

NUMERACY AND THE CURRICULUM

Numeracy arises out of effective mathematics teaching. All the strands in the mathematics and statistics learning area are important in the pathway to numeracy. Number and Algebra is central to this pathway, although the relative emphasis on this strand changes with the stages of schooling:

- in the first four years of schooling, the main emphasis should be on the Number and Algebra strand;
- in the middle and upper primary years of schooling, the emphasis is spread across the strands of the curriculum;
- towards the end of compulsory schooling, number sense becomes a tool for use across the other strands.

The Venn diagrams in the curriculum statement represent this change in balance across the levels. At all stages, students should:

- create models and predict outcomes, conjecture, justify and verify, and seek patterns and generalisations
- estimate with reasonableness and calculate with precision
- understand when results are precise and when they must be interpreted with uncertainty.

From *The New Zealand Curriculum*, page 26

Effective numeracy programmes provide students with a range of tools and skills necessary for everyday life and future endeavours.

By studying mathematics and statistics, students develop the ability to think creatively, critically, strategically, and logically. They learn to structure and to organise, to carry out procedures flexibly and accurately, to process and communicate information, and to enjoy intellectual challenge.

The New Zealand Curriculum, page 26

Although the groundwork is laid in mathematics, other curriculum areas also provide opportunities for numeracy learning. In addition, the home, early childhood settings, and the community assist in the development of numeracy.

Numeracy Professional Development Projects Supplement 2008

Published by the Ministry of Education.
PO Box 1666, Wellington, New Zealand.

Copyright © Crown 2008. All rights reserved.
Enquiries should be made to the publisher.

ISBN 0 478 13216 6
Dewey number 372.7
Topic Dewey number 510
Item number 13216

Note: Teachers may copy these notes for educational purposes.

This book is also available on the New Zealand Maths website, at www.nzmaths.co.nz/Numeracy/2008numPDFs/pdfs.aspx

Enriching the Number Framework with Beginning School Mathematics

Introduction

This booklet is a practical guide to help teachers to effectively use Beginning School Mathematics (BSM) in the delivery of the mathematics and statistics learning area of *The New Zealand Curriculum* in their classrooms. Key BSM activities have been selected to support the teaching and learning of the knowledge and strategies in the Number Framework.

The Numeracy Development Projects and the Beginning School Mathematics resource share these beliefs about mathematics learning:

- Children experience mathematical ideas and develop mathematical skills and understanding before they start school.
- Children learn by relating new ideas to their existing experience and ideas.
- Children learn best when ideas are presented in realistic and meaningful contexts.
- Using equipment is a powerful way of developing children's mathematical understanding.
- Effective mathematics teaching involves a range of approaches.
- Children learn in different ways and at different rates.
- Concepts can be presented in a variety of ways to match different learning styles.
- Learning involves taking risks in a supportive environment.
- The needs of the learner must be at the heart of all planning.
- Feedback can take many forms and is an essential part of the learning process.
- Critical reflection and effective communication of ideas are essential learning tools.

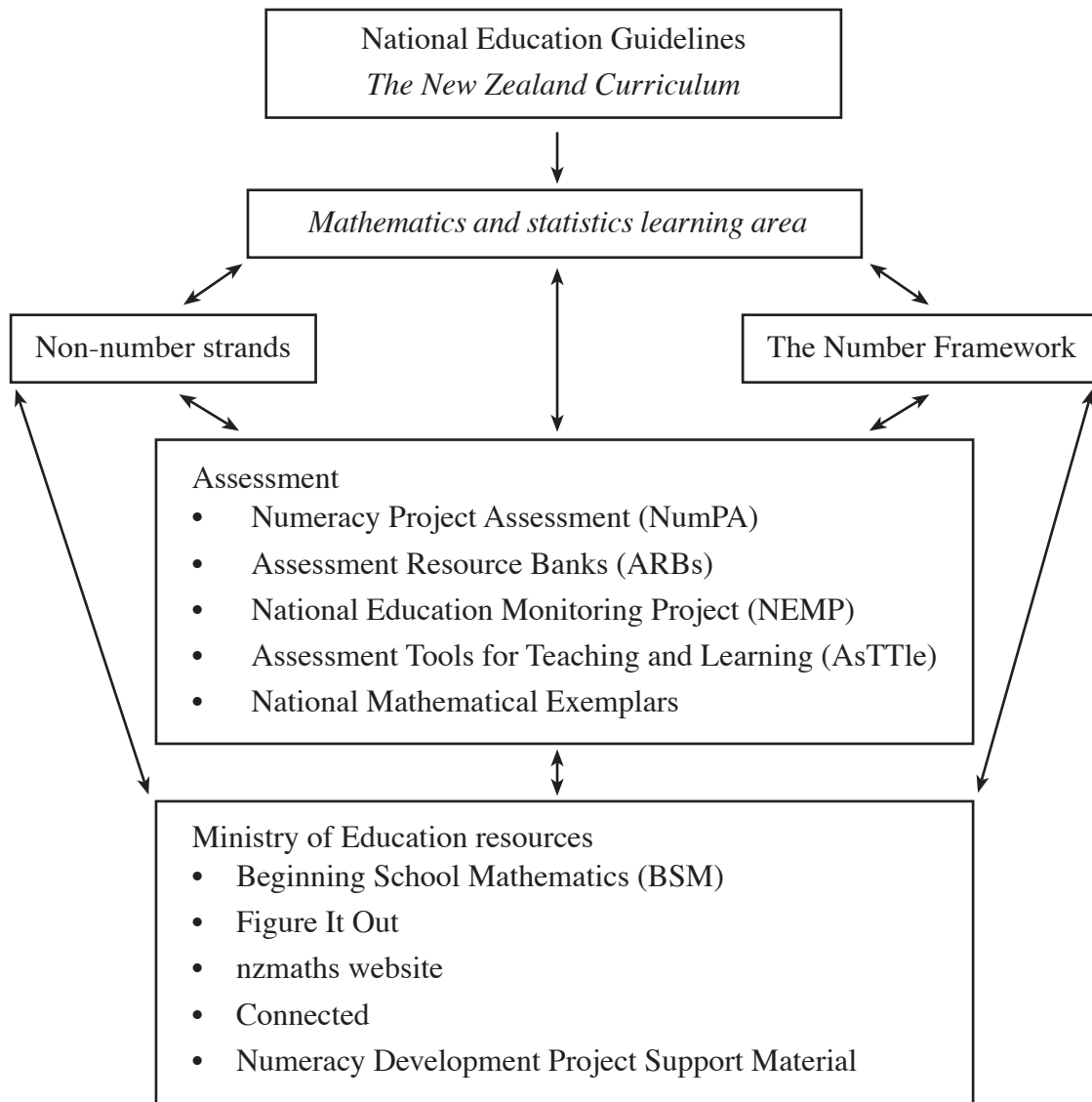
Effective use of BSM by teachers will also support the delivery of the key competencies for the mathematics and statistics learning area of *The New Zealand Curriculum*. Teacher-child interaction will elicit language, develop discussion about strategies, and encourage flexible thinking.

The BSM resource does positively influence children's mathematics learning and their attitudes towards mathematics. The views expressed by teachers, principals, parents and caregivers, together with the reported (and observed) enthusiasm shown by children when they were using the BSM resource, all provide convincing evidence that BSM is a very good resource for the teaching and learning of mathematics in the junior school.

An Evaluation of the Resource Beginning School Mathematics, Ministry of Education, 1996

The possibilities and potential of BSM are as flexible as the teacher, who continues to hold the key to its effective use.

The Relationships between the Ministry of Education's Mathematics Policy Statements and Resources

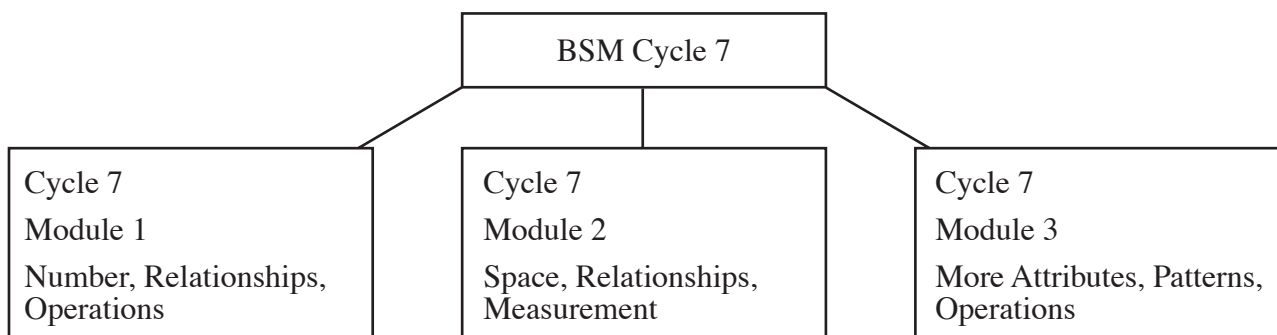


Knowing the Beginning School Mathematics Resource

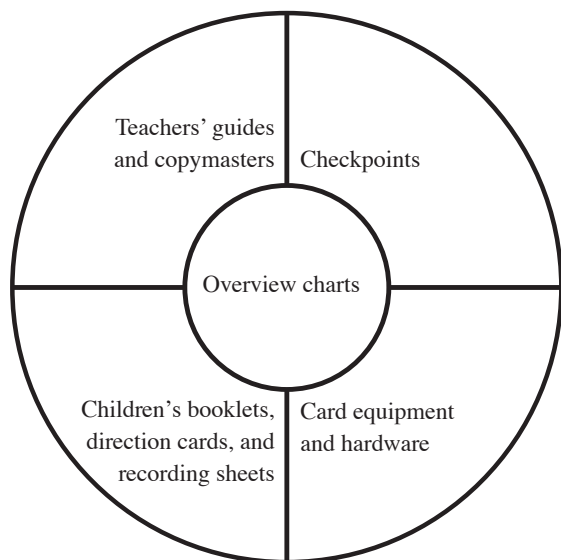
BSM is designed to be used by children in their first three years of schooling. The resource is made up of twelve cycles, and these support all strands of the mathematics and statistics curriculum learning area.

Each cycle is divided into three modules, and each module contains numbered activities. For example, cycle 9, module 3, activity 51 is numbered 9-3-51. The numbering system is consistent throughout the resource and allows the components to be easily identified for borrowing or reshelving.

The Structure of Beginning School Mathematics



The Components of Beginning School Mathematics



Overview charts: There are two overview charts, one covering cycles 1 to 6 and the other cycles 7 to 12. The charts outline the content of each cycle and show how ideas are introduced and developed. The charts reflect the progressions outlined in the knowledge and strategy sections of the Framework.

Teachers' guides and copymasters: The teachers' guides contain the aims and objectives, information on mathematical ideas, and suggested developments for learning activities. The copymasters contain material for teachers to use when preparing for teaching. They also contain recording sheets for children.

Children's booklets, direction cards, and recording sheets: These components can be used for children to work with independently. They are used with cycles 7 to 12.

Checkpoints: There are checkpoints for each cycle. Teachers may find that these contain some useful ideas for checking aspects of children's learning.

Card equipment and hardware: Card equipment is supplied to match particular activities in the resource. It is numbered to match the activity (see page 4). Cardware is available from Learning Media Customer Services.

The BSM hardware and other standard mathematical equipment required for BSM activities are described in the teachers' guides. These materials can be obtained from suppliers of educational equipment.

Suggested Hardware Materials to Support BSM Activities

Beads and threaders

Interlocking cubes

Mosaic pattern shapes

Cuisenaire® rods

Counters

Pegboards and pegs

Shape/animal/vehicle attribute sets

Pattern boards and blocks

Nursery sticks

Calculators

Clocks

Egg-timers

Geoboards and rubber bands

Attribute logic blocks

Hundreds boards

Collections of buttons, bottle tops, shells, stones, acorns, etc.

Sorting boxes of odds and ends.

Refer to *Beginning School Mathematics: A Guide to the Resource*, Learning Media, 1994, for further information about the resource. This book was distributed to schools in 1994. If it is no longer in your school, you can download it from the nzmaths website.

Storage

Schools need to ensure that their BSM resource is stored so that teachers can access it easily. It is suggested that schools retain the original organisation of the resource in cycles and modules. Within the classroom, mathematical equipment should also be accessible and easy to retrieve.

Linking Beginning School Mathematics to the Number Framework

The tables on pages 6–16 show how BSM activities can be used to support the Number Framework. The tables are arranged according to the five content domains of the knowledge section of the Framework and the three operational domains of the strategy section. The content domains are number identification, number sequence and order, grouping/place value, basic facts, and written recording, and the operational domains are addition/subtraction, multiplication/division, and proportions and ratios.

The BSM activities are identified as being suitable for teacher-led activities (T), class activities (C), and independent activities (I). Many teacher-led learning experiences can become independent activities.

For example:

Advanced Counting

Stage 4

Knowledge						Strategies		
BSM activity	Numerical Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
9-1-4	T	T	T					
9-1-42	T I	I	I					
9-1-6	T		T	T	T			

T – Teacher-led activity

C – Class activity

I – Independent activity

The BSM teachers’ guides explain how to develop the lesson content to achieve the learning outcomes. Each guide also contains information to reinforce teachers’ mathematical content knowledge and pedagogy.

Cycle 1 activities have not been related to the stages of the Number Framework. These learning experiences can be used to help children at the Pre-emergent stage to gain early mathematical understandings. For children at the Emergent stage, the cycle 1 activities will develop language and provide the foundation for further mathematical learning.

Beginning at Stage 2, children need to be taken from the use of materials to imaging (the visualisation of materials). This is not clearly stated in the BSM resource. While no specific activities have been identified for children working at the Counting from One by Imaging stage, teachers can use those activities from the previous stage (Counting from One on Materials) to continue to create strong visual images. They can shield the materials from the children and encourage them to image these materials in order to solve the problem. An empty template has been provided for teachers to record their own selection of activities suitable for use at the Counting from One by Imaging stage.

As number underpins all mathematical learning, the BSM activities relating to other areas (Measurement, Geometry, Algebra, and Statistics) are listed according to the stages of the Number Framework. (See the tables on pages 17–23.)

This will enable these to be taught concurrently with number. There is a wealth of learning experiences relating to logic and reasoning in the BSM resource, and these have been listed under each stage. The problem-solving and communication processes are implicit in all activities but will need to be made explicit by the teacher.

With its rich bank of manipulative materials and activities, BSM is an excellent supporting resource for the numeracy projects. Knowledge consolidation is supported through teacher-led activities, many of which can then be used independently. Teachers can select, alter, or adapt activities to meet the changing learning needs of their students.

The Use of Questioning

The importance of questioning children about their thinking, giving them time to respond, and giving specific feedback on their responses cannot be overemphasised. Both open and closed questions can be used when working with children.

Teachers are encouraged to share the questions below with:

- parents and caregivers in newsletters and at parents' nights
- children so they can ask each other the questions.

These suggested questions will help to develop children's mathematical thinking and learning:

- Can you tell me how you did that?
- Can you explain what you were thinking as you did that?
- Can you do that another way?
- Could you estimate how many you think it will be?
- How many other ways could you do that?
- How did you do that?
- Is there something you already know that will help you to do this?
- Is that what you thought would happen?
- What did you think of as you worked that out?
- What could we find out?
- What do you want to find out?
- What do you think might happen here?
- What can you tell me about what you have done?
- Tell me how you worked that out.

Teachers can photocopy this page and use it for teaching purposes, school newsletters, and family maths evenings and put it on the wall for children to look at.

Schools' Entitlement to BSM Books and Card Equipment

Teachers' Guides

One copy per teacher of junior classes

Students' Books

One copy for every nine students in junior classes

Card Equipment

One set for every 40 students in junior classes, up to a maximum of four sets

Notes:

- Lost or damaged items will be replaced free on request. Only individual items of card equipment will be replaced, not whole sets. We suggest that schools do a stocktake of BSM items each year in October so that orders for replacement can be placed in November with the aim of having a full inventory for the start of term 1 the following year.
- Although teachers' guides are supplied on the basis of one copy per junior class teacher, the books are the property of the school. Teachers moving to another school should expect to find copies available when they arrive.

Schools can obtain these books and equipment from Learning Media Customer Services:

freefax: 0800 800 570

email: orders@learningmedia.co.nz

freephone: 0800 800 565

BSM Activities Suitable for Each Stage of the Number Framework

Emergent

Stage 0

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
2-1-1			T			T	T	T
2-1-2			T		I		C	C
2-1-21	T	C	C					
2-1-22			C					
2-1-81			I					
2-1-4	T	C	T					
2-1-82			I					
2-1-84			TI					
2-3-7		C						
2-3-24		C						
2-3-8	T	T	T					
2-3-13			I					
2-3-55	TI		TI					
2-3-81	I		I					
3-1-2	TI	C						
3-1-21	C	C						
3-1-22	C	C						
3-1-3	TI	T	T					
3-1-49			I					
3-1-4			TI					
3-1-5	T	T	T					
3-1-6	T		T					
3-1-7	T	T	T					
3-1-23	C	C	C		C			
3-1-45			I					
3-1-46	I	I	I					
3-1-47		I	I					
3-1-81	I		I					
3-1-82	I		I					
3-3-9			T					
3-3-22		C						
3-3-48	I	I						
3-3-49	I	I						
3-3-81	I	I						

One-to-one Counting

Stage 1

Knowledge						Strategies		
BSM activity	Numerals Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
2-1-5		T	T			T		
3-1-43		I						
4-1-22	C	C						
4-1-23	C		C			C		
4-1-44	I	I	I					
4-1-45	I	I	I					
4-1-47	I	I						
4-1-48	T		I					
4-1-83	I	I	I					
4-1-5	T	T	T					
4-1-50	TI	TI	TI					
4-1-82	TI	TI	TI					
4-3-5		T	T					
4-3-6	T	T	T					
4-3-21	C		C			C		
4-3-44	T		T			T		
4-3-84	TI	TI	TI					
4-3-46	TI	I	TI			T		
4-3-24	C	C						
4-3-25	C	C						
4-3-51		TI						
5-1-3	T	T	T					
5-1-6	T	T	T					
5-1-46	I		I					
5-1-7	T	T	T			T		
5-1-8	T	C						
5-1-21	C	C						
5-1-22	C	C	C		C			
5-1-83	I	I	I					
5-3-5	T	T	T					
5-3-22		C	C					
5-3-45	I	I	I					
5-3-46	TI	TI	TI		TI			
5-3-82	TI							
5-3-6		TI	TI					
5-3-48		I						
5-3-7		TI	TI					
5-3-23		C	C					
5-3-49	I		I					
5-3-83			T					

One-to-one Counting

Stage 1 (continued)

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction, Place Value	Multiplication and Division	Proportions and Ratios
6-1-3	T	T	T					
6-1-21			C			C		
6-1-4	T	T	T					
6-1-43	T		TI			T		
6-1-5		T						
6-1-6		T	T					
6-1-44	T	I						
6-1-7	T	T	T					
6-1-45	I							
6-1-46	T		TI	I		T		
6-1-81	T		TI	I		T		
6-1-82			TI	I		T		
6-1-9	T		T			T		
6-2-21	C							
6-2-22	C							
6-2-9								T
6-2-48								T
6-3-3	T	T	T					I
7-1-1	T	T	T					
7-1-41	I		I					
7-1-42	TI	TI						
7-1-81	TI	TI						
7-1-2					I			
7-1-43					I			
7-1-3		T						
7-1-44					I			
7-1-46					I			
7-2-7								T
7-2-48								TI
7-2-49								I
7-2-82								I
7-3-4	T	T	T					
8-2-8					TI			TI
8-2-47					TI			T
8-2-48								I
8-2-83								I
9-2-18								T
9-2-61					TI			TI
9-2-85					TI			TI

Counting from One on Materials Stage 2

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
6-1-3	T	T	T			T		
6-1-4	T	T						
6-1-5		T						
6-1-6		T	T					
6-1-21			C			C		
6-1-7	T	T	T					
6-1-43	T		TI			T		
6-1-44	T	I						
6-1-45	I							
6-1-46	T		TI	I		T		
6-1-81	T		TI	I		T		
6-1-82			TI	I		T		
6-1-9			T			T		
6-1-47			T			T		
6-2-9								T
6-2-48								T
6-3-21	C							
6-3-22	C							
6-3-3	TI	TI						
6-3-81		T						
6-3-82						TI		
6-3-4	TI	TI						
6-3-5	TI		TI			T		
6-3-6			I					
6-3-7			T		T	T		
6-3-8			TI		T	TI		
6-3-49	T		T			T		
7-1-1	TI	TI						
7-1-41	I		I					
7-1-42	TI	TI						
7-1-81	TI	TI						
7-1-2	I				I			
7-1-43	I				I			
7-1-46		TI						
7-1-82		I						
7-1-48		I						
7-1-49						TI		
7-1-50						TI		
7-1-6					T	T		
7-1-52					I	TI		

Counting from One on Materials Stage 2 (continued)

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
7-1-53					I	TI		
7-1-85					TI	TI		
7-3-4	T	T	T			T		
7-3-7					T	T	T	
7-3-82					TI	TI		
8-1-4	T	T						
8-1-45			T					
8-1-5			T		TI	T		
8-1-46					I	T		
8-1-47					I			
8-1-82					I			
8-1-49		T				T		
8-1-8			T		TI		T	
8-1-50					I		TI	
8-1-51					TI	T		
8-1-52					TI	T		
8-1-83					I	T		
8-1-84					I			
8-1-10						T		
8-1-53						TI		
8-1-85					TI	T		
8-3-6								TI
8-3-47								TI
8-3-48								I
8-3-49								I
8-3-82					I			I
8-3-50					I	T		
8-3-51					I	T		
8-3-9					TI	T		

Advanced Counting

Stage 4

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
9-1-4	T	T	T					
9-1-42	TI	I	I					
9-1-6	T		T	T	T			
9-1-8					T	T		
9-1-45			T		TI		T	
9-1-46			T		TI		T	
9-1-83			TI		I		T	
9-1-84			T		I		T	
9-1-9			T		T			
9-1-10			T		T			
9-1-47			T		I		TI	
9-1-48			T				T	
9-1-12				T	TI	T		
9-1-13				T	TI	T		
9-1-51				TI	TI	T		
9-1-52				I		I		
9-1-53				I		I		
9-1-54				T		T		
9-1-85				I		I		
9-1-86				I		I		
9-1-14					I	T		
9-1-15					T	T		
9-1-16					T	TI		
9-2-18								TI
9-2-61								I
9-2-85								I
9-3-48	T		T			TI		
9-3-84	T				I	T		
9-3-9		TI						
9-3-51		I						
9-3-52		I						
9-3-10							TI	T
9-3-53							TI	TI
9-3-11					TI	T		
9-3-12						T		
9-3-13					TI	T		
9-3-55					T	TI		
9-3-14					T	T		
9-3-58					I	T		
9-3-85					I	T		

Advanced Counting

Stage 4 (continued)

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
10-1-2						T		
10-1-41					I	T		
10-1-3	T	T	T		T I			
10-1-42			T		I	T		
10-1-82			T		I	T		
10-1-4		C	C				C	
10-1-6			T	T		T		
10-1-47			T	I		T		
10-1-48			T	I		T		
10-1-7				T		T		
10-1-49						T		
10-3-84			T		I	T		
10-3-6	T	T	T	T	T	T		
10-3-46					I	T		
10-3-8				T I	T	T		
10-3-53				I	I	T		
10-3-9			I	I		T		
10-3-56			I	I		T		
10-3-86					I	T		
10-3-11				T	T	T		
11-1-3						T		
11-1-6	T		T		I	T	T	
11-1-47	T				I	T		
11-1-48	T				I	T		
11-1-7						T		
11-1-49					I	T		
11-1-50					I	T		
11-1-52					I			
11-1-83	T				I	T		
11-1-84	T				I			
11-2-18								T
11-2-59					T			T
11-3-4	T		T		I	T		
11-3-44			I					
11-3-8				T				
11-3-9	T					T		
11-3-50				I	I			
11-3-10						T		
11-3-12					T		T	
11-3-13	T				T		T	

Advanced Counting

Stage 4 (continued)

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
11-3-54					I		T	
11-3-55					I		T	
12-1-1	T		T		T I			
12-1-5	T	T				T		
12-1-44	T				I	T		
12-1-45	T				I			
12-1-84	T	T			I		T	

Early Additive Part-Whole

Stage 5

Knowledge						Strategies		
BSM activity	Numeral Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
11-3-12			T			T	T	
11-3-13	T		T		T	T		
11-3-54			I			I		
11-3-55			I			I		
12-1-3	T	T	T					
12-1-4	T	T	T		T			
12-1-42	I	I	I					
12-1-43	I	I	I					
12-1-6			T			T		
12-1-46			I			I		
12-1-7				T		T		
12-1-47				T I		T I		
12-1-48	I			I		I		
12-1-49			I			I		
12-1-50	I			I		T I		
12-1-52				I		I		
12-1-9				T		T		
12-1-15				I		T I		
12-1-55					T	T		
12-1-56				T		T		

Early Additive Part-Whole

Stage 5 (continued)

Knowledge						Strategies		
BSM activity	Numerals Identification	Number Sequence/ Order	Grouping and Place Value	Basic Facts	Written Recording	Addition and Subtraction	Multiplication and Division	Proportions and Ratios
12-1-85	T			I		I		
12-1-86	T			T		T		
12-1-87	T			I		I		
12-1-89	T			I		I		
12-3-2	T			T	T	T		
12-3-45				I	I	I		
12-3-46				I	I	I		
12-3-47				I	I	I		
12-3-81				I		I		
12-3-82	I				I			
12-3-6	C							
12-3-7	T							T
12-3-49	I							I
12-3-50	I							I
12-3-51	I							I
12-3-83	I							I
12-3-84	I							I
12-3-8	T			T		T		
12-3-52				I	I	I		
12-3-53				I	I	I		
12-3-85	I			I	I	I		
12-3-13				T		T	T	

BSM Activities That Link with other aspects of the mathematics and statistics learning area of *The New Zealand Curriculum*

Emergent

Stage 0

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
2-3-11	2-1-6 3-1-10	2-2-1 2-2-8	
2-3-12	2-1-7 3-1-24	2-2-2 2-2-9	
2-3-25	2-1-8 3-1-11	2-2-3 2-2-26	
2-3-26	2-1-9 3-2-5	2-2-4 2-2-49	
2-3-27	2-1-24 3-2-6	2-2-21 2-2-85	
3-1-1	2-1-25 3-2-25	2-2-22 2-2-82	
3-1-41	2-1-27 4-1-7	2-2-41 3-2-1	
3-3-10	2-1-43 4-1-8	2-2-43 3-2-2	
3-3-23	2-1-44 4-1-25	2-2-44 3-2-4	
3-3-50	2-1-85 4-1-26	2-2-83 3-2-21	
3-3-51	2-1-86 4-1-51	2-2-23 3-2-22	
	2-1-10 4-1-9	2-2-46 3-2-23	
	2-1-45 4-1-81	2-2-5 3-2-7	
	2-1-12	2-2-6 3-2-24	
	2-1-13	2-2-47	
	2-1-47	2-2-24	
	2-3-23	2-2-25	
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
	Seriation		
	2-1-11		
	2-1-46		
	2-3-6		
	2-3-50		
	2-3-51		
	3-1-8		
	3-1-9		
	3-3-7		
Logic and Reasoning			
Interpret information and results in context			
2-3-22, 2-3-41, 2-3-4, 2-3-42, 2-3-43, 2-3-44, 2-3-45, 2-3-84, 2-3-85, 2-3-5, 3-3-21, 3-3-41, 3-3-3, 3-3-4, 3-3-44			
Classify objects			
2-3-1, 2-3-22, 2-3-41, 2-3-2, 2-3-3, 2-3-4, 2-3-21, 2-3-42, 2-3-43, 2-3-44, 2-3-45, 2-3-84, 2-3-85, 2-3-5, 3-3-1, 3-3-42, 3-3-2, 3-3-3, 3-3-43, 3-3-4			

One-to-one Counting

Stage 1

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
4-1-1 4-1-21 4-1-41 4-3-11 4-3-12 4-3-83 5-1-1 5-1-51 5-3-9 5-3-11 5-3-56 5-3-86 5-3-6 5-3-48	4-2-4 4-2-45 4-2-5 4-2-46 4-2-82 4-2-22 4-2-23 5-1-48 5-1-11 5-1-49 5-1-50 5-2-5 5-2-43 5-2-81 5-2-4 5-2-21 5-2-22 5-2-44 5-2-6 5-2-7 5-2-45	3-2-41 5-2-2 3-2-42 5-2-3 3-2-43 5-2-24 3-2-44 5-2-25 3-2-46 5-2-50 3-2-81 5-2-51 3-2-45 5-2-52 3-2-47 6-2-1 4-2-1 6-2-2 4-2-21 6-2-82 4-2-41 6-2-41 4-2-81 6-2-3 4-2-2 6-2-21 4-2-42 6-2-42 4-2-3 6-2-81 4-2-43 6-2-83 4-2-44 7-2-1 4-2-47 7-2-41 4-2-25 7-2-42 5-2-1 8-2-49 5-2-41 8-2-50 5-2-42	4-1-1 4-1-26 4-1-41 4-1-2 4-1-21 5-1-2 5-1-84
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
	4-2-6 5-2-23 4-2-7 5-2-48 5-2-9 5-2-11 5-2-10 5-2-49 Seriation 4-1-7 5-3-4 5-3-44	2-3-9 7-2-2 2-3-10 7-2-43 2-3-27 7-2-44 2-3-53 7-2-81 2-3-86 7-2-82 2-3-87 7-3-5 3-3-8 7-3-47 3-3-85 7-3-48 5-3-10	
Logic and Reasoning			
Interpret information and results in context			
4-3-1, 4-3-2, 4-3-3, 4-3-42, 4-3-43, 5-3-1, 5-3-41, 5-3-42, 5-3-2, 5-3-43, 5-3-81, 5-3-3, 5-3-21			
Classify objects			
4-3-82, 4-3-2, 4-3-3, 4-3-41, 4-3-42, 4-3-43, 4-3-86, 4-3-4, 5-3-1, 5-3-41, 5-3-42, 5-3-2, 5-3-43, 5-3-81, 5-3-3			

Counting from One on Materials Stage 2

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
6-1-1 7-3-3 6-1-4 7-3-4 6-1-6 7-3-6 6-1-44 7-3-49 6-3-1 7-3-81 6-3-3 8-1-1 6-3-47 8-1-41 6-3-48 8-1-3 7-1-42 8-1-43 7-1-44 8-1-44 7-1-82 8-1-48 7-1-4 8-3-5 7-1-54 8-3-10	6-1-10 8-2-42 6-2-4 8-2-81 6-2-43 8-2-2 6-2-5 8-2-3 6-2-24 8-2-43 7-2-3 8-2-4 7-2-45 8-2-5 7-2-46 8-2-44 7-2-4 8-2-45 7-2-5 8-2-46 7-2-47 8-2-1 8-2-41		6-1-1 6-1-41 6-1-2
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
7-3-3 7-3-44 7-3-7 8-1-3 8-1-44 8-3-3 8-3-44 8-3-45 8-3-4 8-3-46	6-2-7 6-2-47 6-2-8 6-2-23 7-2-51 8-2-7 8-2-46 8-2-82 Money 5-2-8 6-2-6 6-2-22 6-2-45 6-2-46 7-2-6 7-2-50		
Logic and Reasoning			
Interpret information and results in context			
6-3-1, 6-3-41, 6-3-42, 6-3-51, 7-3-2, 7-3-43			
Classify objects			
6-3-1, 6-3-41, 6-3-42, 6-3-51, 7-3-1, 7-3-41, 7-3-42, 7-3-2, 7-3-43			

Counting from One by Imaging Stage 3

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
6-1-1 7-3-3 6-1-4 7-3-4 6-1-6 7-3-6 6-1-44 7-3-49 6-3-1 7-3-81 6-3-3 8-1-1 6-3-47 8-1-41 6-3-48 8-1-3 7-1-42 8-1-43 7-1-44 8-1-44 7-1-82 8-1-48 7-1-4 8-3-5 7-1-54 8-3-10			7-1-54 8-1-1 8-1-41 8-1-2 8-1-42
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
7-3-3 7-3-44 7-3-7 8-1-3 8-1-44 8-3-3 8-3-44 8-3-45 8-3-4 8-3-46			
Logic and Reasoning			
Interpret information and results in context			
8-3-2, 8-3-42, 8-3-43			
Classify objects			
8-3-1, 8-3-41, 8-3-81 ,8-3-2, 8-3-42, 8-3-43			

Advanced Counting

Stage 4

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
9-2-48 11-3-82	11-2-12	9-2-1 10-2-6	9-1-1
9-3-82 11-3-14	11-2-48	9-2-41 10-2-7	9-1-2
9-3-5 11-3-15	11-2-49	9-2-42 10-2-8	9-1-3
10-1-6 12-1-1	11-2-50	9-2-43 10-2-45	9-1-41
10-1-47 12-1-2	11-2-51	9-2-44 10-2-46	9-1-81
10-1-48 12-1-41	11-2-83	9-2-81 11-2-1	10-1-1
10-1-83 12-1-81	11-2-13	9-2-6 11-2-2	11-1-1
10-3-11	11-2-14	9-2-7 11-2-41	
10-3-57	11-2-52	9-2-46 11-2-3	
10-3-58	11-2-54	9-2-49 11-2-42	
11-3-4	11-2-53	10-2-1 11-2-43	
11-3-5	12-2-6	10-2-41 11-2-4	
11-3-43	12-2-7	10-2-42 11-2-5	
11-3-44	12-2-48	10-2-81 11-2-44	
11-3-45	12-2-49	10-2-2 11-2-6	
11-3-81	12-2-10	10-2-43 11-2-7	
		10-2-82 11-2-46	
		10-2-83 11-2-8	
		10-2-3 11-2-9	
		10-2-4 11-2-47	
		10-2-5 11-2-82	
		10-2-44	
Logic and Reasoning			
Interpret information and results in context			
11-3-1, 11-3-2, 11-3-41			
Classify objects			
9-3-1, 9-3-2, 9-3-3, 9-3-41, 9-3-42, 9-3-43, 9-3-81, 9-3-82, 9-3-4, 9-3-44, 10-3-1, 10-3-2, 10-3-3, 10-3-41, 10-3-4, 10-3-5, 10-3-42, 10-3-43, 10-3-44, 10-3-45, 10-3-15, 10-3-61, 10-3-62			

Advanced Counting

Stage 4 (continued)

Algebra	Measurement	Geometry	Statistics
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
9-1-11	9-2-16	9-2-82	9-1-1
9-1-49	9-2-56	9-2-2	9-1-2
9-3-5	9-2-57	9-2-4	9-1-3
9-3-45	9-2-58	9-2-5	9-1-41
9-3-46	10-2-13	9-2-45	9-1-81
9-3-47	10-2-14	10-2-4	10-1-1
10-3-7	10-2-15	10-2-7	11-1-1
10-3-48	10-2-51	10-2-8	
10-3-49	10-2-52	10-2-45	
10-3-50	11-2-9	10-3-12	
10-3-51	11-2-82	10-3-13	
10-3-85	11-2-10	10-3-14	
11-1-4	11-2-16	10-3-59	
11-1-5	11-2-17	10-3-60	
11-1-43	11-2-57	11-2-1	
11-1-44	11-2-58	11-2-2	
11-1-45	11-2-84	11-2-41	
11-1-46	Money	11-2-81	
11-3-6	9-2-17		
11-3-7	9-2-59		
11-3-46	9-2-60		
11-3-48	9-2-84		
11-3-83	11-2-45		
	11-2-15		
	11-2-55		
	11-2-56		
	12-2-14		
	12-2-54		
	12-2-55		
	Money activities included in Number		
	12-2-43		
	12-2-13		
	12-2-14		
	12-2-54		
	12-2-55		

Early Additive Part-Whole

Stage 5

Algebra	Measurement	Geometry	Statistics
Exploring patterns and relationships	Estimating and measuring	Exploring shape and space	Statistical investigations
12-3-3 12-3-4 12-3-81 12-3-82		12-2-1 12-2-2 12-2-42 12-2-43 12-2-3 12-2-4 12-2-44 12-2-45 12-2-46 12-2-47 12-2-16	
Exploring equations and expressions	Developing concepts of time, rate, and change	Exploring symmetry and transformations	Interpreting statistical reports
12-3-3 12-3-4 12-3-81 12-3-82	12-2-8 12-2-9 12-2-50 12-2-51 12-2-81 Money 12-3-12 12-3-59 12-3-60 12-3-89 12-3-90 12-3-91 Money activities included in Number 12-3-12 12-3-59 12-3-60 12-3-89 12-3-90 12-3-91		
Logic and Reasoning			
Interpret information and results in context			
12-3-1, 12-3-41, 12-3-42, 12-3-43, 12-3-44			

BSM Activities Recommended for Deletion

Cycle 1			Cycle 6		
			6-1-8	6-2-44	6-3-43
Cycle 2			6-1-42	6-2-49	6-3-83
2-1-3	2-2-7	2-3-54	6-1-48		
2-1-26	2-2-42	2-3-83			
2-1-41	2-2-45				
2-1-83	2-2-81				
	2-2-86				
Cycle 3			Cycle 7		
3-1-42		3-3-46	7-1-47		
3-1-48		3-3-52	7-1-84		
3-1-50		3-3-53			
3-1-51		3-3-82			
3-1-53		3-3-83			
3-1-54		3-3-84			
3-1-83					
Cycle 4			Cycle 8		
4-1-52	4-2-83	4-3-7			8-3-52
4-1-3		4-3-23	Cycle 9		
		4-3-47			9-3-8
		4-3-49			9-3-49
		4-3-81			9-3-50
		4-3-85	Cycle 10		
Cycle 5			10-1-5		10-3-10
5-1-9	5-2-46	5-3-24	10-1-50		
5-1-10	5-2-47	5-3-53 (adapt – do it with number dice instead 1-3)	Cycle 11		
5-1-45		5-3-54	11-1-8		11-3-11
5-1-51		5-3-85	11-1-9		
			11-1-12		
			<p>If there is no reference to a learning activity in either the deletions or the Framework references, the activity can still be used but needs to be adapted in some way or requires more appropriate materials than those being demonstrated.</p> <p>Most references to learning with place value blocks in cycles 9, 10, 11, and 12 have been excluded or deleted because children need to be introduced to place value ideas with discrete materials first, for example, bundles of nursery sticks or beans, before being introduced to place value blocks.</p> <p>Items on the deletion list will be deleted from Learning Media stock and will not be reprinted.</p>		

ACKNOWLEDGMENTS

The Ministry of Education wishes to acknowledge the following people and organisations for their contribution towards the development of this supplement.

THE PARTICIPANTS:

The New Zealand numeracy project personnel – facilitators and principals, teachers, and children from more than eighteen hundred New Zealand schools who contributed to this handbook through their participation in the numeracy development projects from 2000–2005.

THE NUMERACY REFERENCE GROUP:

Professor Derek Holton, convenor (The University of Otago), Professor Megan Clark (Victoria University of Wellington), Dr Joanna Higgins (Victoria University of Wellington College of Education), Dr Gill Thomas (Maths Technology Limited), Associate Professor Jenny Young-Loveridge (The University of Waikato), Associate Professor Glenda Anthony (Massey University), Tony Trinick (The University of Auckland Faculty of Education), Garry Nathan (The University of Auckland), Paul Vincent (Education Review Office), Dr Joanna Wood (New Zealand Association of Mathematics Teachers), Peter Hughes (The University of Auckland Faculty of Education), Vince Wright (The University of Waikato School Support Services), Geoff Woolford (Parallel Services), Kevin Hannah (Christchurch College of Education), Chris Haines (School Trustees' Association), Linda Woon (NZPF), Jo Jenks (Victoria University of Wellington College of Education, Early Childhood Division), Bill Noble (New Zealand Association of Intermediate and Middle Schools), Diane Leggatt of Karori Normal School (NZEI Te Riu Roa), Sului Mamea (Pacific Island Advisory Group, Palmerston North), Dr Sally Peters (The University of Waikato School of Education), Pauline McNeill of Columba College (PPTA), Dr Ian Christensen (He Kupenga Hao i te Reo), Liz Ely (Education Review Office), Ro Parsons (Ministry of Education), Malcolm Hyland (Ministry of Education).

THE ORIGINAL WRITERS, REVIEWERS, AND PUBLISHERS:

The BSM Review Group: Eleanor Burt (Christchurch College of Education) (Chair), Errollyn Taane (Dunedin College of Education), Lynn Tozer (Dunedin College of Education), Chris Henderson (Christchurch College of Education), Margaret Farrelly (Christchurch College of Education), Dale Hendry (Wellington College of Education), David MacDonald, Kirsty Farquharson, Jocelyn Cranefield, Jan Kokason (Learning Media Limited), Joe Morrison, Dr Gill Thomas (Maths Technology Limited).

In addition, the Ministry of Education wishes to acknowledge Professor Bob Wright (Southern Cross University, Lismore, NSW), Dr Noel Thomas (Charles Sturt University, Bathurst, NSW), Dr Koeno Gravemeijer (Freudenthal Institute, Utrecht, Netherlands), Jim Martland (The University of Manchester, UK), and Susan Lamon (Marquette University, USA).

The Ministry of Education also wishes to acknowledge The New South Wales Department of Education and Training for permission to trial *Count Me in Too* in 2000 through a one-year arrangement. The findings from the use of this pilot project informed the development of the numeracy policy in New Zealand.

Count Me In Too is the registered Trade Mark of the Crown in the Right of the State of New South Wales (Department of Education and Training). Copyright of the *Count Me In Too* Professional Development Package materials (1997-2002), including the Learning Framework in Number and the Schedule for Early Number Assessment, is also held by the Crown in the Right of the State of New South Wales (Department of Education and Training) 2002.

The cover design is by Dave Maunder (Learning Media Limited) and Base Two Design Ltd.

All illustrations copyright © Crown 2008 except: Digital imagery of the conch copyright © 2000 PhotoDisc, Inc.