

## Life at Large

# Ancient mental calculus to improve mental agility

**The 5,000-year-old abacus is designed to help improve your child's arithmetic but will not make him a genius.**

EVELYN YAP

ALTHOUGH this is the computer age, 3,560 students aged between four and 16 sat for the third national abacus test last Sunday.

This is more than double the 1,527 in 1994 who took the first examination then.

The figures show that scores of parents are enrolling their children in abacus classes.

The rush has been fuelled by continuing press reports about how children with six months to a year of abacus learning emerge with better, if not perfect mathematics grades, improved mental agility and even better concentration and memory for spelling.

However, at the national test itself, Braddell Heights Member of Parliament Goh Choon Kang, raised some concerns about the popularity of the abacus.

He said many people who are teaching mental and abacus arithmetic are not qualified to do so and that there are varying teaching standards for the subject.

He called on the Education Ministry to set some teaching standards for the subject, which will be introduced to all Primary 3 students by 1998.

In response to queries from the Straits Times, the ministry said yesterday that it had given approval to 18 private tuition centres to conduct mental arithmetic and abacus courses.

Approval is based on the suitability of a centre's course and trainers' qualifications.

Mr Jeremy Ng, president of the Singapore Mental/Abacus Arithmetic Studies Association, said last Sunday that apart from those 18, however, more than 100 Residents' Committees and community clubs were also offering courses, using untrained

teachers.

The ministry says it does not monitor these classes.

Some case studies illustrate Mr Goh's points.

Madam Tan Mui Wah's three children, for instance, were among the pupils who took part in Sunday's test. They have been taking abacus classes for two to four years.

The older ones, aged nine and 11, are Primary 3 and 5 students at Ai Tong Primary school and have been hitting perfect scores of 100 in school tests for some time.

Madam Tan says even her eight-year-old daughter, who is in Primary 2 and "physically active, but a slow learner", is scoring about 60.

Likewise, housewife Chan Foong Choi, 38, says her son, 11, and daughter 9, used to score around 80 and 90 marks for mathematics.

Now the Primary 6 and 4 pupils of Yio Chu Kang Primary School hit 90 and perfect scores of 100, respectively.

On the other hand, Mrs Tan Li Lee (not her real name) wonders why her child, who attends the same primary school as Madam Tan's children, but a different abacus centre, cannot "divide a few 100,000s into 100s" like Madam Tan's youngsters, can.

Ms Teo Kim Choo, an administrator in her husband's engineering firm, says she took her daughter, then aged five, out of one abacus school in Toa Payoh last year because of poor teaching methods.

Says the mother of three: "My daughter is very shy and she refused to memorise aloud the formulae which the teacher makes her class repeat in each session."

The school also did not cater to slow learners, and her daughter lagged behind.

Friends recommended her another centre, which



Schoolchildren using an ancient way of calculation in the computer age ... it is estimated that there are about 50,000 Singaporeans who are learning or have learnt to use the abacus.

Abacus is essentially a system of mental calculus, made almost extinct by today's calculator. The 5,000-year-old Chinese tool, which involves clicking beads on a wooden frame, is designed to take the pain out of arithmetic, and help people do sums faster.

holds classes on weekends, and free remedial lessons on weekdays.

Now, a happy Ms Teo says her daughter scored 100 points in her class' recent grading test.

How can one teaching method bring out such different results?

Mr Ng says a trainer's qualifications make a difference:

"Learning and teaching abacus are two different things. A teacher must be properly trained to teach it.

"For instance, I got an 'A' in economics, but that does that mean I'm qualified to teach it?"

The uneven field is worrying given that parents have put an almost blind faith in the ancient counter to improve their young ones'

agility in working with numbers.

Mr Ng estimates that there are about 50,000 Singaporeans who are learning or have learnt to use the abacus in a market worth \$1 million.

But, the recent ruckus may be a storm in a tea cup — an issue being raised at cross-purposes, after all.

This is because the abacus as it is taught in the private tuition centres and in primary schools are two different things altogether, says Professor Lee Peng Yee, head of Nanyang Technological University's mathematics division.

NTU is the only institution here that trains all primary school mathematics teachers, and the abacus is included in the syllabus.

The broad principles of teaching the abacus as a system of multiples of 10s, 100s and 1,000s, in both

schools and private centres, are the same. But the end to its learning is different, says Prof Lee, 58.

He explains: "Our main aim is to teach the principles of problem-solving in mathematics, with the abacus as a tool. "We are not teaching the abacus per se." Attending private classes is fine, but a person can also learn sums without the abacus.

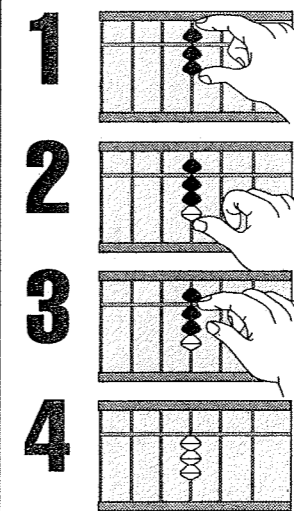
His thinking is in line with the ministry's statement yesterday, that abacus classes are being introduced as an enrichment programme.

Prof Lee adds that even when the abacus is introduced to Primary 3 pupils next year, its use is not designed to turn students into "brilliant computational machines".

He stresses: "In schools, speed is not the issue. Understanding, is."

## HOW TO PLAY THE ABACUS GAME

### Using the abacus



Top bead represents five; bottom beads, one unit each. That makes seven.

Using a formula, in this case,  $-4 = +1-5$ , you have to add one more bead from the bottom row.

Subtract the top bead which is five.

Answer: Three

Timesgraphics

BELIEVED to have originated in China 5,000 years ago, the abacus is a system in which beads on a wooden frame are used to do arithmetic.

It later became popular in Japan, too.

Currently, schools, community centres and self-help groups that conduct abacus classes have different ways of teaching it.

But this is the system laid out by the world-recognised International Abacus Association, based in Tokyo.

■ The counter: A rectangular frame with 13 or 21 vertical columns of rods, each strung with five beads.

The beads are divided into a top section of one bead and a bottom section of four beads.

■ The principles: The top bead represents five units, and each of the four bottom beads, one unit.

The user shifts around the beads on the first column to add up to nine, and has to move to the next column to get 10.

You add, subtract, multiply or add by shifting the beads around in this way, using one or more of 34

formulae that you are taught (see graphic).

■ The levels: There are 10 grades and 10 *dan* (the latter, similar to the *dan* levels in taekwondo).

■ Moving up: Pupils start at Grade 10 and move up to Grade 1, then go on from *dan* 1, up to *dan* 10. The length of time depends on the child's ability to grasp concepts.

■ Lessons: A series of eight books, with Book 1 teaching finger counting, Book 2, "paper" abacus counting, and from Book 3 onwards, mental counting.

■ The myth: Learning the abacus will not make geniuses out of your child. It simply helps him do his sums mentally, and faster.

When doing his mathematics, a child must still be taught to show how he arrived at an answer.

Simply stating the end figure, derived the abacus way, will still get him a red mark on that sum.

■ When signing up: Ask to see the tuition centre's approval documents from the Education Ministry for its centre, abacus course and trainers' qualifications.