Year 1	Western Adelaide Region - Maths Assessment Tasks Map *(Draft –November 2013)*					Proficiency Strands
Aims	The Australian Curriculum Mathematics aims to ensure that students……are confident, creative users and communicators of mathematics, able to investigate, represent and interpret situations in their personal and work lives and as active citizens; develop an increasingly sophisticated understanding of mathematical concepts and fluency with processes, and are able to pose and solve problems and reason in *Number and Algebra, Measurement and Geometry, and Statistics and Probability*; recognise connections between the areas of mathematics and other disciplines and appreciate mathematics as an accessible and enjoyable discipline to study.					• Understanding • Fluency • Problem Solving • Reasoning
Content Strands	**Number & Algebra**					
Sub Strands	**Number & Place Value**			**Fractions and Decimals**	**Money and Financial Mathematics**	**Patterns & Algebra**
Big Idea / Concept/ Key Understanding	Trusting the Count		Place Value	Additive to Multiplicative Thinking	Partitioning	-Currency has determined values and can be recognised and sorted according to appearance and value -The size of Australian coins and notes do not determine its value -Each country has its own currency -Currency provides access to food and services	-A pattern requires an element of repetition that can be described and generalised with a pattern rule -Patterns can be represented in many ways including using combinations of numbers, objects and symbols -Patterns are all around us
	-Numbers are said in a particular order and there are patterns in the way we say them	-The last number counted tells us how many or how much -A collection tells us how many no matter what it looks like *(i.e. 5 apples, 5 pencils, 5 counters)* -We can recognise small collections without counting *(subitising)* -Collections can be measured, compared and classified *(i.e. as more of, less than, equal to… or how are 5 and 10 similar, different?)*	-In place value a new unit is introduced *(i.e. 10 ones is 1 ten, 10 tens is 1 hundred, …)* -In place value there are names for these new units (multiples of 10) *(i.e. tens, hundreds, thousands)*	-Numbers can be named in terms of their parts *(part-part whole, 7 is 5 and 2, 6 and 1, 4 and 3…)* -Numbers have properties that help us work flexibly with them *(e.g. 7 is 5 and 2, 5 and 2 is 7, 7 take 2 is 5)* -Visualisation and partitioning numbers is essential for mental and written computation	-The number of parts names the part *(i.e. 2 parts-halves, 1 part-whole)* -True fractions have equal parts -Language is important *(i.e. "I have 1 out of 2 apples, I have half" – how many out of how much)*		
Australian Curriculum Content Descriptor	Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by 2s, 5s and 10s starting from zero	Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line	Count collections to 100 by partitioning numbers using place value	Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts	Recognise and describe one half as one of two equal parts of a whole.	Recognise, describe and order Australian coins according to their value	Investigate and describe number patterns formed by skip counting and counting with objects
Achievement Standard	Students **describe number sequences** resulting from skip counting by 2s, 5s and 10s.	Students **count to and from 100** and **locate numbers on a number line.**	Students **partition numbers** using place value	Students **carry out simple additions and subtractions** using counting strategies	Students **identify representations** of one half.	Students **recognise Australian coins** according to their value	Students **continue simple patterns** involving numbers and objects
Summative Assessment Task	**1.1** Number Chains		**1.2** Mystery Number	**1.3** On the Bus			**1.4** Lucy's Ducks

Developed by Karly Hefferan, Chris Miethke, Susan Glaister, Karen Knox, Lauren Fletcher-Rees & Dawn Dyer

Big Idea(s)	**Australian Curriculum Content Descriptor**	**Achievement Standard**	**Related Mathematical Proficiencies**
-Numbers are said in a particular order and there are patterns in the way we say them. -The last number counted tells us how many or how much.	Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by 2s, 5s and 10s starting from zero. Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line.	By the end of Year 1, students describe number sequences resulting from skip counting by 2s, 5s and 10s. They recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line.	• *Understanding* includes connecting names, numerals and quantities • *Fluency* includes counting in number sequences readily forwards and backwards

Prior Learning Experiences *Do I use ongoing Formative Assessment to inform the teaching & learning cycle? Do I provide learning experiences that enable students to build on their knowledge?*	**Feedback** *How will I provide feedback to students?*	**Summative Assessment** *Does the assessment task indicate **how well** students understand and can apply their learning? (**how well** = extent, depth and sophistication of thinking – informs A-E grading)*	**Evidence** *What evidence am I looking for that demonstrates the student has got it?*
It is important that students have had experiences with the learning opportunities below before administrating the assessment tasks. *Developing:* ***Understanding Fluency Problem Solving Reasoning*** Through experiences with**:** • Subitising – (*Dianne Siemon – Trusting the Count*) • Natural Maths Mental Routines & problematised situations, *(e.g. 100's board mental routine- could also use 1-30 or 1-50 if needed) (*Problem Solving Book 1) • 1-100 chart- counting patterns, starting from different numbers • Number playdough mats/ activity mats (sparkle box) • Number lines using frieze tape, IWB, paper, rope & pegs, etc. • Big step, little step – counting game (+10 take a big step, + 1 take a little step, students mentally calculate the running total. Students could also carry and record on whiteboards) • 10 frames/ 20 frames/ 100 frames (10x10) • Make to 25/ 50/ 100 (5 and 10 frame games) • Dice games –1-12, 1-20 boards; Bingo games • Michael Ymer games *(e.g. Race to 50)* • Chicken feed/ chicken scramble- efficient counting • Subitising groups of ''there are 2 groups of 2 counters" • Subitising games, matching games • Making own Subitising cards (early part-part whole) • Number stories – shared text/ guided reading • Ball circle games/ buzz (starting from any number, counting to 100 and beyond, counting backwards, skip counting). Ask questions such as *"Who will say 15?...30?"* • I have, who has cards (e.g. Number cards that count in 2s, 5s and 10s). Explore increasing/decreasing order, starting from 0 to begin with and then from different starting point. • Use a puppet model to count forwards and backwards in 2s, 5s and 10s. Ask the children to listen carefully as the puppet makes mistakes with counting. You might repeat numbers omit numbers or use the wrong number names – tell the children to put up their hands when the puppet makes a mistake. Ask them to identify the mistakes and help to put them right. • IWB- e.g. subitising sets on PowerPoint/Smart Notebook ; counting video clips/songs; ICT - Scootle; Study Ladder; Kid Pix; iPad apps	Teacher observations Conferences 1:1 with peers & teacher Learning log: Student identifies areas for focus SNW (S-strengths, N – needing improvement, W- where to next) Stars/ smiley faces/ traffic lights	**Number chains** *(see attachment 1.1)* *Adapted from Natural Maths Problem Solving, Ann & Johnny Baker* **Entry Level** Students use the numbers from those listed on the number chains task to complete each number chain. **NB- The starting numbers haven't been recorded onto each chain to see if students record this information on their first chain or if they simply begin with the following number in the sequence. You may choose to direct students to use the information from the question to record their starting number in each chain before selecting the numbers from the top of the page or you can simply see what students do and then use this as a teaching point with them at a later date.* **Challenge Level** Students make their own number chain and record their pattern. ***Questioning*** – *"How did you choose your numbers?" "How did you know where to start?" "What strategies did you use to help you solve the problem?" "Tell me about the pattern in your chain" "What would be the next 5 numbers in the chain?"* **Organisation** **Teacher** – Attachment 1.1: Number chains **Students** – Attachment 1.1; pencil	**Students will:** • **Demonstrate** knowledge by choosing the correct missing numbers in a number sequence. • **Show** understanding by explaining their choices and providing their reasons. **Advanced** –Students demonstrate an understanding of number sequences by confidently choosing and sequencing the numbers in each chain. They are able to make their own chain and record and describe their pattern using mathematical thinking. **Competent** —Students demonstrate an understanding of number sequences. They choose and sequence the correct numbers in each chain. They explain their choices using some mathematical language. **Developing**–Students demonstrate some/little understanding of sequencing of number and are unable to choose or sequence the numbers in each chain.

Big Idea(s)

-In place value a new unit is introduced *(i.e. 10 ones is 1 ten, 10 tens is 1 hundred).*

-In place value there are names for the new units (multiples of 10) *(i.e. tens, hundreds, thousands).*

Australian Curriculum Content Descriptor

Count collections to 100 by partitioning numbers using place value.

Achievement Standard

By the end of Year 1, students partition numbers using place value.

Related Mathematical Proficiencies

- *Understanding* includes partitioning numbers in various ways
- *Problem Solving* includes using materials to model authentic problems

Prior Learning Experiences *Do I use ongoing Formative Assessment to inform the teaching & learning cycle? Do I provide learning experiences that enable students to build on their knowledge?*	**Feedback** *How will I provide feedback to students?*	**Summative Assessment** *Does the assessment task indicate how well students understand and can apply their learning? (how well = extent, depth and sophistication of thinking – informs A-E grading)*	**Evidence** *What evidence am I looking for that demonstrates the student has got it?*
It is important that students have had experiences with the learning opportunities below before administrating the assessment task. *Developing:* ***Understanding Fluency Problem Solving Reasoning*** Through experiences with**:** - Ten frames *(e.g. Make Tens, George Booker; Professor Dianne Siemon's Ten Frames)* - Comparing numbers greater/less than/ how many more… - Hundreds chart counting patterns – counting on & back by 10s, exploring the one doesn't change when adding 10 - Mental routines (100's chart, place value buttons) Natural Maths, Ann & Johnny Baker - Problematised situations – involving efficient counting of 10 and grouping into tens and ones 0-9 cards & counting materials- make, name, record numbers to 100 - Popsticks & popstick bundles and unifix cubes to represent 10 and efficient counting of 10 *(e.g. ten of these is one of those)* - H/T/O boards, whiteboards- using popstick bundles or lids marked with 1, 10, 100 (MAB not recommended at year 1) - Place value games, dice activities and games - Number expanders HTO for renaming *(e.g. "If we didn't have any hundreds what could we use?")* *Paul Swan text – Developing Mathematics Unifix* - Story books (e.g. 1 is a Snail, 10 is a Crab – A counting by feet book, April Pulley; No Place for Zero) - Place value card sets – words and numbers - Number expanders (H,T,O) for renaming - Thinkboard – The answer is 100 - Digital Media games and activities, including IWB & iPad apps	Teacher observations Conferences 1:1 with peers & teacher Learning log: Student identifies areas for focus SNW (S-strengths, N – needing improvement, W- where to next) Stars/ smiley faces/ traffic lights	**Mystery Number** *(see attachments 1.2A, 1.2B & 1.2C)* **Entry Level** Students will choose a number from a mystery bag of numbers from 11-100 *(attachment 1.2A).* Students are asked to collect a range of mixed materials/items to show their number and record on a simple thinkboard *(attachment 1.2B).* A photo is then taken of their thinkboard to be pasted onto *(attachment 1.2C)* to be used in a second part to the lesson *(this may need to be the following day or as part of the same lesson depending on the access to printing).* **Challenge Level** What if your number was 100 greater than your mystery number? How could you model what you know about your new number? *Questioning* – *"What materials did you use to represent your number?" "What else do you know about your number?" Circle the number in the tens position and ask "What does this mean/stand for/ represent?" Repeat with the ones and ask the same question. "What would the number be if it was 100 greater? How do you know?"* **Organisation** **Teacher** – Attachment 1.2A *(enlarged to A3, then cut to have individual numbers)*; mixed materials for place value *(e.g. pop sticks, bottle tops with 1, 10 written on top, bundling sticks, etc.);* copies of thinkboard, copies attachments 1.2B & 1.2C *(enlarge to A3);* camera **Students** – Mystery number; attachment 1.2B & 1.2C, thinkboard; pencil	**Students will:** **Demonstrate** knowledge by showing the mystery number using tens and ones and arranging them with the tens and ones in the correct position. **Show** understanding by modelling the number and representing it on a thinkboard, then explaining their choices made. **Advanced** –Students demonstrate an understanding of place value by confidently modelling their collection. They use a variety of materials and representations for their mystery number. They explain their thinking using mathematical language. They complete the challenge level task and may demonstrate renaming *(e.g. 127 is 12 tens and 7 ones).* **Competent** – Students demonstrate an understanding of place value to 100. They model their collection efficiently and are able to explain their thinkboard in terms of place value. **Developing**–Students demonstrate some/little understanding of place value to 100. They are unable to model their collection efficiently using tens and ones.

1.3 -Number & Place Value *Represent and solve simple addition and subtraction*	Western Adelaide Region **Mathematics Performance Assessment Tasks** *(Updated: November 2013)*	Year 1

Big Idea(s)

-Numbers can be named in terms of their parts *(part-part whole, 7 is 5 and 2, 6 and 1, 4 and 3…).*

-Numbers have properties that help us work flexibly with them *(e.g. 7 is 5 and 2, 5 and 2 is 7, 7 take 2 is 5).*

Australian Curriculum Content Descriptor

Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts.

Achievement Standard

By the end of Year 1, students carry out simple additions and subtractions using counting strategies.

Related Mathematical Proficiencies

- *Understanding* includes connecting number names, numerals and quantities
- *Problem Solving* includes using materials to model authentic problems

Prior Learning Experiences	Feedback	Summative Assessment	Evidence
Do I use ongoing Formative Assessment to inform the teaching & learning cycle? Do I provide learning experiences that enable students to build on their knowledge?	*How will I provide feedback to students?*	*Does the assessment task indicate **how well** students understand and can apply their learning? (**how well** = extent, depth and sophistication of thinking – informs A-E grading)*	*What evidence am I looking for that demonstrates the student has got it?*

Prior Learning Experiences (continued)

It is important that students have had experiences with the learning opportunities below before administrating the assessment task.

Developing:

Understanding   Fluency   Problem Solving   Reasoning

Through experiences with:

- Use a range of materials for grouping and counting
- 10 frames and subitising cards *(Professor Dianne Siemon)*
- Count on/back, Rainbow Facts, doubles, near doubles, turn around facts– Natural Maths *(Ann & Johnny Baker)*
- Mental routines using 1-50 or 1-100 chart
- Problematised Situations, using a real-world narrative – Natural Maths *(Problem Solving book Level 1)*
- ___ and ___ is ___; ____ + _____ is _____   whiteboards
- Wrapping paper (efficient counting) – E.g. could we find out how many lollies there are? How could we count them? Which lolly is the most popular? *(Frame it as a problem- "The manufacturer had heard that jellybeans were the most popular lolly. They want to know…")*
- Dice games – roll 2 dice, how many altogether? Cover the number (1-12 chart or gameboard)
- Open number lines for early addition
- Hidden numbers – early algebraic thinking (the answer is… what might the numbers be? Could there be 3 numbers?)
- Thinkboards – worded problem
- Part-part whole – 7 is…(5 and 2, 6 and 1, 4 and 3, 10 take 3)
- Cuisenaire rods – part-part whole *(e.g. a 2 unit rod and a 3 unit rod together equals the length of a 5 unit rod)*
- Groups of- I have 3 groups of 2 I have 2, 4, 6 counters- then frame as a problem solving task
- Hidden numbers and missing addend for simple number sentences
- Domino activities
- IWB & interactive games and iPad apps *(e.g. Number Scramble, ten frame apps, counting apps, etc.)*
- Problem solving with Unifix *(Developing Mathematics, Paul Swan)*
- Card Games books *(Paul Swan)*

Feedback

Teacher observations

Conferences 1:1 with peers & teacher

Learning log: Student identifies areas for focus

SNW (S-strengths, N – needing improvement, W- where to next)

Stars/ smiley faces/ traffic lights

Summative Assessment

On the Bus *(adapted from Copacabana Public School, Getsmart, IWB task)*

Entry Level

After school some students caught the bus. When the bus arrived at the bus stop there were already 16 students on the bus. At the stop 5 more students got on. At the next stop 9 students got off the bus at the shop. Draw a picture and write the number sentences to show what happened.

Challenge Level

Draw a picture and show the number sentences if twice as many people got on the bus and 13 students got off at the shop.

Write your own 'On the Bus' story.

Questioning – *"What strategies did you use?" "Is there another way to solve the problem?" "How did your knowledge of counting strategies help you solve the problem?" "How might these help you to solve a problem in the future?"*

Organisation

Teacher – Record problem on the board; counters if needed; paper or whiteboards for recording

Students – Paper/pencils; thinkboard

Evidence

Students will:

- **Demonstrate** knowledge using appropriate strategies when calculating.
- **Show** understanding by applying counting strategies and being able to explain their choices and thinking.

Advanced –Students demonstrate an understanding of counting strategies to solve a word problem. They use a combination of pictures and number sentences when completing the task. They accurately write their own story and explain how they would get the answer using appropriate strategies.

Competent –Students demonstrate an understanding of problem solving using the counting strategies. They calculate accurately the number sentences and can explain the strategies they used.

Developing– Students demonstrate some/little understanding of problem solving using counting strategies. They attempt to solve the problem however are unable to record using a complete number sentence.

Big Idea(s)
-A pattern requires an element of repetition that can be described and generalised with a pattern rule.
-Patterns can be represented in many ways including using combinations of numbers, objects and symbols.
-Patterns are all around us.

Australian Curriculum Content Descriptor
Investigate and describe number patterns formed by skip counting and counting with objects.

Achievement Standard
By the end of Year 1, students ==continue simple patterns involving numbers and objects.==
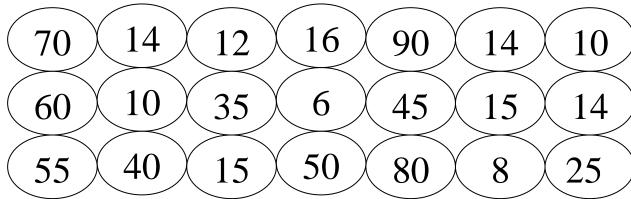
Related Mathematical Proficiencies
● *Reasoning* includes explaining patterns that have been created

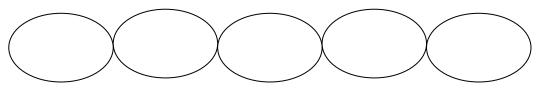| **Prior Learning Experiences** *Do I use ongoing Formative Assessment to inform the teaching & learning cycle? Do I provide learning experiences that enable students to build on their knowledge?*	**Feedback** *How will I provide feedback to students?*	**Summative Assessment** *Does the assessment task indicate how well students understand and can apply their learning? (how well = extent, depth and sophistication of thinking – informs A-E grading)*	**Evidence** *What evidence am I looking for that demonstrates the student has got it?*
It is important that students have had experiences with the learning opportunities below before administrating the assessment task. *Developing:* ***Understanding Fluency Problem Solving Reasoning*** Through experiences with**:** ● Observe and draw patterns in the classroom environment and beyond ● Clapping and rhythm patterns ● Activities with a given pattern and continue these patterns ● Create new patterns from a range of equipment- coloured popsticks/toothpicks, 2D shapes & 3D objects, beads, frog/koala counters, coloured counters, flip tiles, unifix, polydrons, etc. ● Discussing patterns and their description *("What makes something a pattern?")* ● Make, name, record patterns using a thinkboard ● 1-30, 1-50 & 1-100 grids involving skip counting ● Orally describe patterns including recreating a pattern from an oral description *(e.g. 1st is a blue triangle, 2nd is a red square, 3rd is another blue triangle, 4th is another red square, continue using 2 more of each shape)* ● Patterns using people in the class *(e.g. boy, boy, girl, girl, boy, boy, girl, girl)* ● IWB activities ● iPad Apps ● Days of the week	Teacher observations Conferences 1:1 with peers & teacher Learning log: Student identifies areas for focus SNW (S- strengths, N – needing improvement, W- where to next) Stars/ smiley faces/ traffic lights	**Lucy's Ducks** *(see attachment 1.4A & 14B)* Adapted from Natural Maths Problem Solving, Ann & Johnny Baker **Entry Level** Lucy lives on a farm. On Monday there were three ducks in the pen. Each day after that she counted two more ducks than the day before. Lucy thought it was very exciting and on Friday she told her class about all of the ducks. The class wanted to know how many ducks she would see altogether on Saturday. How many ducks will Lucy see? **Challenge Level** Make up a new duck pen pattern. How many ducks would be in the duck pen on Saturday? Ask someone to work out your pattern. *Questioning* – *"How did you know how many ducks would be in the pen on Saturday?" "What strategies did you use?" "How many ducks would be in the pen on Sunday?"* **Organisation** **Teacher** – Duck pictures attachment 1.4B **Students** – Paper; pencils; glue sticks; duck pictures (attachment 1.4B) for students requesting these ****please note this task will also demonstrate a student's knowledge of time duration in the measurement strand.***	**Students will:** ● **Demonstrate** knowledge by continuing a simple pattern involving numbers and objects. ● **Show** understanding by explaining what happens each day and how they calculated the number of ducks on the last day. **Advanced** –Students demonstrate an understanding by completing the task confidently and accurately, using a combination of drawn pictures and numbers when recording. They create their own pattern and describe it using mathematical language and reasoning. **Competent** –Students demonstrate understanding by completing the task with the given pattern. They use the duck pictures to assist and attempt to use number sentences. They explain the pattern using some mathematical language**.** **Developing**– Students demonstrate some/little understanding by using objects to solve the task, however are unable to find a solution to describe the pattern and explain their thinking.

Attachment 1.1-Number Chains

Help these students complete their number chains using the numbers below.

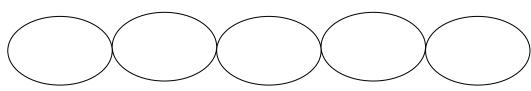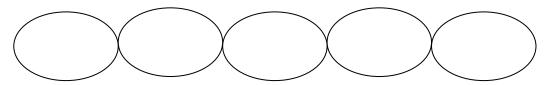| 70	14	12	16	90	14	10
60	10	35	6	45	15	14
55	40	15	50	80	8	25

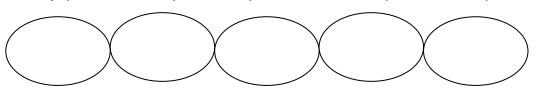Abby counted in 2s from 6 in her number chain.

Joseph counted in 5s from 35 in his number chain.

Ruqayah counted in 10s from 60 in her number chain.

Sanjay made a tricky number pattern. What do you think his pattern is?

Challenge level- Make a number chain of your own. Tell a partner the first and last number and see if they can complete your number chain.

11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Collect a range of mixed materials/items to show your number and place on the thinkboard

Write as many things about your mystery number as you can. Explain why you chose your items and record your thinking around your photo.

Paste your photo of your mystery number thinkboard here

Attachment 1.4A- Lucy's Ducks

On Monday Lucy counted three ducks in the duck pen. Each day after that she counted two more ducks than the day before. How many ducks will Lucy see on Saturday?   *Show your working out below. You can use the ducks to help if you choose.*

Name: **Date:**

Attachment 1.4B- Lucy's Ducks