YuMi Deadly Maths

Prep Teacher Resource:

NA – Let's go hunting

Prepared by the YuMi Deadly Centre
Faculty of Education, QUT

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YuMi Deadly Maths Prep Teacher Resource: **NA – Let's go hunting**

ACKNOWLEDGEMENT

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refined and presented in professional development sessions.

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Prep Number and Algebra

Let's go hunting

Learning goal Students will describe addition and represent addition experiences as joining.

Content description Number and Algebra – Number and place value

- Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)
- Represent practical situations to model addition and sharing (ACMNA004)

Big idea Number – part-part-whole

Resources Ladder tracks (large and small); digit cards; chalk snake; large chalk frog; small toy bugs/ beetles/spiders/frogs, wooden mug, nuts

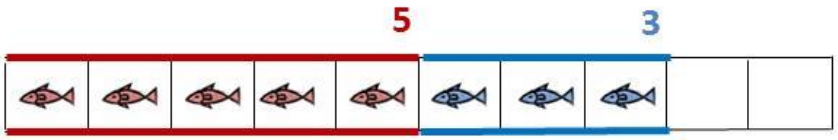
Reality

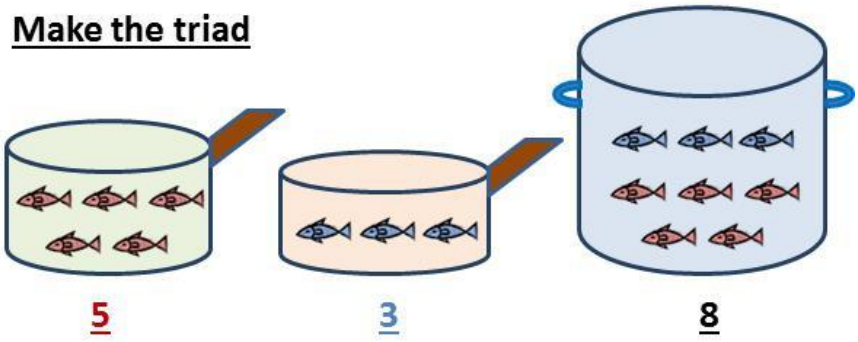
Local knowledge Familiar addition activities: catching some fish and then catching more; collecting the eggs; going crabbing; number of siblings, aunts and uncles; making a necklace using some nuts from the local area.

Prior experience Story: Nicholas Wu, 2013, *Tiddalick, the Greedy Frog: An Aboriginal Dreamtime story*, USA: Teacher Created Materials. Discuss what happens as Tiddalick drinks more and more water.

Kinaesthetic Model combining spiders and beetles; red blocks and blue blocks; kangaroo animal cards and koala animal cards.

Large ladder track: first boy places his catch of 5 fish onto the ladder mat (count 1,2,3,4,5), next boy places his catch of 3 fish onto the mat (count on 5,**6,7,8**). Say: *5 fish and 3 more make 8 fish altogether for dinner*. Predict: *how many more to make 10 fish on the mat?*





Repeat with other examples: *2 white eggs and 3 brown eggs, how many eggs in total? 4 bananas and 2 more – how many in total? Now how many more to make 9?* (Add in 3 more to make 9.) Emphasise the triads: 4 + 2 = 6, 2 + 4 = 6, 6 – 4 = 2, 6 – 2 = 4. Parts to whole, whole and one part to the other part.

Abstraction

Body Set up many situations that show addition of two parts as joining to make more.

Large ladder track over the river: *There is a large rock under each square in the track; how many steps do we have to take to get across the creek?* (10) Students count and stop at

different numbers, e.g. *I have walked over 6 rocks. How many more rocks must I step on to cross the creek?* (Walk on from 6, **7, 8, 9, 10;** *I needed to walk on 4 more places, so the other part is 4; 6 and 4 make 10*.) Other stories to act out: *John has walked over 5 rocks, Sally has walked over 3 rocks, how many rocks is that altogether? How many more rocks must Sally walk over to catch up to John? How many rocks left to cross over the river?*

Act out: (a) *Seven children had crossed the creek; there were two more who needed to cross. How many children altogether wanted to cross the creek?* (b) *Three children had crossed the creek. There were two more children than the ones who had crossed waiting on the other side ready to cross the creek. How many children were there altogether?*

Outside: Some boys stand in the scales of the large chalk snake (show ten scales on the Rainbow Serpent), add some girls; repeat process above. *Let's combine some girls and boys to fill up the snake. What total did we make? How could we increase/decrease the total? If we want a larger/smaller amount, what will we do?*

Hand

1. Small ladder strip: Students put 4 counters on the strip then add 1–6 more: *How many altogether? If you put 5 beetles on the strip, how many more do you need to make 8?* Other similar examples.
2. Snake on individual student cards: Catch small toy beetles/frogs; teacher tells the addition stories and students add the required number of beetles/bugs/ spiders/frogs onto the snake.
3. Use animal cards/blocks to combine groups, be able to make a lesser or greater total than the original and explain the decrease or increase. Make a group that is the same total as the teacher's or partner's, then make groups that are bigger or smaller.

Mind

Secret game: Students shut their eyes and visualise the macadamia nuts as teacher drops them, one by one, into a wooden mug; drop five, stop, then drop two more: *How many altogether? If I want to increase the amount of macadamias in my mug, what will I have to do?* Similar addition stories.

Imagine two kangaroos under a shady tree, and three more hopping over to join them. How many are there altogether under the tree?

Creativity

Students draw pictures that show 2 + 3 etc. Students draw their own addition stories; or use blocks etc. to explain the addition story to their partner/group.

Mathematics

Language/ symbols

add, equal, makes, and, combine, addition, total, altogether, amount, sum, plus, join, quantity, more, less, the same, larger amounts, smaller amounts, growing, increase, decrease, predict, check, model, record

Practice

Activities are language based so that students gain fluency with the language of addition.

Students show addition stories with animal cards, drawings, blocks and tell the teacher/ class their story. Act out some addition stories.

Use a template where the two/three small parts underneath are the same as the whole big part on top. Students make their own sets; other students describe the parts and the whole.

Connections

Relate to addition with money.

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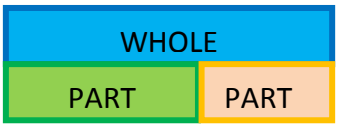
Reflection

Validation	Students go back into their world and find/draw addition stories, e.g. books, clothes, toys, food.
Application/ problems	Provide addition applications and problems for students to apply to different contexts independently, e.g. home, school, play, hunting, shopping.
Extension	**Flexibility**. Think of more than one way we could draw the same addition story, e.g. *Is putting the animals in a straight line the same or different from putting the same number of animals in a circle?* **Reversing**. Give examples in going from part-part → whole and reversing to understand whole→ part-part. **Generalising**. *Joining groups together makes a bigger group. Totals/amounts increase by joining groups together by the process/action of addition. Addition forms a triad of related facts: part-part → whole; whole-part → other part*. **Changing parameters**. Prompt students to use more abstract representations of addition including pictures and shape symbols. Encourage students to explore partitioning a collection into three or more parts. *Does the generalisation still exist?* Part-part-part → whole and whole → part-part-part.

Teacher's notes

- Use language-based consultation with students setting up situations that describe and explain addition events. Emphasise the triadic relationship that always exists regarding the parts and the whole or the whole and its parts.



- These activities are precursors that explore the concept of addition and subtraction creating the understanding that:
  - part and part → whole, joining parts to make the whole is addition; and
  - whole and part → part, knowing the whole and one part to count on to find the other part is an inverse joining activity that is modelling subtraction. Subtraction is removing one part from the given whole to find the other part that is left.
- The activities are all set models but the number line may be introduced later.
- 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 bird, 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.