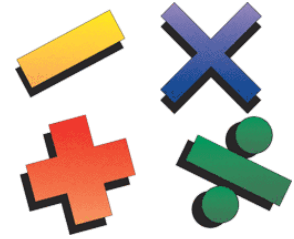


Mathematics Overview of Learning

Week 3-4 Term 3



Black indicates the content descriptor from the beginning of the continuum of learning in each stage (as stated by the Australian Curriculum).

Red indicates the content descriptor aligned with further understanding later in the continuum of learning in each stage (as stated by the Australian Curriculum).

Kindergarten

Addition and Subtraction MAe1-5NA

Represent practical situations to model addition and sharing (ACMNA004)

Patterns and Algebra MAe-8NA

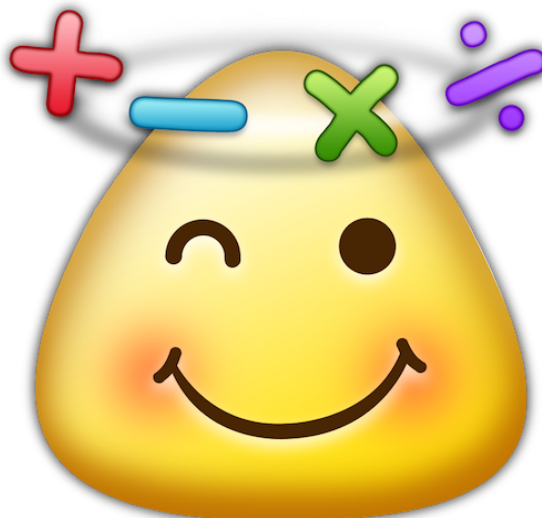
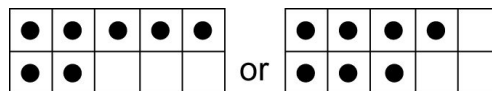
Sort and classify familiar objects and explain the basis for these classifications (ACMNA005)

Copy, continue and create patterns with objects and drawings

Activities to support learning at home:

Addition and Subtraction

- compare two groups of objects to determine 'how many more'.
- use visual representations of numbers to assist with addition and subtraction.
- Turn over a domino. Get your child to record the two numbers that are on the domino. They then add them together to find the total. They are encouraged to count on from the biggest number.
- Using a tens frame (pictured), put counters in the squares and ask "How many more do I need to make 10?"



Stage 1

Addition and subtraction MA1-5NA

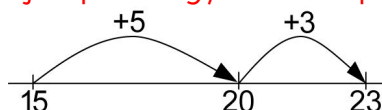
Represent and solve simple addition and subtraction problems using a range of strategies, including counting on, partitioning and rearranging parts (ACMNA015)

Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)

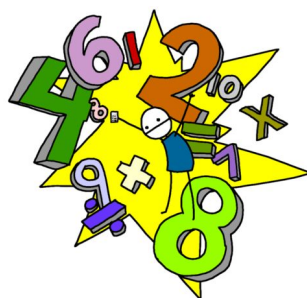
Explore the connection between addition and subtraction (ACMNA029) Focus on INVERSE OPERATIONS

Activities to support learning at home:

- Continue to use the following language when discussing addition and subtraction opportunities around the home: 'add', 'plus', 'equals', 'is equal to', 'take away', 'minus' and the 'difference between'.
- Model and record patterns for individual numbers by making all possible whole-number combinations, $5+0=5$ $4+1=5$ $3+2=5$ $2+3=5$ $1+4=5$ $0+5=5$
- Describe combinations for numbers using words such as 'more', 'less' and 'double', eg describe 5 as 'one more than four', 'three combined with two', 'double two and one more' and 'one less than six'. Try and do this with several numbers over the week.
- Create, record and recognise combinations of two numbers that add to numbers from 11 up to and including 20.
- Tugboat Addition (game)
<http://www.arcademics.com/games/tugboat-addition/tugboat-addition.html>
- Reinforce the "split strategy" for addition e.g. We 'split' $37 + 45$ using the split strategy $30+40=70$ $7+5=12$ so $70+12=82$
- Reinforce the "jump strategy" using an empty number line: eg show how the answer to $15 + 8$ was obtained using a jump strategy on an empty number line.



- An 'inverse strategy' is where the operation is changed to its inverse (in this case, a subtraction problem is changed into an inverse addition problem to solve it - or vice versa), eg $54 - 38$: start at 38, adding 2 makes 40, then adding 10 makes 50, then adding 4 makes 54, and so the answer is $2 + 10 + 4 = 16$. Try this method with some other subtraction problems.
- Pyramid Addition (game)
<http://www.amblesideprimary.com/ambleweb/mentalmaths/pyramid.html>
- <http://www.ictgames.com/technowithflock.html>
- Worksheet
<https://www.mathworksheets4kids.com/addition/single-digit/color-column1.pdf>



Stage 2

Multiplication and Division MA2-6NA (Week 3-4)

Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)

Develop efficient mental and written strategies, and use appropriate digital technologies, for multiplication and for division where there is no remainder (ACMNA076)

Use mental strategies and informal recording methods for division with remainders

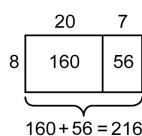
Patterns and Algebra MA2-8NA

Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)

Activities to support learning at home:

Multiplication and Division

- Using different one-digit numbers, practise a variety of mental strategies to multiply a one-digit number by a multiple of 10, including:
 - repeated addition, eg 3×20 : $20 + 20 + 20 = 60$
 - using place value concepts, eg 3×20 : $3 \times 2 \text{ tens} = 6 \text{ tens} = 60$
 - factorising the multiple of 10, eg 3×20 : $3 \times 2 \times 10 = 6 \times 10 = 60$
- Problem: Each month Thomas collects 5 new football cards. How many does he collect in a year?
- Challenge: The farmer is taking ducks and sheep to the market. Altogether there are 15 heads and 52 legs in the truck. How many ducks and how many sheep are going to market?
- Work as partner. One person chooses a small whole number and the next person doubles it. Take turns to keep doubling the number. Keep checking the results with a calculator. In the next round they start with a different number. Ask: what did you notice? Did the pattern help with your calculations?
- Multiply three or more single-digit numbers, eg $5 \times 3 \times 6$.
- Model and apply the associative property (answer does not depend on the order the numbers are written) of multiplication to aid mental computation, eg $2 \times 3 \times 5 = 2 \times 5 \times 3 = 10 \times 3 = 30$.
- Try multiplying a two-digit number by a one-digit number using the area model. E.g.



- Grand Prix Multiplication (game) <http://www.arcademics.com/games/grand-prix/grand-prix.html>
- Worksheet <https://www.mathworksheets4kids.com/multiplication/drills/2and1-hor15-1.pdf>

Stage 3

Multiplication and Division MA3-6NA (Week 3-4)

Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)

Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)

Explore the use of brackets and the order of operations to write number sentences (ACMNA134)

Patterns and Algebra MA3-8NA

Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction (ACMNA107)

Continue and create sequences involving whole numbers, fractions and decimals; describe the rule used to create the sequence (ACMNA133)

Activities to support learning at home:

- Reinforce the term 'quotient' to describe the result of a division calculation, eg 'The quotient when 30 is divided by 6 is 5'.
- **Investigation:** students look into real life situations where you would need to round up an answer. For example at the supermarket. Use supermarket brochures. Students write up a shopping list of their own with 10 items and add up the amounts using a calculator. Students round up the remainders. This can be repeated. Students can create lists and swap with a partner to calculate and round the answers up or down. (For example round to the nearest dollar).
- **Scenario Challenge** 'A farmer has 49 eggs. He needs to put them into cartons, that each hold a dozen eggs, to send to market. How many cartons does he need?' Students record the strategies used to solve the problem. *Variation:* The teacher poses the scenario involving larger numbers of eggs and different-sized cartons.
- Division table (for assistance)
<https://www.mathworksheets4kids.com/division/tables/division-chart-bw.pdf>
- Worksheet
<https://www.mathworksheets4kids.com/division/long-division/mixed-2by1-1.pdf>
- **Order of operations tutorial**
<https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations>
- **Worksheet**
<https://www.mathworksheets4kids.com/order-of-operations/dmas-3num-2op-easy1.pdf>
- **Worksheet**
<https://www.mathworksheets4kids.com/order-of-operations/dmas-upto4-1.pdf>

Patterns and Algebra

- Create some number patterns and get your child to describe patterns using the terms 'increase' and 'decrease', eg for the pattern 48, 41, 34, 27, ..., 'The terms decrease by seven'.
- Worksheet
<https://www.mathworksheets4kids.com/patterns/writing-rules-numbers-easy1.pdf>
- **Worksheet** <https://www.mathworksheets4kids.com/patterns/two-rule-type1-1.pdf>

Websites to further develop times tables recall:

<http://tablestest.com/>

<http://www.topmarks.co.uk/maths-games/7-11-years/times-tables>