**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | STRAND: Measurement and Geometry | **SUB-STRAND:** Position 1 | **WORKING MATHEMATICALLY:** MA1-1WM  |
| OUTCOMES: MA1-16MG | * R**epresents and describes the positions of objects in everyday situations and on maps**
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| **CONTENT:**  | * **Give and follow directions to familiar locations (ACMMG023)**
* Describe the path from one location to another on drawings http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png
* use a diagram to give simple directions (Communicating)
* create a path from one location to another using computer software (Communicating) CT
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Students are given a simple map of a playground with a starting point and they must describe how to arrive at a designated point using correct terminology.
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| WARM UP / DRILL | * **Game: Lions and Rabbits (variation on cat and mouse)**

Students line up in two lines facing the front of the room/playground (with a partner next to them in the opposite line)The line on the left is called “lions” and the line on the right:” rabbits”.When the teacher calls “Lions”, the rabbits must turn to face the left and chase the lions to tip them before they reach the wall/fence. Alternatively, when “Rabbits” is called, the lions must turn to the right and chase them down.No winner is necessary, but if choosing to do so, the winning team each round must allocate a ‘punishment’ to the loosing team- such as: 10 star-jumps, 3 push-ups, 5 sit-ups etc. Concluding the game, discuss why we may have used Lions and Rabbits as team names and can they come up with another direction words beginning with R and L. Revise Right and Left from previous lesson. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | In the classroom, Lucy sits in the back row. Jack is to her left and Ben is on her other side. In front of Jack is Sarah. On Sarah’s right is Billy. Beside Billy is Megan.Who sits in front of Lucy?  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | aerial photo or tourist-style map; materials to make a simple model; Lego; toys, pictures and junk materials to use for the model and in the barrier game; blocks; grid paper; computer; spreadsheet program. |

 **TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Following the warm-up, discuss positional terminology and make a quick list of all the words children can come up with. Call students to the board one at a time and see if they can match similar words : eg. next to/beside, under/beneath etc. Alternatively, get students to match opposites Eg. near/far, close to/far from, under/over. * Take photographs of the children showing each different term for display in the room. Ie: Billy is behind the tree. Jack is beneath the seat. James is above the drain. Megan and Kate are beside the fence. The boys are to the right of the basketball hoop etc.
* **Model from a Photograph or Map**
* The teacher accesses an aerial photograph or a tourist-style map eg a map of the zoo, a local town. Students make a simple model from the photograph or map using small toys, blocks and junk materials.
* Students discuss the position of objects in relation to other objects.

Possible questions include:* can you plan a route that takes you from one location to another? Discuss the differences and similarities between various routes. Ask:
* what difficulties did you encounter when you built your model?
 | LEARNING SEQUENCERemediationES1  | * Barrier Game. In pairs, give students a pile of position word flash cards and have one student draw a card and place a counter/toy/shape block etc. on their side of the barrier. Their partner must do the same, but cannot see their partner’s. After Partner 1 has given 6 directions, The barrier is removed and the children must check to see that they have the same configuration as each other. Discuss what make a good instruction and how they can be clear. Partner 2 then has a go drawing 6 new flash cards.
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| LEARNING SEQUENCES1 | * Investigation:

**Find my Special Place**In pairs, students select a ‘special place’ near the classroom or in the school. They write instructions using left and right turns and include references to special features and landmarks to lead to their special place. Students swap instructions and then try to locate their partner’s special place.* Individually: Students must draw a simple map and they must mark on it how to arrive at their partner’s special place.
* Ask the students to direct the teacher (individually) to an object or spot in the room using only correct terminology.
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| LEARNING SEQUENCEExtension Early S2 | * **Spreadsheet Directions**

In pairs, students work on the computer using a spreadsheet program. Student A puts their name or initials in a cell. Student B chooses a different cell on the page, and puts their name or initials in it. The students take turns in finding a path from A to B, by using the arrow keys and placing an × in every cell they have used to create the path.Possible questions include:* can you find a longer /shorter path?
* can you write directions for a stepped path?
* is there a more direct route?
* can you create a path with 20 steps?

Students plan a path using grid paper and write directions using terms ‘up’, ‘down’, ‘left’, ‘right’ and ‘across’. In pairs at the computer, students open a spreadsheet program. Student A tells Student B where to put the Xs for the start and finish positions. While Student A gives directions, Student B plots the path by placing an x in every cell using the arrow keys to move. Student A checks Student B’s path on the computer against previously drawn one on grid paper. They then swap roles. |
| **EVALUATION & REFLECTION** | Questioning: What were some of the better position words to use? Which are the least confusing?Observational notes: Were the students able to use position words correctly? Could they make links between the drawn maps and idea of position? |