



Education Support Package - Mathematics



Individual Education Plans		Teaching Strategies		Classroom Management		Glossary of Terms		References	
The Arts	English	Health and Education	Languages Other than English	Mathematics	Science	Society and Environment	Technology and Enterprise		

Preface

To assist in meeting outcomes for students with disabilities, the preface outlines modifications of the environment and curriculum together with specialised equipment.

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Outcome Statements - Foundation to Level 3

This section contains Foundation Outcome Statements, and an overview of Strand and Sub strand Outcome Statements from Level 1 to Level 3. Strand Outcome Statements are a sequence of statements which describe what students demonstrate as they develop their understanding or skills for a strand.

(NB: The Strand Outcome Statements are a synthesis of Sub-strand Outcomes). Sub-strand Outcome Statements are a sequence of statements which describe what students demonstrate as they develop their understanding or skills for a sub-strand. (NB: Not all strands have sub-strands).

Elaboration of Foundation Outcome Statements for each strand

Foundation Outcomes with Focus Skills List

This section contains Foundation Outcome Statements and pointers and a list of Focus Skills for each outcome. The Focus Skills were developed to give teachers further guidance about skills which students could work on, mastery of which would further a student's progress towards achieving the outcome. The list of Focus Skills is neither prescriptive nor exhaustive. Individual teachers are encouraged to generate new Focus Skills to fit the needs of their particular students.

Spreadsheets

Spreadsheets contain teaching/learning information related to a sample of Foundation Outcomes for each learning area. Not all outcomes are covered in this section and teachers may wish to develop their own or other outcomes as a point of reference.

Mathematics Preface

Students with disabilities

To assist in meeting outcomes and ensure the participation of all students, please note:

Modification of the environment may be necessary.

- Handrails - toilets, hallways etc.
- Ramps

- Playground/classroom structures
- Table tops for desks
- Seating (posture/supports etc.)
- Seating location (preferential seating)

Specialised/modified equipment to assist with mobility may be required.

- Wheelchairs
- Walking frames
- Long cane/tactile guides/guide ropes
- Orthotics, inserts in shoes
- Prostheses
- Chairs modified for students to be able to sit at regular desks (e.g. Peto chairs)

To access the curriculum, the student may require:

Specialised/modified activities

- Typing instead of writing
- Audio books/texts for reference
- Photos/3D models instead of diagrams/drawings
- Shorter/simpler activities/worksheets - same concept or theme
- Oral responses rather than written responses for some activities
- Unifix cubes/concrete aids to assist computations
- Using calculators for computations
- For non-verbal students, arranging written symbols instead of counting
- Using real/concrete objects (e.g. money)
- 'Hands on' activities (e.g. shopping)

Specialised/modified equipment such as

- Electronic typewriters
- Braille
- Templates/raised line drawing kits for writing/drawing · Various splints (e.g. hand splints)
- Head pointers
- Writing frames
- Special furniture (angled desk tops, corner chairs etc.) · CCTV (Closed Circuit TV) and other magnification aids · Hand held magnifier/s
- Telescope for distance work
- FM Systems (for hearing impaired)
- Captioning (for television/video programs)
- Hearing aids
- Speech processors
- Tape recorder/s

Computers with appropriate software plus peripherals such as

- Talking calculators, large display calculators
- Large print
- CAD for drawing maps/line drawings
- Mind Reader (predictive word processor)
- First Draft
- Style Writer
- Switches/single switch access (Ke: nx)

Alternative keyboards such as

- Intellikeys
- Concept keyboard
- Voice output devices (Intellitalk)
- Robotron Eureka (voice output, Braille keyboard)
- Touch window

Communication aids such as

- Aided language stimulation boards
- Pictorial symbols (e.g. COMPIC)
- Voice output devices (e.g. Hawk/Macaw)
- Single message device (BIGmack)
- Timetable systems

Alternative formats for materials/books/resources

- Braille
- Large **print**
- Audio (talking books)
- Raised line/tactile drawings
- 3 D models

NOTE

Physical assistance/prompts may be necessary where tasks include activities such as:

- Drawing graphs/diagrams
- Building, constructing, designing, measuring
- Mobility – spatial/locational concepts
- 'Hands on' activities/excursions such as shopping
- Positioning, (e.g. correct posture/seating)

Terms such as 'oral', 'speak', 'ask', 'talk', 'tell', 'say', 'explain', etc. are understood to include all forms of verbal and non-verbal communication such as:

- Auslan
- Signed communication - Signed English, Makaton etc.

The term 'attend to' can be defined as 'paying attention to' or 'giving sensory focus to' (e.g. touch).

Terms such as 'look at', 'listen to', 'watch', can be defined as 'attending to' particularly for vision and/or hearing impaired students.

Students with marked vision impairment may 'visualise' by using other senses (e.g. touch).

Students with marked hearing impairment may 'listen' by using other senses (e.g. feeling vibrations, lip reading).

Outcome Statements - Foundation to Level 3

Working Mathematically

	Contextualise Mathematics				Reason Mathematically		Apply and Verify	
		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>
FOS	WM	Attention should be directed toward Level I.	WM	Attention should be directed toward Level I.	WM	Attention should be directed to Level 2	WM	Attention should be directed toward Level I.
	F.1		F.2		F.3		F.4	
	WM	Attention should be directed toward Level I.						
	F							
LEVEL 1	WM	Talks about some of the ways numbers, shapes and time are used by self and family	WM	With guidance, poses questions which can be answered by classifying, matching, ordering or counting objects and represents mathematical questions by acting out a story, or showing it with objects or pictures.	WM	No outcomes specified at Level I. Attention should be directed towards Level 2.	WM	Begins to show some self-correcting behaviour in mathematical activities.
	1.1		1.2		1.3		1.4	

	WM	Talks about some of the ways numbers, shapes and time are used; with guidance, poses questions which can be answered by classifying, matching, ordering or counting objects; represents mathematical questions by acting out a story, or showing it with objects or pictures; begins to show some self-correcting behaviour.						
LEVEL 2	WM	Describes some of the ways self, friends and family use ideas about space, number, measurement and chance in daily life.	WM	Poses mathematical questions prompted by similar or related questions and represents questions using objects, pictures, symbolic statements or mental images.	WM	Responds to 'what would happen if...' type questions about numbers, shapes, data and measurements and tests ideas with at least a single trial.	WM	Expects to get the same answer to counting, computation and measuring tasks each time they are carried out and, when prompted, checks and corrects answers.
	2.1		2.2		2.3		2.4	
	WM	Describes some of the ways self, friends and families use mathematical ideas in daily life; poses mathematical questions; responds to 'what would happen if...' type questions about numbers, shapes, data and measurements; tests their ideas with at least a single trial; expects to get the same answer to counting, computation and measuring tasks each time they are carried out and, prompted, checks and corrects their answers.						
LEVEL 3	WM	Identifies familiar mathematical features inherent in the activities and products of own and other communities.	WM	Poses mathematical questions prompted by a specific stimulus or familiar context and uses problem-solving strategies which include those based on representing key information in models, diagrams and lists.	WM	Understands mathematical conjectures as more than simply a guess, makes straightforward tests of conjectures and discards those that fail the test.	WM	Uses alternative ways, when prompted, to check working and choice of method.
	3.1		3.2		3.3		3.4	
	WM	Identifies familiar mathematical features inherent in own and other communities; poses mathematical questions prompted by a specific stimulus or familiar contexts and uses problem-solving strategies including key information in models, diagrams and lists; understands mathematical conjectures as more than simply a guess; makes straightforward tests of conjectures and discards those that fail the test; and prompted, uses alternative ways to check working and choice of method.						

Space

	Represent Location	Represent Shape	Represent Transformations	Reason Geometrically
	<i>The student:</i>	<i>The student:</i>	<i>The student:</i>	<i>The student:</i>
FOS	S Follows simple directions to	S Recognises familiar objects	S Attention should be directed	S Attention should be directed

	F.1	move self and objects.	F.2	according to their shape or function.	F.3	toward Level I.	F.4	toward Level I.
	S	Follows simple directions to move self and object and recognises familiar objects according to their shape or function.						
LEVEL 1	S	Uses and interprets familiar everyday language for the position of things, their movements, and paths between them.	S	Pays attention to shape in making or drawing things which are remembered, imagined, seen or handled.	S	Repeats, reorients and turns over things when matching shapes and making pictures and patterns.	S	Talks about likenesses and differences between things which they can be seen or handled and begins to connect shape, movement and function.
	1.1		1.2		1.3		1.4	
	S	Uses and interprets familiar everyday language for the position of things, their movements, and paths between them; pays attention to shape when making or drawing things; repeats, reorients and turns over things when matching shapes and making pictures and patterns; and talks about likenesses and differences between things and begins to connect shape, movement and function.						
	1							
LEVEL 2	S	Attends to order and between's on informal maps and in descriptions of locations and paths.	S	Meets simple criteria relating to shape or structure when making and drawing things, making recognisable copies of arrangements of shapes.	S	Uses multiple copies of shapes to construct repetitive patterns and follows and describes simple movement rules for generating such patterns.	S	Sorts things according to everyday spatial criteria and, prompted, uses own spatial language to describe the shape of things.
	2.1		2.2		2.3		2.4	
	S	Attends to order and between's on informal maps and in descriptions of locations; meets simple criteria relating to shape or structure when making and drawing things; uses multiple copies of shapes to construct repetitive patterns; sorts things according to spatial criteria; and uses own spatial language to describe the shape of things.						
	2							
LEVEL 3	S	Understands a map or plan as a 'bird's-eye view' and uses order, proximity and directional language associated with quarter and half turns on maps and in descriptions of locations and paths.	S	Attends to the shape and placement of parts when matching, making and drawing things, including matching 3D models which can be seen and handled with conventional drawings of them and with their nets.	S	Recognises repetitions of the same shape within arrangements and patterns and uses repetitions of figures and objects systematically to produce arrangements and patterns.	S	Interprets common spatial language and uses it to describe and compare features of things.
	3.1		3.2		3.3		3.4	

	M 2	Distinguishes the attributes of length, area, capacity and mass when comparing things; directly compares and orders things by length, area, capacity, mass and time; indirectly compares lengths and capacities and uses uniform units to measure lengths and capacities; estimates the order of things by length, area, mass and capacity and makes numerical estimates of length using units that can be seen or handled.						
LEVEL 3	M 3.1	Realises that using a uniform unit repeatedly to match an object gives a measure of the size of the object, and chooses suitable and uniform things to use as units and a common unit to compare two things.	M 3.2	Directly and indirectly compares and orders things by length, area, capacity, mass, time and angle, measures them by counting uniform measure length and time.	M 3.3	Makes sensible numerical estimates using units which can be seen or handled and uses language such as 'between' to describe estimates.	M 3.4	(a) Understands and measures perimeter directly and uses straightforward arithmetic to determine perimeters, elapsed time and other measurements which cannot be obtained directly. (b) Attends informally to scale when making and using plans, maps and models.
	M 3	Realises that using a uniform unit repeatedly to match an object gives a measure of the size and that a common unit is necessary to compare two things; directly and indirectly compares and orders things by length, area, capacity, mass, time and angle; makes sensible numerical estimates using units that can be seen or handled; understands and measures perimeter directly and uses straightforward arithmetic to determine perimeters and elapsed time; and attends informally to scale when making and using plans, maps and models.						

Chance and Data

	Understand Chance		Collect and Organise Data		Summarise and Represent		Interpret Data		
		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>	
FOS	C&D F.1	Attention should be directed toward Level 1.	C&D F.2	Responds appropriately to requiring classification of self and familiar things.	C&D F.3	Attention should be directed toward Level 1.	C&D F.4	Attention should be directed toward Level 2.	
	C&D F	Responds appropriately to situations requiring classification of self and familiar things.							
LEVEL 1	C&D 1.1	Shows some recognition of the element of chance in familiar daily activities.	C&D 1.2	Participates in classifying and sequencing objects and pictures and, with guidance, poses questions about them.	C&D 1.3	Displays objects and pictures and describes data in words and numbers.	C&D 1.4	No outcomes specified at Level 1. Attention should be directed towards Level 2.	
	C&D 1	Shows some recognition of the element of chance in familiar daily activities; participates in classifying and sequencing objects and pictures; and displays objects and pictures and describes data in words and numbers.							

LEVEL 2	C&D 2.1	Distinguishes possible from impossible events and describes familiar, easily-understood events as more likely or less likely to happen.	C&D 2.2	Realises that we can answer some questions ourselves by collecting, classifying and sequencing data and applies unambiguous and familiar criteria consistently when classifying and sequencing.	C&D 2.3	Displays and summarises data based on one-to-one correspondences between data and representation.	C&D 2.4	Describe what own and classmates' displays of data show.
	C&D 2	Distinguishes possible from impossible events and describes familiar, easily-understood events as more likely or less likely to happen; collects, classifies and sequences data and applies unambiguous and familiar criteria consistently when classifying and sequencing; displays and summarises data based on one-to-one correspondence between data and representation; and describes what own and classmates' displays of data show.						
LEVEL 3	C&D 3.1	Distinguishes certain from uncertain things and describes familiar, easily-understood events as having equal chance of happening or being more or less likely.	C&D 3.2	Contributes to discussions to clarify what data would help answer particular questions and takes care in collecting, classifying, sequencing and tabulating data in order to and tabulating data in order to.	C&D 3.3	Displays and summarises data using frequencies, measurements and many-to-one correspondence between data and representation.	C&D 3.4	Reads and makes sensible statements about the information provided in tallies and simple tables, diagrams, pictographs and bar graphs.
	C&D 3	Distinguishes certain from uncertain things and describes familiar, easily-understood events as having equal chance of happening or being more or less likely; begins to clarify what data would help answer particular questions and takes care in collecting, classifying, sequencing and tabulating those data; displays and summarises data using frequencies, measurements and many-to-one correspondence between data and representations; and reads and makes sensible statements about the information provided in tallies, simple tables, diagrams, pictographs and bar graphs.						

Number

	Understand Numbers		Understand Operations		Calculate		Reason about Number Patterns	
		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>		<i>The student:</i>
FOS	N F.1	Recognises that numerals and numbers are used in daily life.	N F.2	Attention should be directed toward Level I.	N F.3	Identifies and enters numerals on a calculator.	N F.4	Reproduces a short sequence of objects or actions.
	N F	Recognises that numerals and numbers are used in daily life, identifies and enters numerals on a calculator and is able to reproduce a short sequence of objects or actions.						

LEVEL 1	N 1.1	Reads, writes and says small whole numbers, using them to say how many things there are, make collections of a given size, and describes order.	N 1.2	Visualises self-generated or orally-presented number stories and partitions of small numbers, and represents them in materials, drawings, with a calculator or by role playing.	N 1.3	Uses counting and other strategies to mentally solve self-generated or orally-presented questions from stories involving small numbers.	N 1.4	Copies, continues represents and describes patterns involving counting, grouping and constant addition or subtraction of whole numbers.
	N 1	Reads, writes and says small whole numbers, says how many things there are, makes collections of a given size, and describes order; visualises number stories, partitioning small numbers and representing them with materials, drawings, a calculator or in role play; mentally solves self-generated or orally presented questions from stories; and copies, continues and invents repeating and counting patterns.						
LEVEL 2	N 2.1	(a) Reads, writes, says and counts with whole numbers to beyond 100 using them to compare collection sizes and describe order. (b) Understands the meaning of 'half' and 'quarter', splitting quantities into 'fair' shares and partitioning quantities repeatedly into halves.	N 2.2	Understands the meaning and connections between counting, number partitions, addition and subtraction and uses this understanding to represent situations involving all four basic operations.	N 2.3	Counts, partitions and regroupes in order to add and subtract one and two-digit numbers, drawing mostly on mental strategies for one-digit numbers and a calculator for numbers beyond their present scope.	N 2.4	Recognises, continues, represents and describes patterns involving counting, grouping and constant addition or subtraction of whole numbers.
	N 2	Reads, writes, says and counts with whole numbers to beyond one hundred, comparing and describing collection sizes; understands 'half' and 'quarter', splitting quantities into 'fair' shares; understands and makes connections between counting, number partitions, addition and subtraction and uses this to represent situations involving all four basic operations; uses mental strategies when adding one-digit numbers and calculators for two-digit numbers; and recognises, describes and uses whole number patterns involving counting, addition and subtraction.						
LEVEL 3	N 3.1	(a) Reads, writes, says, counts with and compares whole numbers into the thousands, money and familiar measurements. (b) Reads, writes, says and understands the meaning of unit fractions, flexibly partitioning and rearranging quantities to show equal Darts.	N 3.2	Understands the meaning, use and connections between the four operations on whole numbers and uses this understanding to choose appropriate operations and construct and complete simple equivalent statements.	N 3.3	Adds and subtracts whole numbers and amounts of money and multiplies and divides by one-digit whole numbers, drawing mostly on mental strategies for doubling, halving, adding to 100 and additions and subtractions readily derived from basic facts.	N 3.4	Recognises, describes and uses whole number patterns involving one of the four operations, including by continuing sequences and describing how successive terms can be linked by multiplying or by an addition or subtraction-based strategy.

	N 3	Reads, writes, says, counts with and compares whole numbers into the thousands; reads, writes, says and understands the meaning of unit fractions; uses understanding of the meaning, use and connections between the four operations on whole numbers to choose appropriate operations; adds and subtracts whole numbers and money, multiplying and dividing by one-digit numbers, using mainly mental strategies for doubling, halving, adding to 100, and additions and subtractions readily derived from basic facts; and uses, recognises and describes whole number patterns involving addition, subtraction and multiplication.
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Elaboration of Foundation Outcome Statements for each strand

Working Mathematically Foundation

No Foundation Outcomes specified for the Working Mathematically strand of the Foundation Outcome Statements. Students should be provided with learning experiences directed towards the achievement of Level 1.

Space Foundation

Students are beginning to move around a familiar environment with increasing independence, finding familiar places such as the toilet, canteen or playground equipment, by themselves. They respond to directions requiring them to position themselves or objects. They may, for example, use a template to set a place for themselves at the table. They respond appropriately when given instructions such as "put your pencil *in* your tray", "put your book *on* the shelf", "climb *up* the ladder" or "sit *on* your chair".

They know the names of some shapes, such as a circle, and can turn objects over in order to match them with other objects, outlines of shapes, or openings in receptacles such as posting boxes. They follow simple directions such as "make a tower with the blocks". Students show an awareness of the effect of shape in situations which directly relate to them: for example, they put their drink bottle into their lunch box. When packing their schoolbag, they will notice when they are unable to fit everything in and will ask for help or move items around in an attempt to make them fit. They know that different objects may have the same shape: for example, given a ball, a box and an orange, they indicate which of the objects are round.

Measurement Foundation

Students visually discriminate between "big" and "small" or recognise when an object is heavy. Given objects and directed to select the big ones, they are able to do so: for example, given a collection of toy cars they can choose all of the big ones. With experience, they learn other comparative language; they may, for example, fill a cup to the brim if asked to pour themselves a full drink. Some may, with prompting, distinguish objects which belong in a group on the basis of size, sorting for example the 'heavy' things from the 'not heavy' things.

Students are most likely to notice size when it impacts on them directly and in particular when things don't fit; for example, they will choose the 'biggest' slice of cake or the 'biggest' drink. Finding that they cannot get through an opening they will attempt to find an alternative path or way around.

They are beginning to be aware of the passing of time that their day is organised around work time, play time and eating time and that particular things occur at these times. They know, for example, that if it is *work time*, then they don't play at that time and that *playtime* is when they can play freely in the playground. The notion of taking turns has developed in games situations and students are beginning to understand what it means to 'wait.' They know that if, "It's Ben's turn on the computer" then they must wait for their turn to use the computer.

Chance and Data Foundation

Students can distinguish whether an object or themselves fit within a particular group based on at least one criterion. They are able to identify an increasing number of their belongings based on recognition of one feature: for example, when told to get their Communications Book or schoolbag, they may do so on the basis of its colour. When told to get their glue they will fetch it rather than their pencil. They may recognise their name as a label for their possessions and can identify which seat in the classroom is their seat. Students respond appropriately to instructions such as "bring me all the spoons", or "touch the picture of the dog."

In addition to being able to identify some of their own possessions, students may respond to instructions directed to groups of which they are a part: for example, given the direction, "Mr Watson's class sit down here", or, "stand up if you've ordered your lunch," they will decide for themselves whether or not they need to move.

Number Foundation

Students recognise numbers that are used in their daily lives. They can distinguish numbers from other symbols in their environment. They recognise collections of one, two or three and can recite some number names in order. They are able to use one-to-one correspondence to share out a small group (three or four objects); for example, sharing out one straw for each person and taking one for themselves. Although able to distribute one each to members of a small group, students are still developing accuracy in matching number names to the objects touched as they attempt to count a series of objects. They do not yet understand that the last number stated tells how many there are in the collection. It is possible for some children who have achieved the Foundation Outcomes to perform calculations accurately without having any sense of the quantities represented by the numbers in these calculations.

Children recognise numbers of personal significance: for example, they can recognise, perhaps with a card as an aid, the number of the bus they need to catch, their house number, or an important telephone number.

They recognise that a number they press on the key of a calculator will appear on the calculator screen. Asked to make the calculator or screen produce a number which has been written for them or told to them, students can scan and match the given number on the calculator or screen and locate the number. Having located the number, students press it, and know by looking at the display whether they have produced the number required. Students also understand the notion of a sequence. They recognise patterns in everyday routines, knowing what comes next in a frequently-occurring sequence: for example, "socks on first, then shoes".

Foundation Outcome Statements with Focus Skills List

WORKING MATHEMATICALLY

Investigate Mathematically WM F.1 Attention should be directed toward Level 1	Investigate Mathematically WM F. 2 Attention should be directed toward level 1.	Reason Mathematically WM F.3 No Foundation Outcome specified
WM 1.1 The student talks about some ways numbers, shapes and time are used by self and family	WM 1.2 The student with guidance poses Questions which can be answered by classifying, matching, ordering or counting objects and represents mathematical questions by acting out a story, or showing it with objects or pictures	

Apply and Verify

WM F.4 Attention should be directed toward level 1.

WM 1.4 The student begins to show some self correcting behaviour in mathematical activities.
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SPACE

Represent Location	Represent Shape	Represent Transformations
<p>S F.1 The student follows simple directions to move self and objects.</p>	<p>S F.2 The student recognises familiar objects according to their shape or function.</p>	<p>S F.3 Attention should be directed toward level 1.</p>
<p>This will be evident when, for example, students:</p> <p>find own classroom, e.g. moves from bus to classroom</p> <p>follow simple directions using familiar apparatus, e.g. go up a ladder, inside a tunnel</p> <p>change position in games and movement activities, e.g. sitting to standing</p> <p>follow simple directions in games such as 'Follow the Leader' and 'Simple Simon', e.g. jump, sit, hands up</p> <p>follow direction involving positional or location words, e.g. put the milk in the fridge</p> <p>arrange objects to suit a purpose as requested, e.g. put chairs in a line to represent a train</p>	<p>This will be evident when, for example, students:</p> <p>sort basic shapes into sets, according to their shape</p> <p>name some shapes (triangle, square, circle)</p> <p>match identical shapes to each other</p> <p>turn simple shapes to match shapes, e.g. posting box, blocks</p> <p>use blocks to build a tower</p> <p>use appropriate common shapes found in the environment during play, e.g. use a box as a TV</p> <p>recognise shapes that are the same as or different from familiar shapes, e.g. reach for a ball, recognise a toilet symbol</p> <p>respond to familiar objects, e.g. reach for a ball</p>	
<p>Focus Skills for S F.1</p> <p>Locate familiar objects e.g. find own lunchbox</p> <p>Locate specific areas in the classroom</p> <p>Imitate actions of a leader</p> <p>Follow positional directions in games and classroom routines</p> <p>Arrange objects to suit a purpose, e.g. put chairs in a line to represent a train</p> <p>Follow simple directions</p> <p>Change position in games and movement activities Handle and manipulate materials freely</p> <p>Handle and manipulate materials with instruction</p> <p>Follow instructions to place self in various</p>	<p>Focus Skills for S F.2</p> <p>Match object to object</p> <p>Match object to receptacle</p> <p>Match object to outline</p> <p>Match object to function</p> <p>Explore objects</p> <p>Identify function of objects</p> <p>Use objects according to function</p> <p>Sort objects by shape</p> <p>Recognise shapes in the environment, e.g. the plate is round</p> <p>Use materials to form shapes, e.g. biscuit cutters to cut shapes out of play dough</p> <p>Play freely with informal and geometric shapes</p>	

positions e.g. "get in the hoop" Follow directions to place objects in various positions, e.g. put the box under the table		
8 1.1 The student uses and interprets familiar everyday language for the position of things, their movements and paths between them.	8 1.2 The student pays attention to shape in making or drawing things which are remembered, imagined, seen or handled	8 1.3 The student repeats, re-orientates and turns over things when matching shapes and making pictures and patterns

Reason Geometrically

S F.4 Attention should be directed toward Level 1.

5 1.4 The student talks about likenesses and differences between things which can be seen or handled and begins to connect shape, movement and function.

MEASUREMENT

Understand Units	Direct Measure	
M F.1 The student begins to respond appropriately to simple comparative language.	M F.2(a) The student compares the size of two objects.	M F.2(b) The student shows some awareness of the passing of time.
This will be evident when, for example, students: select a big/small object, e.g. plate, block select the long/short object, e.g. the long ruler sort objects into groups on the basis of big/small, long/short	This will be evident when, for example, students: indicate which of two objects is bigger, taller, longer act on their judgment of size, capacity, e.g. choose the biggest box of toys, choose the biggest glass use appropriately words such as "big", "small", "heavy", "more", "all", "full", "empty"	This will be evident when, for example, students respond to simple directions relating to short periods of time e.g. knows that 'wait a while' means that it's not going to happen now respond appropriately to terms such as 'next', 'after lunch' perform daily tasks at appropriate times · informally use the language of time for themselves e.g. 'Swimming after lunch?' can distinguish between day and night · relate to a display which shows a sequence of activities to determine what activity comes next

<p>Focus Skill for M F.1 and M F.2(a)</p> <p>Match same size objects Sort objects by size, length</p> <p>Compare height, size, length of two objects</p> <p>Understand meaning of comparative vocabulary full/empty, heavy, big/small, long/short</p> <p>Respond to directions which include comparative vocabulary, e.g. give me the empty cup</p> <p>Use comparative vocabulary, e.g. points to COMPIC to describe something which is big</p> <p>Build, construct, arrange, stack</p> <p>Pour, fill, empty containers</p>		<p>Focus Skills for M F. 2 (b)</p> <p>Recognise cues for the beginning and end of activities</p> <p>Respond to language of relative time, e.g. wait</p> <p>perform daily tasks at appropriate times</p> <p>Indicate night/day</p> <p>Indicate morning/afternoon</p> <p>Relate objects to activity</p> <p>Name significant periods of the school day, e.g. recess, lunchtime, home time</p> <p>Locate clocks in the immediate environment</p> <p>Refer to time informally, e.g. 'I played ball at playtime.'</p> <p>Ask about time, e.g. "Is it nearly home time?"</p> <p>Know the names of days of the week</p>
<p>M 1.1 The student understands everyday comparative language associated with length, mass, capacity and time.</p>		<p>M 1.2 The student directly compares and orders "straight" lengths and events in time and counts informal units of length, capacity, area, mass, and time to decide "how many fit or match".</p>

<p>Estimate</p>	<p>Indirect Measure</p>
<p>M F.3 Attention should be directed to level 1.</p>	<p>M F.4 Attention should be directed to level 3</p>
<p>M 1.3 The student makes non-numerical estimates of size, involved everyday movements and actions</p>	<p>Attention should be directed to Level 3.</p>

CHANCE AND DATA

Understand Chance	Collect and Organise Data	Summarise and Represent Data
C&D F.1 Attention should be directed toward level 1.	C&D F.2 The student responds appropriately to situations requiring classification of self and familiar things.	C&D F.3 Attention should be directed toward level 1.
	<p>This will be evident when, for example, students:</p> <p>place self in appropriate group, e.g. "stand up those people going on the bus"</p> <p>respond appropriately to directions requiring classification of self, e.g. "Are you a girl or boy?"</p> <p>identify correct place to go, e.g. male/female toilet, correct bus</p> <p>separate a given set of objects from a collection using one obvious criterion, e.g. find all the buttons from an assortment of buttons and other objects</p> <p>match objects according to one attribute, e.g. colour, shape, identity</p>	
	<p>Focus Skill for C&D F.2</p> <p>Identify basic personal attributes</p> <p>Match objects by colour, shape, identity</p> <p>Sort objects</p>	
C&D 1.1 The student shows some recognition of the element of chance in familiar daily activities	C&D 1.2 The student participates in classifying and sequencing objects and pictures and, with guidance, poses questions about them.	C&D 1.3 The student displays objects and pictures and describes data in words and numbers

Interpret Data

C&D F.1 No Foundation outcome specified.

C&D 1.4 Attention should be directed toward Level 2.

NUMBER

Understand Numbers	Understand Operations
<p>N F.1 The student recognises that numerals and numbers are used in daily life</p>	<p>NF .2 Attention should be directed towards Level 1</p>
<p>This will be evident when, for example, students:</p> <p>show that they recognise that there is an order in the counting numbers by beginning to say them in order</p> <p>distinguish numerals from other objects/symbols</p> <p>begin to recognise that we say a number for each object (not necessarily accurately)</p> <p>begin to write recognisable versions of some numerals recognise collection of 1, 2 and 3</p> <p>respond to ordinal terms "first" and "last" e.g. moves first in line as directed</p> <p>use words like 'none', 'nothing', 'haven't got any' appropriately match a small collection (3 or 4) 1-1</p> <p>can take or hand out one each</p> <p>begin to distinguish numerals from one another (i.e. can tell difference between 1 and 4)</p> <p>distinguish money from other objects</p> <p>match coins</p> <p>know money is needed to operate a vending machine, e.g. puts money in ticket machine to get ticket</p>	
<p>Focus Skills for N F.1</p> <p>Match numbers to numbers</p> <p>Name/select numbers</p> <p>Match 1-1 e.g. give crayon to each person</p> <p>Use ordinary numbers in counting rhymes and songs Point and count to 10</p> <p>Rote count</p> <p>Read numbers relevant to self, e.g. age, house number Sort/match coins</p> <p>Name coin</p>	

N 1.1 The student reads, writes and says small whole numbers, using them to say how many things there are, make collections of a given size and describes order	N 1.2 The student visualises self-generated or orally presented number stories and partitions of small numbers and represents them in materials, drawings, with a calculator or by role playing.
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Calculate	Reason about Number Patterns
N F.3 The student identifies and enters numerals on a calculator	N F. 4 The student reproduces a short sequence of objects or actions
<p>This will become evident when students, for example:</p> <p>locate a particular numeral on pad or screen from an instruction given in oral or written form</p> <p>know that there is a connection between the numeral pressed and what comes on the screen</p> <p>make the calculator produce a numeral which is presented to them orally or in writing</p>	<p>This will become evident when students, for example:</p> <p>reproduce a short sequence of shapes e.g. match 3 squares with 3 squares</p> <p>reproduce a limited number of elements (probably 2) using objects and body movements, e.g. follow the pattern of 'clap, stamp, clap, stamp ...</p> <p>begin to understand the notion of what comes next, e.g. 'socks first, then shoes.'</p>
Focus skills for N F.2	Focus Skills for N F.4
<p>Press key pad</p> <p>Locate numeral buttons</p> <p>Enter desired number Identify operation buttons</p> <p>Match numbers</p> <p>Recognise numbers</p>	<p>Imitate simple actions, e.g. clap, touch head, stamp foot</p> <p>Match objects</p> <p>Recognise same</p> <p>Recognise different</p> <p>Copy simple repeated patterns using objects such as buttons, beads, blocks</p> <p>Participate in repetitive body actions, sequence of two movements, e.g. clap/stamp, clap/stamp</p>
N 1.3 The student uses counting and other strategies to mentally solve self-generated or orally- presented questions from stories involving small numbers.	N 1.4 The student copies, continues and invents repeating and counting patterns and uses numbers to represent their patterns

Spreadsheets

Teaching/learning information related to selected foundation outcomes

Each strand in The Arts Learning Area has been represented by one spreadsheet that provides information related to a selected Foundation Outcome.

One Focus Skill has been chosen as an example. Learning experience and teaching strategies have been written for this Focus Skill. The chosen Focus Skill is indicated by (EG).

Information contained in these spreadsheets is given as an example only and may require modification or addition to suit individual needs.

These spreadsheets are provided to give teachers a springboard for developing their own ideas when programming for specific Focus Skills

Each spreadsheet contains the following information.

AREA	FOUNDATION OUTCOME STATEMENT	STUDENT OUTCOME STATEMENT
Learning Area	Outcome Statement	
STRAND	POINTERS Indicators or signals of the achievement of an outcome. Pointers are only typical examples and are not listed exhaustively. Other pointers could also indicate achievement of the outcome.	LEVEL 1 Outcome Statement

KEY ELEMENTS

These are the main components of the Outcome Statements .

CONSIDERATIONS

Factors which may affect the student's participation and/or progress in achieving the outcome

FOCUS SKILLS

Are 'non-exhaustive' lists of skills which are the focus for teaching outcomes.

INFORMATION

Suggestions for where you may access further information/resources/assistance.

TROUBLE SHOOTING

This provides suggestions of what to do if the student is not progressing towards achieving the Outcome Statements.

LEARNING EXPERIENCES

A range of activities which relate directly to the Outcome Statement.

TEACHING EXAMPLE/STRATEGIES

Examples of strategies/techniques and processes which may be used to teach a specific focus skill. The given example relates to the focus skill with the symbol.

Number

AREA	FOUNDATION OUTCOME STATEMENT	STUDENT OUTCOME STATEMENT
Mathematics	N F.3 The student identifies and enters numerals on a calculator.	
STRAND	POINTERS This will be evident when students for example:	LEVEL 1
Number		N 1.3
SUB STRAND		The student uses counting and other strategies to mentally solve self generated or orally presented questions from stories involving small numbers.
Calculate	<ul style="list-style-type: none"> locate a particular numeral on pad or screen; know that there is a connection between the numeral pressed and what comes on the screen; and make the calculator produce a numeral which is presented to them orally or in writing. 	

KEY ELEMENTS

Explore number/function key

FOCUS SKILLS

Focus Skill for NF.3

- Press keypad
- (EG). Locate numeral buttons
- Enter desired number
- Identify operation buttons
- Match numbers
- Recognise numbers

CONSIDERATIONS

- Physical impairments
- Adequate fine motor skills
- Hand/eye coordination
- Can the student recognise numerals?
- Size of the calculators
- Size of the numbers on the screen

INFORMATION

- Talking calculators
- Direct instruction (see Teaching Strategies chapter)
- Computer programs

TROUBLE SHOOTING

If not working:

- Ensure student knows numeral 0-20;
- Ensure student knows how to clear the calculator; and
- May need 1-1 instruction.

Learning Experiences

- Computers
- Mathematics activities
- Role play shopping
- Calculator bingo

TEACHING EXAMPLE/STRATEGIES

- **(EG)**. Locate numeral buttons
- Teacher uses an enlarged worksheet of a calculator face.
- Discuss and identify the numeral buttons and their function.
- Students make the calculator numeral using pop sticks.
- Teacher calls out a number to the group and the students identify the number on a calculator. In pairs, one student calls out a number for other student to press.
- Computer hardware/software.

Chance and Data

AREA	FOUNDATION OUTCOME STATEMENT	STUDENT OUTCOME STATEMENT
Mathematics	C&D F.2 The student responds appropriately to situations requiring classifications of self and familiar things.	LEVEL 1
STRAND Chance and Data	POINTERS This will be evident when students for example:	C&D 1.2 The student participates in classifying and sequencing objects and pictures and, with guidance, poses questions about them.
SUB STRAND Collect and Organise Data	<ul style="list-style-type: none"> • place self in appropriate group, e.g. stand up those people going on the bus • respond appropriately to questions requiring classification of self, e.g. "Are you a girl or boy?", "Which room are you in?" 	

- | | | |
|--|---|--|
| | <ul style="list-style-type: none"> • identify correct place to go, e.g. male/female toilet, correct bus stand; • separate a given set of objects from a collection using one obvious criterion, e.g. find all the buttons from an assortment of buttons and other objects; and • sort and match objects according to one attribute, e.g. by colour, shape or identity. | |
|--|---|--|

KEY ELEMENTS

Respond to simple directions pertaining to self or classification

FOCUS SKILLS

Focus skills for CDF.2

- **(E G)** .Identify basic personal attributes
- Match objects by colour, shape, identity
- Sort objects

CONSIDERATIONS

- Nature of disability
- Does the student have the necessary concepts/vocabulary to achieve this outcome?

INFORMATION

- Direct instruction (see Teaching Strategies chapter)
- Therapist personnel

TROUBLE SHOOTING

If not working:

- Refer to Health and Physical Education CHLF.1-Focus skills for Growth and development: Awareness of self.

LEARNING EXPERIENCES

- Health, e.g. personal attributes
- Mathematics, e.g. grouping, graphing
- Art, e.g. self portraits
- Language activities, e.g. oral discussion

TEACHING EXAMPLE/STRATEGIES

- (EG). Identify basic personal attributes
- Teacher should prioritise attributes to be taught based on the student's needs, e.g. gender/appropriate toilets.
- During Mathematics session group class based on personal attributes, e.g. gender, eye colour (may need to use physical prompts initially).
- Use mirrors to become familiar with personal attributes.
- Use peers to assist student, e.g. to locate classroom, canteen, appropriate toilets.
- Teach attributes using games 'Stand up all boys'.
-

Use direct instruction to teach attributes, e.g. class teachers name, faction, classroom number

Measurement

AREA	FOUNDATION OUTCOME STATEMENT	STUDENT OUTCOME STATEMENT
Mathematics	M F.1 The student begins to respond appropriately to simple comparative language.	LEVEL 1 MU
STRAND	POINTERS	The student understands everyday comparative language associated with length, mass, capacity and time.
Measurement	This will be evident when students for example:	
SUB STRAND		
Understand Units	<ul style="list-style-type: none"> • select a big/small object, e.g. plate, block • select the long/short object, e.g. the long ruler • sort objects into groups on the basis of big/small, long/short 	

KEY ELEMENTS

Comparative Language

FOCUS SKILLS

Focus Skills for M F.1

- **(E G)**. Respond to directions which include comparative language, e.g. "Give me the big book", "Show me the long stick"
- Use comparative vocabulary, e.g. points to COMPIC of big to describe something big
- Compare length, size, height of two objects
- Pour, fill, empty containers
- Build, construct, arrange, stack
- Understanding meaning of comparative vocabulary, e.g. full/empty, heavy, big/small, long/short
- Match same size objects
- Sort objects by size, length

CONSIDERATIONS

Nature of disability

Level of receptive language

INFORMATION

- Visiting teachers
- Therapist personnel
- Refer to Teaching Strategies in Resource File
- Use programs designed for students with learning difficulties, e.g. Gladys Newton School Mathematics curriculum

TROUBLE SHOOTING

If not working:

- Refer to considerations;
- Does the student need more practice?
- Further Task Analysis may be necessary; and
- Use objects that are familiar to student

LEARNING EXPERIENCES

- Phys Ed/PMP Programs
- Playground activities Incidentally in the classroom
- Excursions
- Cooking
- Mathematics activities
- Language activities

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