Connecting Numerate Learners

Years P – 2 Parent Information Session

Thursday 15 June 2017

For every child, every opportunity for success.

Quick Fire BINGO

5	8	20
2	12	18
3	9	13

4	3	6

Choose 9 random numbers between 0 and 20 and place them in grid

Choose 3 single digits

Make number sentences using these digits to cross out your chosen numbers

Eg
6 + 3 = 9
(6 x 4) ÷ 3 = 8
6 – 4 = 2

Connecting Numerate Learners to all about MAKING CONNECTIONS

In this session, we will discuss:

- The Australian Curriculum
- The importance of a deep number understanding
- Some common misconceptions
- Number facts
- Number games

By the end of this session:

- Understand a little more about the Australian Curriculum - Mathematics
- Understand that Maths education is concerned with more than ‘just getting the right answer’
- Explore game opportunities to reinforce and extend mathematical understanding

Top tips for helping your child with Maths-video

- http://www.schoolatoz.nsw.edu.au/homework-and-study/mathematics/mathematics-tips/helping-your-child-with-maths

How young children learn to understand numbers in the real world

- Children learn counting as a pattern of words, just like a nursery rhyme.
- Children learn the pattern of counting by repeating the numbers.
- To count, children need to match saying the number words with the correct number of things.
- Children should be given lots of opportunities to practise and explore counting groups of things.
- Children also need to recognise and name numbers.

What does Australian Curriculum expect?

- Addition and subtraction facts by Year 3
- Multiplication and division facts by Year 4
- a greater focus on mental methods to prepare students for real world situations
- a range of written methods (not just the one method)
- Students to choose methods and strategies to suit individual problems

In the Australian Curriculum, we expect students to have:

- Understanding
  - (connecting, representing, identifying, describing, interpreting, sorting, …)
- Fluency
  - (calculating, recognising, choosing, recalling, manipulating, …)
- Problem solving
  - (applying, designing, planning, checking, imagining, …)
- Reasoning
  - (explaining, justifying, comparing and contrasting, inferring, deducing, proving, …)

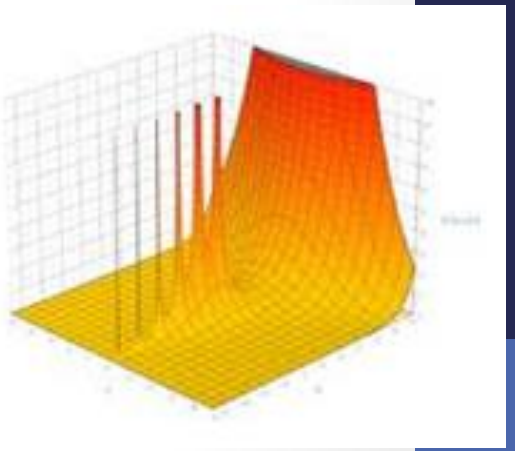
Let's peruse the scope and sequence of the Australian Curriculum – Mathematics-handout

Australian Curriculum, Mathematics

- Goal: to prepare students for 21st Century real-world problems, both at work and in daily life

- We must acknowledge that the Maths demands of the next generation may be quite different to those of our generation.

21st Century Maths



“But, I wasn’t good at Maths”

When we focus too much on facts and procedures, students may develop misconceptions and inefficient methods.

This quite often leads to maths anxiety, disengagement and poorer performance in all subjects that require mathematics.

Have a positive attitude towards Maths

- Many parents are fearful of Maths or think they just can't do it, but it's the worst thing you can tell your child.
- Parents are extremely crucial as positive role models. When parents tell their children that they themselves can't do “Maths”, it means they're communicating messages that it's okay not to be good at Maths, which can carry all the way through high school.
- Always remember the advice of Carol Dweck when it comes to your child and Maths attitudes and perceptions.

https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve?language=en

Talk to your child about Maths in everyday life

We go about our everyday lives totally unaware of the Maths we're using for so many tasks. Talking to children about how Maths is important in their everyday life makes it relevant and real. Some ideas are:

- cooking in the kitchen (measurement)
- operating a microwave oven (numbers and counting backwards)
- stacking containers in the cupboard (shapes)
- finding a certain house number down the street (counting by twos).

Play games to show you're interested in Maths

- Playing games that involve cards or dice provides valuable opportunities to show that maths matters and helps them to become better mathematicians.
- Car number plates.

Ask your child to explain how they work things out

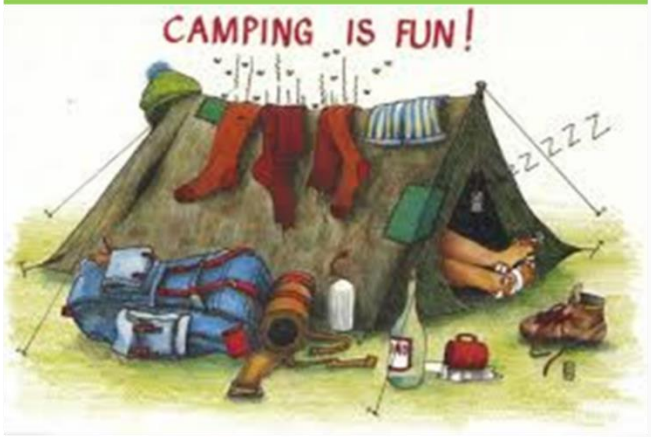
- When your child works out a Maths problem, such as adding the total when two dice have been rolled, ask them how they did it.
- Research shows that even young children have quite sophisticated thinking strategies for solving maths problems.
- We need to communicate to them that their ways of thinking are just as important as finding out the answer. When you ask your child, ‘How did you get that?' they may at first say, ‘I don't know', but if they realise there is an expectation that they will need to explain the way they do maths, they will start thinking about it.
- The more they think about how they did something, the more it might make sense to them – it really contributes to the meaning-making process.

How is Maths education different for this generation?

The procedural camp

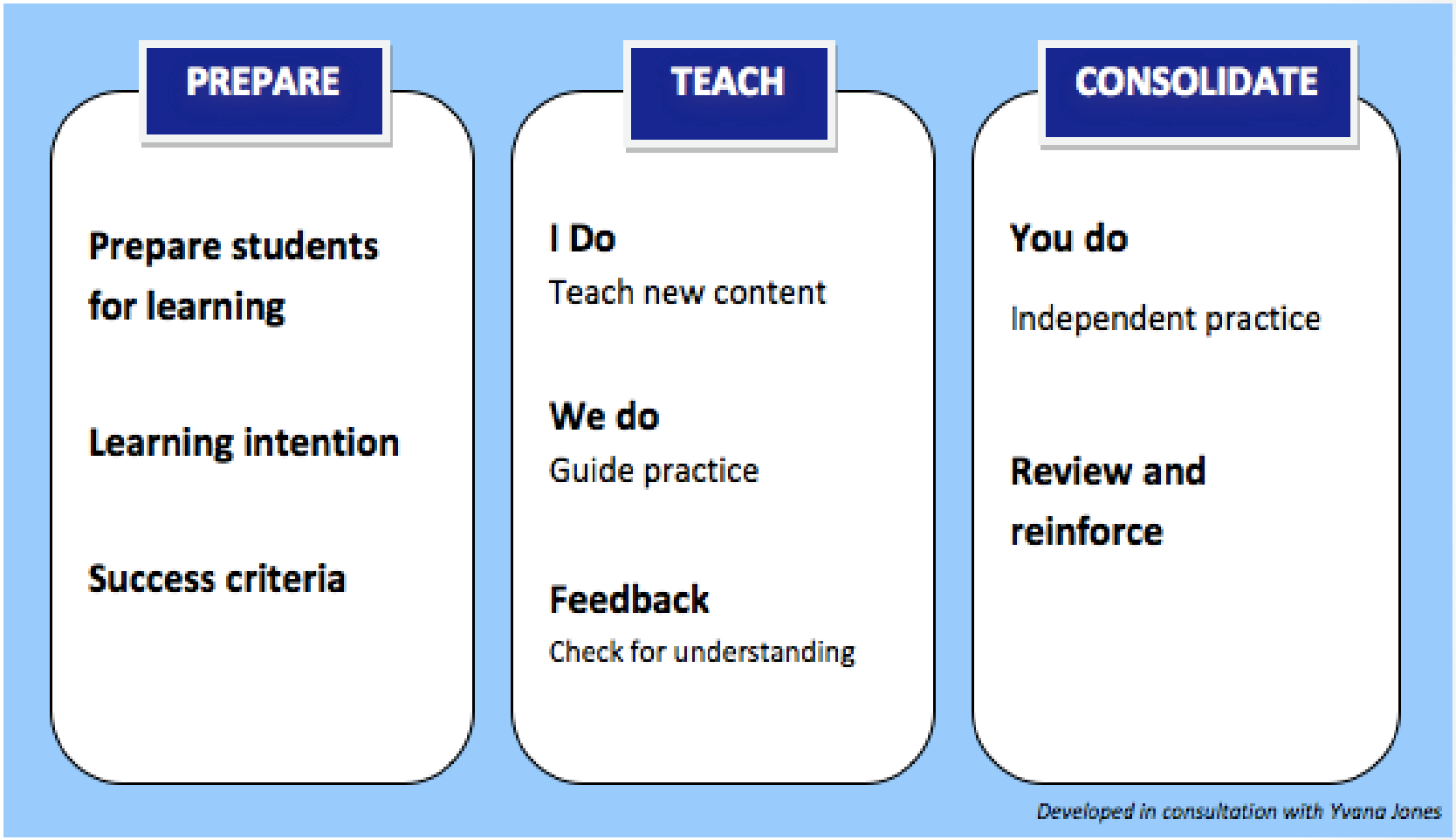
Previously we were taught mainly facts and procedures. Lessons were about practise and recall

The understanding camp



Lessons ensure students have deep and connected understandings. Students are expected to explain, reason and justify.

EJ High Impact Teaching



Partitioning Video

Video - Partitioning two-digit numbers using non-standard place value parts
(2:27)

Adding 2 Digit Numbers Video

https://learningplace.eq.edu.au/cx/resources/logon.do?.page=https://learningplace.eq.edu.au/cx/resources/logon.do?.page=https://learningplace.eq.edu.au/cx/resources/file/788c0a02-6e31-eede-9660-bc697c5368b3/1/Adding_2Digit_numbers_SPLIT_Strategy.mp4

Nearest to 20- operations

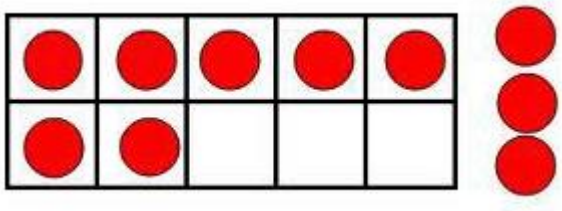
Big Idea: Operate/Calculate
Suits: Years 2-3
Materials: playing cards (one pack per group)
Instructions:
Provide each group of students with a pack of cards (picture cards and Aces removed)
Cards are shuffled. Four cards are dealt to each player.
Players look at their cards and choose cards that combine to give the sum nearest to 20, without exceeding 20.

Scoring
Each player calculates **the difference** between the sum of their cards and 20. The differences are recorded and totalled. After 5 rounds, the player with the **lowest total wins** the game.
Scores can be kept in a simple grid, e.g.

Race to 10 - operations

Big Idea: Operate/Calculate
Suits: Years P -2
Materials:
Tens frames, 6-sided dice, counters

Instructions:
Students play this game in pairs.
Students take turns to:
•roll a die
•collect the matching number of counters
•place the counters on their tens frame
•state how many they have and how many more are needed to make ten, eg. *I have 3; I need 7 more to make 10.*
The winner is the first person to reach *exactly* 10.
Students will need to keep rolling until the desired number is rolled.

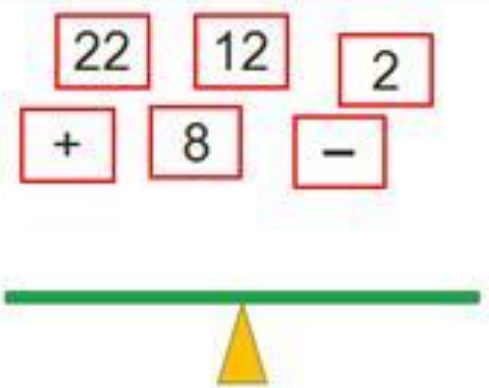


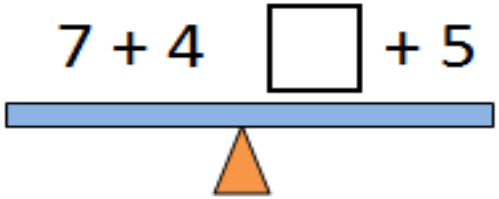
Extend the task to include the use of a ‘twenty frame’ (double ten frame).

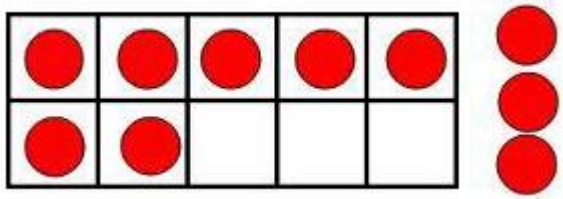
How can you help at home?

- Talk about ways that you use to add and subtract mentally.
- Practise number facts in game situations.
- Don’t expect your children to naturally add and subtract like you do.
- Let your children discuss their ways for adding and subtracting with you.

Games are GREAT







Remember!!

The time you have with your child is better spent on enjoyable, successful maths rather than labouring over difficulties. Games are GREAT!

Thank you for your attendance.

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