YuMi Deadly Maths

Year 2 Teacher Resource:

MG – Out and about

Prepared by the YuMi Deadly Centre
Faculty of Education, QUT

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QUT

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Growing community through education

ACKNOWLEDGEMENT

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Year 2 Measurement and Geometry

Out and about

Learning goal	Students will interpret simple maps and identify the relative positions of key features.
Content description	Measurement and Geometry – Location and transformation • Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)
Big idea	Geometry – location – interpretation vs construction
Resources	Large 100/99 board outside; Maths Mat, digit cards, treasure objects, e.g. doll, truck, snake; materials for 3D construction

Reality

Local knowledge	Students tell stories about times they have followed directions to find their way through a maze puzzle; traced a pathway to follow the animal to its home; or when their parents have used a map, e.g. the satellite navigation devices in the car that tell and show the road to take; maps in the shopping centres that show how to get to the shop you want; signs on the highway that point the directions for places/roads. Look at a map of Queensland showing rivers, cities and discuss features. Read a story about children losing or finding their way, e.g. *Hansel and Gretel*.
Prior experience	Focus on classroom first in checking that students know and understand the language of position: *Who sits next to (in front of, behind) you? Which students do you sit between? Show me your right (left) hand. Have you ever lost your way? What helps you to know where to go?*
Kinaesthetic	Out and about: Go for a walk from the classroom to the Principal's office. Count the number of steps it takes to go along each path before you need to turn. Discuss number of steps taken from one section to another. *Did everyone take the same number of steps? Why would there be any difference in the number of steps? Which way do you need to turn: is it right or left? Which buildings do you pass? What building is next to the library? Is the Principal's office near to or far away from your classroom? Is there a plan or map of all the school buildings close to the Principal's office? Did you pass any gardens or a flagpole? Do any of the buildings have a name?* Discuss all the features as the class goes on its walk. Draw a map of the school as part of the walk.

Abstraction

Body	100 board: Place all the students on squares in the middle of the 100 board so there is a border all around for room to move. Give positional directions, e.g. *All: move one step forward, two steps to the right, three steps backwards, change places with the person on your left, go three steps backwards, one step to your left, change places with the person behind you.* Maths Mat: In turn, students are given directions to find the treasure which is placed in a square on the mat. The student starts from the bottom left-hand corner and the teacher calls the directions, e.g. *take two steps forward, three steps to your right, one step backwards*. The teacher stops before the student reaches the treasure and the student has to say what direction and number of steps are needed to reach the treasure. Students can continue the treasure hunt giving one another directions but always stopping before the treasure is reached to reverse the activity where the student on the mat needs to work out the direction and steps to take.

Hand

Do the following:

- Have students draw their own map of how to get from the classroom to the Tuckshop.
- Teacher models and students draw a map of how to get from the classroom to the Principal's office.
- As each path is drawn, the number of steps may be recorded (if the students can remember how many; this may be shortened to a length comparison – *was this path shorter or longer than the previous one?*).
- Mark forward arrows at the start of the drawing and right or left arrows up or down for the turns.
- Any features that were noted on the walk should be included on the drawing, e.g. gardens, trees, flagpole.
- A rectangle, standing for a building, could be drawn beside the appropriate path.
- Name the drawing: *Map: Year 2 classroom to Principal's office*.
- If possible, compare teacher's and students' maps with the official school map of this route.

Mind

Close your eyes and imagine … the route you take to get from school to home; how you get to your friend's place; how you get to the shops. With eyes still closed, in your mind see the way you would turn right and show this with your hand, the way you would go forwards, the way to go left, and so on.

Creativity

Students make a personal map that represents the way they go to a familiar place, e.g. classroom to library. Use arrows for directions and drawings/symbols for features, e.g. trees, gardens.

Mathematics

Language/ symbols

bird's-eye view, between, near, far, next to, under, on, beside, above, below, left, right, plan, map, features, behind, in front, close, grid, position, location, directions

Practice

1. Share their personal map with a partner and have the partner describe the directions from one place to another and listen to directions and find the correct place.
2. Make a 3D representation of the route from the classroom to the Principal's office. Include features and write labels for buildings. Name the map.
3. From the students' drawings of the school in the kinaesthetic activity, make a class papier-mâché map of the school or draw the map of the school on a mat.
4. Have students look down from the top of the 3D construction. *Does it look different from holding it at eye level? What do you see when you look directly down over the construction? What do you see when you hold it at eye level and look straight across? Looking down from over the top is called the bird's-eye view. We are like the birds in the trees looking down at us and seeing our hats.*

Connections

Plans of houses, map of Australia, the world.

Reflection

Validation

Students see in their world how they use directions and maps, e.g. when they help a Prep student to find the way to the Tuckshop.

Application/ problems

Provide applications and problems for students to apply to different contexts independently, e.g. *Design a maze and see if your friend can find the way out.*

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Extension

Flexibility. *Find and draw as many ways as you can to get from the classroom to the Principal's office*.

Reversing. Students are able to point to a map and give directions from one place to another and reverse by listening to or reading directions and following directions to find the place on the map.

Generalising. *Maps show us where places are in relation to other places/features. They show whether places are near or far apart. They help us to find our way*.

Changing parameters. *Maps are used in many ways. Builders use a map that they call a "plan" to help them know where to put walls and how long to make the walls. Interior designers make a plan of the room to see how the furniture will look. Draw a plan to show your ideal bedroom.*

Teacher's notes

- Check that students are aware of the comparative distances between points on their map of the route to the Principal's office. Questions regarding *longer/shorter/same distance as* prepare students to relate to scale.
- Students need to be taught the skill of visualising: closing their eyes and seeing pictures in their minds, making mental images; e.g. show a picture of a kookaburra, students look at it, remove the picture, students then close their eyes and see the picture in their mind; then make a mental picture of a different bird.
- Suggestions in Local Knowledge are only a guide. It is very important that examples in Reality are taken from the local environment that have significance to the local culture and come from the students' experience of their local environment.
- Useful websites for resources: www.rrr.edu.au; https://www.qcaa.qld.edu.au/3035.html
- Explicit teaching that **aligns with students' understanding** is part of every section of the RAMR cycle and has particular emphasis in the Mathematics section. The RAMR cycle is not always linear but may necessitate revisiting the previous stage/s at any given point.
- Reflection on the concept may happen at any stage of the RAMR cycle to reinforce the concept being taught. Validation, Application, and the last two parts of Extension should not be undertaken until students have mastered the mathematical concept as students need the foundation in order to be able to validate, apply, generalise and change parameters.