

# Booragul Public School NSW Syllabus for the Australian Curriculum – Measurement & Geometry

## Sub Strand – Position 2

| Outcome   | Teaching and Learning Activities | Notes/ Future Directions/Evaluation  | Date |
|---|----------------------------------|--|------|
| <b>Stage 2</b><br>A student: <ul style="list-style-type: none"> <li>› uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM</li> <li>› uses simple maps and grids to represent position and follow routes, including using compass directions MA2-17MG</li> </ul>  |                                  | <b>Language</b><br>Students should be able to communicate using the following language: position, location, map, plan, <b>legend, key, scale</b> , directions, <b>compass, compass rose, north, east, south, west, north-east, south-east, south-west, north-west</b> .<br>The word 'scale' has different meanings in different contexts. Scale could mean the enlargement or reduction factor for a drawing, the scale marked on a measuring device, a fish scale or a musical scale. |      |
| <b><u>Ignition Activity</u></b><br><br><b>Treasure Adventure Hunt</b><br>Introduce a story of long ago when the land on which the school now sits was bush and over ran by robbers/thieves/pirates. Produce part of an aged map depicting the school from many years ago highlighting one key landmark such as an old tree etc. Continue the narrative of lost treasure and introduce the task of locating all the parts of the treasure map as we work through the unit – each task may even give us a clue to where the next part of the map is.<br>As students continue to work through the unit at various times produce the next part of the treasure map to piece together and locate the treasure. |                                  |  |      |
| <b>Google Maps</b><br>Students access 'Google maps' via the internet or as a whole class on an interactive whiteboard. Explore the website.<br><a href="http://maps.google.com.au/maps?hl=en&amp;tab=wl">http://maps.google.com.au/maps?hl=en&amp;tab=wl</a>  |                                  |  |      |
| <b>Buried Treasure</b><br>The teacher hides mystery objects and gives simple compass directions and distances in paces from a starting point to enable students to find the objects.<br><i>Variation:</i> Students work in groups and carry out searches to find objects.   |                                  |  |      |
| Construct a simple map of their own bedroom using an arrow to represent north.  |                                  |  |      |
| <b>Positional Concentration</b><br>Students shuffle a pack of cards or part of a pack and place the cards face down in rows. In pairs, students take turns in instructing the other student, using the language of position, which cards to turn over eg north, south, east, west, NE, SE, SW, NW. The aim of the game is to turn over two cards that match. If the two cards turned over match, then the student who gave the instruction wins the cards and has another turn. If the two cards do not match they are turned back over in the same position and  |                                  |  |      |

the other player has a turn.  
The winner is the student who has the most cards when all the cards have been matched.

### **N,E,S,W Game**

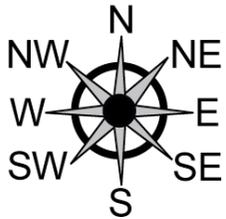
Students make up a saying to remember N,,E,S,W (eg Never Eat Soggy Weetbix)  
Use N,E,S,W dice (Make up from blank dice) and number dice to follow directions eg N5 on a grid. Move from bottom of grid to top of grid to win. If they cannot move, they miss a turn.

## **Explicit Mathematical Teaching**

Use simple scales, legends and directions to interpret information contained in basic maps

(ACMMG090)

- use a legend (or key) to locate specific objects on a map
- use a compass to find north and then east, south and west
- use N, E, S and W to indicate north, east, south and west, respectively, on a compass rose
- use an arrow to represent north on a map
- determine the directions north, east, south and west when given one of the directions
- use north, east, south and west to describe the location of a particular object in relation to another object on a simple map, given an arrow that represents north, eg 'The treasure is east of the cave'
- use NE, SE, SW and NW to indicate north-east, south-east, south-west and north-west, respectively, on a compass rose, eg



- determine the directions NE, SE, SW and NW when given one of the directions
- use north-east, south-east, south-west and north-west to describe the location of an object on simple maps, given a compass rose, eg 'The tree is south-west of the sign'
- calculate the distance between two points on a map using a simple given scale
- use scales involving multiples of 10 to calculate the distance between two points on maps and plans
- interpret simple scales on maps and plans, eg 'One centimetre on the map represents one metre in real life' (Reasoning)
- give reasons for using a particular scale on a map or plan (Communicating, Reasoning)
- recognise that the same location can be represented by maps or plans using different scales

# Whole Class Activities

## **Mystery Location**

Students are asked to describe the location of an object in the classroom eg 'North, east, south, west'. Students write a description of the object using positional clues. The teacher collects the clues and reallocates them back to the students. Students read the descriptions and locate the object.  
*Extension:* In pairs, Student A hides an object in the room while Student B turns away. Student A gives Student B directions to find the hidden object. Student B then has a turn at hiding the object.

## **A and B**

The teacher provides each student with grid paper marked with coordinates. Students are asked to draw a map of the room or playground using the grid paper. They are asked to include an arrow on their map to indicate North. Students choose two room or playground features and label them A and B. They determine the set of co-ordinates for A and B and use directional language to describe the location of other room/playground features related to A and B. In groups, they brainstorm the positional language required to complete the activity. Students then calculate the distance between two points on the map using a simple given scale.

## **Classroom Grids**

### **Part A**

Students arrange desks in rows and columns. Each line (column) of desks is given a name or colour. Each desk in the line is given a number, starting with 1 at the front, from left to right. Students give a grid position for each class member. This could lead to games in which students are identified by their grid position and where students are assigned to seats according to grid position.

### **Part B**

In pairs, students are given a 10 × 10 grid. They label the axes then draw pictures on the grid. Students take turns using coordinates to describe the position of each picture.  
*Variation:* Students could play a Battleships game.

## **Body Turns**

The teacher marks the four major compass directions on the ground. Students face north. Students are asked to turn left or right in quarter turns and state in which direction they then face. Students are given north and are then asked to face particular compass directions. Students record on a compass rose. Students are then asked to face a place in the playground and name the direction they are facing.  
*Extension:* NE, NW, SE and SW are introduced to enable students to describe places that lie between N, S, E and W.

## **Using a Compass**

In small groups in the playground, students use a compass to locate the directions N, S, E and W. Students mark on the ground a grid with sufficient spaces for each student in the group to have a space of their own. A leader is chosen and blindfolded to call out compass directions ie North, South, East, West. Students follow the directions, moving one grid space at a time, until they are off the grid and 'out'. Players must call 'I'm out' when they are off the grid. The last student to survive wins and becomes the new leader. The

game can be extended, giving directions of North-East, North-West, South-East and South-West. Students could experiment with rule changes to add further interest to the game.

*Variation:* Students could do the same activity in the classroom using grid paper.

### Maps

Students are given atlases and/or road maps and are asked to locate north and then find other compass points. Students use a compass rose and use N, S, E or W to describe the location of a point on a map. Students are asked to find places on a map that are in a given direction from a starting point eg find a town which is due north of Cairns. Students are asked to pose their own questions using directional language.

On a map of Australia students locate Alice Springs. They then locate places NE, NW, SW, SE of there. Students describe the location of the places in relation to Alice Springs and record using a compass rose. Students use scales on maps involving multiples of 10 to calculate the distance between two points. Students also use a legend to locate specific objects on a map.

## Guided Group/Independent Activities

Orienteering activity - follow directions to find hidden treasure

Previous NAPLAN Questions-2008

5 Adam put some stickers on this grid.

|   |   |   |   |   |
|---|---|---|---|---|
| 4 |   |   | ☀ |   |
| 3 | 😊 |   | ♥ |   |
| 2 |   |   |   |   |
| 1 |   |   | ☆ |   |
|   | A | B | C | D |

Which sticker is at C3?



7 In this photo, Con is in the back row second from the right.

Shade one bubble.



What number is on Con's jumper?

2



3



4

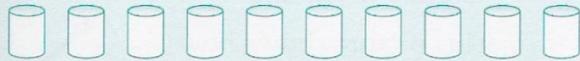


5



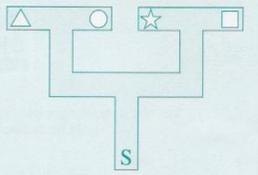
BST 2004-Yr 3

1. Colour the fifth tin from the left.



BST 2004

G. Colour the way from S to the star.



BST 2002



|   |  |  |
|---|--|--|
| <p>given coordinates and the coordinates of given locations, and pose their own questions based on the map. As an extension, provide students with a map that has no coordinate system and they design a coordinate system that could be used. They give directions using coordinates or compass points</p>   |  |  |
| <p><b>Pre Assessment</b><br/>         Use a compass rose to label as many directions as possible<br/><br/>         Use a grid to follow given directions<br/>         Write directions to get from A to B to E to C on a map following shortest route<br/>         Use a compass rose to label directions<br/>         (Working Beyond - label points of North-Northwest etc 8 extra points on compass)</p> |  |  |