style;
- the ranges to be used on each axis;
- how to label the axes;
- whether a legend is needed;
- where to put the titles on the graph;
- where the graph should go on the sheet.