

COMPUTING WITH CLASS

The Ideal Pupil

How many years have you been teaching? Than that's how many years' jump you have on the rest of the world when it comes to learning how to program. The connection's not obvious?

If you think about it, programming is nothing more or less than teaching, except that your pupil—the computer—has certain advantages and disadvantages over the students you're used to.

The good news is that this pupil seldom forgets what you tell it. (Occasionally a disk will crash or someone will step on the power cord and cause a temporary loss of memory.) But not having to repeat yourself umpteen dozen times should strike a gratifying chord.

And once you tell your computer how you want things done, it will not only remember, but work faithfully at whatever task you assign it until it's finished or you tell it to do something else. It doesn't get distracted, demand longer recesses, or develop spring fever. It doesn't lose its mittens, shoot spit wads, or tease the gerbil. It has no motivation problems or irate parents complaining about its grades. It's ready and willing to learn when *you* want it to.

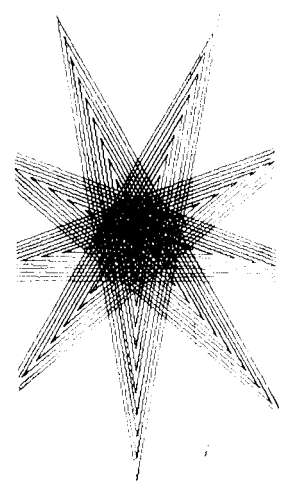
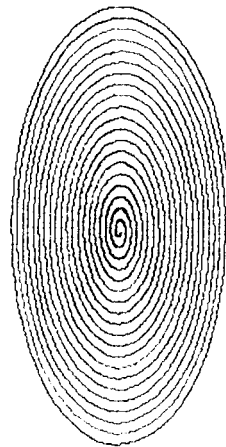
On the down side, most computers only understand a handful or two of monosyllabic words. You'll think you're back teaching first grade all over again. The phrase, "Say it so a six-year-old can understand it" is more germane than "Do what I mean, not what I say!" The computer is not even looking for meaning. However, most computers will at least tell you when they don't understand what you're trying to say.

That's not to say you can't teach computers to think for themselves. It's just that the tools you normally rely on like analogies and stories simply won't work. You'll need to express yourself precisely using the limited vocabulary your electronic pupil understands.

Take the direct approach and pick an easy language like LOGO or BASIC and you're on your way. If you know only a half dozen words in the language LOGO you can draw the most amazing shapes. In fact, in LOGO you're encouraged to make up your own words, teach them to the machine, and ever thereafter (at least in the same program) you are at liberty to use those words to make new words that both of you will understand! And LOGO can be learned very quickly. With a half hour's practice you will be able to draw simple shapes; after a few hours you'll almost be a pro!

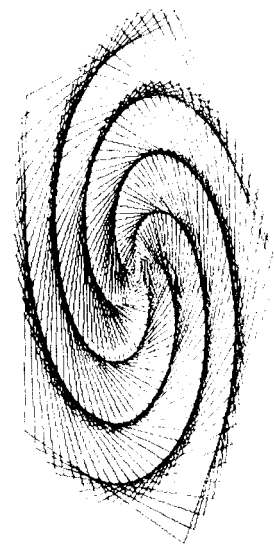
Once you've learned to communicate with your electronic pupil, you'll be able to teach (program) it to do all

sorts of useful and not-so-useful things. Furthermore, you'll also be in a better position to do what we'll talk about in a future column—help your human pupils learn virtually any topic by having them teach it to *their* computers! Until next time . . . —Dave Ruskjer. □



This simple BASIC program, written for a Radio Shack hand-held computer, can be quickly mastered by a child. With minor modifications, it can be used to form the illustrations shown, as well as many others.

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10:GRAPH
15:FOR A=1 TO 7300
  STEP 5
20:A=SIN (A)
30:Y=COS (A)
40:A=INT (A*/100)
50:Y=INT (A*/50)
60:LINE (C+(120,D)-(
  (A=120),Y)
65:C=X:D=Y
70:NEXT A
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