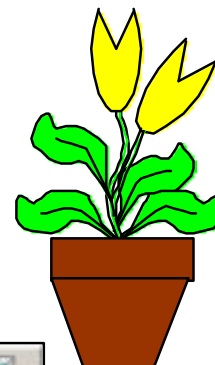
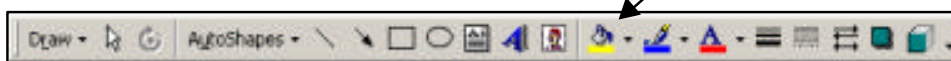


Make your own shapes in Word

This activity shows how you can draw all sorts of shapes in Word.



- Open a new **Word** document and look for the **Drawing Toolbar**.



- If it is not there, left click on the **Drawing** button (or **View** then **Toolbars**, then **Drawing**) to make it appear.



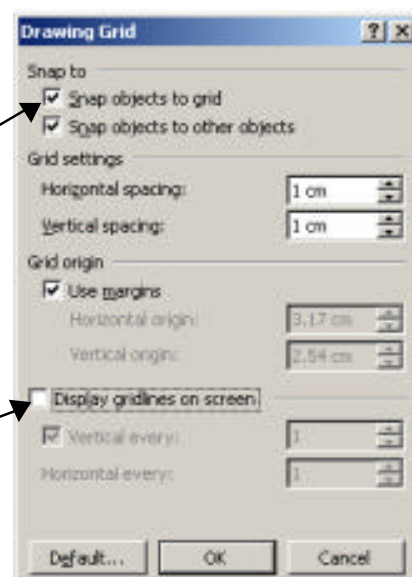
Gridlines are often useful when drawing shapes. In this case we will use invisible gridlines.

- Left click on **Draw** then **Grid**. The **Drawing Grid** menu shown here should appear.

- Set the **Grid settings** to 1 cm as shown.

- Check that the **Snap objects to grid** and the **Snap objects to other objects** boxes are ticked. (If not, *left click on the boxes* and ticks will appear.)

- For **invisible gridlines** the **Display Gridlines on screen** box should not be ticked. (If there is a tick in the box, *left click on it* and the tick will disappear.)

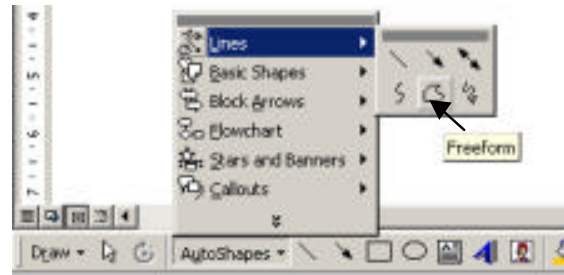


- Left Click **OK**.

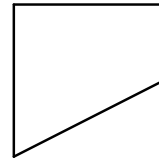
The gridlines make it easy to draw all sorts of shapes with straight edges.



- Left click on **Autoshapes** then **Lines** then **Freeform**.



- To draw a trapezium like this, move the cursor to the screen and **left click where you want each corner to be**. To complete the shape you need to **finish by left clicking on the first corner again**.



There are a variety of ways in which you can change the appearance of the trapezium.

You can use the **Fill Colour** button to colour the interior of your shape



You can also change the colour of the line around it using the **Line Colour** button.

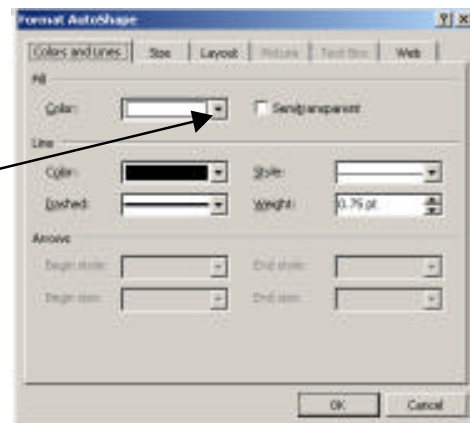
Try this alternative way of colouring the shape:

- Left double click on the shape to make the **Format AutoShape** box appear.

Left click on the **Fill Colour arrow**, and choose a colour.

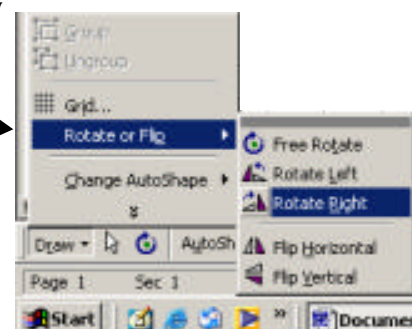
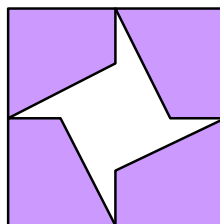
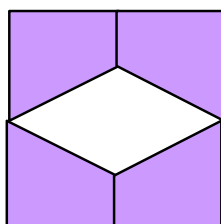
If you wish, use other options on the Format AutoShape menu to change the thickness or style of the line around your shape.

Left click **OK** to apply your choices.



You can make all sorts of patterns with your trapezium by copying it (press the Control key and drag the mouse) and then using **Draw, Rotate or Flip**

Two examples of 'tiles' that you can make with 4 shapes are given below.



- See if you can make copies of these tiles with your shape.

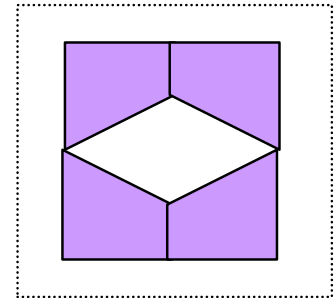


A Resource for Free-standing Mathematics Qualifications Make your own shapes in Word

You can create more complex patterns by grouping the shapes and treating each tile as a single object. To do this, follow these steps:

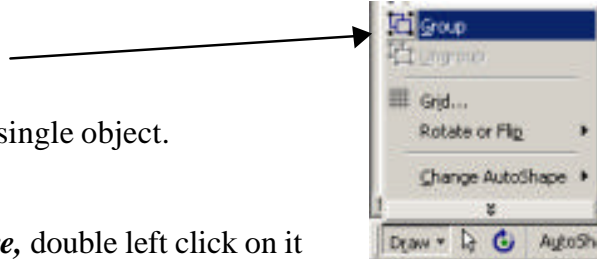


- Left click the **Select Objects** button on the Drawing Toolbar (if necessary) so that the cursor becomes an arrow.
- *Move the arrow to a point above left of one tile.*
- *Left click and at the same time drag the mouse down and to the right.* A dotted box will appear. Make it large enough to surround the tile, then release the mouse. All the shapes in the tile will be highlighted.



(Note another way to highlight all the shapes is to hold down the SHIFT key whilst left clicking on each shape.)

- Left click on **Draw** then **Group**.

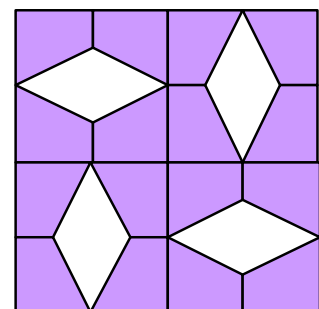
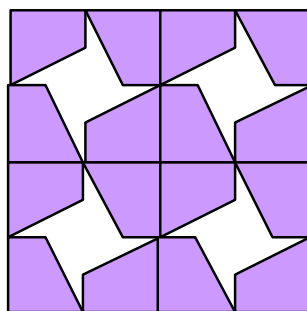


The shapes will now behave as a single object.

- To *check that your tile is a square*, double left click on it and look at the **Size** menu in the **Format Object** box. If the height and width of your tile are not the same, change one or both of these dimensions so that they are the same. Your tile will then be a square.

Copying the tile can give further patterns like these:

- See if you can make these patterns with your tile.



- Use your tiles to *draw some other patterns* if you wish.
- *Draw other shapes and make patterns with them.*



Drawing Curved Shapes

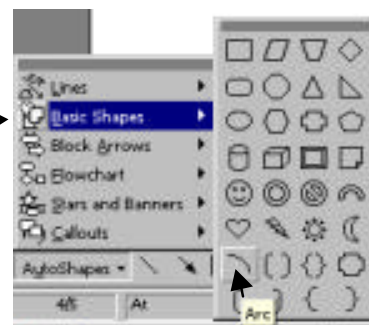
You may want to draw shapes that do not have straight sides. When drawing curves it is often best to avoid the use of gridlines.

- Left click **Insert, Break, Page Break** then **OK** to start a new page.
- Left click on **Draw** then **Grid**, then left click on all of the options that are ticked in the **Drawing Grid** box. This turns each option off and means you will be able to draw shapes anywhere you like. When you have done this, left click **OK**.

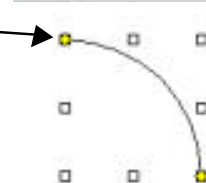
The **Oval** button on the **Drawing Toolbar** allows you to draw ovals and circles. (Remember to hold down the SHIFT key if you want a circle.)

Other curved shapes can be found in **Autoshapes**.

Those in the **Basic Shapes** menu are shown here:

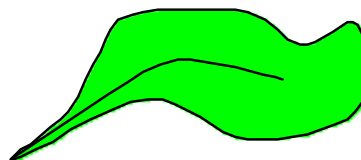


- **Experiment** with the **Arc** button – this allows you to draw part of an oval or circle. Try **holding down the SHIFT key** as you draw. What difference does it make?
- The arc has **yellow handles** at each end. These can be used to **increase** or **reduce the length of your arc**. **Experiment** with these and the other handles.
- Find out what **Fill Colour** does to the arc. If you wish, you can double left click on the arc then **experiment** with other options in the **Format Autoshapes** box.



You may want to design curved shapes of your own.

This leaf was drawn using the **Curve** option in **Autoshapes Lines**.



- **Experiment** with **Curves**.

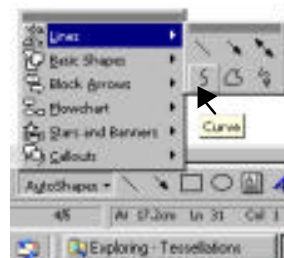
Notes:

Left click at each point on the page that you want your curve to pass through.

To finish a **curved line**, double left click where you want it to end.

To complete a **curved shape**, left click on the starting point.

To colour a shape, use the **Fill Colour** button or double left click on the shape and choose options in the **Format Autoshape** box.



- **Experiment** with **Scribble** (the button to the right of Freeform). Note you need to hold down the left mouse button when you use this option. Can you use Scribble to write your name?



Teacher Notes

Units Foundation Level, Working in 2 and 3 dimensions
Intermediate Level, Solving problems in shape and space
Intermediate Level, Making connections in mathematics.

Skills used in this activity:

- drawing shapes in Word

Preparation

Students will need to have some previous experience of the drawing options in Word. Ideally they should have worked through the **Drawing Shapes in Word**, **Tessellations in Word** and **Symmetry in Word** activities.

Notes

This activity shows students how to draw shapes other than those available in Autosshapes. This will enable them to work with transformations and symmetry using more varied shapes and also draw more varied patterns and tessellations.

The activity can be shortened by using just the first 3 pages (i.e. omitting the sections dealing with curved lines and shapes).

