

Graphical Modelling

These notes expand on the suggestions outlined in Unit 5A of the QCA Scheme of Work for ICT. The work is aimed at Year 5, but is also relevant for older pupils who have not had the opportunity to explore graphical modelling and understand that visual models can be used to identify patterns and relationships.

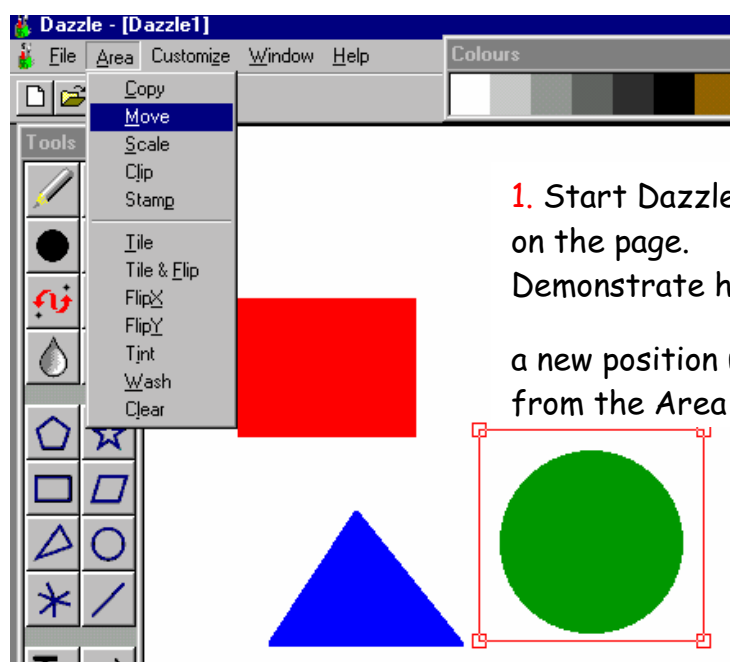
In the unit children learn how to use an object-based graphics package such as the drawing tools in Microsoft Word and compare it with a paint package such as Dazzle.

It is assumed that pupils are already familiar with a painting package such as Dazzle or Paint.


Setting the scene:

Key idea:

Children should learn that images can be created by combining and manipulating objects.



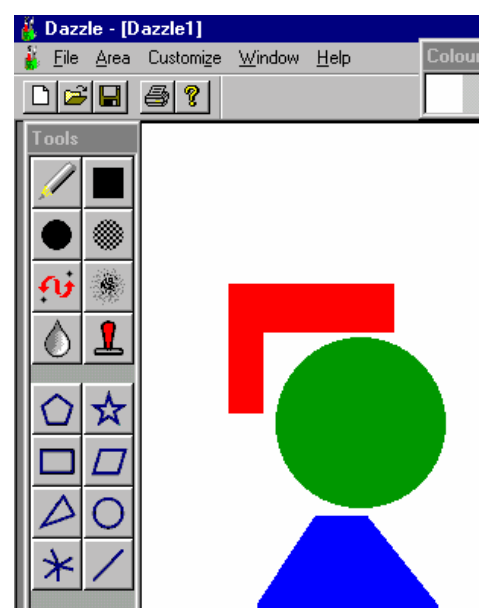
1. Start Dazzle and use the tools to draw some shapes on the page.

Demonstrate how a shape can be selected and moved to a new position using the selection tool  and 'Move' from the Area menu.

2. Move one of the shapes so that it overlaps another and demonstrate what happens if you then select the shape and try to move it again. You can no longer separate out the original image as the shapes have combined: a section of the picture can be moved, but a circle cannot.

Discuss how this may be useful when producing images, maps, charts and diagrams.

Pupils need to understand the limitations of paint packages for modelling.



Short focused tasks:

Technique: to move, rotate and re-size graphic elements


3. Show the class a copy of 'The Snail' by Matisse.

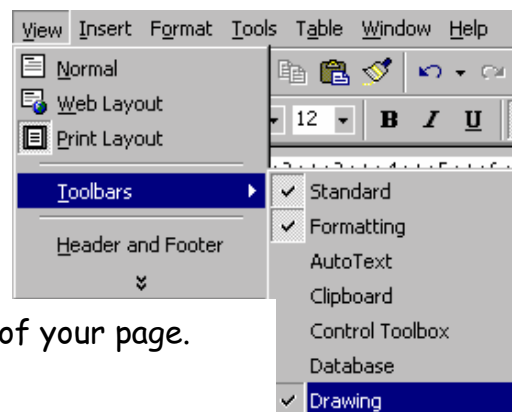
This can be found on the Internet at

<http://matisse.hypermart.net/snail.html>

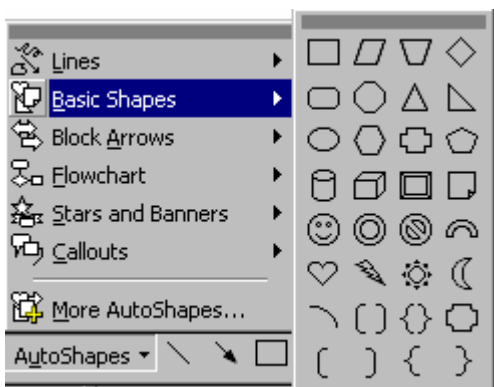
Discuss the use of collage and how it allows elements to be moved individually.





4. Start Microsoft Word and open the Drawing toolbar by clicking on  on the menu bar or View → Toolbars → Drawing.

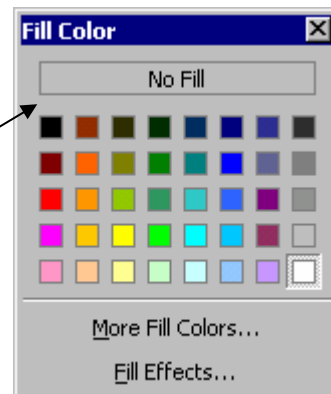




5. The Drawing toolbar will appear at the bottom of your page.



6. Demonstrate how geometric shapes can be drawn using the rectangle  and circle  tools and the basic shapes in AutoShapes.

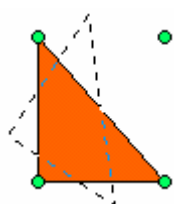
7. Show how the Fill Colour  and Line Colour tools work.




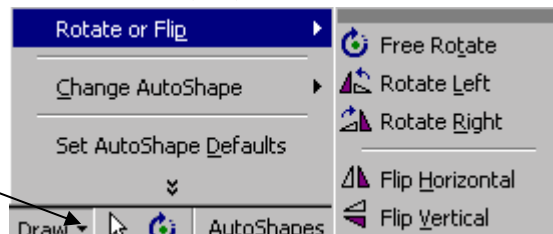
8. Demonstrate how shapes can be copied  and pasted  using the icons on the standard toolbar at the top of the page.



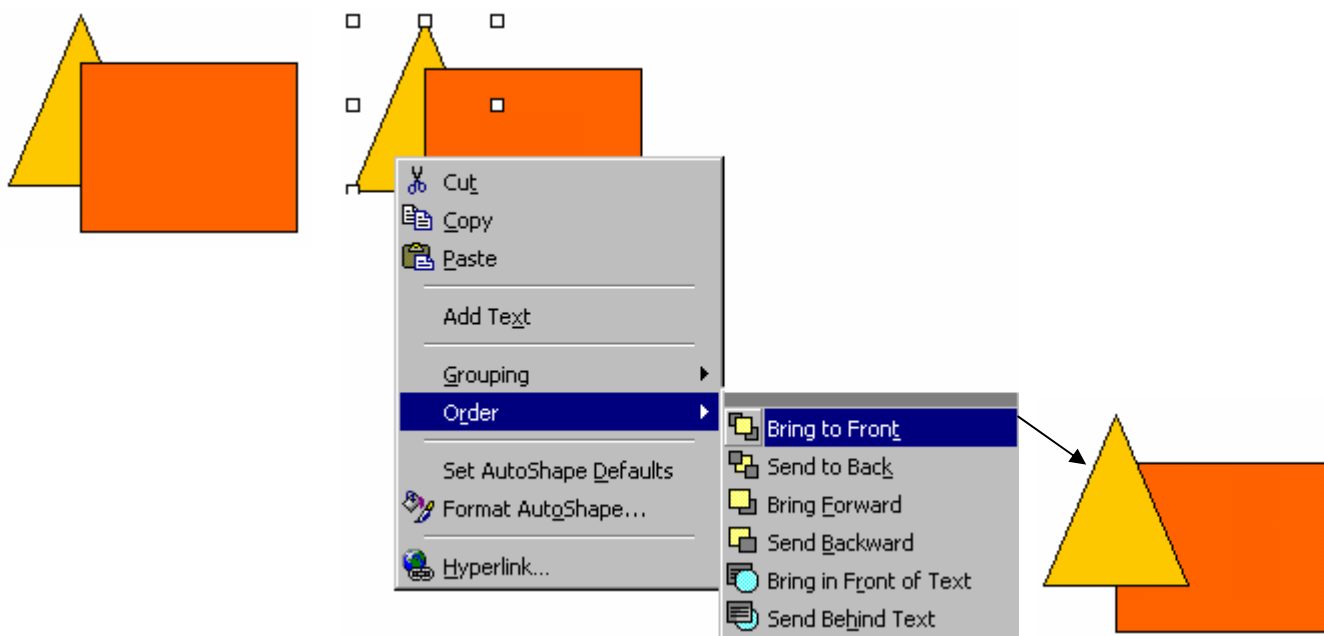
9. Show how shapes can be re-sized and moved.



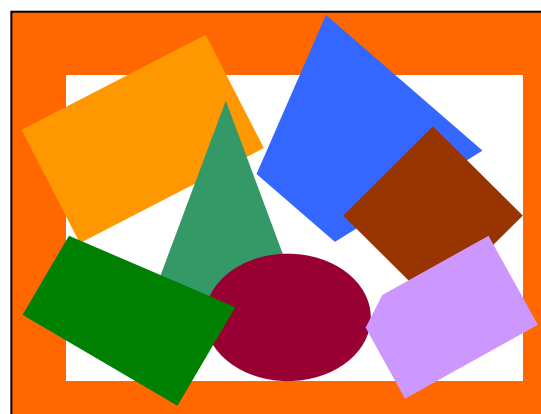
Show how they can be rotated using the free rotate button  on the Draw toolbar, or flipped using the Rotate or Flip option which is revealed by clicking on the down arrow next to Draw



10. Demonstrate how shapes can be layered: here a rectangle has been placed on top of a triangle. With the triangle selected, click the **right** mouse button for a pop up menu. Select Order, Bring to Front and the triangle will appear on top of the rectangle.



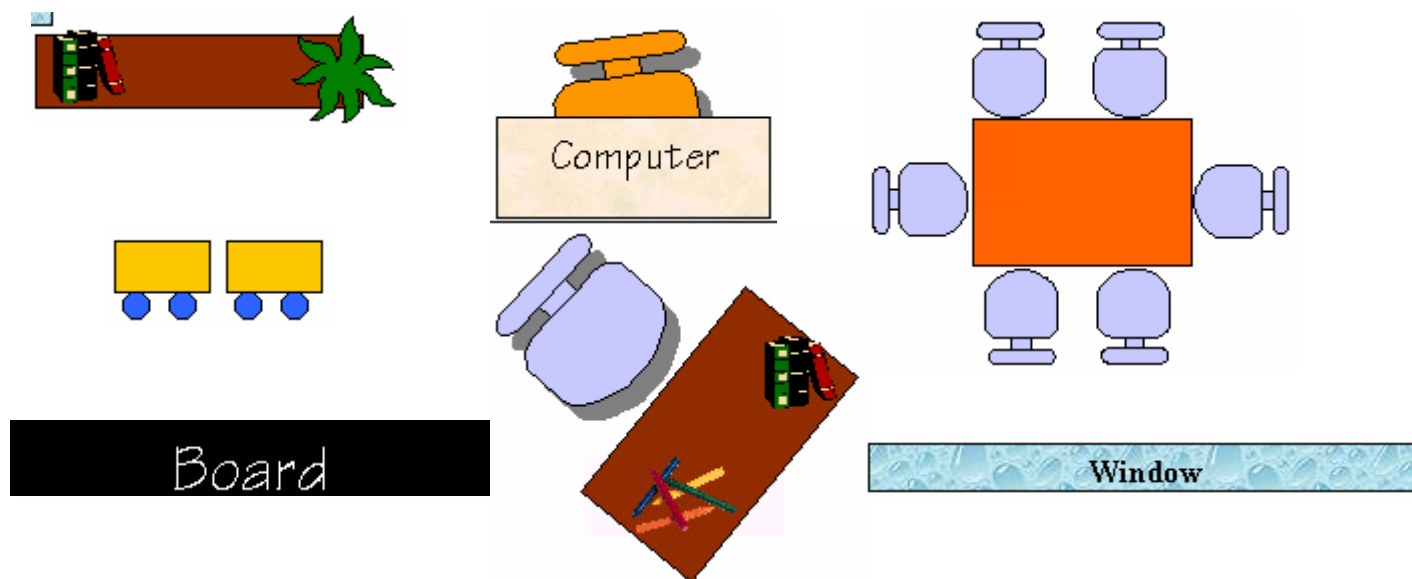
11. Ask the class to experiment with these techniques to produce a collage of overlapping geometrical shapes. Work should be saved and printed.




Short focused tasks:

Technique: to use geometric tools to create objects which can be manipulated using an object-based graphics package

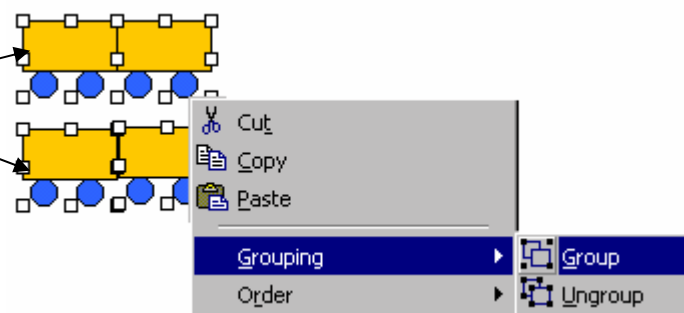
12. Show the class how to create various objects using straight lines, curved lines, geometric shapes and curved shapes. Ask the children to create a set of graphic elements which could be used to produce a plan of the classroom.



13. To add text to an AutoShape, right click on it and select Add Text from the menu. You can change the direction of text by clicking on the text direction button  on the text box toolbar.

14. Show the children how objects can be grouped by holding down the Shift key and selecting multiple objects.

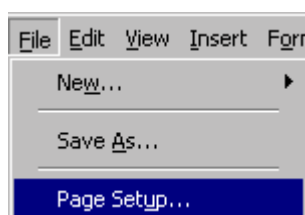
Keep the Shift key held down, right click and select Grouping from the menu. Click on Group. You can now move, resize, rotate or copy and paste the objects as a group. To change one element of a group, simply click on Ungroup.



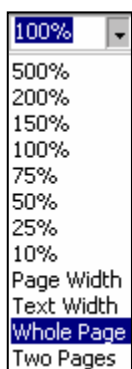
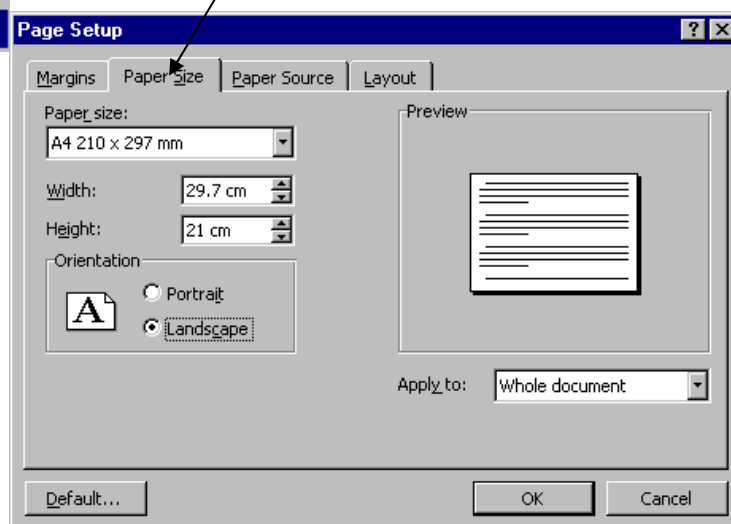
The class should now be ready to have a go at creating a plan of the classroom.

Short focused tasks:

Key idea: that a graphical model can be used to explore alternatives and identify patterns and relationships.

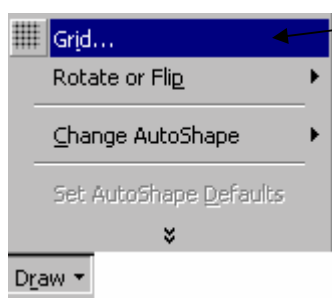


15. Show the children how to start a new document in Word and change the Page Setup to Landscape by selecting the Paper Size tab

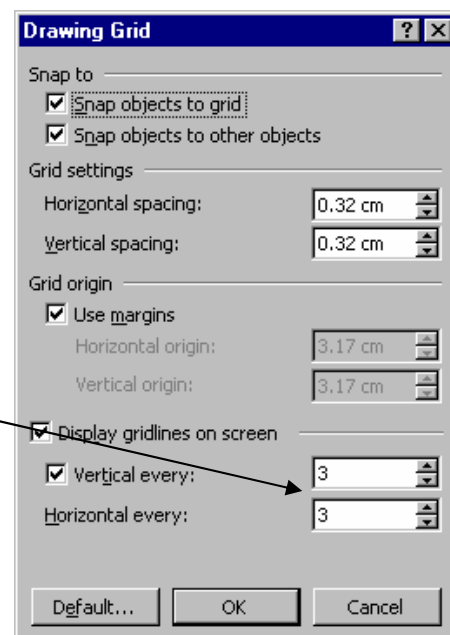


16. Change the View to Whole Page and draw out a rectangle to represent the classroom.

If you have Word 2000 you may want to show the gridlines to help you arrange the classroom layout: click on Draw on the drawing toolbar, then on Grid.



Select Show Gridlines on Screen and change the settings from 1 to 3



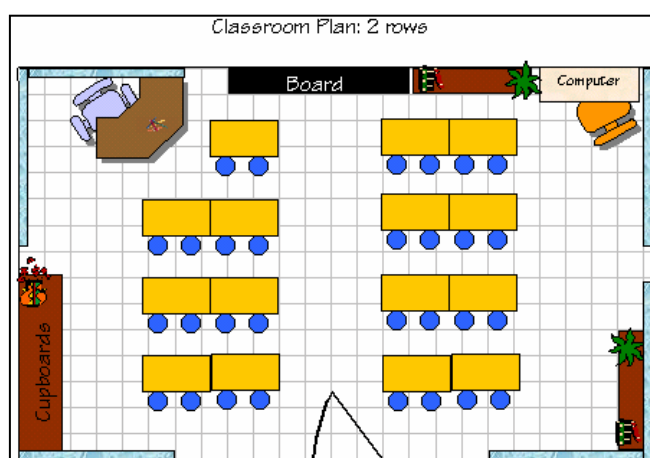
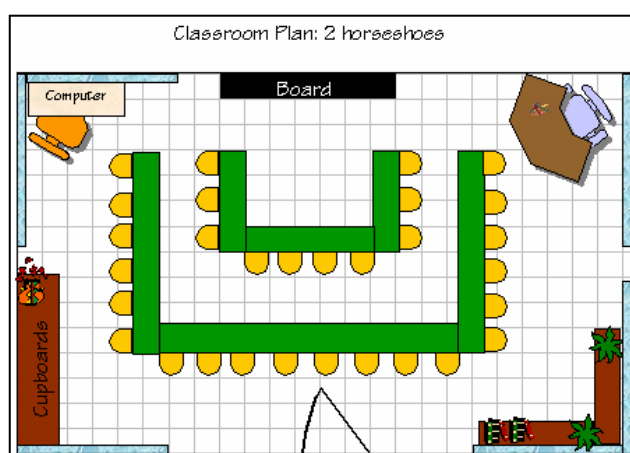
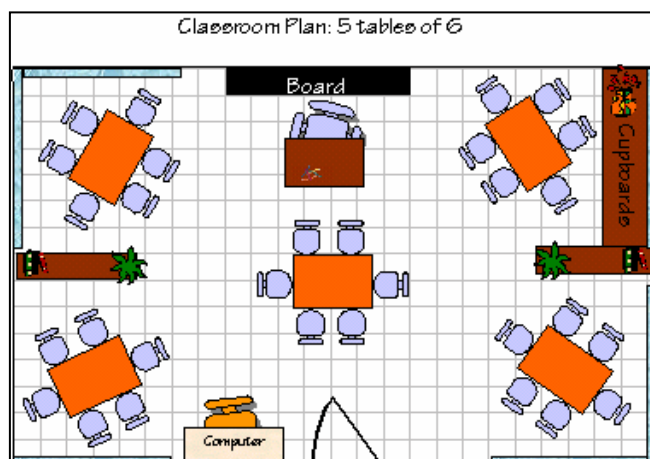
If you have already drawn a rectangle, you won't see the gridlines unless you right click on the shape, select Format AutoShape and select no fill on the fill colour (a shape is filled with white by default)

If you are using Word 97, the gridlines are not visible.

17. Ask the children to find out how many tables would fit in the classroom using different layouts and different-sized chairs and tables.

More able children could be encouraged to work to scale.

Ask the children to consider alternatives, *eg. what would happen if the tables were twice as long?* and to identify any patterns.



18. Children could be encouraged to plan their ideal classroom, showing best use of space and easy access to facilities.

19. The class could also be asked to think of ways to improve the school site. Ask them to produce maps showing the site as it is, and their proposals. Tell them that they need to show that their proposals will not disrupt requirements *eg. access and parking.*

20. Finished plans or maps should be saved and printed. The children should be able to apply what they have learnt in this unit when making maps in *Geography* and drawing diagrams in *Science.*