

# YuMi Deadly Maths

## Prep Teacher Resource: **NA – Spot the number**

Prepared by the YuMi Deadly Centre  
Faculty of Education, QUT



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## ACKNOWLEDGEMENT

We acknowledge the traditional owners and custodians of the lands in which the mathematics ideas for this resource were developed, refined and presented in professional development sessions.

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## Prep      Number and Algebra

### Spot the number

<b>Learning goal</b>	Students will recognise amounts to five without counting.
<b>Content description</b>	Number and Algebra – Number and place value <ul style="list-style-type: none"><li>• Subitise small collections of objects (<a href="#">ACMNA003</a>)</li></ul>
<b>Big idea</b>	Number – arrangement does not affect quantity; i.e. rearrangement without change in value
<b>Resources</b>	Cards with pictures of numbers arranged in different ways (e.g. straight line, array, circle), pack of playing cards, Small toys, counters, blocks

#### Reality

<b>Local knowledge</b>	<i>How many feet do you have? How many toes on each foot? Count how many children sit at the green table? How many school bags on the top row? Tell me the next number when I stop counting.</i>
<b>Prior experience</b>	Stories – How many? e.g. “Three Little Pigs”, “Hansel and Gretel”
<b>Kinaesthetic</b>	<i>Point to one nose; put up two arms; show me five fingers on one hand; now show me four fingers on the other hand; nod your head three times; show me two ears; clap your hands three times.</i> Reverse: Teacher shows a model and students clap how many.  Outside: Students find their own space where they are just on their own; turn around in a circle with arms outstretched. <i>How many are in – just your circle?</i> Make groups of 2, 3, 4, 5.

#### Abstraction

<b>Body</b>	<ol style="list-style-type: none"><li>1. Students form groups of a number, 1–5, nominated by the teacher. Each group finds different ways of arranging that number. Each group shares one of its arrangements with the class until all different ways have been demonstrated. Repeat for all numbers, 1–5.</li><li>2. Hands up: Teacher calls a number and flashes picture cards of numbers that are arranged in different ways in a jumbled pack. As soon as the identified picture number is shown, students raise their hands. The pictures are displayed for only a couple of seconds so that students must be able to recognise (e.g. “4”) without counting the pictures on the card.</li><li>3. How many fingers? Jumbled picture cards: Teacher displays a picture card and turns it over quickly. Students show the number of fingers that correspond to the picture.</li></ol>
<b>Hand</b>	Students are given small toys/counters/blocks – arrange in groups 1–5 as teacher nominates a number. <i>Arrange the number in as many different ways as you can.</i> Ask different students to describe their arrangements. Record arrangements on whiteboard beside the appropriate quantity.
<b>Mind</b>	Visualise: 1 flower; 2 trees; 3 apples; 4 balls; 5 stars; numbers randomly called with any attribute. Encourage students to see as many different arrangements of the number as possible. Draw dots in the air with their eyes closed.
<b>Creativity</b>	Students choose the arrangement/s they like best of each number and record each numeral and its arrangement/s in picture form.

#### Mathematics

<b>Language/symbols</b>	count, visualise, how many, quantity, total, arrange, next number
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## Practice

1. Packs of playing cards using only Ace to 5 shuffled and dealt into two or three hands. In turn, each player turns over a card from his/her hand and places it in the middle of the group. When two cards of the same number are turned over consecutively, the first player to call "Snap" wins the pile. Players drop out as they have no more cards to play. Player who gets all the cards is the winner.
2. Game – Snap the number: In pairs, cards with numbers 1–5 (different arrangements of dots for each number, all repeated many times). In pairs, children draw cards, turn the cards over, one by one, and the first to see a match, swats the pile and keeps the cards. Person with most cards wins.
3. Group activity: Lots of little cards/blocks – put material into a given number. *How did you group the material?*
4. Students tell stories about and show the different ways they can place 2, 3, 4, 5 counters.

## Connections

Relate to counting and number names.

## Reflection

### Validation

Students check to see whether objects in their world, e.g. books, toys, have the same number as the first time they are counted when they are arranged differently.

### Application/problems

Have students sit in small groups up to 5 in varying number groups. Teacher walks around, points to a group and asks, e.g. *How many books do I need for this group? How many pencils for this group?* Students call out the number in the group without counting. The same process could be followed with students moving around, making a group and then freezing in that group. Each group is then named according to the number in the group.

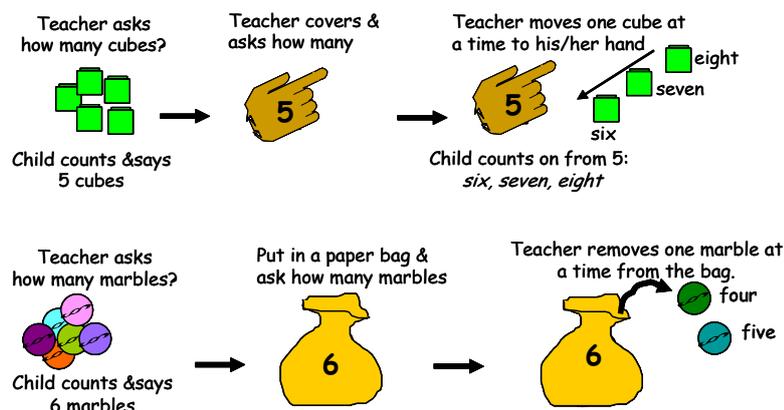
### Extension

**Flexibility.** Identify amounts to five within larger collections and show how the numbers may be arranged in different ways.

**Reversing.** Teacher shows numeral and students give a grouping/s and say the number; teacher shows a grouping and students give the numeral and say the number; teacher says a number and students show the numeral and grouping/s. Each time, a story or stories could be told to exemplify the situation.

**Generalising.** *The number will still be the same if we change how the blocks/counters look.*

**Changing parameters.** Subitise and then count on/back, for example:



## Teacher's notes

- Use language-based consultation with students describing and quickly identifying groups to five without counting. Hence, cards of objects in different number groups need to be flashed one at a time to develop students' ability to recognise a number in any of its multi formats without the need to count.
- Subitising is an important skill in relation to computation. The ability to subitise builds students' ability to identify how many is in a collection and their trust that this quantity will not change and therefore does not need to be recounted as part of an addition or subtraction computation.
- Advanced counting activities are part of abstracting. A student needs to recognise "5" without counting so they can trust there is five. Then the five objects can be covered and the student will be able to count on or back without needing to count the unseen objects again.
- 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](http://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.