

The interactive graphing tool allows you to apply economic models and practice your graphing skills – ideal for exam practice or just to consolidate your understanding of economics! You can use the tool to draw graphs freehand, or to answer the accompanying practice questions. Look out for the interactive graph icon in the text to see which models these questions relate to.

## 1. Titles and other editable Text

Text around the graph is editable by clicking on the text and using the flashing cursor to edit as normal. This applies to the main title above the graph, the titles along the horizontal and vertical axes, and the smaller text beneath the graph. The numeric scale division annotations along the graph axes are controlled with the grid editor tool (see below [2]). Additional text annotation can be created using the text tool (see below [5]).

## 2. Grid lines and axis scales – the Grid Editor Tool



The 'Edit Graph Grid' panel appears when you click the Grid Editor Tool. This panel controls the number of grid divisions along the horizontal and vertical axes, as well as the numbers which annotate each vertical and horizontal grid line (automatic axis labelling).

For example, to specify 10 vertical lines extending from the horizontal axis labelled 0 to 100:

Horizontal Axis	Number of divisions:	10
Minimum value:	0	Maximum value:
		100

To specify 5 horizontal grid lines extending from the vertical axis labelled 0 to 50:

Vertical Axis	Number of divisions:	5
Minimum value:	0	Maximum value:
		50

To turn the grid lines and/or the grid labels on or off use the checkboxes:

Show graph lines:	<input checked="" type="checkbox"/>	Show division values:	<input checked="" type="checkbox"/>
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## 3. Curved lines – the curve tool



To draw curves, click on the curve tool, then click on the graph to place the start point and then again to show the end point of the curved line you wish to draw. These points are shown by small squares, which can be moved by dragging. You will also see two adjoining circles – these are handles, which can be dragged to vary the curvature of the line. By moving the points and handles it is possible to create just about any type of curve you might need. You can also move the whole line by dragging it or by using the arrow keys on your keyboard. To deselect the curve (and hide its points/handles) click on any other object or tool or on the graph background. To select it again (and show the points/handles) click on the line. To draw another curve, deselect the current item and click on the curve tool again, to begin adding points. To delete a curve first make sure it is selected, then press the backspace or delete key on your keyboard.

#### 4. Straight lines – the line tool



To draw a line, click the line tool, then click on the graph to place the start point and then again to show the end point of the line you wish to draw. These points are shown by small squares, which can be moved by dragging. You can also move the whole line by dragging it or by using the arrow keys on your keyboard. To deselect the line (and hide its points) click on any other object or tool or on the graph background. To select it again (and show the points) click on the line. To draw another line, deselect the current item and click on the line tool again, to begin adding points. To delete a line first make sure it is selected, then press the backspace or delete key on your keyboard.

#### 5. Adding text and annotations – the text tool



When the text tool is selected you can create a piece of text anywhere on the graph by clicking – you will see a box with a flashing cursor where you can type the text you wish to place. Note that you can use all your normal editing shortcuts to copy/paste, select all etc. You will also see a smaller square in the top left-hand corner of the text field – with this you can drag the text to the position you want it. You can also move it by using the arrow keys on your keyboard while the text field is selected. To deselect the text field (and hide its editing box and drag point) click on any other object or tool or on the graph background. To select it again (and show the editing box and drag point) click on the text. To create another piece of text, deselect the current item and click on the text tool again, to begin adding text. To remove a piece of text, select the text and use the text cursor and keyboard to delete the text, and then deselect to hide the editing box.

#### 6. Adding points and graphic shapes – the graphics tool



To add points or small graphics to the graph click on the graphics tool to see a palette of shapes to add (see below). Click on the shape you want to use, then click on the graph to place the selected shape where you wish. You can drag the shape to position it or move it using the arrow keys while it is selected. To deselect the shape click anywhere else on the graph. Click on the shape to select it again. To add another graphic, deselect the current item then click the graphics tool to show the shape palette again. To remove a graphic, click on it to select it then press the backspace or delete key on your keyboard.



#### 7. Changing colour – the colour picker tool



All lines, text and graphics on your graph can be coloured as you wish using the colour picker tool. First select an object you wish to colour (by clicking on it to show the selection box or points). Then click on the colour picker tool to show a palette of colours to choose from. Click on the colour you wish to use, and the object will take on that colour. Note that once a colour is selected in the colour picker this will become the default colour for new objects that are created, until it is changed again.

#### 8. Saving your graph – the save graph tool



To save your graph for later viewing or editing, click on the save graph tool to open the save panel, which allows you to type the name of your graph or select a previously saved name to overwrite. Then click save to store the graph where it can later be accessed from the same computer using the open graph tool (see below [9]). Note that graphs can only be accessed from the computer on which they were created, and only via the open graph tool.

#### 9. Loading your saved graph back in to view or edit – the open graph tool



Once you have saved your graph using the save graph tool (see above [8]) you can come back to it later and open it up again to edit or view. Click the open graph tool to show a panel listing all the previously saved graphs. Click on the graph you wish to open and click open. The previously saved graph will now be shown in place of the current graph, and will be editable using the tools as normal.