# The Roamer Games! An event for SET95 Week

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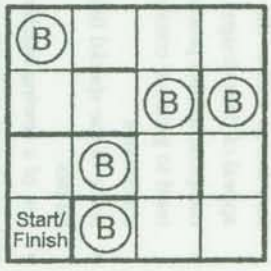
Inspired by his school's award-winning performance in the IEE Micromouse Championships last year, Steve Woolley produced another winner as a competition for SET95 Week in March

When SET (Science, Engineering and Technology) Week appeared on the agenda in my school, someone pointed out the word 'Technology' and asked me what 'we' would be doing. As I am interested in promoting school technology and a firm believer in catching the imagination of children at the earliest possible opportunity, I suggested that we might run a technology competition for our junior feeder schools.

The competition needed to be fun, accessible to children in Years 5 and 6, and to use equipment that our feeder schools would already possess. I therefore chose to devise a series of games based on the programmable turtle called the Roamer (available from Valiant Technology). Our local Midland Bank agreed to sponsor the cost of the event and Valiant Technology agreed to sponsor prizes and to provide free INSET for interested schools. Some preliminary research confirmed that enough local schools owned Roamers, so I started organising the first Bancroft's Roamer Games.

I wanted a variety of activities to entertain and stimulate the children and to cover several aspects of the Key Stage 2 curriculum. Each game was to last 15 minutes and to have a similar format. The games were as follows:

## The Maze Game




B this represents a balloon.

The playing board of this (and all the other games) is 120 cm square, divided into 16 30 cm squares. The unit of distance is the basic unit of Roamer movement — one Roamer 'length'. The board is marked with heavy lines marking the walls of the maze. Any Roamer crossing the walls incurs penalties. Balloons are fixed at various places around the board and the Roamers are armed with drawing pins at the front. The object of this noisy game is to negotiate the maze, burst all the balloons and return to the start square. Maximum points are scored by teams who manage to achieve this in a single program, but it is more likely that teams will have to rescue Roamers that start to wander through walls or off the playing board, and return them to the start for program modification. Any such contact causes a loss of points.

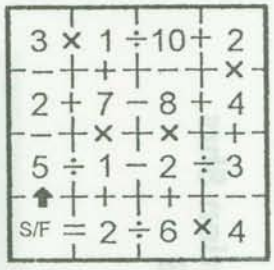
## The Word Builder Game

| | | | |
|---|---|---|---|
| Q 10 | K 5 | A 1 | U 1 |
| M | E | O | H |
| L | T | Y | F |
| Start/ Finish | W | C | P |

I have put some letter scores in as examples.

In this game the 4 x 4 grid is filled with letters (apart from the start/finish square) and there are no walls other than the perimeter wall. Each letter is assigned a letter score as in the game Scrabble. The object of the game is to build words of three or more letters and to accumulate the longest and highest scoring list possible in the 15 minutes available. Letters are selected by programming the Roamer to move to a square, then stop and emit a 'beep' to confirm that the letter has been selected. The last letter of a word should be signalled by the Roamer emitted a double beep. After each word the Roamer should return to the start/finish square for further programming, or continue to the next word. Teams who programme Roamer to 'collect' strings of words before returning to the start/finish square receive bonus points. No letter in the grid may be used more than once, and to start with I recommend that players go for short, single words to build their confidence.

## The Maths Maze



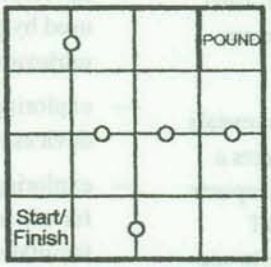

This is an example only!

This puzzle is definitely a challenge! The object is to programme a route passing through the number grid using each square once only that produces the largest number when the Roamer return to the start/finish square. The cells of this puzzle are separated by

mathematical operators which are used when the Roamer passes through them from one cell to another. If the Roamer runs off the board or needs to be handled for any other reason, then a touch penalty is occurred as usual.

Teams will benefit from starting with short runs through the maze without attempting to use all the squares on their first attempt. The best scoring route obtained in the 15 minutes will count. Routes that do not successfully terminate on the start/finish square — or which use squares more than once — will not count.

## The Shepherding Game




o This represents a table-tennis ball.

In this game, one corner of the 4 x 4 grid is walled off as the sheep pound and 'sheep' are represented by tennis balls. The Roamer (best fitted with two pen holders at the front) has to herd the sheep into the pound. This is more difficult than you might think! It is most likely that teams will attempt the task in several sweeps, returning to the start/finish square for new programming after each sweep. As in all games, if the Roamer is touched for any reason (other than when stationary on the start/finish square), a penalty is incurred.

## Construction

I made the playing boards from 9 mm MDF and produced the letters and numbers on a computer. The computer print-outs were then enlarged on a photocopier and stuck to the playing boards with adhesive spray. This was a fairly expensive and labour intensive procedure but has produced 20 playing boards which should be durable enough for repeated use. The game boards could be made more simply using lino squares marked with marker pens, or by using one-foot square tiles laid on a hardboard base.

## The Event!

Sixteen teams of four pupils from ten different schools came to Bancroft's School and the gym was soon crowded with very enthusiastic Roamer programmers. Each team tackled the four games described above in rotation, so all the teams were occupied all the time. We did take a short break for refreshments, however!

The event was very successful: over sixty children worked with interest and enthusiasm and were very well behaved — as were their Roamers. All the teams were thoroughly absorbed by the tasks and team members clearly co-operated effectively with one another. One of my sixth-form helpers said his team were disappointed that the Games were over — such comments obviously made the effort well worth while. The teachers who accompanied the junior children were impressed and sometimes surprised by how effectively their teams tackled the problems of planning and programming for each task. Several teachers said that they now felt inspired to use the Roamer more extensively in their own school.

The Games concluded with the judging of the best decorated Roamer and the prize-giving ceremony. The judging was carried out by Martin Patterson of the Midland Bank and Kate Hudson of Valiant Technology. All the teams did very well and had a real sense of achievement. The overall winners of a closely fought competition were a team from Selwyn Junior School, Highams Park, and the winners of the prize for the best dressed Roamer were Epping County Junior School, Epping. The prizes (vouchers of £100 and £50 for Valiant products) were awarded by Kate Hudson.

I look forward to repeating the event next year!

*Note: Design & Technology Teaching would be interested to hear from other schools about their activities for SET95 — write to the Editor at DATA.*