

LOOKING AT SPREADSHEETS

To use a spreadsheet to store information. To use spreadsheet facilities such as total, average, sort and graph to illustrate their findings.

†† *Whole class (data collection) and pairs (at the computer).*

🕒 *20 minutes at the computer; 15 minutes demonstration.*

Previous skills/knowledge needed

The children should be able to make measurements of their own dimensions. It would be helpful to have already covered the activity 'Looking at us' on page 66.

Key background information

Computer spreadsheets are powerful IT tools which present information in a clear, easily accessible format. All spreadsheets consist of numbered boxes or cells within which data in the form of words or numbers is placed. A single spreadsheet may contain hundreds of cells which means that the whole sheet may be too large to see all at once. However, the cells can be moved around, with the computer screen acting rather like a small window through which we look at one part of the sheet at any one time. Usually, around the top and left-hand sides there are labels which define what each column or row contains.

Spreadsheets have various functions which can process the data held within them. For example, the totalling or averaging of a column is easily carried out. Graphs of the column contents can also be produced to illustrate patterns within the data and enable conclusions to be drawn.

Handling information

Searches, and narrowed down searches, can be carried out within rows to identify particular cases which fall between certain ranges. Some spreadsheets offer the facility to identify the maximum or minimum within a column.

The activity below introduces the children to using spreadsheets. They are asked to collect measurements of their own physical dimensions and to input this data into the spreadsheet. They are then encouraged to use the total/average and graph facilities.

Vocabulary

Spreadsheet, cell, narrowed down search, cell address (the co-ordinates of each cell, usually in the form of A1, B16, G7 and so on), maximum, minimum, range, column, row, sum.

Preparation

Set up a computer spreadsheet with one row for each child in the class and approximately six columns, each one headed as follows: Name, Height (cm), Weight (kg), Foot (cm), Reach (cm) and Cubit (forearm measurement) (cm) – or any other attributes that you wish the children to measure. If you have already done the activity 'Looking at us' on page 66, then you can re-use the data obtained.

If you have not yet carried out the above activity, refer to Session 1 of the 'What to do' section on page 67 to collect the data in preparation for the main activity below. You may also wish to make copies of photocopiable page 140 to help the children gather their data. Alternatively, you

can make copies of photocopiable page 144 and use this data to complete the activity.

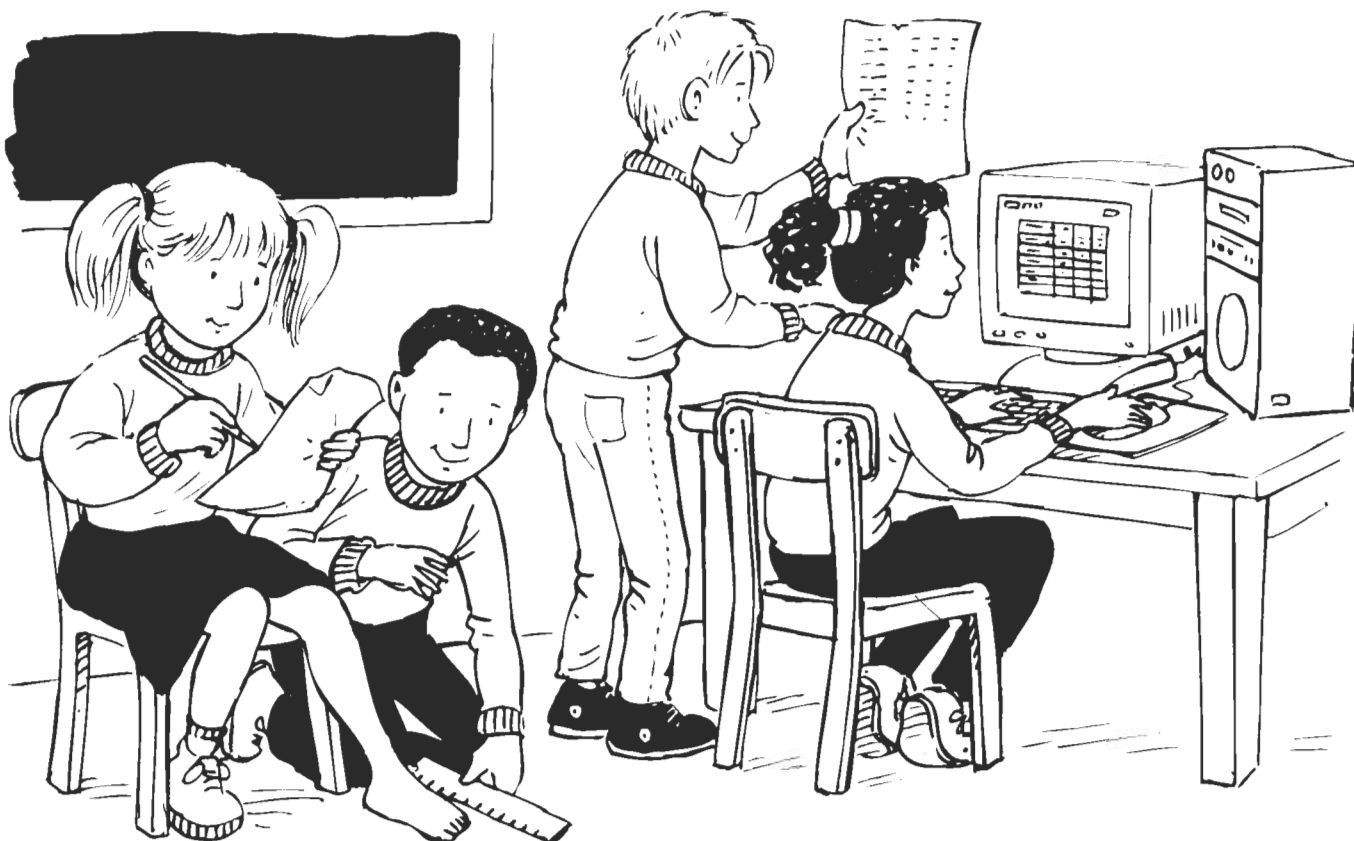
Resources needed

A computer, spreadsheet software, preferably with a column totalling and averaging facility, a printer (preferably colour), paper, pens, measuring equipment such as tape measures and bathroom scales, photocopiable page 144 (if you have not already done the 'Looking at us' activity on page 66).

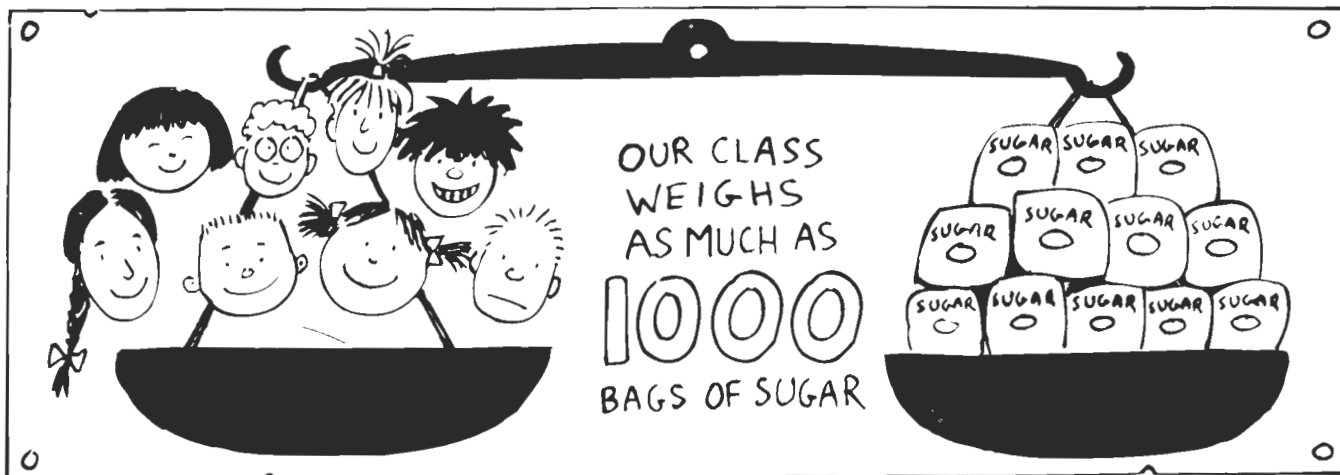
What to do

In this activity the children use a simple spreadsheet to store data about themselves and then use some of the functions available to illustrate and interpret the data. The children will need to have collected various measurements of their physical dimensions first (see Preparation).

Start with a whole class demonstration showing the children a printout of the spreadsheet structure you have set up on the computer (see Preparation). Point out the cell structure, and the way that the columns and rows are arranged. Explain that only a small part of a spreadsheet can be seen on the screen at any one time. Show them how data is typed into the cells and how to move around between the different cells by clicking on a particular cell using the mouse pointer. Demonstrate how to save the information. Now tell the children that they are going to use a spreadsheet format to enter the measurements of their physical dimensions/attributes. Explain that they will also use some spreadsheet facilities to interpret and



Handling information



illustrate the data. Next, allow the children access to the computer in pairs to type in the measurement data collected. If the children have not had the opportunity to collect their own measurement data, perhaps due to time constraints, they can key in the data from photocopyable page 144 to enable them to participate in this activity.

Make a printout of the spreadsheet once all the data is entered. Talk about the sum/total and average of a column if your spreadsheet has these facilities. Finding the total height or weight of the class can be an amusing concept! The children should graph the data, to illustrate class heights or cubits, for example. If the spreadsheet has a scattergram facility (a graph that displays the connection between two variables – height and foot size, say), then some interesting comparisons may be made. Ask the children to plot reach against height; there should be a close connection between the two shown by a narrow spread of dots. Compare the average height of boys and girls.

Suggestion(s) for extension

To extend the confident children, encourage them to make greater use of the scattergram feature.

What other attributes that relate to each other can they find? They could enter into their spreadsheet the additional attributes mentioned in 'Looking at us', such as the index of Elegance, and look for connections – for example, are all elegant children tall?

Suggestion(s) for support

The less confident children may need you to work alongside them for a short while to ensure that they enter their data correctly into the spreadsheet, or have a more confident

friend work with them to ensure the process is understood. They will be involved in straightforward analysis of the data in the spreadsheet such as printing out graphs of class attributes and totalling columns.

Assessment opportunities

This activity can allow you to assess how well the children prepare information for IT processing, checking for accuracy as the data is entered. (Establishing a routine such as saying 'All children in this class are between the heights of x and y' may help with this).

You can also assess how well they interpret information, and how well they use and understand functions such as the total and average values of a column of data. Look at how confidently the children interpret the data in graphical form, and how realistic their conclusions are.

Display ideas

The children will enjoy building up a display about themselves. The central focus could be the spreadsheet itself, enlarged. Use coloured cotton to link parts of the spreadsheet to illustrations or word

processed explanations. Ideas for illustrations could include the total height of the class ('Our class is as long as six double-decker buses'), the total weight of the class ('Our class weighs the same as 1200 bags of sugar') and so on. Such comparisons will enable the children to improve their estimation skills in an enjoyable way.

Reference to photocopyable sheet

Photocopyable page 144 can be used to help the children to experience the simple spreadsheet processes.

Spreadsheet challenge

Name _____ Date _____

▲ Look at this spreadsheet example and answer the questions below.

	A	B	C	D
1	pupil	height (cm)	weight (kg)	reach (cm)
2	Tom	123	34	120
3	Helen	137	39	139
4	Sarah	134	32	132
5	Thomas	136	38	135
6	Lizzie	122	28	122
7	Jo	124	29	120
8	Eleanor	130	35	132

- Can you find the total of the height column – what is the sum of the height column?
- What is the average height of the children?
- How much taller are Helen and Sarah together compared with Tom and Lizzie together?
- What is the average reach of the children? Is this similar to their average height?
- What is the total weight of the children?
- What is the average weight of the children?
- Who is less than the average weight?
- Who is above the average weight?
- Who is above the average height?
- Who is below the average height?

Spreadsheet challenge

Name _____

Date _____

▲ Look at this spreadsheet example and answer the questions below.

	A	B	C	D
1	pupil	height (cm)	weight (kg)	reach (cm)
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1 Can you find the total of the height column – what is the sum of the height column?

2 What is the average height of the children? _____

3 How much taller are Helen and Sarah together compared with Tom and Lizzie together?

4 What is the average reach of the children? Is this similar to their average height?

5 What is the total weight of the children? _____

6 What is the average weight of the children? _____

7 Who is less than the average weight? _____

8 Who is above the average weight? _____

9 Who is above the average height? _____

10 Who is below the average height? _____