MNEMONICS FOR NUMBER SEQUENCES

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One of the most frequently-occurring uses for a mnemonic is to remember a sequence of integers. As always, the question is one of efficiency versus memorability: how much must the original integer sequence be expanded? The obvious solution to the problem, that of letting the number of letters in a word stand for the integer (with ten letters for the digit zero) is extremely inefficient, representing a five-fold inflation. In the November 1982 Word Ways Jonathan Post gave a typical mnemonic for pi (3.141592653589793+):

Now I know a value (certainly do!)
Number, whose use gives circular functions;
Purpose, numerical, too ...

Surely, one can achieve a more compressed mnemonic without sacrificing comprehensibility!

The idea of one letter for one integer is an alluring one, but it is difficult to preserve comprehensibility if such a stratagem is followed. Since there are 26 letters to be allocated among the ten integers, one can look for a polyphonic cipher in which two or three different letters can be used for the same integer. (Polyphonic ciphers were described in the February 1975 and May 1978 issues of Word Ways as an experiment in alphabet compression.) To avoid some of the burden of remembering which letters are coded by which integers, one should assign integers in consecutive blocks of the alphabet, the first block representing 0, the next block 1, and so on. One plausible split is 0 ABC, 1 DE, 2 FGH, 3 IJK, 4 LM, 5 NO, 6 PQR, 7 ST, 8 UV and 9 WXYZ, for which one need only remember the starting letters of the last nine groups: DFILNPSUW. Applied to the pi sequence, this mnemonic allows one to choose among

I  D  L  D  N  W  F  P  N  I  N  U  W  S  W  I  F  I
J  E  M  E  O  X  G  Q  O  J  O  V  X  T  X  J  G  J
K  Y  H  R  K  Y  Y  K  H  K
Z  Z  Z

which leads to I'D MEOW, GROIN; VW SWIG I, a vivid if nonsensical phrase. (The speaker is advising his upper leg to make catlike sounds while he drinks from a German automobile.)

This method of memorizing integers has been applied to one special numeric sequence—one's telephone number. In "Telephonememonics" in the May 1981 Word Ways, the author explored in detail the possibility of designing telephone numbers to match one's (seven-letter) surname, occupation, etc. This is frequently done for business telephone listings.

Most people would settle for a bit more sense at the cost of greater length. For them, a mnemotechnical dictionary constructed by Felix and William Berol in 1918 might fill the bill. Basically, they allocated consonant-sounds among ten groups as follows:
0 Sea, baZe, aCe
1 Tea, Dew, THe
2 No
3 Me
4 aRe
5 oiL
6 Joe, SHe, aGe, Chiew, naTion, aZure, Sure, oCeAn
7 Key, Quay, Go, Chorus, Cow, baCK, wiNG
8 Fee, PHone, Veil, touGH
9 Bee, Pea

and supplied the reader with groups of words using these consonant sounds for all integers from 000 through 999. For example, for 314 he lists mother, maternity, motor, meter, meteor, moderation, matter, matrimony, matron, mattress, material, metrology, humdrum, midriff, midiron, mater, matriculation. Pi becomes MODERN (314) TELEPATHY (159) UNCHALLENGED (265) MAY ALLOW A FEW (358) WHIPPING-POSTS (979). Alas, this dictionary is out of print and hard to find. However, one can generate an orthographic analogue of Berol's technique by adapting the consonant mnemonic introduced in the November 1987 Word Ways. Assign the integers 0 through 9 to the ten consonants CDGLMNPRST and add vowels as needed to create words out of the consonant sequence corresponding to the integer sequence. For pi, the sequence is LDMDNTGPNLLNSTRTG... The rarer consonants can be combined in DMD or MDN, NTG, and NPL; therefore the logical split is LDMD|NTG|PNL|NSTR|TG... which leads to Lo, DoMeD nNTiGua, oPeNLy NaSTieR TaG...

The only remaining task in using this mnemonic is to commit to memory the set of ten consonants used; this is readily accomplished by memorizing a three-word phrase using all ten consonants once each: CuDGeL MeaN PRieST.

Alternatively, one can replace the integers with rhyming words, arranged to make some sort of sense. Monosyllabic or disyllabic examples can be readily drawn from rhyming dictionaries.

**ZERO** beau, blow, bow, crow, doe, flow, foe, glow, go, grow, hoe, Joe, know, low, mow, owe, Poe, pro, row, so, slow, snow, stow, throw, toe, whoa; hero, Nero
**ONE** begun, bun, done, fun, gun, Hun, none, pun, run, son, spun, stun, shun, ton, won
**TWO** brew, blue, coo, crew, do, few, flu, glue, gnu, grew, hew, Jew, knew, lieu, mew, new, pew, queue, rue, screw, shoe, shrew, skew, stew, spew, stew, to, too, view, woo, you
**THREE** be, bee, fee, flea, free, gee, gie, he, key, knee, lea, me, pea, plea, sea, she, spree, tea, the, we
**FOUR** bore, chore, core, door, floor, fore, gore, lore, more, oar, pour, roar, score, shore, snore, soar, spore, tore, wore, whose, yore
**FIVE** arrive, chive, contrive, deprive, derive, dive, drive, hive, I've, jive, live, revive, rive, shrive, strive, survive, thrive, wise
**SIX** bricks, chicks, clicks, cricks, Dick's, fix, flicks, hicks, kicks, licks, mix, nicks, nix, picks, prieks, ricks, sticks, ticks, tricks, wicks
**SEVEN** again, Amen, Ben, den, fen, glen, hen, ken, men, pen, then, wen, when, wren, yen; Devon, heaven, leaven
**EIGHT** ate, bait, crate, date, fate, gate, great, hate, Kate, late, mate, Nate, pate, plate, prate, rate, sake, slate, spate, state, straight, strat, trait, wait.
Applying this to the pi sequence, one obtains WE SHUN WHORE, STUN LIVE SWINE, VIEW DICK'S LIVE FREE BEEHIVE, CRATE WINE, THEN SHINE KEY... Unfortunately, this is nearly as profligate of letters as the number-of-letters-in-a-word stratagem: 69 versus 80.

A POEM

MARTIN GARDNER
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This is an excerpt from Gardner's 1969 book *Never Make Fun Of A Turtle, My Son* (Simon and Schuster, illustrated by John Alcorn).

**Think Twice**

Sometimes it's best to leave unsaid
The thoughts that pop into your head,
   Like telling a peacock you have heard
   She's an arrogant, haughty, conceited bird,

Or letting a rabbit know you think
Her ears are too long, her nose too pink,
   Or telling a skunk that her perfume
   Makes everyone want to rush out of the room,

Or greeting giraffes with, "I declare!
What's the weather like up there?"
   Or telling a pig
   Her snout's too big,
   Or a Persian cat
   She's getting fat.

It's best, my child, to leave unsaid
Some things that pop into your head.