



Charts

If you want to use a computer to help store, retrieve and generally handle data you do not always need a full database-type program. This section gives some ideas for using other software tools to support this area of work.

Suitable software

PC/RM	Acorn
Counter	Datagraph
Survey	Picture Point
Graphit	Graphit
Catena Chart	



35 Draw graphs

Age
6-7

Purpose

- To support work with bar charts.

Organisation
Whole class, then pairs

Time
10-15 minutes per pair

Activity

- 1 Get the children to collect data on whatever topic you are working on.
- 2 Using your drawing program, create a blank grid as described in Activity 24 (or load one you have already created).
- 3 Show the children how to use the Line, Flood/Fill and Text options, if they are not already familiar with them.

- 4 Ask them to display their data as a bar chart, using the grid you prepared.

Graphs and tables produced in this way can be compared with other methods with which the children are familiar.

Extension

You can supply keys, axes, titles and labels as part of the grid template, or you can leave them for the children to create as part of their ongoing skills practice.



36 Display information pictorially

Age
9+

Purpose

To consolidate mathematical sorting ability.

Organisation
Small groups

Time
15-30 minutes

To practise the use of a range of IT skills such as selecting, dragging, copying, etc.

Activity

Ask the children to use a simple drawing program to display mathematical information pictorially.

Show the children how to insert a suitable clipart picture, if these are supplied with the program you are using; otherwise create some yourself. Then challenge them to do the same for themselves.

Where the same pictogram is required more than once, as in the examples shown here, encourage the children to create or import it once, then use Select, Copy and Drag to produce the rest.

Have them discuss how helpful it was to use the computer for this task.

Extension

The same effect can be achieved by using some of the features of a DTP package; in both cases the mathematics and the overall product will be essentially the same, but the program-specific IT skills being practised will be different, as will the discussion about the suitability of the IT tool for the task.



37 Graphing data

Age Purpose

6+

To introduce children to graph drawing programs.

Organisation
Whole class

Time

10–15 minutes

Activity

Decide on a theme that is relevant to your current work and ask the children to indicate which category applies to them. You can do this by conducting a 'show of hands' survey, which takes only a few minutes.

Collect the data as a tally chart or number list and then enter it into your graphing tool. A simple graph drawing program should be available to every classroom.

3 Within seconds you will have the information displayed on screen in the form of a graph. You can now discuss, interpret and edit it, and change its appearance at will.

Note

► It is often possible to attach a computer to a large-screen TV, which really helps when you are introducing new software to the children. Usually this is achieved by connecting a special unit to your computer which in turn links to the SCART socket on the back of your television set.



38 Display information

Age Purposes

7+

To practise using pie and bar charts to display information.

Organisation
Whole class

Time

Variable

To experience how IT can display the same information in different ways.

To compare the usefulness of different displays of the same information.

Activity

Introduce the children to bar charts and pie charts, if they are not already familiar with them.

2 Ask groups of children to gather data relevant to the work in hand.

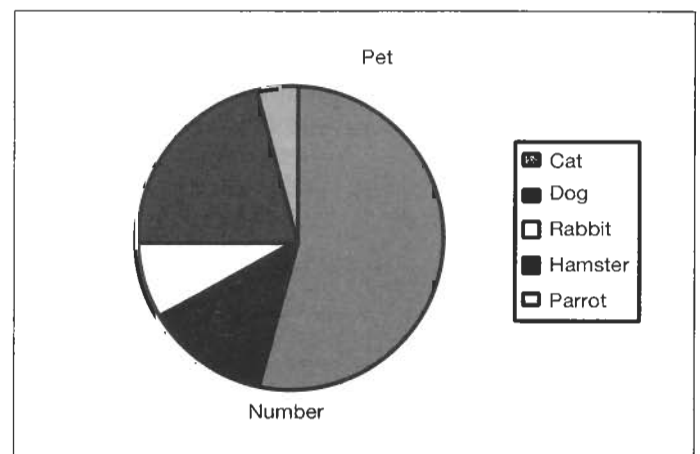
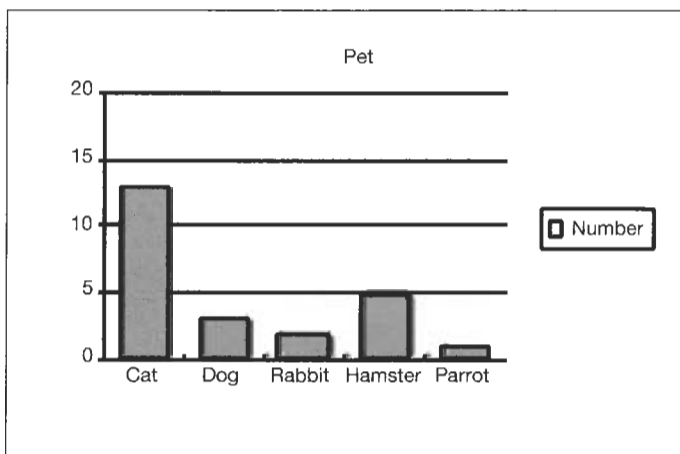
3 Enter the data into a simple charting program.

Show how the same information can be displayed in different ways for different purposes. For instance, 'How

many people like dogs?' is best answered with a bar chart; 'Do more than half of us like cats?' is better answered with a pie chart; while 'Which is the most common pet?' can be answered via either display.

Note

► Be careful when graphing any data to do with colours, such as 'Favourite colours', 'Car colours', etc. The computer may well show your bar chart in colours, but often, particularly with older software, these will bear no relationship to the colours named for each column or pie-slice; they are simply preselected by the program for display purposes. In this case, if you cannot alter the colour of the bars to match the data, displaying your chart in grey scales (or black and white), in a single colour or as outlines only may be less confusing for the children.





39 Sorting

Age
8+

Organisation
Small groups

Time
20–30 minutes

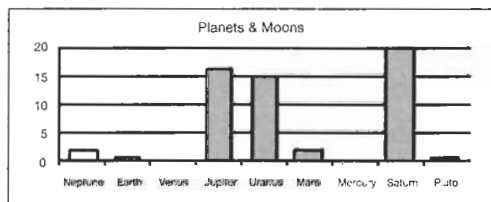
Purposes

To practise sorting data.

To experience how information can be displayed in various ways.

Activity

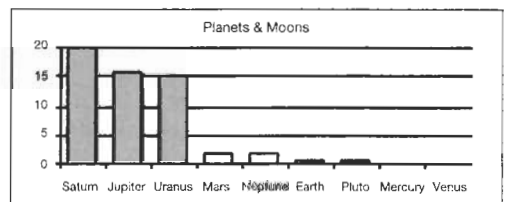
Find an opportunity to demonstrate how data displays can conceal or reveal useful relationships. In this example the children collect information on the Sun's planets – their distance from the Sun and the number of their moons.



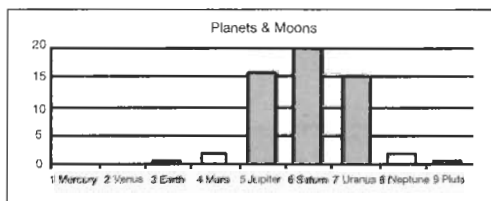
1 Random order
'Hmmm...?'

2 Have groups of children enter the data into your charting program, adding chart and axis titles and data labels. You may need to show them how to do this if they are not yet familiar with the program.

3 Ask them to experiment with sorting the horizontal axis data into different orders. Sorting will not always make the information clearer, but it is often worth trying to display information in alternative ways because the unexpected may turn up.



2 Moon number order
'Three groups? Interesting...?'



3 Distance from Sun order
'Wow! A pattern!'



40 Edit data

Age
8+

Organisation
Large groups

Time
15–20 minutes first session,
10–15 minutes second session

Purpose

● To practise evaluating and correcting data.

Activity

The advantages of using IT to create a graph become very obvious when alterations need to be made. Children often make mistakes in either collecting or entering data. If you let the mistake pass through the initial stages there will arise opportunities to look at and evaluate the result and to edit the data in order to correct the graph. It is important to find reasons for making

alterations if they do not arise naturally. Here is an example.

1 Ask a group to collect some data about themselves – how many siblings they have, perhaps – when at least one member of the group is absent.

2 Have them enter the data into the chart program, display it and save it.

3 When the missing member returns, ask the group to reload the file and add the missing information (or amend the existing data) before displaying the chart again.



41 Update a 'team points' record

Age 7+ **Purpose** To practise updating records.

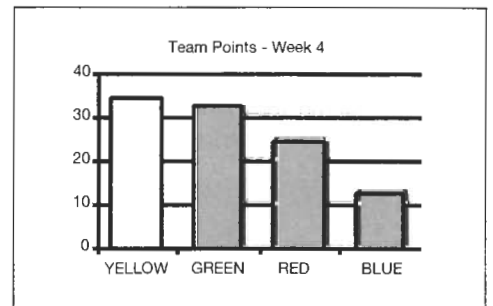
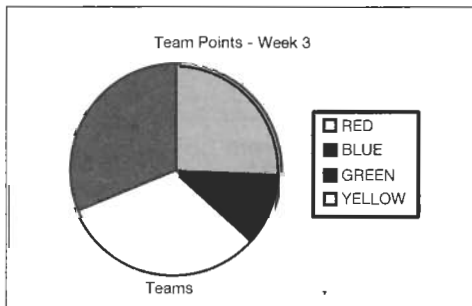
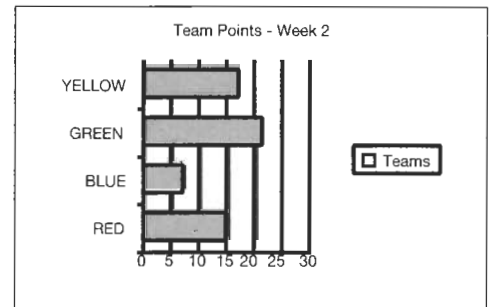
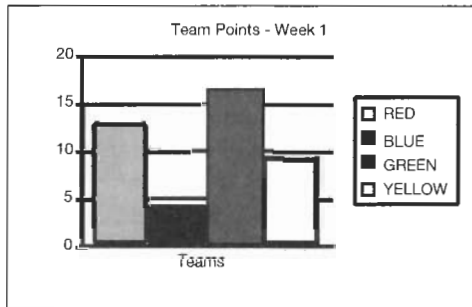
Organisation Pairs

Time 10–15 per pair

Activity Start a 'team points' or 'group points' record using your chart tool. Have a pair of children enter, display, save and print the points record for the first week.

Over subsequent weeks different pairs of children can load, edit, check, save, display and print the updated version.

Extension Encourage the weekly editors to explore some of the alternative ways of displaying the data before choosing a style for printing.



42 Record the weather

Age 9+ **Purposes** To practise using IT in a useful context.

Organisation Small groups

Time 15–20 minutes per week per group

To practise maths and IT skills.

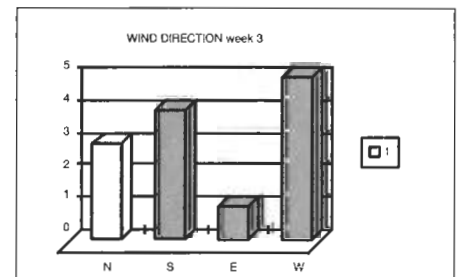
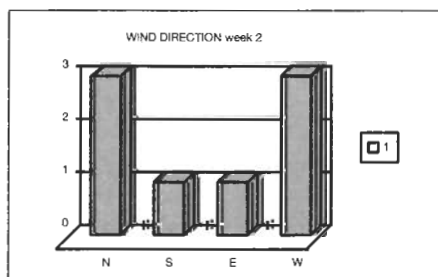
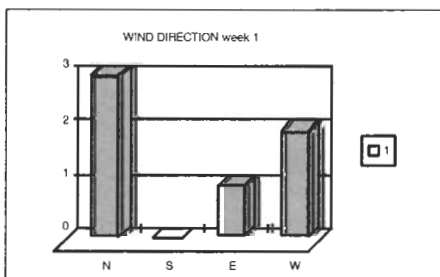
Activity Allocate groups of children to measure and record different aspects of the weather over several weeks, such as temperature, rainfall, wind direction, etc.

At the end of the first week, each group must set up an initial data file,

choosing how they want their data displayed, and save the file before printing it out.

At weekly intervals the groups edit their files to record any changes in the data, save and print the revised files.

Mounting these cumulative graphs in chronological order will result in a different type of record from the more usual temperature graphs.





43 Change your mind

Age
9+

Organisation
Groups

Time
Variable

Purposes

- To demonstrate the usefulness of IT for handling and organising data.
- To encourage 'good housekeeping' in computer use.

Activity

- 1 Organise the children into groups to conduct a survey of the opinions of school staff on a class topic – for example, 'Which season of the year do you prefer?', 'What is your favourite European holiday destination?', or 'Which day of the week would you prefer for Open Evening?'
 - Ask about half of the groups to record and display their data by hand, while the remainder use a computer chart program.
- 3 Prime one or more colleagues to 'have second thoughts' after the children have already collected, organised and displayed their data.

4 Ask all the groups to revise their displays to take account of the new information.

Conduct a class discussion on how easy it was to update their displays. Those who spent time and effort measuring and colouring a hand-drawn graph will have had a fairly major problem, while those who used IT should have been able to edit their data and print out an update within minutes. Of course, those who used IT but did not save their data will have had the worst problem of all because they will have had to start from scratch, entering their data all over again. Plenty of discussion opportunities arise from this activity, as well as useful learning experiences with regard to maths, IT, the value of opinion, and human foibles!



44 Data sources

Age
9+

Organisation
Small groups

Time
30+ minutes to plan and gather data;
variable thereafter

Purposes

- To experience the need to standardise data sources.
- To support maths and language skills.
- To practise using IT to handle data of various types.

Activity

- Ask the children to use atlases and reference books to gather data for a relevant theme, for instance the heights of volcanoes or the weights of animals.
- 2 Now give groups the task of preparing all their data for input into the graphing

program. They will need to standardise and convert units where necessary – lb to kg, fractions into decimals, etc.

3 They should then enter their data, create and print out a graph.

4 Ask them to explain how they made decisions about their data.

Extensions

- Some ideas for varying the types and sources of data include:

Data type	How obtained	What data
Measurable quantities	Scales, rulers	Height, weight, etc.
Colours, textures, etc.	Direct observation	Rough, scaly, etc.
Pre-recorded data	Atlases, reference books	Distance, population
Opinion	Interview discussion	Likes, dislikes
Information	Questionnaire	House type, pet, etc.



45 Persuasion

Age
9+

Organisation
Groups

Time
Variable

Purpose

To explore the use of a chart as a purposeful communication tool.

To support maths and language learning.

Activity

Ask groups of children to investigate and record the number and range of musical instruments, PE equipment, books, etc., available in the school.

2 Have them enter their data into the charting program.

3 Ask them to compose a written request to the head teacher to supply a wider range of instruments or whatever.

4 They should then consider how best to display their data to support their request, print out the result and attach it to their letter.

5 Subsequently they can edit their data as new equipment or books are acquired.

Extension

► A whole-class letter to the Governors could be accompanied by a graph showing which charities the children would like to support with income from the Christmas Fayre.



46 Weather prediction

Age
9+

Organisation
Groups

Time
Several short sessions per group

Purposes

To use IT to produce a chart that can be used for other purposes.

To build on experience with chart programs.

Activity

Ask a group of children to record the temperature, morning and afternoon, over a few days.

Have them enter, save and display the data as in earlier activities.

Now ask them to study the pattern revealed in their chart, and make a prediction about the next three days' weather.

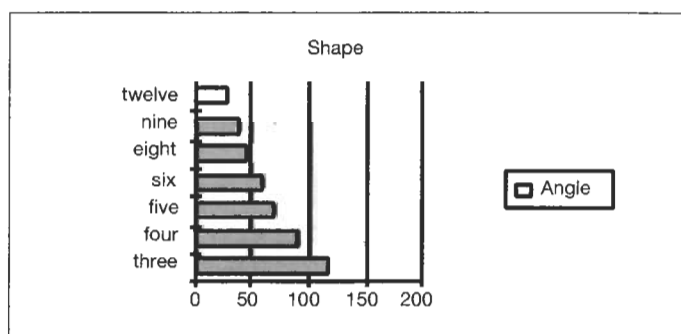
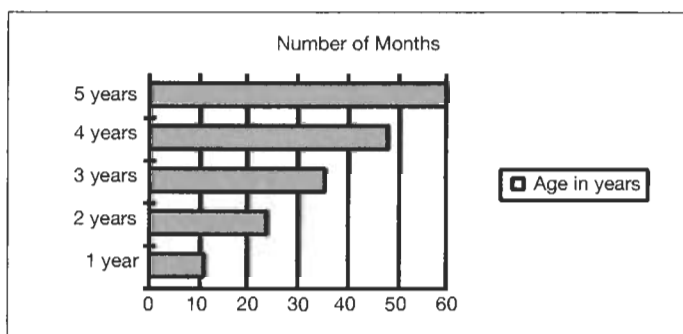
4 They should edit their file to include their prediction, save and print out the chart.

5 They should then record the actual temperature over the three days, amend and print out the revised chart.

6 The group should then compare the two print-outs, discuss the accuracy of their prediction and draw conclusions about the theory that underlay it. They may at the least discover how difficult it is to be a weather forecaster in this country!

Extensions

You can use the same idea with any easily accessed data such as days and hours, side and area or shape and interior angle, depending on your ongoing work. The challenge in each case is to predict the unmeasured data and then test the prediction.





47 Test hypotheses

Age
9+

Organisation
Whole class

Time
Variable

Purpose

- To extend the purposeful use of charting tools.
- To promote efficiency and speed in creating graphs using IT.

Activity

Have the children conduct a survey of the colour of everyone's eyes in the class.

Ask them to create a chart to display their data.

Encourage them to form a hypothesis on the basis of their initial survey. For instance, 'In our class blue is the most common eye colour, followed by brown and green. We think this will be true for other classes in our school.'

They should then survey the other classes and repeat the charting work.

They can then compare the graphs to determine whether their hypothesis was supported by the evidence.

Extensions

► In English the class's hypothesis might be: 'We think children like to read stories which have either animals, children or magic in them.' Set up a survey in which children from other classes are asked to select from a list the items that attract them in a story. As results from each class are acquired the data in the chart program can be amended to prove or disprove the hypothesis.

► In Music the children might decide: 'We think that the most common musical instrument type has strings.' Start a chart with sections for each type of instrument – stringed, percussion, etc. As each new instrument is thought of or discovered, either for real or in a book, it is classified and added to the list, and the chart is edited to display the latest information.

► In PE the children might hypothesise: 'We think children prefer outdoor games.' Organise a class survey in which children are asked to choose their favourite from a selection of indoor and outdoor games. As each class is surveyed the file can be edited and the new data added until a conclusion is reached or a further question arises.

