# Hybrid Schooling 2

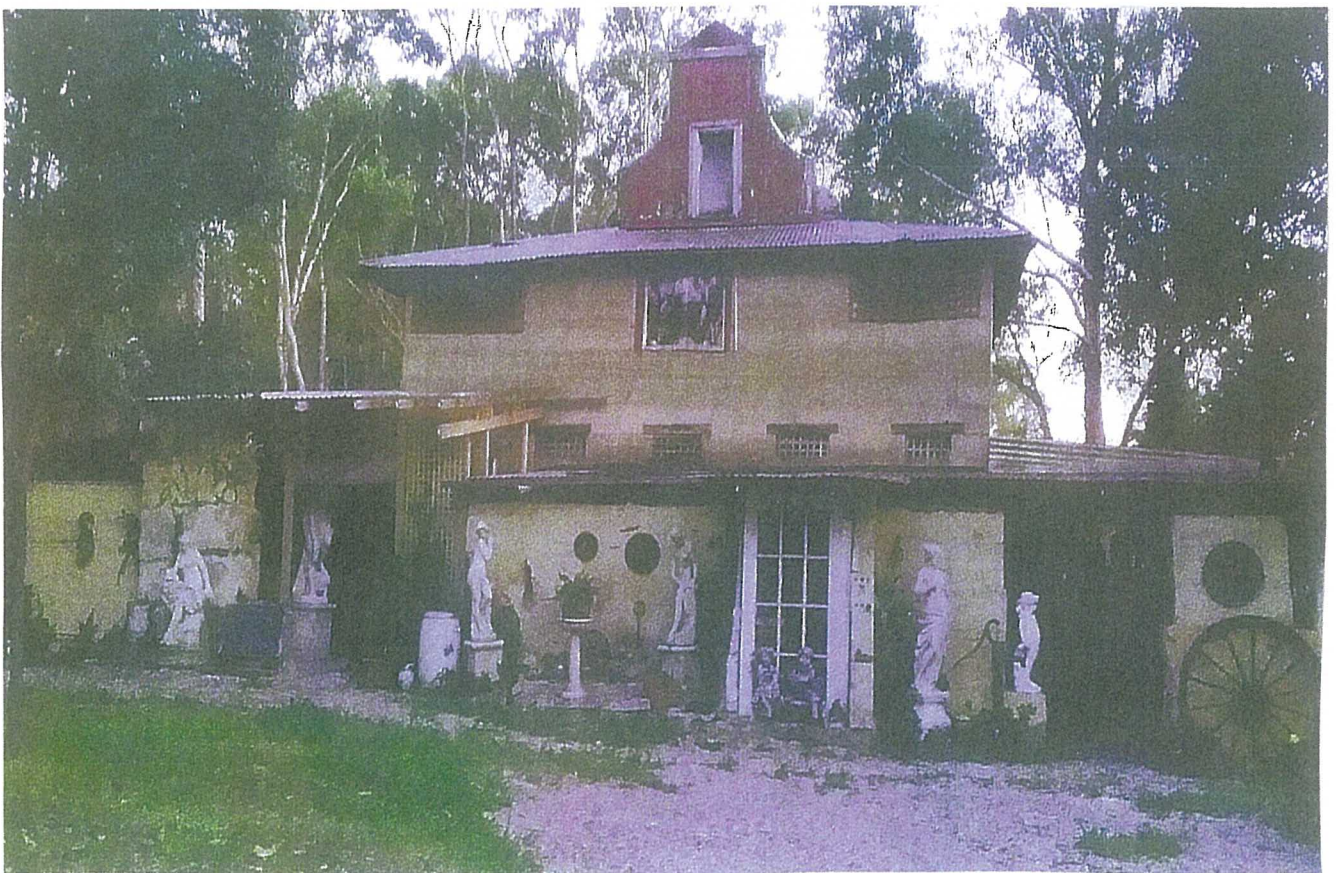## A comprehensive tutorial

## for

## Math & English

## Years 1-12

## Cattai School of Aart

# IMPORTANT MESSAGE

- In order to understand why you should start Hybrid Schooling, it is essential to first read or even peruse the following publications on my website under "Education.":
The Bark Report, Endangered Minds, Hybrid Schooling(The philosophy), Tutorial for Teachers & Parents. (A bird's eye view of the books and lessons involved).
Note: Do not study to comprehend the information. Only the step-by-step approach of the Comprehensive Tutorial will gradually enlighten you!

- The name Hybrid Schooling has been used before (Google). However, only now can the idea be put into practise thanks to the unique curriculum designed by someone with an unusually versatile career and an alert, inventive mind.
The lessons have already successfully been used with private students for almost fifty years.

# INTRODUCTION

- **HYBRID SCHOOLING** is a combination of going to school and Home Schooling to take advantage of both social interaction in a safe environment and an indisputably advanced way of teaching English and Maths.

  If applied exclusively, reading would be a priority for the first 2 years, then incidental spelling.

  Since Times Tables can be taught in 2 hours and Primary Maths in 6 months, lessons could start 1 year later. (Both on YouTube).

  It has always been an absurd habit of starting 3 new subjects in year 1!

- **The best way to implement that combination.**

  **At school**, the teacher deals with the prescribed curriculum.

  **At home**, parents **replace** the time spent on scholastic homework by teaching the lessons found on my website. They may be downloaded free of charge.

Fortunately, no approval of an education authority is needed to implement Hybrid Schooling **immediately** because doing homework cannot possibly be compulsory! Besides, it would be unthinkable to prevent parents from wanting to raise the scholastic standard of their children.

After all, according to secretary Mark Scott, **parental engagement is the key to a great school!**

Besides, parents don't want their children to do the new Numeracy course in years 11 & 12. That would be like closing the gate when the cows have gone.

## Beware!

Parents will have become so used to seeing commercialised lessons crammed with cartoons, questions, instructions that are like silly short stories (The children were asked to...), puzzles, fill in the gaps – and trivial

pursuit exercises, that they will baulk at the direct, old-fashioned, no-nonsense lessons! To solve that problem, they should ring the author, not only for free demonstrations, but perhaps more importantly, to discuss, understand and consolidate the abundance of information given in each book. Children deserve it. They will be even quicker grasping the difference.

Aart Bark

0428 396 120

Cattai School of Aart, 25 Reedy Road

(Visit "Bark's Bric – a – Brac Museum)

## Hours

Tuesday – Saturday from 9 a.m.

At 91, it's my way of making sure that all children will have access to the work of a genius and an educational pioneer who has been ignored for the past 40 years by both the Scholastic Hierarchy and 5 politicians including Pontius Piccoli and Turnbull!

No doubt, a number of ulterior motives are involved, none of them in line with the euphoric propaganda!

Name changes are like sewing a piece of new cloth onto an old garment.

The manager of the P&C magazine refused to insert my advertisements because he didn't like my "Product"!

It's like denying the children in 6000 NSW Public Schools the chance to see Rembrandt's Night Watch!

The secretary of the Teachers Federation obviously threw my correspondence in the waste paper basket.

In the Middle Ages, I would have been beheaded or burnt at stake!

- All lessons are based on scientific wisdom, on the ideas of Steiner and Montessori, on astonishing discoveries that would have delighted Einstein.

They are learnt by using Professional "Memory Training Techniques" because

instructions like "Learn this for tomorrow" or "Don't forget" are as useless as trying to sell ice cream on the moon, new or full.

**The Bark Curriculum for Reading**

In order to avoid the influence of Early Learning Centres and Pre Schools, I advise parents to start "Reading in Minutes" (YouTube & Website) with children aged 5. Ten to fifteen minutes once or twice per day. Since the brain cells for writing are not yet in place, letters are only traced with index finger or a blunt pencil.

The writing method used in schools should of course be replaced by the one shown in "Reading in Minutes": 79-88. Parents should read page 89 and practise page 78. Primary School children should be able to spend 45 minutes on reading and incidental spelling. About 15 minutes spent on Maths will be enough to keep up with work in class.

Fortunately, anything done conscientiously will generate progress.

The **Diagnostic Reading Tests** should be used to determine the reading ages of older children. If the score is too low, "Reading in Minutes" is the answer because problems always start at the beginning! Ninety percent of students affected are boys, erroneously labelled dyslectic (Greek for can't read). Instead of confronting them with random words like how, what, where, other..., they have to start with words that have the same pattern because that can be seen at a glance so that the attention is focused on the initial letter or letters.

All the psychological and physiological evidence we have, suggests that, with regards to reception, the human mind is

"a pattern-making-and

 a pattern-using system."

(Edward de Bono: The Mechanism of the Mind)

Boys are like mechanics, they want to **see** and **hear** how somethings works ("Spellaphone Book 1" and "Creative Linguistic Spelling" are designed for that purpose)

Once the reading age is known, parents must find out where to start The Bark Curriculum, because it is a list of progressive lessons not related to any age. It's much like finding the right groove on a vinyl record to hear a particular song, so it involves trial and error. If parents need guidance, they should contact me.

Spelling strategies will be dealt with when students have mastered the more complex skill of writing.

## Reading in Minutes

Detailed instructions for parents

**Sorting exercises** involve printing the relevant pages on 200- or 300 GSM (grams per square meter) and cutting out.

Children like manipulating these cut-outs. It will increase their attention span. **Interest is the key to learning;** that's why all teenagers are on Ls or on P-plates.

Match the cut-outs with the ones on the page. One row once or twice per day.

1. **The letters**: **3,4,5**
2. **The Vowel Children**: 7,8,9

   Do the same with the other 5 pictures.

3. **The Code Names without the pictures**.

   6,10,11.

   Matching exercises are designed to make children **see** rather than just look!

4. **Memorising the Code Names**.

   1, 1&2, 1,2,&3...

- **Bark's Spellaphone Book:** 12,13

  The mechanics of making words. Read the first page, then just flick through it.

- **Teaching words in 3 steps:** 14,15

  Print & cut. Parents: "We're going to read some **ap** words."

1. Parent reads, students repeats: map, or map, cap (not gap),...
2. Parents: "Can you give me sap, map,..."
3. Parents: "Read this word...
4. Mistakes are treated thus. "No, that is zap. Let's read them again."
5. (Not mentioned).Cut out m, c, n, z, s and ap. The student makes up a word, then reads it A. while looking at the list. B. from memory.

5. **Reading Code Name Words**: 16,17

   Parent mentions the Code Name, reads a word and points out that the two have the same **sonant**. Note: sonants can sound individually, **consonants** can only sound with a sonant. The word vowel is only a physical description.

   This exercise is a preparation for sorting spelling words according to the **sound** of the **stressed syllable**.

   ("Spelling Awareness: 10, 11, 12)

6. **To the zoo**: 20,21,22

   First read "Spelling Awareness": 6,7,8.

   • to see a gorilla  •—•  •—•

Say the phrase while tapping the rhythm pattern in order to hear its fluency.

Not: To see A gorilla!!! •——•—•(hiatus!)

7.   **Memorising the story**. Parent reads, student repeats: line 1 – 1 &2 – 1,2,&3…

8.   **Reading the story**: 23,25,27

• **Foundation Literacy** 1: 29

   The section mentioned in "Reading in Minutes". Only one page of each Code Name is given here. Use the same procedures as for the ap words: 1,2,3,4,5. Eventually, depending on the ability of the student, only steps 1,2,3. One page once or twice per day.

• **Words starting with 2 consonants: 45-48**

   Same procedure as for the ap words.

• **Knock, knock: 49-52**

   Same procedures as for "to the zoo."

• **More complex words: 53,54,55**

9. **The Sentences: 55-70**

Same procedure as for "to the zoo."

10. **Spellaphone Book Companion: 71,72,73**

It is the same as Foundation Literacy 3(different cover). They contain the type of sentences mentioned above, except that the letters are smaller, the usual size in later books. Just flick through it for now.

11.A. **Sorting smaller letters: 76.** Print & cut

1. Mix & match each row. 2.Mix & match all letters. This is a **visual** exercise. Do not name the letters!!!

11.B. **Tracing** (eventually drawing) **the letters: 77**

Up to now, letters have always been represented by endless, beautiful pictures. They never had anything to do with **how** to draw(write, trace) the letters!

In this unique system, **the letters are the pictures!** (hieroglyphics): 79-88

I teach **how** to trace (draw) them by using verbal rehearsal (hear again!); it improves recall because with saying & doing, two senses are involved.

Note: no more b for ball!

The letters are made up of circles(anti clockwise) and down strokes because that facilitates the left to right fluency. Since students will soon use laptops, don't waste time teaching running writing! That skill is lost forever. Besides, it avoids nagging and frustration!

Example: 79 **The letter and its image** form a unit that will only need a quick glance to notice; introductions are not necessary.

Parent says "Apple" and then traces it.
Student repeats.

Note: Before tracing the whole words on page 78, parents should first trace these words themselves: 89

Errata – к : down, up, down. Remember to support the up-stroke.

- **The Spelling Word stories: 90, 91**

  They will be discussed later.

- **Foundation Literacy 1. The book itself**

  Same procedure as for the ub words and the stories. **The whole word method** is **not** the same as using flashcards, showing **cards** with **one word** on it! Read again page 8 "Spelling Awareness." Since students have 4 seconds to process what they have heard, they won't baulk at words they've never seen before, **so forget about "sounding out!"**

  Anyway, many English words cannot be sounded out; spelling them is not the same: although, through, bought…

  English is derived from many other languages; sixty percent from Latin (see Ecce Romani 1). Each word is altered slightly to accommodate the English tongue because script is a mirror image of speech. Speech dictates the fluency words can be pronounced: daughter from dochter(Dutch), leisure from leise(German). Courage, danger, sentiment, message,

**environ**ment,… sound totally different when pronounced by a French speaking person!

- Alternate the Code Name.
  Do one page per lesson.
- Only read the sentences that contain the relevant words.
  Note: Ignore the 2 pages that describe my original way of teaching the letters(59,60).
  **Read** 61, **do** 89&90, 103-108(words). Revision 109-133, mini stories 134-149
  **Dialogue** 150-152. alternate actors.


**Foundation Literacy 2:** Revision
A simplified version of my "Spellaphone Book". It's divided into 3 parts of increasing complexity, starting with 3-letter words and some starting with sh.


**Incidental spelling**
The main idea is to foster reading fluency.
One page per day. Alternate Code Names.
Example: the ub words, the ab words…

Parents read the whole group, students repeat. Eventually – if possible – only students read. Here, the use of a chopstick helps. If it stops, students have to try again. If they hesitate, parents must read the word without fuss.

**Foundation Literacy 3: Revision sentences**
(Same as Spellephone Book Companion)
With or without the help of parents. Do a couple of sentences under each Code Name.

**Foundation Literacy 4**
The stories with the Code Name words are now longer and more complex. Letters are bigger to facilitate reading them. Use alternate Code Names depending on the readiness of students, choose one of the following procedures:

1. Parents read one or more sentences. Students repeat. If this works well, students read the whole story.

2. Parents read the whole story, students repeat the whole story.

3. Any convenient variation.

Parents have no choice but to take over!

Box refers to a matchbox 4.5X1.3 that stores the words once they have been enlarged and cut out to sort them according to function, one of the different ways of sorting words.

(Hybrid Schooling 1: page 5, Reading in Minutes 93, 94, 95)


**Foundation Literacy 5**

Is the most comprehensive resource ever designed. It contains the first 15 spelling lists for Primary Schools.

**They are not just copied 4 times per week with a test on Friday to see how many wrong!**

Students are not told to put each word in a sentence either because they only have a very limited so-called playground vernacular of

about 300 words! After all, they're supposed to be taught; that's why they go to school.

Box 1: I use these words and others with the same pattern, in rhythmic and fluent spelling rhymes creating optimum readability according to scientific tests.

## 2. Stepping Stones

A unique way of reconstructing the Spelling rhymes from memory.

## 3.Spelling word story

A method of turning a list of random words into a story. It is demonstrated on You Tube. ("Reading in Minutes")

## 4.Word Building

In "Creative Linguistic Spelling, it is the first of the 7 spelling strategies.

## 5.Attention seekers

Here attention is directed to ck and double l words. Pointing it out is not good enough

because children can see that themselves, especially when they are copying these words. An inventive mind has to find a way that causes them also to remember no matter how absurd!

e.g. The letter I is too skinny to stand up by itself! C easily rolls away like a ball. The kangaroo will prevent that from happening. Children love that sort of nonsense. That's why they will remember it!

## 6.Spelling Awareness

The main purpose is to foster reading fluency, spelling is incidental. Stick to the usual procedure used many times before. There is no harm in keeping up with the original one for sentences. Parents read, students repeat, students read.

## English course

Seventy-one conversations for backpackers. They have been translated into 8 foreign languages!

## Creative Writing: Another masterpiece for High School students

It is a comprehensive self-help manual. It contains a multitude of detailed instructions and exercises that can't be found in any school book.

## One thousand Creative Descriptions

A collection of superb examples taken from the books written by famous authors. They are highly inspirational. Together with the lessons learnt when studying Creative Writing, they will provide the impetus to create something more sophisticated then the usual "going to the

beach" stories, always preceded by the request to make them interesting without telling how!

## Bark's Incidental Spelling Curriculum

for Primary-and Secondary students. There is so much that parents need to find the appropriate books that will benefit their children. At this advanced stage, they should use any of the instructions mentioned before for reading sentences and stories. The emphasis remains on reading.

**English course 2** (similar to the one above)

**Spelling word sentences and stories**

**Specific Spelling Features in Focus**

The 138 stories were written by using Primary- and Secondary word lists. The words are written in bold letters!

Note: The lists are the result of Word Count, a system based on frequency, hence the progressive way of presenting them.

**Spelling Awareness**

**Tutorial for parents**

1.**Sorting**: 9-16

2.**551 sentences**: from page 70

They are like those in Literacy 3&5 except that each one is preceded by a specific spelling feature.

**Appendix 1** contains a few stories like those in Literacy 4.

**Appendix 2** deals with word formation.
Print and enlarge page 11(A3)

Print and cut out the words

Exercises are followed by a checklist.

Once the words have been cut out, the parents read one, students repeat before placing it on the A3 under the right Code Name.
Troublesome words are put aside and then read later on.

Note: To fit in with work in class, the scholastic lists should be used first; enlarged to A4 and cut out.

## The Bark Curriculum for Spelling

### Refer to Spelling Awareness:

Spelling is learnt by seeing, not by looking or copying. Together with the other 4 senses, it is a very important skill in a Professional Memory Training Course. The 5 senses can become more acute by doing the professional exercises listed in "Creative Writing under the title of "The 5 senses."(19-24)

The spelling of words can only be remembered when they appear in a sensible & fluent context.

1.Birds of pr**ey**: th**ey** have gr**ey ey**es.

2.A minute is a minute moment in time.

**A.The 7 strategies**: Tutorial for T&D 17-20

**B. Creative Linguistic Spelling**

**C. Spelling in minutes** (You Tube & website)

It is impossible to write a uniform method for the art of spelling. There would be more exceptions than rules. That's why the poor kids have copied their spelling words for the past 200 years.

With my linguistic supermarket concept, all items with a similar spelling pattern (De Bono) have their own place on the shelf so to speak. After 4 years of regular "Word shopping," students should be able to visualise the various shelves and isles so as to make the Art of Spelling as natural as breathing.

## The Bark Curriculum for Maths

Instructions are not necessary

- **Maths in Minutes** (You Tube & website)
- **Math and Memory 1,2,3,4**
- **Multilevel dictionary for years 6-12**

With professional answers there is no such thing as necessary working, an archaic demand based on authority. Answers are either right or wrong. Teachers must not demand prescribed answers; by intimidating Hybrid students not to give intelligent shortcuts; it inhibits mental arithmetic and the use of patterns.

The acceptance of this highly professional philosophy by the previous Board of Studies has been lured into a cul-do-sac in order to be quietly strangled by the New Standard Authority, a severe name suggesting that all is not well, hence the new numeracy course for years 11&12.

- **Advanced Maths Dictionary for years 11&12.**

(Formerly called 2-unit Maths)

With professional answers

# NUMERACY

## Book 1: Numbers in a Nutshell (website)

## Book 2: Revision. Maths & Memory 1 (YouTube)

- Book 2 is based on the **Discovery Method** (not Piaget's!).
  Use if first as an oral test before a written one.

- Fifteen minutes per lesson should be enough to prepare for the Maths in year 7.

## Instructions

**Sharpening the 5 senses comes First.**
Exercises to do that may be found in "Creative Writing" pages 14-20. Students must learn to listen en hear. They must look and **see!**
Seeing can be improved to an amazing degree.

**I use Maths as a Medium to teach those universal skills!**
That solves the problem of students who think that they won't need Maths! The average mark is 45 because this subject **is always taught as an end in itself!!!** It only suits the teacher.

## Important

Never say what you hear or see (Page 7 Book 1)
What's your name? Sally! See 7+8, say 15!

STUDENTS MUST LEARN TO HEAR & DO,
TO SEE & DO

RECIPES MUST BE SAID & REPEATED
ALOUD! (BOOK1: 7 & 9),

THEN ORAL ANSWERS ONLY!
NO WORKBOOKS!!!!
IT SLOWS THE LEARNING PROCESS!

## FIRST & SECOND YEAR: NUMBERS & ADDITION

BOOK1: 1-39 | P FOR PARENT
S FOR STUDENT | BOOK 2: 1-16

### THE 9-PARTNERS
(THEY ADD UP TO 9)

PRACTISE: 1. P: I SAY 2, YOU SAY 7
1 SAY 7, YOU SAY 2
QUICKER 2. 8 (1), 1 (8), 3 (6) ...

### FROM NOW ON
A: LESS HASTE MORE SPEED (FESTINA LENTE) — LATIN
ONLY CONTINUE WHEN THE STUDENT

GIVES INSTANT

ANSWERS!

| STUDENT | PAGE 11 | SEE |
|---|---|---|
| SEES 9 | 32+7 | & |
| AND SAYS | 3 9 | SAY |
| | ETC. | |

REMEMBER: THE RECIPES MUST BE
SAID & REPEATED ALOUD

NOTE: REMEMBER IS POSITIEF (PROFESSIONAL MEMORY TRAINING).
DON'T FORGET IS NEGATIVE.

PAGES 12, 13, 14

THE 10-PARTNERS (PAGE 15)
ADD UP TO TEN

SAME EXERCISES FOR THE 9-PARTNERS.
NOTE: 1 & 9, 2 & 8 ARE DEALT WITH EARLIER,

3 & 7    THE 7 IS IN THE 3

4 & 6    EVEN NEIGHBOURS

5 & 5    2 HANDS, 10 FINGERS

HOW MANY WEEKS IN A YEAR?   52

5 FINGERS, 2 HANDS

THIS MAKES LIVELIER LESSONS. AFTER ALL, CHILDREN ARE
PROGRAMMED TO BE CURIOUS.

3.

## THE 3RS THE PROFESSIONAL WAY

NOTE: THE <u>SEE</u> & <u>SAY</u> METHOD ELIMINATES
ALL OUTDATED HABITS AND PROTOCOLS
THAT HAVE ALWAYS STIFLED PROGRESS.
WITH ORAL EXERCISES. WE DON'T NEED
MARGINS, PLUS, TAKE AWAY, EQUALS,
PEN LICENCE, STRAWBERRY SCENTED
STICKERS OR A RED PEN FOR MARKING!

## PAGE 16

FOR THIS EXERCISE, WE NEED TO KNOW THAT:

| | | |
|---|---|---|
| IF 1+1 = 2<br>THEN 10+10 = 20 | IF 1+5 = 6<br>THEN 10+50 = 60 | 57 = 50+7 |

$$6\underline{8+2} \quad \text{YOU } \underline{\text{SEE}} \ 10,$$

YOU THINK 60+10 = **70**

SAME EXERCISES **PAGE 18** AS FOR THE 10-PARTNERS

P: I SAY 3, YOU SAY 6, ETC. THEN QUICKER:

4(8), 8(16), 6(12), ETC.

## PAGE 19

AS 18

4.

# CREATIVE NUMERACY

## FOR EAR & EYE

PAGE 23: ADDITION TABLES IN STAGES. (OVER ANSWERS
PAGE 25: THE 45 POSSIBILITIES (9-PARTNERS!)
INSERT : DOWNLOAD ON 300 GSM AND CUT OUT.
   NUMBER· ANSWERS ARE ON THE BACK. CARDS FIT IN A
MATCHBOX KEEP PRACTISING UNTIL ANSWERS ARE GIVEN
      IN 45 SECONDS! THEN PRACTISE 26.

ALGORISMS ON PAGES 30-34 SHOULD
BE PRACTISED ORALLY. AFTER ALL,
   THEY ARE THE SAME EXERCISES AS
BEFORE. ONLY THE EYS FOLLOW A
DIFFERENT ROUTINE·

$$73 \overset{EYES}{\phantom{0}}$$
$$+ 19$$
$$\overline{\phantom{0}}$$
$$92$$

WE DON'T ADD
UP OF COURSE
BECAUSE THE 2 MUST
BE WRITTEN WHERE
   IT IS

WE SEE 12, WRITE DOWN THE 2
AND GIVE THE 1 TO THE 7   TO MAKE 8,
   THEN 8 + 1 = 9.
                  No CRUTCH FIGURES!
THIS METHOD IS BASED ON RELAY RACES
YOU PASS THE BATON (THE 1)   TO THE NEXT
RUNNER (THE 7)!!

NOTE: MAKE SURE THAT TEACHERS DON'T
INTIMIDATE YOUR CHILDREN!!!!

# CHECKING ANSWERS WITHOUT A CALCULATOR

## 9: A VERY SPECIAL NUMBER

1. 45 ADDITIONS (9-PARTNERS)

2. $1+2+3+4+5+6+7+8+9 = 45$

3. FOR THE TIMES TABLES
   YOU NEED TO KNOW THE 9-PARTNERS

RECIPE: SAY ALOUD

"THINK 1 LESS & THE PARTNER

4.
$$7 \times 9$$
$$63$$
THERE ARE
36 (9) MULTIPLICATIONS

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THIRD CLASS: SUBTRACTION

- SAY THE RECIPES ALOUD ETC.
- PRACTISE PAGE 43. (COVER ANSWERS) & 44.
- PRACTISE PAGE 45, 47, 48, 50 (45 SECONDS)
- ALGORISMS: 49, 51, 52, 53.

## FOURTH CLASS: MULTIPLICATION
TIMES TABLES IN 2 HOURS AT THE BACK
54-64          36 SECONDS (PAGE 60)

| | | | | |
|---|---|---|---|---|
| 1+1 | 2+8 | 5+3 | 7+4 | 1+2 |
| 3+3 | 5+2 | 9+3 | 6+6 | 5+4 |
| 6+5 | 3+8 | 9+5 | 4+4 | 3+6 |
| 9+2 | 1+3 | 4+8 | 7+5 | 4+6 |
| 3+2 | 7+3 | 9+4 | 7+6 | 5+5 |
| 4+3 | 2+6 | 5+8 | 2+2 | 6+1 |
| 9+6 | 5+1 | 7+7 | 1+9 | 7+8 |
| 7+1 | 9+9 | 8+1 | 6+8 | 1+4 |
| 8+8 | 2+4 | 9+7 | 8+9 | 2+7 |

| | | | | |
|---|---|---|---|---|
| 3 | 11 | 8 | 10 | 2 |
| 9 | 12 | 12 | 7 | 6 |
| 9 | 8 | 14 | 11 | 11 |
| 10 | 12 | 12 | 4 | 11 |
| 10 | 13 | 13 | 10 | 5 |
| 7 | 4 | 13 | 8 | 7 |
| 15 | 10 | 14 | 6 | 15 |
| 5 | 14 | 9 | 18 | 8 |
| 9 | 17 | 16 | 6 | 16 |

# Fifth Class: Division 65-79

Tables 73

## Division is Multiplication in Reverse.

✓ We are going to use <u>Visualisation</u>
(Professional Memory Training to learn answers
Preliminary exercises to practise this very
important SKILL.

### 1. Close your eyes

2. Visualise classrooms with students
   in their usual places etc. etc.
3. Say what you see in your Mind's eye

4. Division: Visualise $9 \times 3 = 27$

and SEE that $27 \div 3 = 9$ and that

$27 \div 9 = 3$

Book 2: 26 - 30

Tables: 32 (33)   Download on 300 GSM and cut
up to Practise Answers on the back.

Use Books 1 & 2

## Sixth Class: Fractions

Decimals, Percentage. Conversions,
Scale, Roman Numerals, Algebra with Letters,
Measurement, Area, Angles, Order, Rate, Ratio

# DIVISION THE DIRECT WAY

## 1. USING DOUBLES & HALVES (18&19 Book1)

| | |
|---|---|
| 4÷2 IS HALF 4 | 6÷2 IS HALF 6 |
| 8÷2 IS HALF 8 | 10÷2 IS HALF 10 |
| 12÷2 IS HALF 12 | 14÷2 IS HALF 14 |
| 14÷2 IS HALF 14 | 16÷2 IS HALF 16 |
| 18÷2 IS HALF 18 | 20÷2 IS HALF 20 |

| | | | |
|---|---|---|---|
| 20÷10=2 | 18÷9=2 | 16÷8=2 | 14÷7=2 |
| 12÷6=2 | 10÷5=2 | 8÷4=2 | 6÷3=2 |

| | |
|---|---|
| 9x2=18 | **RECIPE IN REVERSE** |
| 9x3=27 | 1. 36÷4 = 9 |
| 9x4=36 | |
| 9x5=45 | YOU SEE 3+6=9, & |
| | YOU SEE 3+1=4    ETC. |
| 9x6=54 | |
| 9x7=63 | 2. 72÷9 = 7+1 = 8 |
| 9x8=72 | 45÷9 = 4+1 = 5 |
| 9x9=81 | 63÷9 = 6+1 = 7 |

9x2    5x2    6x2

9x3    5x4    6x4

9x4    5x6    6x6

9x5    5x8    6x8

9x6    2x2    3x4

9x7    2x3    7x8

9x8    7x3    7x6

9x9    8x4    8x8

3x3    5x3    7x2    4x2

3x6    5x7    7x4    4x4

3x8    5x5    7x7    8x2

9.

| 5 and Even |
| --- |
| **HALF the NUMBER** |
| and Zero |
| $5 \times 2 = 10$ |
| $5 \times 4 = 20$ |
| $5 \times 6 = 30$ |
| $5 \times 8 = 40$ |

YOU SEE $21 \div 4$
HALF THE NUMBER & 1
ANSWER 5      ETC

$30 \div 5$

YOU SEE 5 & 0:
DOUBLE THE 3. ANSWER 6

| 6 and Even |
| --- |
| Half the Number and the Number |
| $6 \times 2 = 12$ |
| $6 \times 4 = 24$ |
| $6 \times 6 = 36$ |
| $6 \times 8 = 48$ |

$48 \div 8$

YOU SEE HALF 8 & 8
ANSWER 6                ETC

$24 \div 6$    YOU SEE 6

ANSWER 4 THE 2ND DIGIT

Count to Eight.
Answers in Front.
1 2  3  4
5 6  7  8

$12 \div 3 = 4$ THE MISSING NUMBER

$56 \div 8 = 7$ THE MISSING NUMBER.

| Answers Behind. | REMEMBER & | VISUALISE |
|---|---|---|
| 7 3 2 1 | $21 \div 3 = 7$ | $32 \div 4 = 8$ |
| 8 4 3 2 | $21 \div 7 = 3$ | $32 \div 8 = 4$ |

| Answers Behind. 7 6 4 2 8 8 6 4 EVEN EVEN | $42 \div 6 = 7$ $42 \div 7 = 6$ | $64 \div 8 = 8$ 4 6 8 |
|---|---|---|
| $5 \times 3 = 15$ | $15 \div 3 = 5$ | $15 \div 5 = 3$ ODD AFTER 1 |
| $5 \times 5 = 25$ | $25 \div 5 = 5$ | |
| $5 \times 7 = 35$ | $35 \div 7 = 5$ | $35 \div 5 = 7$ 3, 5, 7 |
| $20 \div 5 = 4$ | $41 \div 5 = 8$ | $81 \div 5 = 16$ |
| $31 \div 5 = 6$ | $60 \div 5 = 12$ | $101 \div 5 = 20$ |

DOUBLE THE DIGIT(s)

$41 \div 8$    YOU SEE HALF 8 & 1

THAT'S THE 5 RECIPE IN REVERSE
ETC.

# CATTAI SCHOOL of AART
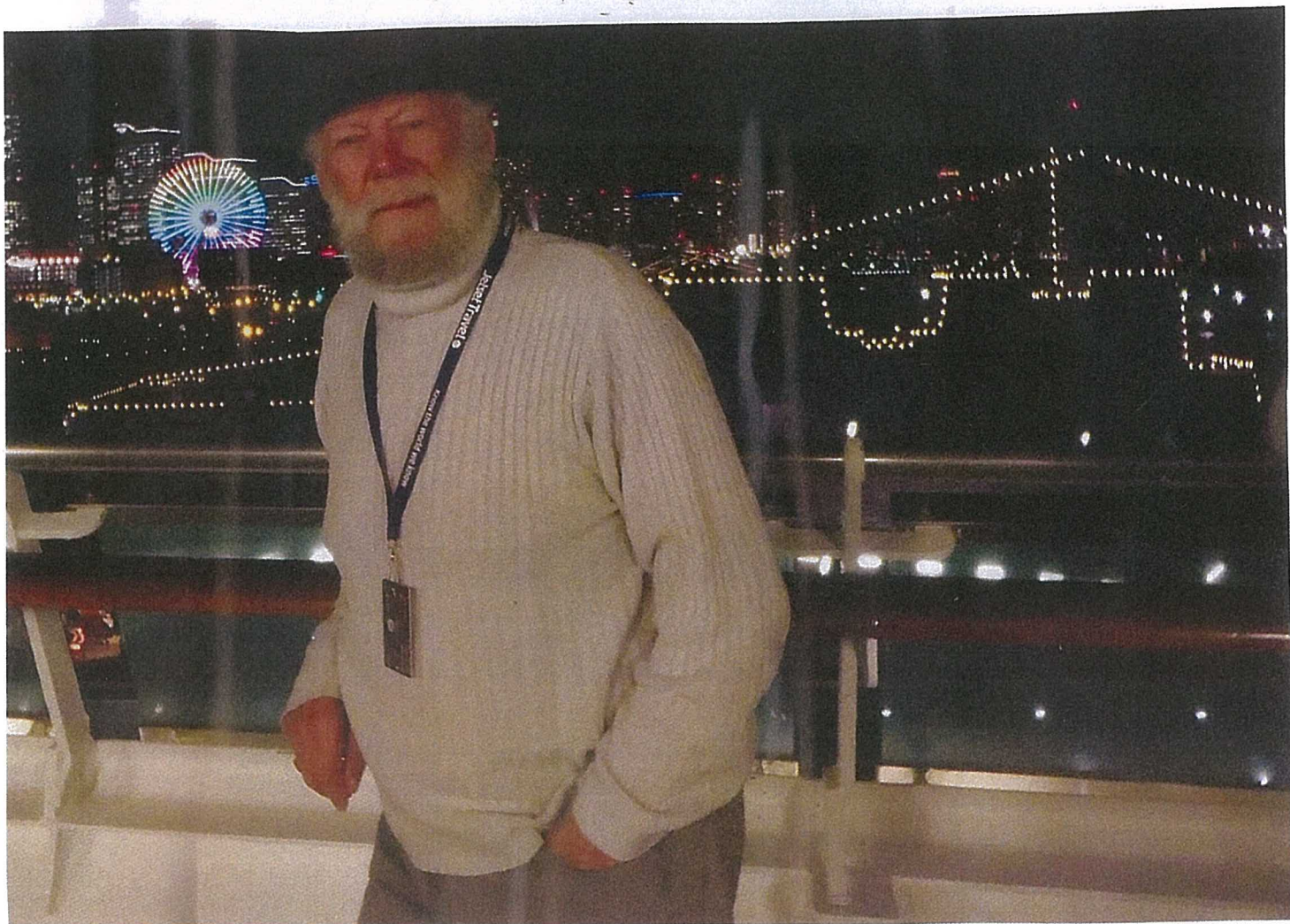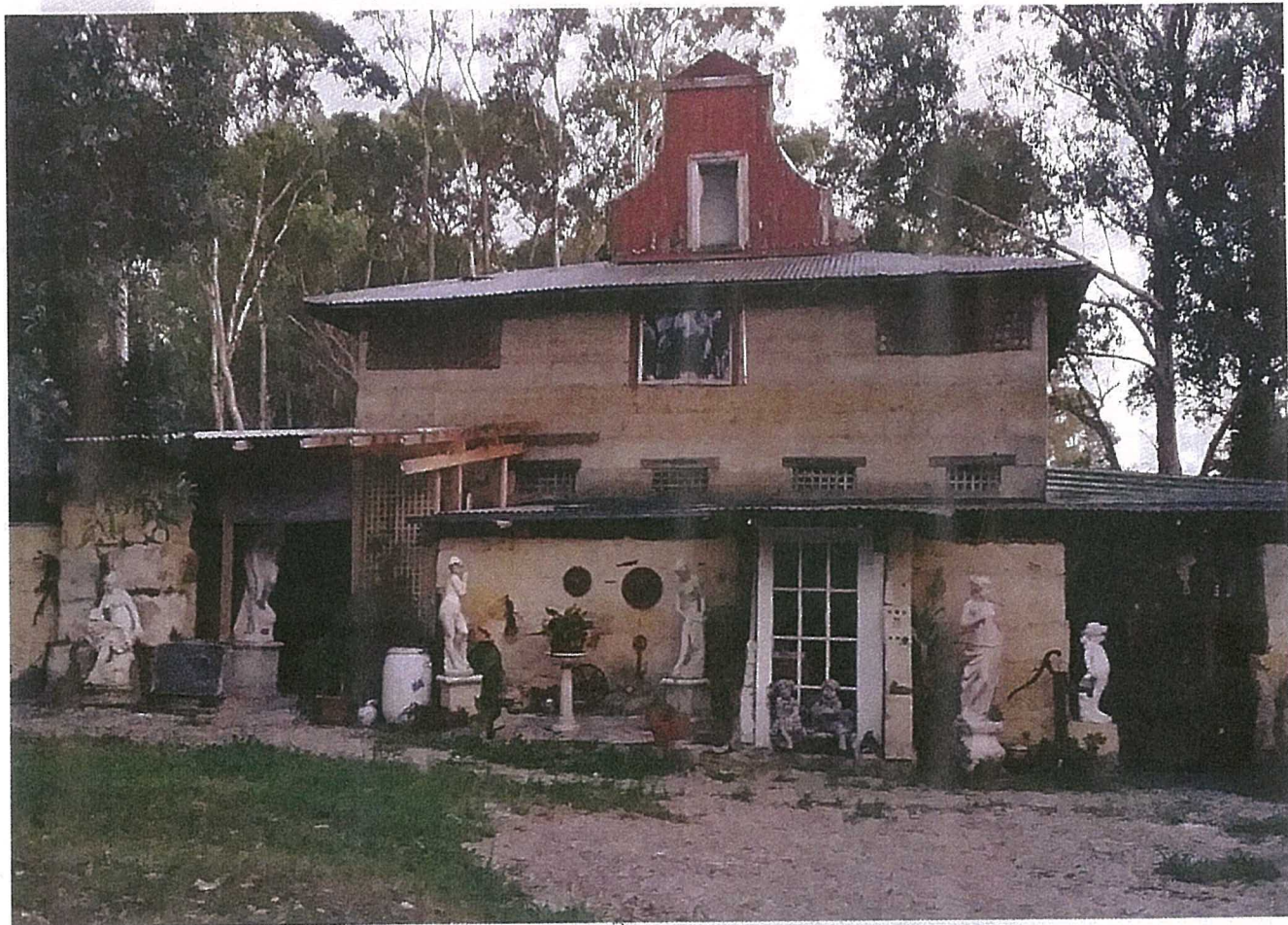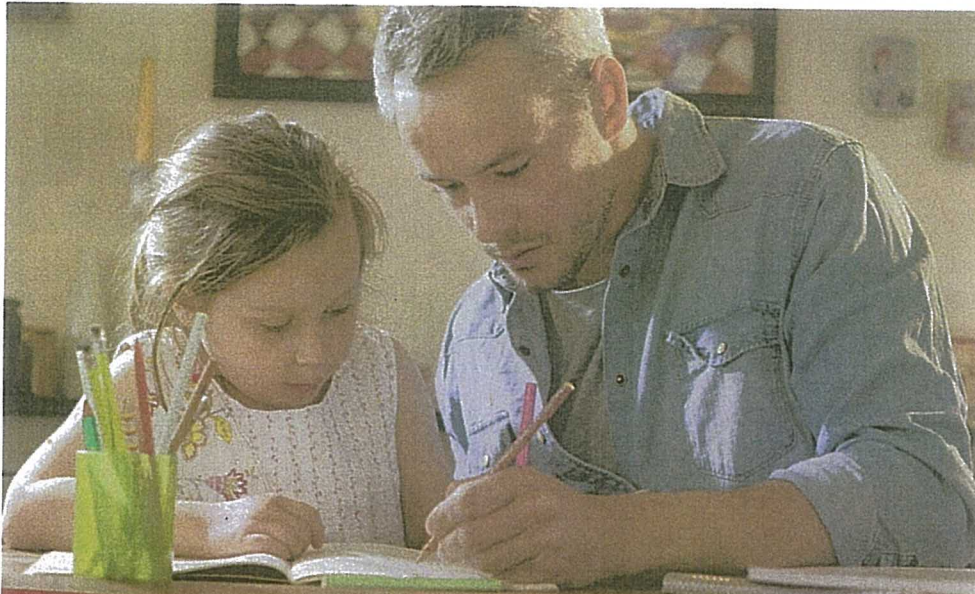




113.

# Introduction

I am the first person in the world who has discovered number patterns that will enable students to easily remember the answers to the standard multiplications. Copying times tables umpteen times should now be an obsolete activity!

- I'll begin with 2 general laws: 1. Xx1=x. 2. Xxo=o

- Remembering answers comes last! The following pages are designed for you to get used to the new tables in stages because you should immediately forget the ones in bedrooms or on toilet doors!

- There are 5 stages to remember and how they relate it is important to visualise the whole page as well as the colours of each group.

- Do not try to learn answers direct! Less haste more speed!

  Note: this method shows clearly that the mind is a pattern making and a pattern using system(De Bono).

9x2

9x3

9x4

9x5

9x6

9x7

9x8

9x9

**COPY & COLOUR**

2.

| | |
|---|---|
| 9x2 | 5x2     6x2 |
| 9x3 | 5x4     6x4 |
| 9x4 | 5x6     6x6 |
| 9x5 | 5x8     6x8 |
| 9x6 | |
| 9x7 | |
| 9x8 | |
| 9x9 | |

3.

| COPY & COLOUR | COPY & COLOUR | COPY & COLOUR |
| --- | --- | --- |
|  |  |  |

4.

| | |
|---|---|
| 9x2 | 5x2   6x2 |
| 9x3 | 5x4   6x4 |
| 9x4 | 5x6   6x6 |
| 9x5 | 5x8   6x8 |
| 9x6 | 2x2   3x4 |
| 9x7 | 2x3   7x8 |
| 9x8 | 7x3   7x6 |
| 9x9 | 8x4   8x8 |

5.

| COPY & COLOUR | COPY & COLOUR | COPY & COLOUR |
|---|---|---|
|  |  |  |
|  | COPY & COLOUR | COPY & COLOUR |
|  | COPY & COLOUR | COPY & COLOUR |

6.

| | | |
|---|---|---|
| 9x2 | 5x2 | 6x2 |
| 9x3 | 5x4 | 6x4 |
| 9x4 | 5x6 | 6x6 |
| 9x5 | 5x8 | 6x8 |
| 9x6 | 2x2 | 3x4 |
| 9x7 | 2x3 | 7x8 |
| 9x8 | 7x3 | 7x6 |
| 9x9 | 8x4 | 8x8 |

| | | | |
|---|---|---|---|
| 3x3 | 5x3 | 7x2 | 4x2 |
| 3x6 | 5x7 | 7x4 | 4x4 |
| 3x8 | 5x5 | 7x7 | 8x2 |

| COPY & COLOUR | COPY & COLOUR | COPY & COLOUR |
| --- | --- | --- |
| | | |

| COPY & COLOUR | COPY & COLOUR |
| --- | --- |
| | |
| COPY & COLOUR | COPY & COLOUR |
| | |

| C & C | C & C | C & C | C & C |
| --- | --- | --- | --- |
| | | | |

8.

| THE | 5 | 6 |
|---|---|---|
| **9** | and | and |
| | **EVEN** | **EVEN** |

$2 \rightarrow$ **3 4** add

TOP LINE   **7 8**

**7 3**

**8 4**   Double

Double

**3x3**

**6**

**8**

**5x5**

And

Odd

**7x7**

**2**

**4**

**4.**

TIMES

TABLES

1.   2.   3.   4.

How to remember the 11 groups

Group 11: the nines

Group 9&10: five and even, six and even

Group 7: look at the top line: you see 2 twos & 3 twos.

Group 8: after the 2 comes 3&4. Add: 7 and the next.

Group 5: look at group 8 in a different way (up!) you see 7&3 and 8&4.

Group 6: double the 3 and the 4

Groups 1,2,3,4

Since we don't do 1, and have used 9, the remaining odd numbers are 3  5  7.

The 4th column gives two fours, four fours which the same as 2 eighssss sixteen.

Group 2: 5 and odd

Group 1: the missing threes

Check off the ones already used: 2,4,5,7,9

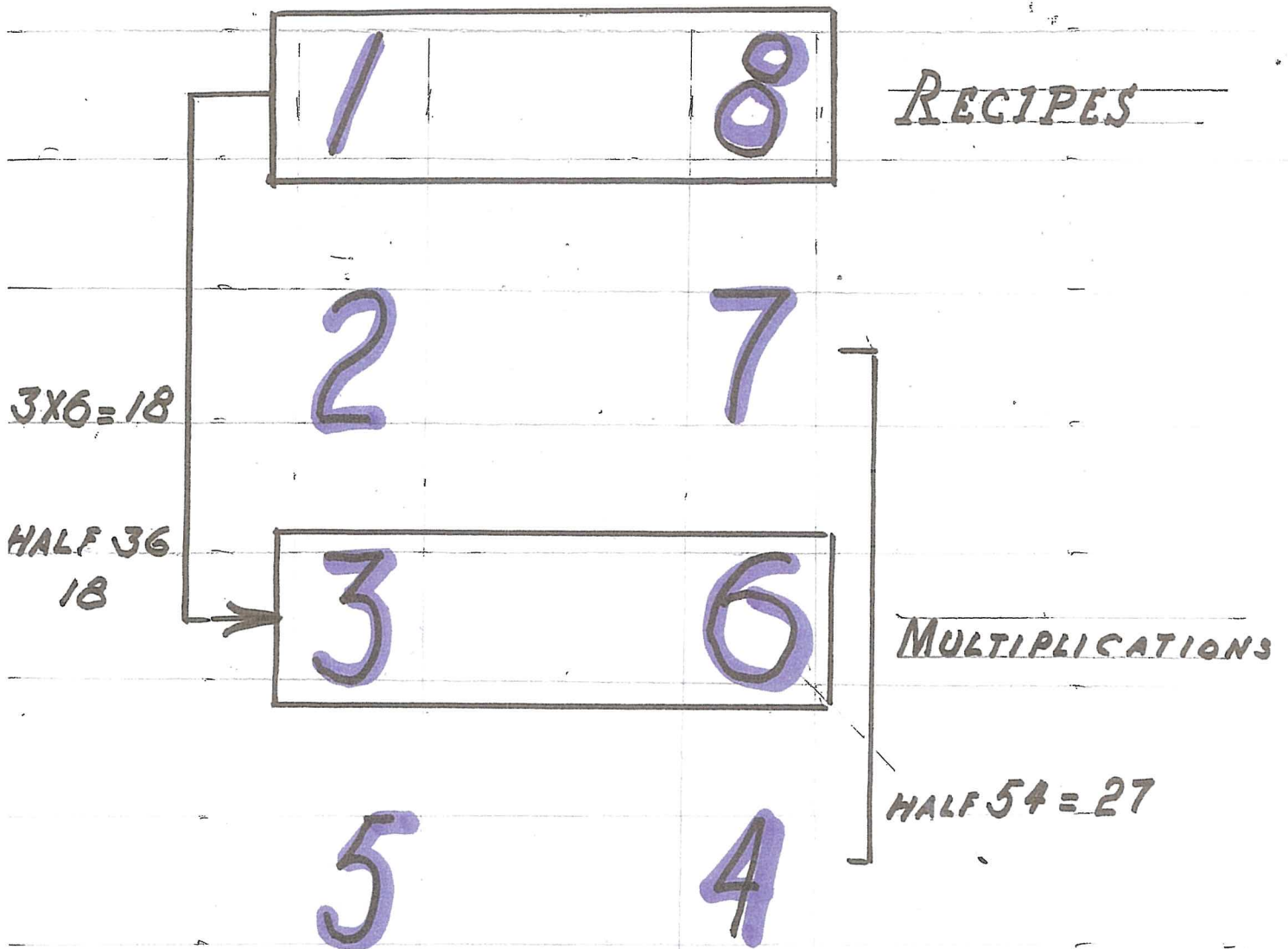Group 3: think: 2 weeks, 4weeks, a week x a week.

10.

| COLOUR | TEST PAGE & | DETAILS |
|--------|-------------|---------|
|        | 9           | 10      |
| 11     | 7           | 8       |
|        | 5           | 6       |
| 1      | 2 | 3 | 4 |

//

//

# THE 9-PARTNERS

| 1 | 8 |
|---|---|

RECIPES

2              7

3X6=18

HALF 36
    18

| 3 | 6 |
|---|---|

MULTIPLICATIONS

HALF 54 = 27

5              4

---

THE USE OF PATTERNS

8

x

2    3    4
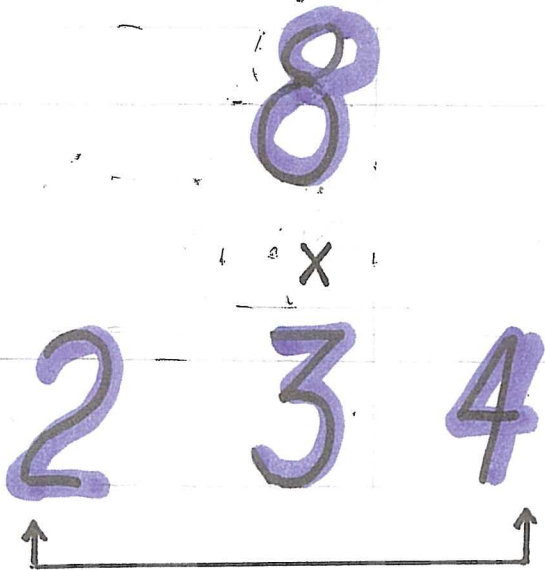
GENERAL RULES

$x \times 1 = x$

$x \times 0 = 0$

12. NO NEED FOR TABLES

## 6 and Even
### Half the Number and the Number

$6 \times 2 = 12$
$6 \times 4 = 24$
$6 \times 6 = 36$
$6 \times 8 = 48$

## 5 and Even
### Half the Number and Zero

$5 \times 2 = 10$
$5 \times 4 = 20$
$5 \times 6 = 30$
$5 \times 8 = 40$

## The 9-Partners

1 2 3 4
8 7 6 5

### The 9 Recipe: Think 1 Less and the Partner

$9 \times 2 = 18$
$9 \times 3 = 27$
$9 \times 4 = 36$
$9 \times 5 = 45$
$9 \times 6 = 54$
$9 \times 7 = 63$
$9 \times 8 = 72$
$9 \times 9 = 81$

### Count to Eight. Answers in Front.

1 2 3 4
5 6 7 8

$2 \times 2 = 4$

$2 \times 3 = 6$

### Answers Behind.

7 6 4 2
8 8 6 4
EVEN EVEN

### Answers Behind.

7 3 2 1
8 4 3 2

### If $2 \times 4 = 8$ Then $4 \times 4 = 2$ Eightssss sixteen

2x7
2 Weeks
A Fortnight   **14** Nights

4x7
4 Weeks   14+14=28

4x7 Shortest Month
FEBRUARY
12345678

2nd Month **8** Letters

A WEEK & A WEEK
A FORT NINE **49**

**5 x ODD**
ENDS IN 5 WITH **ODD** NUMBER IN FRONT

$5 \times 3 = 15$

$5 \times 7 = 35$

HOW MANY ?
$5 \times 5 = 25$

| 5 |
| 10 |
| 15 |
| 20 |
| 25 |
| 30 |
| 35 |

Channel **9**
3 x 3

**36** Multiplications
**18** Recipes

Amazing Numbers
1. 9 Partners
2. Half 36=18
3. 3x6=18
4. To Remember the 3 Threes Group

8
x
2 3 4

# Professional memory training

"Times tables in 2 hours is based on the following wisdom: if you want to remember something, you have to find something (anything ) to remember it by. Since children were told to write out their times tables umpteen times during the past 200 years, neither teachers nor learned professors were inventive enough to think ouside the box. Hence the following solution.

How to remember the times tables: summary.

Groups11: think I less and the partner

9x4=3x(9-3)=36

9x7=6x(9-6)=63

Group 9&10: just apply the recipe

Group 8: if you count to eight, you have 2 answers: 1 2=3x4, 5 6=7x8

Groups 5: if you go from 7 to 3, you're counting down: next one down is 2, next one down is 1: 7x3=21

Group 6: the doubles of group 5

7x6=42 even down

8x8=64 even down            14.

Group 1: 3x3: Channel 9

There are 36 multiplication (magic 9 again). you only have to remember 18 recipes.

Look at 36 and 18

- Half 36=18
- 3x6=18

Group 2: 5 and odd answers always ending: 5, 10, 15, 20, 25, 30, 35...

So that's half the answer 5x3: you need the odd number of these two with the 5:15

5x7: odd number before and 5:35

5x5: you see 2 fives. That's the number you need with the 5.

Groups 3: 1 week=7 days, 2 weeks is a fortnight is 14 nights. An extraordinary coincidence that nobody has seen despite PHD credentials. Most children cannot spell February because they don't pronounce the R(like we do it in Dutch). February= 4x7 days. 2nd month, 8 letters; that's the answer!
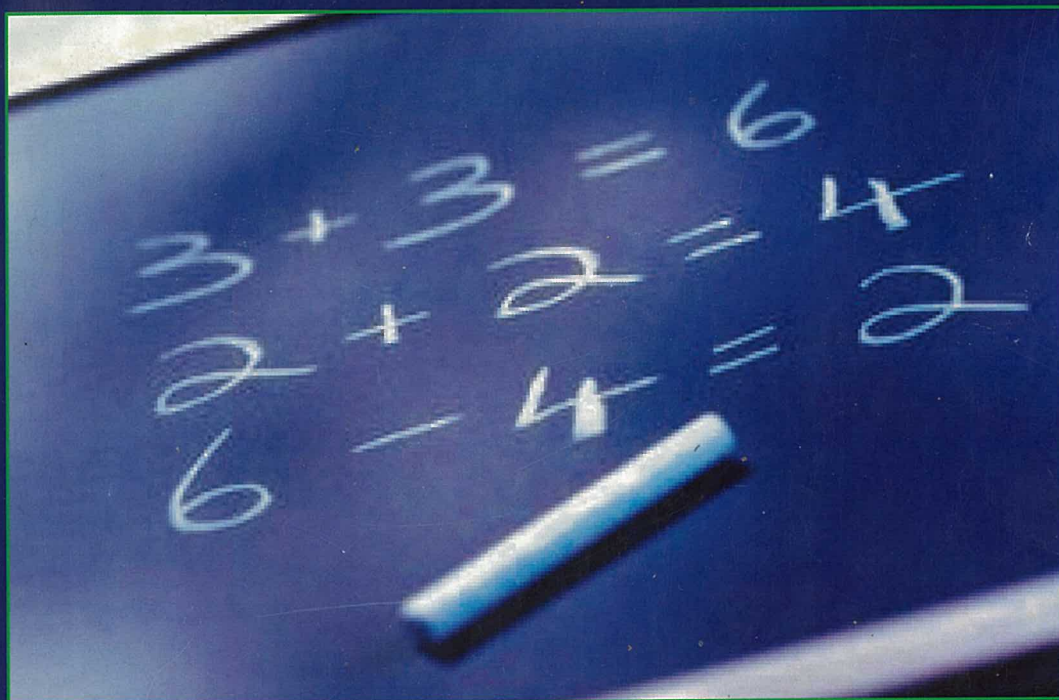
# VISUALISE

## DIVISION

$$\div$$

$$9 \times 6 = 54$$

| | |
|---|---|
| $54 \div 6 = 9$ | $54 \div 9 = 6$ |

16.

# EFFICIENT
## ADDITION & SUBTRACTION

# Efficient Addition & Subtraction

## Author's Background

### Born in 1928

1.  **Dutch Diplomas:** HSC, Naval College, 2nd Officer Dutch Merchant Navy, Commercial correspondence Spanish, French and English.

2.  **Languages:** Dutch, English, German, French, Spanish, Portuguese and Italian.

3.  **High School Teacher:** Holland (2 Years), Australia (12 Years).

4.  **Subjects:** English, French, Latin, Spanish, Creative Writing, Art, Music, Technical Drawing & Mathematics.

5.  **Private Tutor** since 1976.

6.  **Author** of Text Books.

7.  **Musician.**



Numbers In A Nutshell : Cattai Public School 2003

# The Decimal System

- Learning to confidently add any set of numbers in record time without calculator may be achieved by applying 12 general rules and recipes (*). It heralds the end of Rote Learning, saying or copying the traditional tables over and over again, often without the hoped-for outcome.

- The success of this highly efficient course is the result of training eyes to look and see instead of relying on variable intelligence! The guided awareness of specific features combined with the use of Verbal Rehearsal, number cards and routine procedures satisfies the 5 requirements in Professional Memory training:  1. Interest (created by the teacher)      2. Attention
  3. Concentration (attention to detail)      4. Visualisation
  5. Repetition

- My method completely bypasses the Failure Mechanism that is often activated by too many explanations, a modern phenomenon! That's why Subtraction is learnt by using its own rules and recipes. The relationship between Addition and Subtraction is not mentioned. However, since the transition from Addition and Subtraction to the concept of positive and negative numbers in year 7 always creates problems for many students, that topic has been summarily dealt with.

- As far as Numeracy is concerned, young children should be intelligently programmed like a calculator for their own benefit, especially since it takes at least ten years for the human brain to reach maturity (Uma História da Linguagem).

- Practising Arithmetic should be considered a practical as well as a therapeutic activity. With the advent of the Internet, Google, Facebook, IPhones and the like, memorising has almost become extinct causing braincells to die off (National Geographic); the price we have to pay for technology and progress. Many children now have a T.V. brain, one that is only suitable to watch the screen (Endangered Minds, Healey). It's not the apes we come from, it's where we are going!
  (*) A general rule generates an infinite number of answers. The word recipe is used here to find the answers to a limited group of additions or subtractions.

# Program

- General rules and Recipes for Addition (pages 1&2).  The use of Choral Reading.
- Exercises 1&2 on page 4.
- Exercise 3: The 36 additions are mixed, black numbers up. Students give oral answers and immediately check the ones on the back. Errors should be recorded on page 4 in the appropriate sections. The exercise should be repeated if necessary until the final score is 100%.
- Exercises 4&5.
- Mentals.
- Addition as a therapy.
- General rules and Recipes for Subtraction (pages 7&8).
- Exercise 6: Guided revision.
- Algorisms Type one.
- Exercise 7: Guided revision.
- Algorisms Type two.

# General Rules & Recipes for Addition.

### Including the 12 Basic Ones.

If you add **1** to a number, you get the **next** number.

| 1. | 1+12 | 1+23 | 1+34 | 1+45 | 1+56 | 1+67 | 1+78 | 1+89 |
|---|---|---|---|---|---|---|---|---|

### SEE & SAY

If you add **2** to an **odd** number, you get the **next** odd number.

| 2. | 2+3 | 2+17 | 2+25 | 2+39 | 2+43 | 2+51 | 2+69 | 2+77 |
|---|---|---|---|---|---|---|---|---|

### SEE & SAY

If you add **2** to an **even** number, you get the **next** even number.

| 3. | 2+12 | 2+26 | 2+34 | 2+48 | 2+60 | 2+76 | 2+84 | 2+98 |
|---|---|---|---|---|---|---|---|---|

### THE 9 - PARTNERS

| 4. | 1 - 8 | | 2 - 7 | | 3 - 6 | | 5 - 4 | |
|---|---|---|---|---|---|---|---|---|
| | 11+8 | 23+6 | 32+7 | 44+5 | 58+1 | 67+2 | 76+3 | 85+4 |

### SEE & SAY

The **first** 9 - recipe: Think **1** less and **teen**.

| 5. | 7+9 | 9+9 | 5+9 | 8+9 | 6+9 | 4+9 | 3+9 | 2+9 |
|---|---|---|---|---|---|---|---|---|

### SEE & SAY

The **second** 9 - recipe: Think **1** more, **1** less.

| 11+9 | 23+9 | 49+9 | 76+9 | 87+9 | 95+9 | 104+9 | 232+9 |
|---|---|---|---|---|---|---|---|
| 19+2 | 29+4 | 59+3 | 79+7 | 99+2 | 119+3 | 129+5 | 89+9 |

# General Rules & Recipes for Addition.

## Including the 12 Basic Ones.

### THE 10 - PARTNERS

| 6. | 1 - 9 | 2 - 8 | 3 - 7 | 4 - 6 | 5 - 5 |
|---|---|---|---|---|---|
| | one - nine | two - eight | three - seven | next even | 2 hands |

### SEE & SAY
### Think 1 more and zero.

| 14+6 | 21+9 | 35+5 | 42+8 | 57+3 |
|---|---|---|---|---|
| 196+4 | 283+7 | 379+1 | 735+5 | 642+8 |

### SEE & SAY
### The number and teen

| 7. | 9+10 | 6+10 | 8+10 | 5+10 | 3+10 |
|---|---|---|---|---|---|

### SEE & SAY
### 1 more and keep.

| 14+10 | 51+10 | 99+10 | 188+10 | 515+10 |
|---|---|---|---|---|

### DOUBLES

| 8. | 3+3 | 4+4 | 6+6 | 7+7 | 8+8 |
|---|---|---|---|---|---|

### DOUBLES PLUS ONE

| 9. | 3+4 | 5+6 | 6+7 | 7+8 | 8+7 |
|---|---|---|---|---|---|
| | Even down $$\begin{array}{c} 8 \\ + \\ 6 \\ \hline 4 \text{ teen} \end{array}$$ | $\frac{3}{9}$ say aloud 3-5-8 5-8-13 | 4711 | FOUR - SEVEN ELEVEN | 4711 |
| | | | If 4+7=11 5+7=12 | If 4+7=11 4+8=12 | If 4+7=11 3+8=11 |

| 10. | 11. | -3- | 12. |
|---|---|---|---|

**2 + ODD**

1 2 3

**2 + EVEN**

1 2 3 4

The 10 - Partners

The  9 - Partners

D
O
U
B
L
E
S

+

1

The First 9 - Recipe:

Think 1 Less & Teen

The Second 9 - Recipe:

Think 1 More, 1 less

Doubles in Action

The
Four - Seven - Eleven
Group

8
6
4 Teen

3-5-8

5-8-13

**1.**

NOTE: The Biggest Combination is 9+9 =18
So 20 can only
Become 30

$$24 + 8$$

See 20+1**2**

Say Thirty – **Two**

**2.**

$$67 + 6$$

See 60+1**3**

Say Seventy – **Three**

**3.**

**6**

$$21 + 35$$

See 50 + **6**

Say Fifty – **Six**

**4.**

**13**

$$34 + 49$$

See 70 + 1**3**

Say Eighty – **Three**
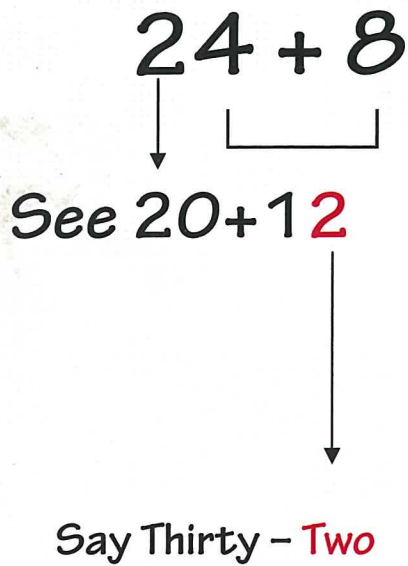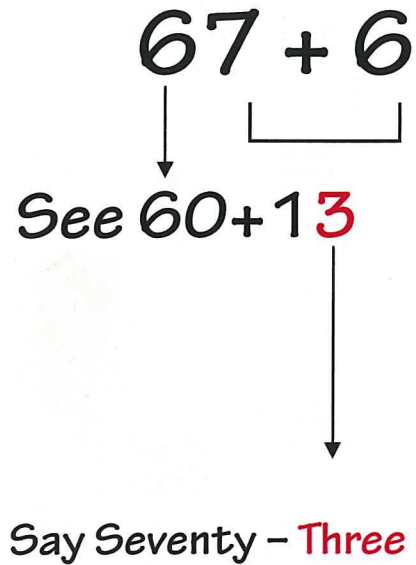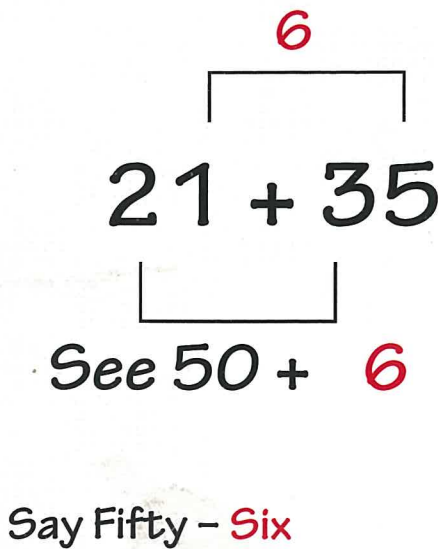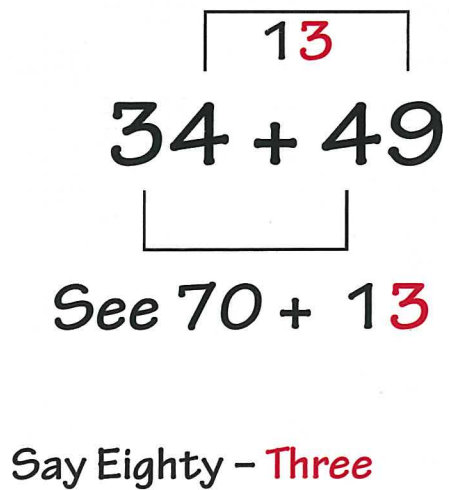
## 1. A Single Column

EYES

3
5   8
6   14
7   21
8   29
9   38
2   40

1. Say Aloud
2. Think

## 2. 2 Columns

Without crutch figures;
it disturbs fluency.
In a relay race, the baton is passed
on, not thrown on the ground!

10 | 83     Start
17 | 75   8   Say or Think
23 | 66 | 14
28 | 57 | 21
+ | 38 | 29   Put down the 9,
Pen ↓ 319 ↓   carry the 2'n 8's 10

L ←——— R

## 3.

Check

$$
\begin{array}{r|l}
379 & 1 \\
523 & 1 \\
+\ 417 & 3 \\
\hline
1319 & 5 \checkmark
\end{array}
$$

Checking with the 9-remainder method (Trachtenberg): Reduce each number to one single digit by adding its digits. Mentally cancel nines or combinations totalling nine.
Note: The 9-Remainder is the sum of the digits.

Eg: $21 = (2 \times 9) + 3$

## 4. Finding Palindromic Numbers

- Start with any number
- Add its reverse
- Repeat this procedure
- Eventually, you'll find one

$$
\begin{array}{r}
379 \\
+973 \\
\hline
1352 \\
+2531 \\
\hline
3883
\end{array}
$$

It reads the same both ways

# General Rules & Recipes for Subtraction

If you take **1** from a number, you get the number before.

| 1 | 20-1 | 11-1 | 18-1 | 39-1 | 47-1 | 54-1 | 66-1 | 74-1 |

The **difference** between two **consecutive** numbers is **1**

| 2 | 17-16 | 15-14 | 20-19 | 31-30 | 49-48 | 56-55 | 64-63 | 100-99 |

The **difference** between two **consecutive odd** numbers is **2**

| 3 | 19-17 | 5-3 | 27-25 | 33-31 | 41-39 | 3-1 | 51-49 | 61-59 |

The **difference** between two **consecutive even** numbers is **2**

| 4 | 2-0 | 14-12 | 26-24 | 38-36 | 50-48 | 62-60 | 70-68 | 100-98 |

If you take **2** from an **odd** number, you get the **odd** number **before**.

| 5 | 3-2 | 11-2 | 25-2 | 37-2 | 49-2 | 51-2 | 63-2 | 75-2 |

If you take **2** from an **even** number, you get the **even** number **before**.

| 6 | 2-2 | 14-2 | 26-2 | 38-2 | 40-2 | 52-2 | 64-2 | 76-2 |

The missing 9-partners

| 7 | 9-1 | 9-2 | 9-3 | 9-4 | 9-5 | 9-6 | 9-7 | 9-8 |
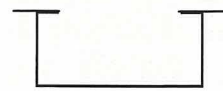
Replace the 9 by the missing partner

| | 19-1 | 29-3 | 39-2 | 49-4 | 59-8 | 69-7 | 79-6 | 89-5 |

# General Rules & Recipes for Subtraction

| 8 | The 9 - remainder group | | |
|---|---|---|---|
| The 9-remainder is the sum of the digits:<br><br>13 = 9 + 4 | ∴ (means therefore) | | |
| | | 13 - 9 = 4 | 13 - 4 = 9 |

| | | | |
|---|---|---|---|
| 15-9 | 11-9 | 16-7 | 16-9 |
| 11-2 | 18-9 | 14-9 | 15-6 |
| 10-1 | 19-10 | 13-4 | 18-9 |
| 13-9 | 10-9 | 14-5 | 12-9 |
| 17-8 | 17-9 | 19-9 | 12-3 |

The second 9 - recipe in reverse: Think 1 less, 1 more.

| 9 | 20-9 | 37-9 | 41-9 | 53-9 |
|---|---|---|---|---|
| | 68-9 | 72-9 | 84-9 | 106-9 |

Think missing 10-partners

| 10 | 10-2 | 20-4 | 30-3 | 40-5 | 50-7 | 60-6 | 70-8 | 80-9 |
|---|---|---|---|---|---|---|---|---|

Think 1 less and keep

| 11 | 18-10 | 75-10 | 34-10 | 83-10 | 92-10 | 61-10 | 56-10 | 47-10 |
|---|---|---|---|---|---|---|---|---|

The left-overs

| 12 | 7-3 | 8-5 | 7-4 | 8-3 | 11-4 | 14-8 | 11-7 | 12-7 |
|---|---|---|---|---|---|---|---|---|

# ALGORISMS

They must be done as an old fashioned routine!
Explanations only activate the failure mechanism;
the calculator doesn't provide them either.
If you explain too much, you explain nothing.

TAKEAWAY is only for Fish & Chips or Hamburgers.
Type 1 Algorisms

**1.**

Say;
98 Positive 98
Not shown
- 55 Negative 55
43 Positive 43

**2.**

76
- 44 The negative sign is written in front! ( As you say it )
32

Type 1

Year 7:     $-7 + 5 - 3 + 4 - 2 + 1 = -2$
Think:     There are 12 Negatives & 10 Positives.
"The Negatives win by 2"

Exercise 6: Guided Revision with cards.

Exercise 7: The 45 Possibilities.
Check Answers on the back of the cards.
Type 2 Algorisms

**3.**

Routine:  ↓ Put 1   ∴ Means Therefore
Take 1 → 43     Do
    - 8     $13 - 8 = 5$
    35 ←

Stage 1: Using 10 - partners
    $13 - 8 = 5$

Think  2+3
Stage 2: Exercise 7

Direct Answers

**4.**

Routine:  ↓ Put 1
Take 1 → 50     Do
    - 17     $10 - 7 = 3$
    33 ←

**5.**

73 ↑ 10 ✓
- 25 | + 7
48 | 3   Check Up!

**6.**

195 ↑ 6 ✓
- 36 | + 0
159 | 6   Ignore nines or combinations

**7.**

333 ↑ 9 ✓
- 178 | + 7
155 | 2

| | | | | | |
|---|---|---|---|---|---|
| 2+11 | 2+23 | 2+35 | 2+47 | 2+59 | 13+4 |
| 2+10 | 2+12 | 2+24 | 2+36 | 2+48 | 25+6 |
| 14+6 | 21+9 | 5+5 | 42+8 | 57+3 | 36+7 |
| 11+8 | 22+7 | 33+6 | 45+4 | 54+5 | 7+8 |
| 9+3 | 4+9 | 9+5 | 6+9 | 9+7 | 8+9 |
| 19+9 | 28+9 | 37+9 | 49+6 | 59+5 | 69+4 |
| 6+6 | 13+3 | 24+4 | 95+5 | 47+7 | 58+8 |
| 4+7 | 5+7 | 14+7 | 8+6 | 3+5 | 5+8 |
| 3+8 | 4+8 | 25+7 | 28+6 | 13+5 | 15+8 |

Cut out the groups & place them on page 4. After use, store them in pouch A.

| | | | | | |
|---|---|---|---|---|---|
| 17 | 61 | 49 | 37 | 25 | 13 |
| 31 | 50 | 38 | 26 | 14 | 12 |
| 43 | 60 | 50 | 10 | 30 | 20 |
| 15 | 59 | 49 | 39 | 29 | 19 |
| 17 | 16 | 15 | 14 | 13 | 12 |
| 73 | 64 | 55 | 46 | 37 | 28 |
| 66 | 54 | 100 | 28 | 16 | 12 |
| 13 | 8 | 14 | 21 | 12 | 11 |
| 23 | 18 | 34 | 32 | 12 | 11 |

Exercise 2: Put the mixed cards on page 4.
Exercise 3: Give oral answers, Check answers on the back.
Record errors on page 4 in the appropriate spaces.
Repeat exercise 3 if necessary until score is 100%

| | | | | | |
|---|---|---|---|---|---|
| 2+11 | 2+23 | 2+35 | 2+47 | 2+59 | 13+4 |
| 2+10 | 2+12 | 2+24 | 2+36 | 2+48 | 25+6 |
| 14+6 | 21+9 | 5+5 | 42+8 | 57+3 | 36+7 |
| 11+8 | 22+7 | 33+6 | 45+4 | 54+5 | 7+8 |
| 9+3 | 4+9 | 9+5 | 6+9 | 9+7 | 8+9 |
| 19+9 | 28+9 | 37+9 | 49+6 | 59+5 | 69+4 |
| 6+6 | 13+3 | 24+4 | 95+5 | 47+7 | 58+8 |
| 4+7 | 5+7 | 14+7 | 8+6 | 3+5 | 5+8 |
| 3+8 | 4+8 | 25+7 | 28+6 | 13+5 | 15+8 |

Cut up into 36 cards. Store in pouch A after use

| | | | |
|---|---|---|---|
| 21+9 | 44+7 | 77+4 | 98+7 |
| 23+8 | 36+6 | 88+6 | 98+2 |
| 26+5 | 47+9 | 86+4 | 105+9 |
| 37+8 | 64+6 | 85+7 | 87+5 |
| 42+8 | 54+8 | 66+9 | 38+9 |
| 33+9 | 56+8 | 78+5 | 89+1 |
| 46+7 | 68+4 | 77+3 | 95+8 |
| 58+3 | 55+5 | 75+6 | 27+7 |
| 33+7 | 64+9 | 97+6 | Increase 28 by 8 means 28+8 |

| | | | |
|---|---|---|---|
| 105 | 81 | 51 | 30 |
| 100 | 94 | 42 | 31 |
| 114 | 90 | 56 | 31 |
| 92 | 92 | 70 | 45 |
| 47 | 75 | 62 | 50 |
| 90 | 83 | 64 | 42 |
| 103 | 80 | 72 | 53 |
| 34 | 81 | 60 | 61 |
| 36 | 103 | 73 | 40 |

Exercise 5: Mix the cards. Give oral answers. Check answers on the back.

| | | | |
|---|---|---|---|
| 12+19 | 17+15 | 13+18 | 16+17 |
| 26+15 | 27+18 | 28+19 | 29+16 |
| 27+29 | 28+28 | 29+22 | 28+27 |
| 36+16 | 25+17 | 39+18 | 38+15 |
| 38+24 | 36+28 | 39+24 | 37+27 |
| 46+19 | 45+16 | 44+17 | 49+17 |
| 47+26 | 45+29 | 49+23 | 44+28 |
| 53+39 | 57+34 | 58+36 | 59+35 |
| 59+49 | 58+43 | 55+48 | 54+49 |

Cut up into 36 cards. Store in pouch B after use.

| | | | |
|---|---|---|---|
| 33 | 31 | 32 | 31 |
| 45 | 47 | 45 | 41 |
| 55 | 51 | 56 | 56 |
| 53 | 57 | 42 | 52 |
| 64 | 63 | 64 | 62 |
| 66 | 61 | 61 | 65 |
| 72 | 72 | 74 | 73 |
| 94 | 94 | 91 | 92 |
| 103 | 103 | 101 | 108 |

| | | | | |
|---|---|---|---|---|
| 74-1 | 31-30 | 64-63 | 41-39 | 61-59 |
| 26-24 | 70-68 | 37-2 | 51-2 | 38-2 |
| 40-2 | 9-3 | 9-4 | 9-5 | 9-6 |
| 29-3 | 49-4 | 59-8 | 69-7 | 79-6 |
| 89-5 | 20-9 | 37-9 | 41-9 | 53-9 |
| 68-9 | 72-9 | 84-9 | 106-9 | 20-4 |
| 30-3 | 40-5 | 50-7 | 60-6 | 70-8 |
| 80-9 | 7-3 | 8-5 | 7-4 | 8-3 |
| 18-10 | 75-10 | 34-10 | 83-10 | Decrease 61 by 10 means<br>61-10 |

Cut out cards. Check answers on the back store in pouch C After use.

| | | | | |
|---|---|---|---|---|
| 2 | 2 | 1 | 1 | 73 |
| 36 | 49 | 35 | 2 | 2 |
| 3 | 4 | 5 | 6 | 38 |
| 73 | 62 | 51 | 45 | 26 |
| 44 | 32 | 28 | 11 | 84 |
| 16 | 97 | 75 | 63 | 59 |
| 62 | 54 | 43 | 35 | 27 |
| 5 | 3 | 3 | 4 | 71 |
| 51 | 73 | 24 | 65 | 8 |

| | | | | |
|---|---|---|---|---|
| 10-1 | 11-3 | 12-5 | 13-7 | 14-9 |
| 11-2 | 12-3 | 13-8 | 14-5 | 10-2 |
| 15-9 | 10-7 | 11-5 | 12-6 | 10-4 |
| 11-8 | 12-9 | 13-5 | 14-7 | 16-9 |
| 10-5 | 11-6 | 12-8 | 13-6 | 14-8 |
| 11-7 | 10-8 | 16-8 | 15-7 | 13-9 |
| 10-3 | 11-4 | 12-7 | 13-4 | 16-7 |
| 11-9 | 12-4 | 10-9 | 15-8 | 10-6 |
| 14-6 | 15-6 | 17-8 | 18-9 | 17-9 |

Cut out cards. Mix Check answers on the back store in pouch C After use.

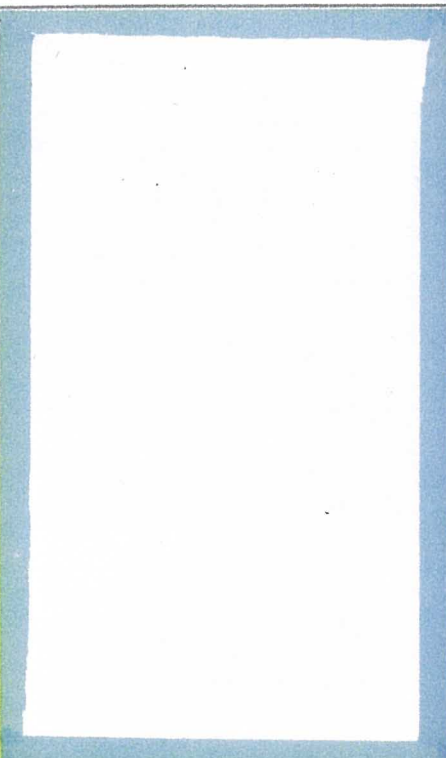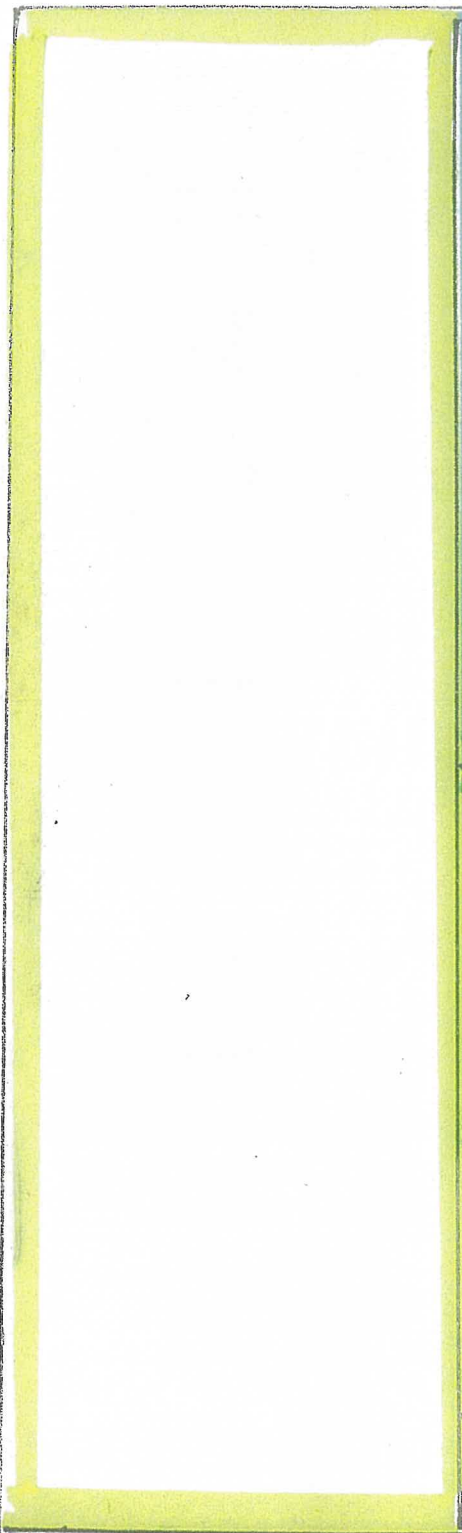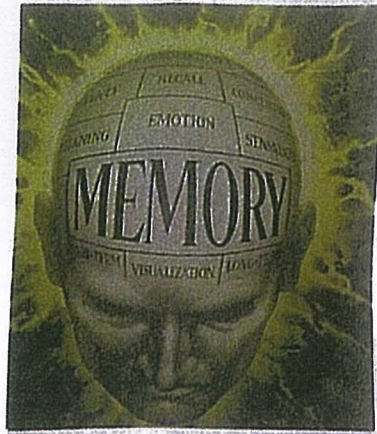| 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|
| 8 | 9 | 5 | 9 | 9 |
| 6 | 6 | 6 | 3 | 6 |
| 7 | 7 | 8 | 3 | 3 |
| 6 | 7 | 4 | 5 | 5 |
| 4 | 8 | 8 | 2 | 4 |
| 9 | 9 | 5 | 7 | 7 |
| 4 | 7 | 1 | 8 | 2 |
| 8 | 9 | 9 | 9 | 8 |
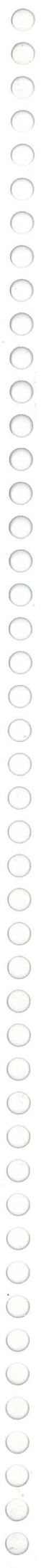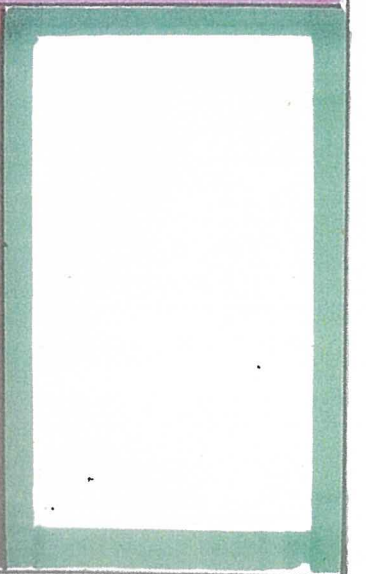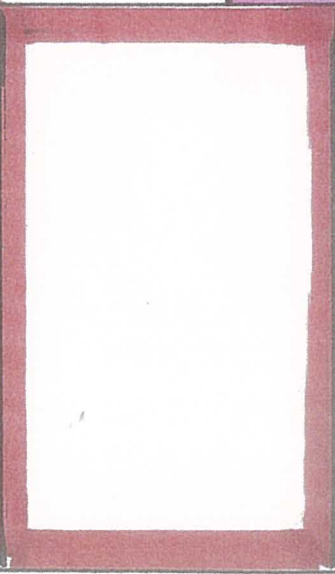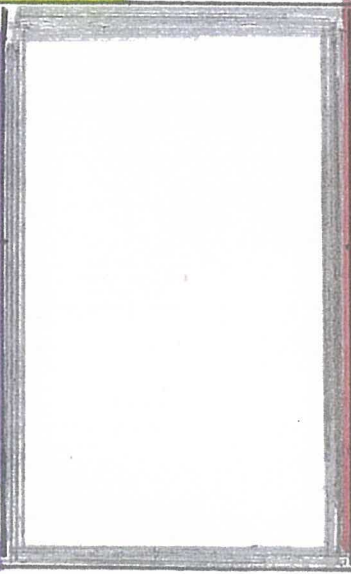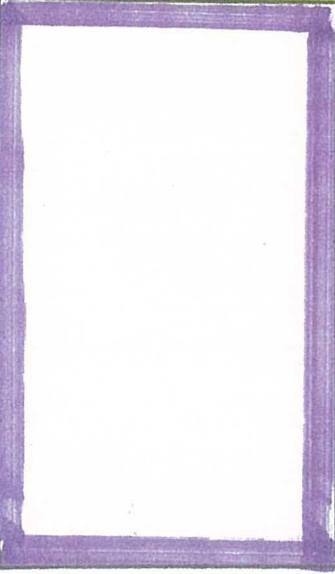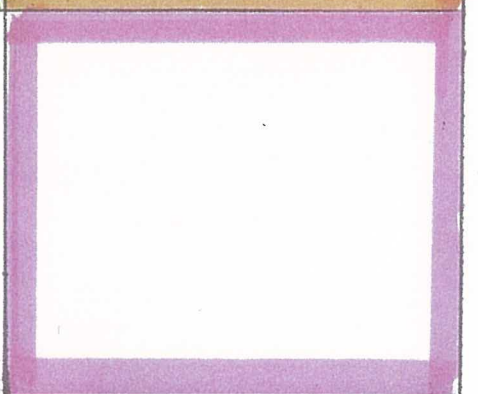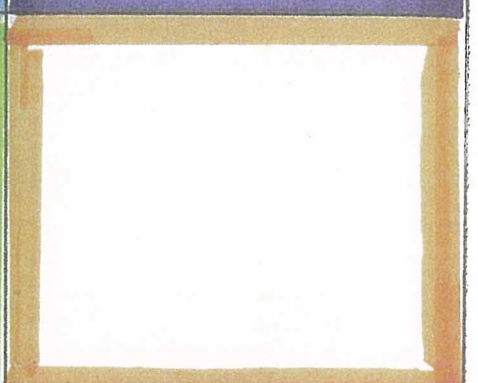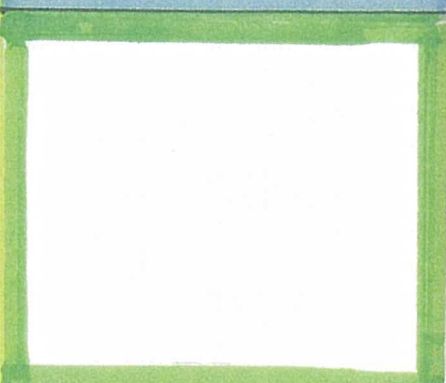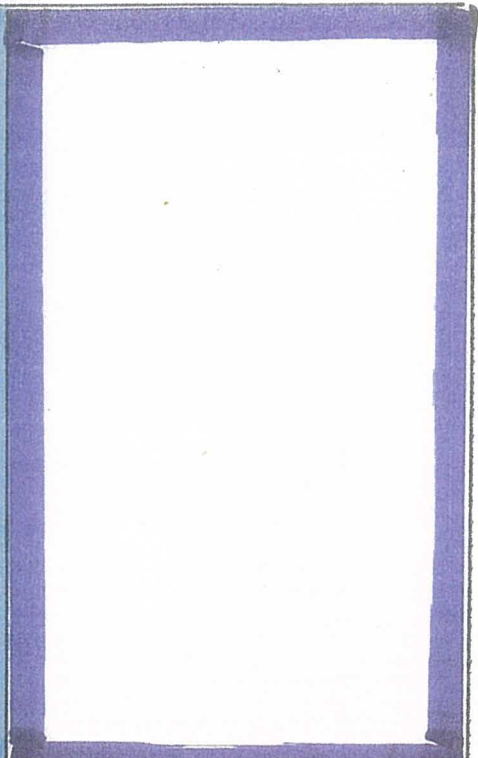
# MATH & MEMORY



# BARK'S DISCOVERY

# METHOD

# BOOK 1

## FOR PRIMARY SCHOOLS

# FREE RANGE LEARNING

## THE 3RS THE PROFESSIONAL WAY

# NUMBERS IN A NUTSHELL

## BACK TO BASICS

An Educational Revolution

**Aart Bark**