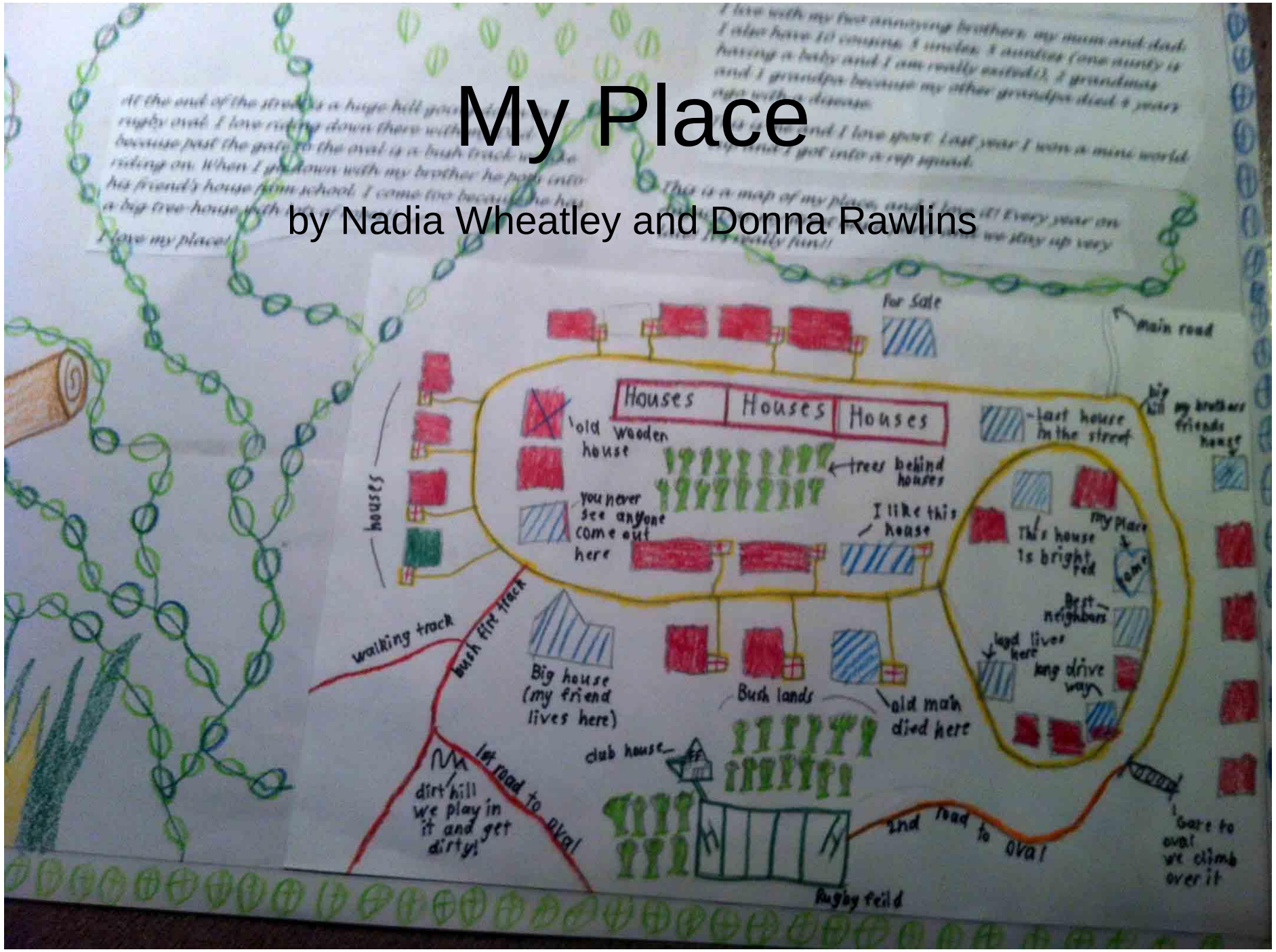
My Place

by Nadia Wheatley and Donna Rawlins



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Overview: The engaging narrative of this picture book provides a context for learning by presenting mathematical ideas through a series of informal maps that change over time in a particular location in Sydney. The story begins in 1988 and moves to the previous decade, with the turn of each page, back to 1788. The informal maps, created by artist Donna Rawlins, provide an engaging platform to develop conceptual understanding in the substrands of position, time, data and whole number. It also offers the opportunity to integrate learning experiences with English, history and geography and visual arts. It is best suited for Stages 2 & 3.

Focus Areas: Growth & Change, Visualisation, Representation, Student Recording

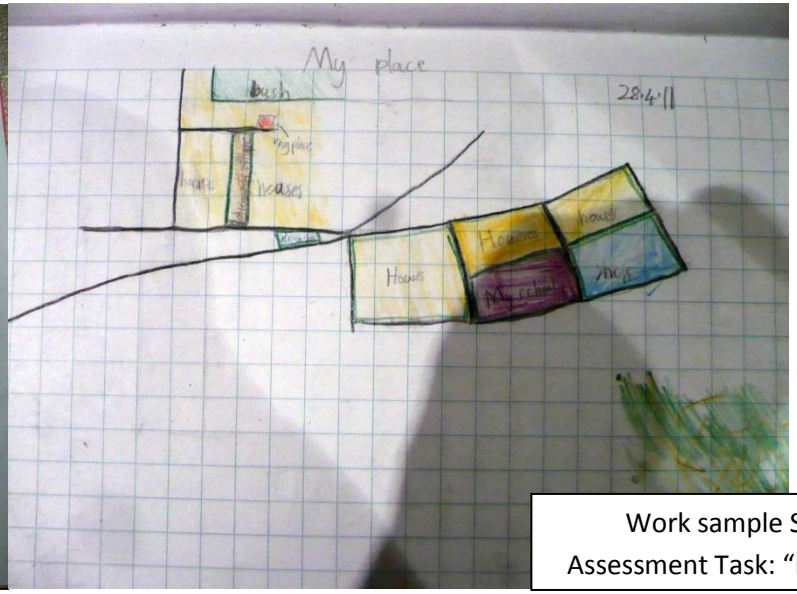
Syllabus Strands: Working Mathematically, Number and Algebra, Measurement & Geometry, Statistics and Probability
Substrands: Position, Time, Data, Whole Number

Using *My place* as a Learning/Teaching Tool:

My place been 'mapped out' on the planning scaffolds provided in this package. Many pages in this picture book offer possibilities to work across strands or integrate learning experiences with other Key Learning Areas. Table1, *My place* – Related Syllabus Outcomes and Key Ideas and Table 2, *My place* – Content and Language provide examples of documentation that could be included in a mathematics program for registration. Selecting an area of focus, the learning/teaching sequence and the purpose for each lesson is at the discretion of individual teachers based on the learning needs of their students. Refer to the *Mathematics K–10 syllabus* for background information and a complete learning sequence, in conjunction with a comprehensive list, and further explanation, of the language related to each strand and substrand.

Linking literacy and numeracy supports student understanding of the mathematical ideas in this picture book. The sample lessons for Stage 2 focus on problem solving in the substrands of position and data through visual representation and student recording of investigations. They aim to demonstrate a conceptual approach to learning and teaching within a whole class context that supports student learning through a paired structure. 'Like ability' pairings generally work well, except in lessons with high literacy content, when 'more able with middle' and 'middle with less able' is often more successful.

Work sample Stage 2
Assessment Task: "Bike Track"



Work sample Stage 2
Assessment Task: "Initial Map"

Table 1: *My place* – Related Syllabus Outcomes and Key Ideas

Stage 2	Stage 3
Working Mathematically **Communicating** MA2-1WM uses appropriate terminology to describe, and symbols to represent, mathematical ideas **Problem Solving** MA2-2WM selects and uses appropriate mental or written strategies, or technology, to solve problems **Reasoning** MA2-3WM checks the accuracy of a statement and explains the reasoning used **Number and Algebra** **Whole Numbers** MA2-4NA applies place value to order, read and represent numbers of up to five digits • Counts forwards and backwards by tens from any starting point • State the place value of digits in numbers up to five digits • Read, write and order numbers up to five digits **Time** MA2-13MG reads and records time in one-minute intervals and converts between hours, minutes and seconds • Read and interpret simple timetables, timelines and calendars **Data** MA2-18SP selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays • Plan methods for data collection • Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs (one-to-one correspondence) • Interpret and compare data displays • Select and trial methods for data collection, including survey questions and recording sheets • Construct data displays including tables, column graphs and picture graphs of many-to-one correspondence Evaluate the effectiveness of different displays	**Working Mathematically** **Communicating** MA3-1WM describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions **Problem Solving** MA3-2WM selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations **Reasoning** MA3-3WM gives a valid reason for supporting one possible solution over another **Number and Algebra** **Whole Numbers** MA3-4NA orders, reads and represents integers of any size and describes properties • Read, write and order numbers of any size • State the place value of digits in numbers of any size **Time** MA3-13MG uses 24-hour time and am and pm notation in real-life situations, and constructs timelines • Determine and compare duration of events • Interpret and use timetables **Data** MA3-18SP uses appropriate methods to collect data, constructs and interprets data displays, and analyses sets of data • Poses and refines questions and collects categorical and numerical data • Creates data displays, including tables, column graphs, line graphs and dot plots appropriate for data type • Describe and interpret data presented in tables, column graphs, line graphs and dot plots • Compare a range of data displays to determine the most appropriate display for the data type

Table 2: *My place* – Content and Language

Strand/Substrand	Page Reference	Language Stage 2 **(bold type indicates new language or new context for language in this this stage)**	Language Stage 3 **(bold type indicates new language or new context for language in this this stage)**
Whole Numbers	Whole number concepts are embedded in the content of most pages. They can be used as a basis for warm up activities at the beginning of a lesson.	number before, number after, more than, **greater than**, less than, **largest number**, **smallest number**, **ascending order**, **descending order**, digit, zero, ones, groups of ten, tens, groups of one hundred, hundreds, **groups of one thousand**, **thousands**, **tens of thousands**, **place value**.	Ascending order, descending order, zero, ones, tens, hundreds, thousands, tens of thousands, **hundreds of thousands**, **millions**, digit, place value, expanded notation, round to, **whole number**, **factor**, **integer**, **prime number**, **composite number**,
Time	Time moves backwards from 1988. A decade passes with the turn of each page. Concepts of time are embedded in the narrative of each decade.	time, clock, analog, digital, hour hand, minute hand, **second hand**, **revolution**, numeral, hour, minute, second, o'clock, **(minutes past)**, **(minutes) to**, **timetable**, **timeline**, **midday**, **noon**, **midnight**, **am (notation)**, **pm (notation)**.	**12-hour time**, hour, minute, second, am (notation), pm (notation), timetable, timeline, **scale**.
Position	The most complex maps are found in the first few pages of the book and become simpler as land use and people are represented in each decade.	position, location, map, plan, path, route, grid, grid reference, aerial view, directions. legend, key, scale **compass**, **compass rose**, **north**, **east**, **south**, **west**, **north-east**, **south-east**, **south-west**, **north-west**.	position, location, map, plan, **street directory**, route, grid, grid reference, legend, key, scale, directions, compass, north, east, south, west, north-east, south-east, south-west, north-west.
Data	Information about people and places is represented in a variety of forms throughout the book as land use and people changes over time.	information, data, collect, category, display, symbol, list, table, **column graph**, picture graph, **vertical columns**, **horizontal bars**, equal spacing, **title**, key, **vertical axis**, **horizontal axis**, **axes**, **survey**, **recording sheet**, **rating scale**, **misleading**	data, survey, category, display, **tabulate**, table, column graph, vertical columns, horizontal bars, equal spacing, title, **scale**, vertical axis, horizontal axis, axis, axes

Lesson Plan: Introduction to *My place*

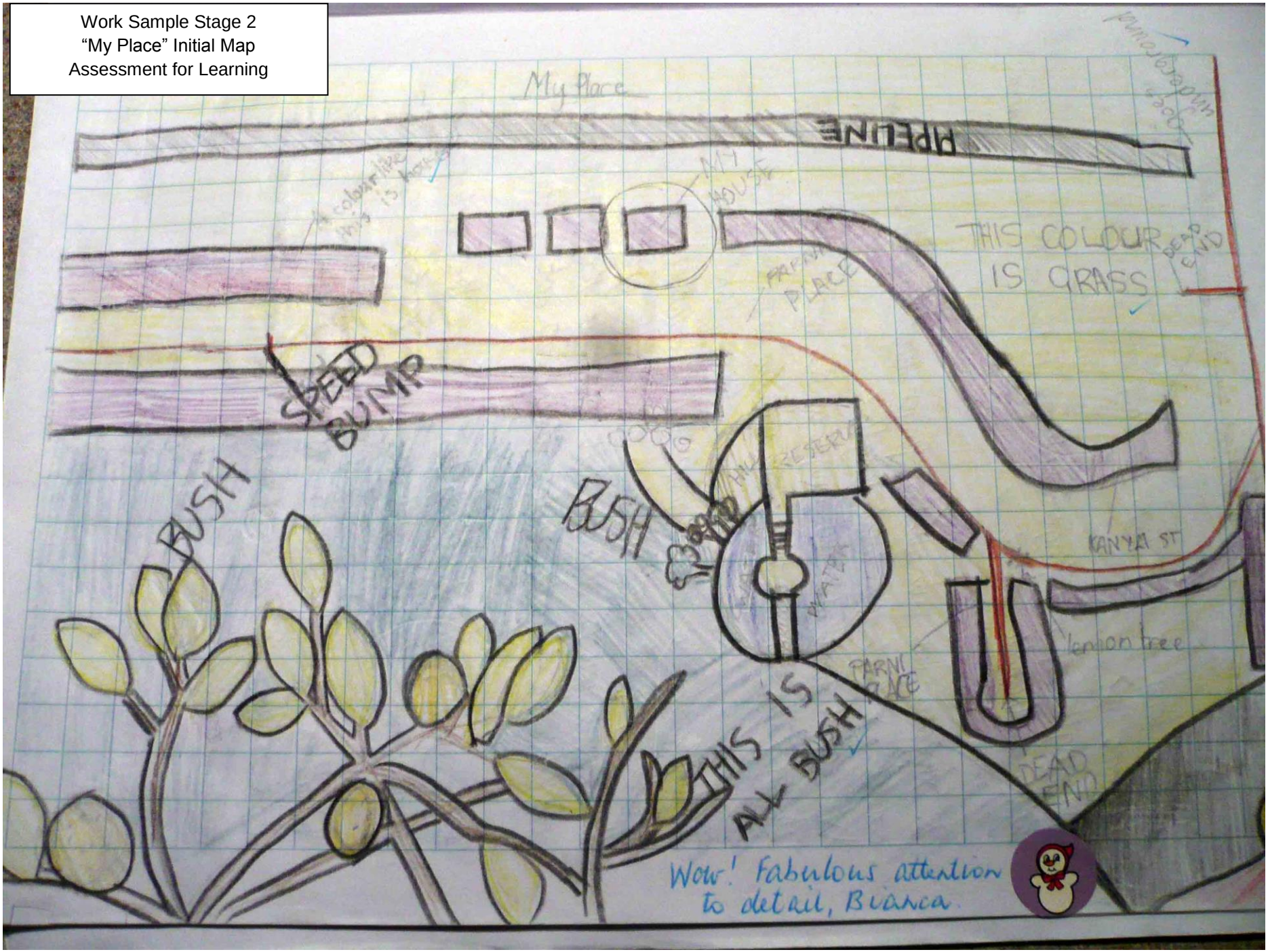
Stage: 2 **Strand/s: Measurement & Geometry Statistics and Probability Working Mathematically** **Substrand: Position Data**

Purpose	1. To gather information about the local environment through observation and represent it in different forms.		
Quality Teaching Framework	Intellectual Quality	Quality Learning Environment	Significance
	Substantive Communication	Engagement	Inclusivity
Outcomes	**Communicating** MA2-1WM uses appropriate terminology to describe, and symbols to represent, mathematical ideas **Reasoning** MA2-3WM checks the accuracy of a statement and explains the reasoning used	**Position** MA2-17MG uses simple maps and grids to represent position and follow routes, including using compass directions	
Key Ideas	**Position** Draw and describe simple maps and paths Determine directions N, E, S, W & NE, SE, SW, NW given one of the directions Interpret legends and directions on maps **Data** Plan methods for data collection Interpret and compare data displays		
Introduction	1. Think/Pair/Share What can we hear in our school environment? 2. Study a 'bird's eye view' map of the school grounds showing buildings, playground areas, etc. and discuss representation of the various features. 3. Introduce the notion of creating a map based on the 'sounds' in the school environment and ask what they might be.		
Concept Development	1. Working with their numeracy partner, students travel to various parts of the school and record the sounds they hear on their map. Encourage students to listen carefully/make notes in each location (15 – 20 minutes). 2. Return to the classroom and brainstorm the sounds heard. Discuss the frequency of certain sounds and possible reasons for this (Combined pairs/Whole class).		
Strengthening the concept	1. Ask "How might these sounds be represented on a map of the school without using words?" 2. Working with their partner, ask students to design symbols for two of the sounds and share them with another pair. 3. Invite pairs of students to draw their symbols on the board and explain why they are an appropriate representation of the sound heard. Ask "If we were to use these symbols on a map, how would we know what they mean?" Lead discussion to an understanding of a legend or key. 4. Give each student a fresh map of the school. Ask them to create a symbol for each sound they heard, design a legend and draw symbols at appropriate locations to create a "Sound Map" of the school environment (see work sample).		
Reflection	Students share their "Sound Map" with their numeracy partner and discuss whether they provide an accurate representation of the sounds in the school.		
Notes: These notes provide ideas for a learning/teaching sequence to follow this introductory lesson. *My place* provides a springboard for more formal aspects of position.	1. Materials: 2 maps per student, pencils, clipboards, coloured pencils 2. Understanding the changing landscape in *My place* requires detailed observation. This lesson is an introduction to things that children might not otherwise notice and sparks interest in their local environment. 3. Careful questioning will support communication and reasoning in this lesson. 4. The follow up lesson collates class data on a table using tallies from which students create a column graph. (see work sample) 5. Following this lesson, teachers should introduce Nadia Wheatley's *My place*. Every page provides opportunities for discussion. Exploring this book works best when students can share a copy to take in the detail. 6. Once students are familiar with the informal maps and the "chatty" labelling style of artist Donna Rawlins, a useful *Assessment for Learning* comes from asking them to close their eyes and 'picture' their place and then drawing their own *My place* map in their grid books, in the style of Donna Rawlins. 7. Learning experiences built around following directions, describing mystery locations, mapping activities involving grid references, etc. will all support student understanding 8. Common Assessment Tasks such as "The Bike Track" from The Assessment resource Centre (ARC) can be incorporated in a unit of work. 9. A suggested *Assessment of Learning* requires students to write their own "My Place" story that covers one decade of their life and create a detailed *My place* map (see work samples) 10. As these tasks are open-ended, lessons or a unit of work can be tailored for Stage 3 students.		

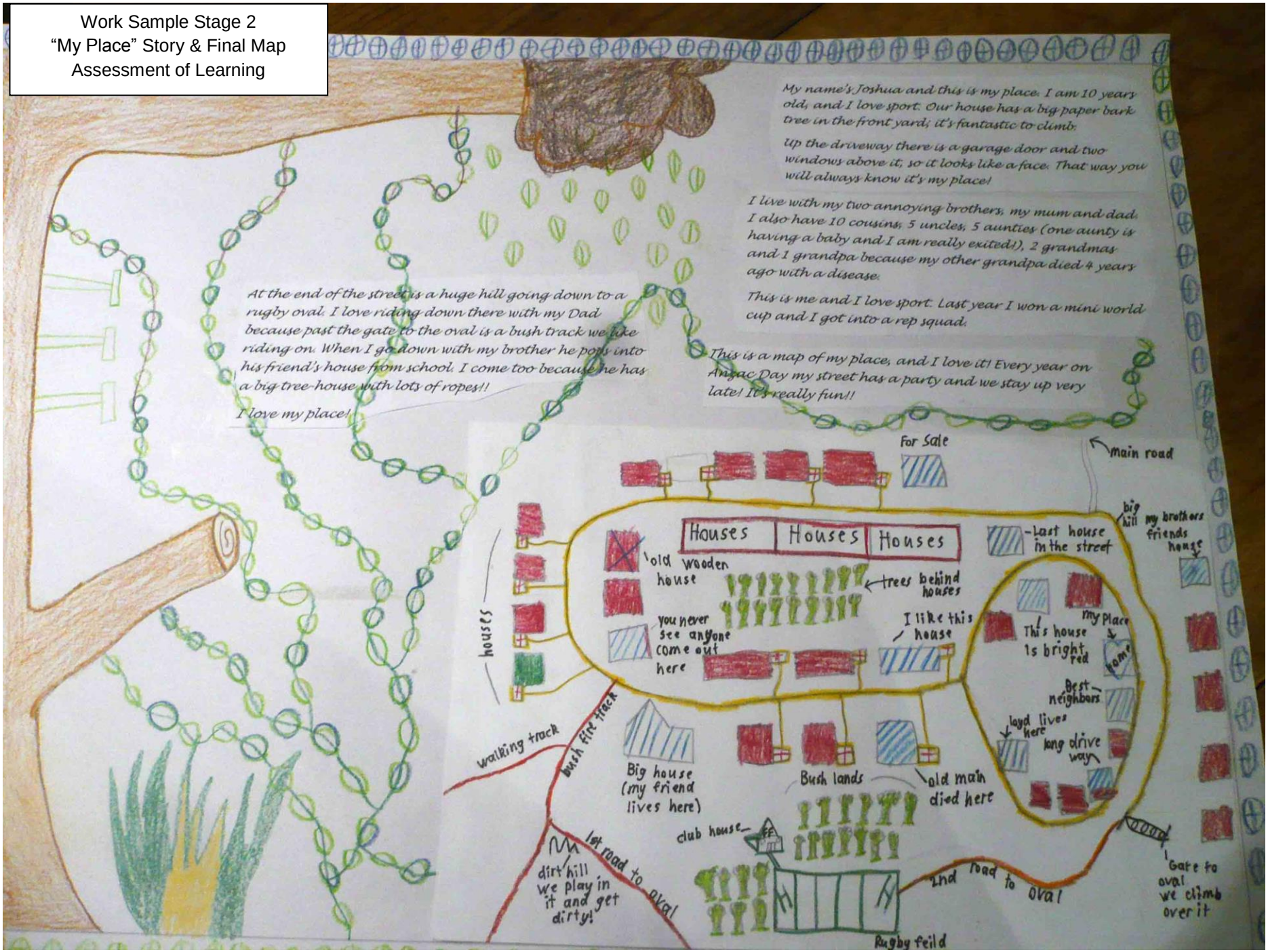
Programming format adapted from The Maths Unit, DEC 2012

Targeted for assessment

Work Sample Stage 2
"My Place" Initial Map
Assessment for Learning

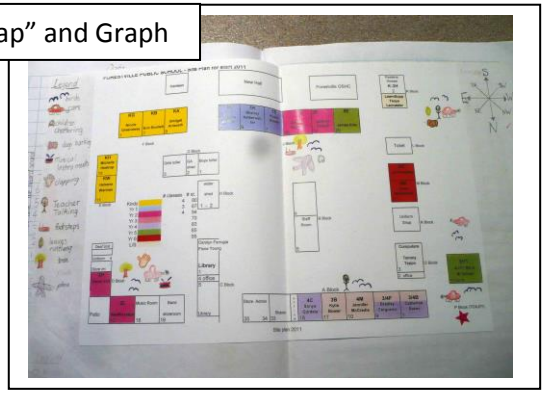


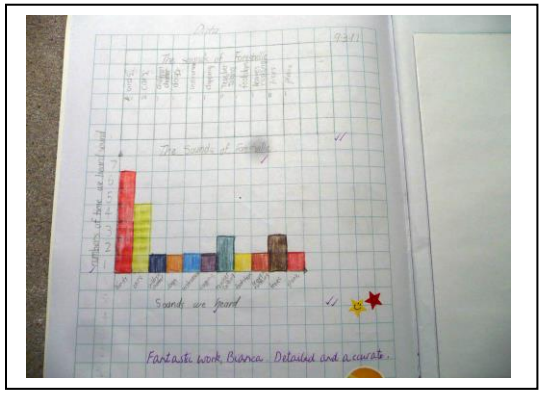
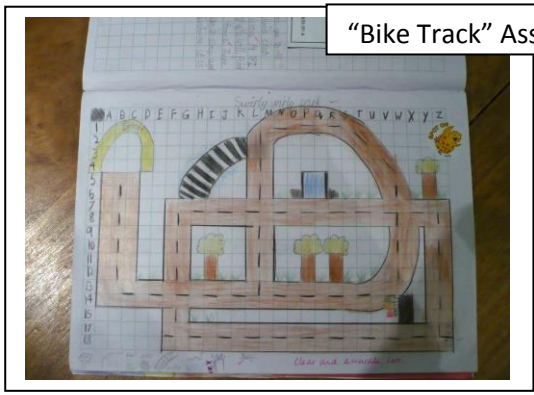
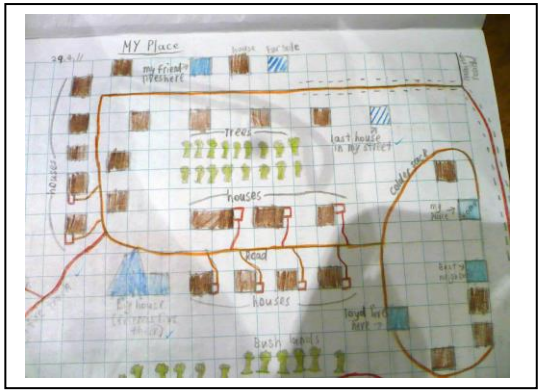
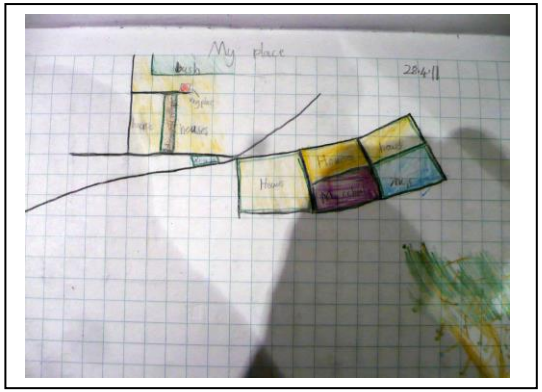
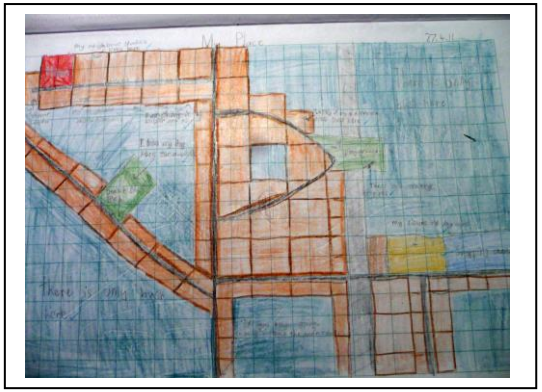
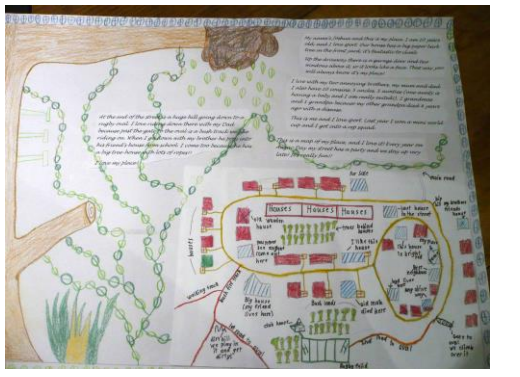
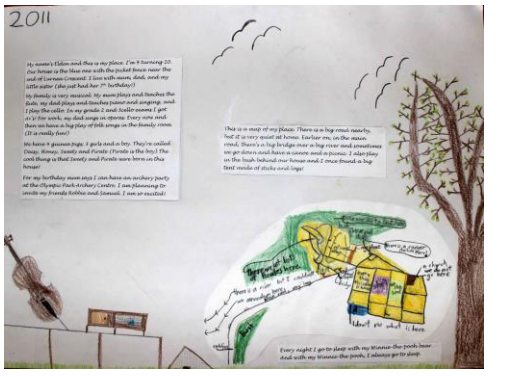
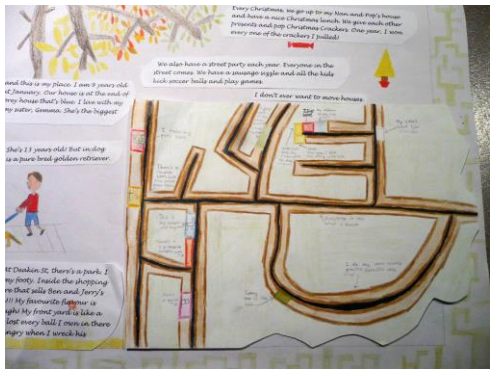
Work Sample Stage 2
"My Place" Story & Final Map
Assessment of Learning



Student Work Samples Stage 2 *My place* Position & Data

"Sound Map" and Graph





"Bike Track" Assessment