

YuMi Deadly Maths

Prep Teacher Resource: **NA – Pattern hunt**

Prepared by the YuMi Deadly Centre
Faculty of Education, QUT





ACKNOWLEDGEMENT

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Prepared by the YuMi Deadly Centre
Queensland University of Technology
Kelvin Grove, Queensland, 4059

ydc.qut.edu.au

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Prep Number and Algebra

Pattern hunt

Learning goal	Students will copy, describe and continue simple repeating patterns.
Content description	Number and Algebra – Patterns and algebra <ul style="list-style-type: none">Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings (ACMNA005)
Big idea	Algebra – repeating patterns
Resources	Attribute material, geo-mat

Reality

Local knowledge	Patterns in the local environment animals (e.g. lizards/snakes, bees, birds); sand, brickwork, tiles; day's routine, music, drawing, clapping, dancing. <i>What makes a pattern?</i> Discuss objects in environment that don't make a pattern.
Prior experience	Paintings, cultural dances, clothes that have stripes, patterns in fabrics, arrangements of materials.
Kinaesthetic	Patterns: Students continue and describe the pattern: <ul style="list-style-type: none">boy, girl; repeat in lines of tenone student looking front, next student turned around looking backone student feet together, next student feet apartone student with hands above head, two students with hands stretched out in front.

Abstraction

Body	Repeating patterns: Students make the pattern from description; reverse and describe the given patterns: <ul style="list-style-type: none"><i>Movement patterns.</i> Two hops, one jump; walk three steps forward and one step backwards.<i>Clap patterns.</i> Hands: long, long, short, short, short. Feet: right foot tap – fast, rat-a-tat, rat-a-tat; left foot – slow, 1, 2, 3 stomps.<i>Voice patterns.</i> High – ha, ha, ha; low – ho, ho. Fly away, fly away, fly away home, loud then soft.
Hand	Students describe and copy given repeating patterns using one element (colour or shape); long/short straws, green/yellow blocks, circle/triangle.
Mind	Students shut their eyes and think of a pattern they can see, e.g. red and blue blocks; football/soccer ball. Students explain the pattern they see and ask other students to make and see the same pattern.
Creativity	Students choose their own media, e.g. printing, collage, manipulatives, electronic images, to create a repeating pattern using two different elements and explain why it is a pattern; e.g. flowers of different colours, vegies – tomato/lettuce, bat/ball, trampoline/pool.

Mathematics

Language/symbols	pattern, same, similar, describe, copy, non-pattern, repeat, repeating, rule, continue, explain, colour, shape, size, direction, loud, soft, fast, slow, visual, aural, create patterns
Practice	Activities are language based.

1. Students copy and continue patterns; identify repeating element.
2. Students make and describe their own patterns using two different manipulatives; explain why it is a pattern. *What is the repeating part?*
3. In pairs, students continue each other's patterns.

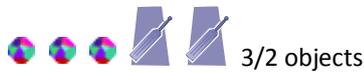
Connections Relate to repeating patterns in the seasons, fabrics, art.

Reflection

Validation Students identify situations where they see patterns in their world, e.g. day/night, colours in their uniform, fork/knife on the table for plates at dinner.

Application/problems Provide applications and problems for students to apply to different contexts independently, e.g. *Create your own repeating pattern using different colours for the tiles in your bedroom floor.*

Extension **Flexibility.** *Think of more than one way we can make patterns, e.g. direction (horizontal, vertical, diagonal), different materials, introducing different numbers of objects:*



Reversing. Give examples of and practice in going from making patterns to describing patterns, and from repeating part to pattern as well as pattern to repeating part (pattern ↔ show repeat).

Generalising. *Patterns are made when the same elements are repeated in the same order.*

Changing parameters. Identify missing elements in a pattern. Examine growing patterns.

Teacher's notes

- Use language-based consultation with students describing and explaining the repeating patterns.
- 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 shell, 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 shell.
- 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.