

Assessment opportunities

This activity will allow you to assess how well the children create, test and modify sequences of commands to enable their Roamer to draw a repeat pattern. It will enable you to find out whether they understand the purpose of a procedure.

Display ideas

The results of the Roamer's pattern drawing will produce an interesting display. Link the appropriate sequences with the pattern, perhaps word processing them on the computer using a large font.

LETTERS AND NUMBERS

To use Logo to draw on the screen and to print out the results.

†† Pairs.

⌚ 30 minutes at the computer; 10 minutes discussion/demonstration time.

Previous skills/knowledge needed

The children will find it helpful to have some previous experience of a Logo language through using a robot. An understanding of the use of degrees of turn would also be an advantage.

Key background information

The software allowing the moving of an object and drawing on screen comes under the generic heading of Logo. The screen pointer is often referred to as the 'turtle' and the

software used to be termed Turtle Graphics. The screen turtle can be any small object (often chosen from a list of alternative pointers such as frog, a paint brush, an aeroplane, a car and so on) which is moved around by inputting commands at the keyboard. These commands are simple, such as:

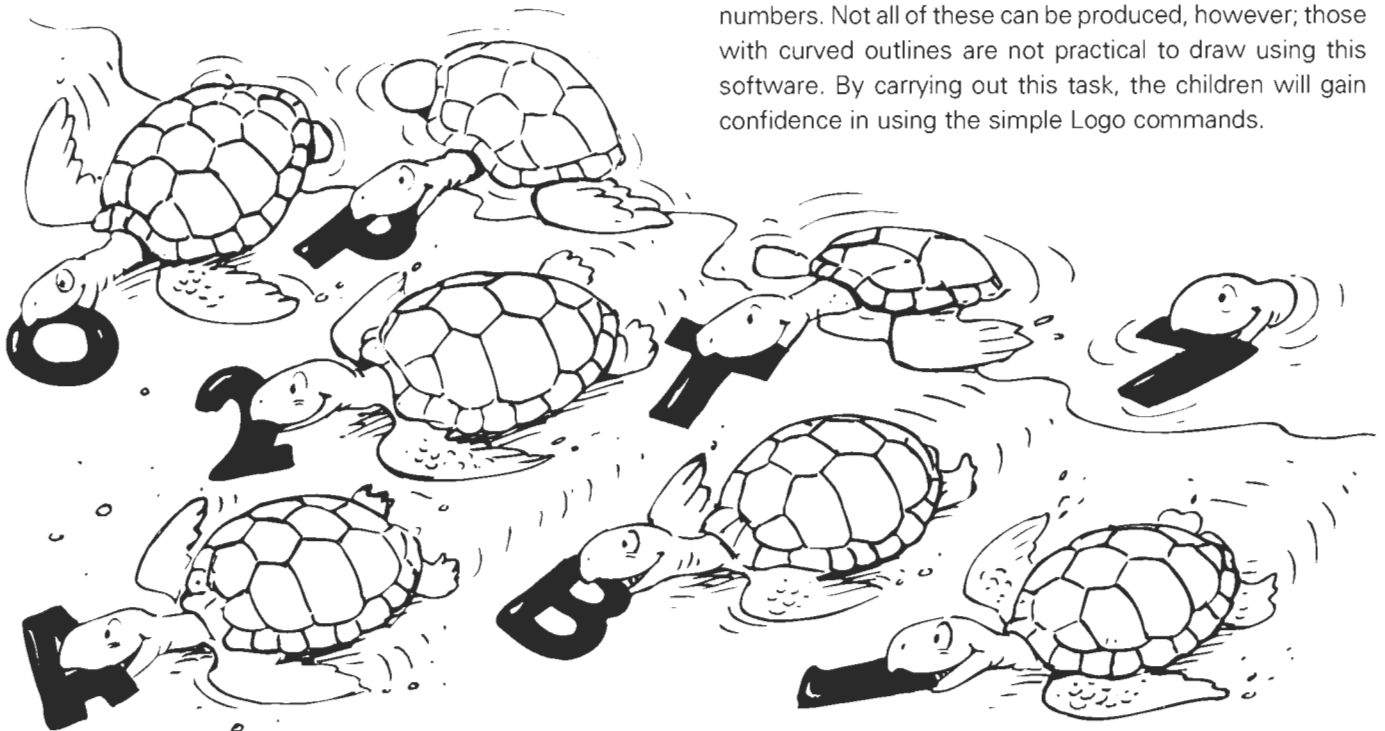
FORWARDS, BACKWARDS, RIGHT, REPEAT,
PENUP, HOME, CLEAR.

A command is often followed by a value:

FORWARD 50
RIGHT 90
REPEAT 10

There are close connections between the floor robot and the computer version; both use a Logo syntax, and the children will find it easier to start using Logo if they have had experience with a floor robot first. This will have provided a valuable insight through their physical involvement in planning and pacing out various robot routes, and will have helped them to understand left- and right-hand turns. This can be confusing for children: as they face the screen turtle, the children's right is the turtle's left. If the turtle is coming down the screen from the top, then a left-hand turn will move it to the right of the screen, as seen from the children's viewpoint. However, if the children have played turtle games at floor level using a robot they will have come to terms with this feature.

There are many commands available in Logo software. In this activity, the children enter commands which will make the screen turtle trace out letters of the alphabet and numbers. Not all of these can be produced, however; those with curved outlines are not practical to draw using this software. By carrying out this task, the children will gain confidence in using the simple Logo commands.



Preparation

It may be helpful to produce some prompt cards with the shapes of letters and numbers drawn on them and some basic Logo commands. These can be used to support less able children where appropriate.

Vocabulary

Pointer, screen turtle, commands, values, direction, degree, turn.

Resources needed

A computer, screen turtle Logo software, a printer, prompt cards (see Preparation), pens, paper.

What to do

The children will need to be introduced to the basic Logo commands. Some Logo software offers onscreen help in the form of arrows that can be clicked on with the mouse in order to command the direction of movement. Other versions of the software programme the computer's function keys with the most commonly used commands. Whichever way the commands are entered, a sequence can be built up gradually, allowing the children to record their inputs and link these to the turtle's movement.

Choose an alphabet letter and discuss with the children the appropriate Logo sequence to draw it. Ask them to write down the sequences for several more letters and then allow them access to the computer in pairs. Some children may find it helpful to have prompt cards while doing the activity on screen (see Preparation).

The finished product is not the most important aspect of this activity – in fact, printed-out letters produced in Logo are not particularly exciting in visual terms! It is the control process that the children go through when producing their designs which is really important. It is, of course, possible to programme your floor robot to carry out this task on a larger scale if you wish.

Suggestion(s) for extension

The more confident children may like to use different coloured lines in their letter or number shapes by using the colour command. They could also try creating hollow lettering and filling this with colour by placing the turtle in the appropriate place and entering the colour fill command (usually 'FILL').

Suggestion(s) for support

For the less confident children, the prompt cards will be an important source of support.



Assessment opportunities

This activity will allow you to make assessments as to how well your children create, test and modify commands using the turtle graphics software. Look out for a clear understanding of what the commands do and clarity of thought in linking them to form particular sequences. Can the children predict what the outcome will be having produced a particular sequence?

Display ideas

Use the children's work from this activity to create a class book on Logo activities. You will be collecting a variety of such material over a period of time and, although not immediately

aesthetic, it will serve as a useful resource and a record of what the children have achieved.

THROUGH THE MAZE

To become familiar with Logo commands.

†† Pairs.

⌚ 30 minutes at the computer; 20 minutes discussion/demonstration.

Previous skills/knowledge needed

The children should have had a brief introduction to the common Logo commands and be familiar with 90° right-angle turns.

Key background information

Controlling the screen turtle requires a good deal of estimation. This activity involves moving the screen turtle through a maze and gives the children practice in using the Logo language while also providing feedback with respect to their estimations of distance. The maze is much easier to tackle if all the turns are right-angles, although you could offer the more able children a maze with a variety of angular turns. The task is very straightforward and gives the children a good opportunity to experiment with the Logo commands. There is no correct answer to the task and the children are