

Year 5- Mathematics - Learn from home timetable

Big Idea Concept: Solving problems using strategies

Australian Curriculum Connection: ACMNA291 Use Efficient mental and written Strategies to solve problems

| Monday   | Tuesday   | Wednesday  | Thursday  | Friday |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
|--|---|--|---|--------|-----|------|------|---|----|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|----|--|--|--|---|------------|-------------|---------------|---------|--------------|----|---------|-------------|----|---------|-------------------|----|---------|-------------------|----|---------|-------------------|----|---------|------------------|----|---------|------------------|-----|
| <p><b>Monday</b></p> <p><b>Launch and Tune In</b></p> <p><b>Flipper</b> Packs of cards</p> <p><b>SKILL:</b> Addition</p> <p><b>Aim:</b><br/>To add as many cards as you can to 10 and</p> <p><b>How to:</b><br/>• Children take 10 cards to form one set of strategy cards as they can, adding them as they go.<br/>• Encourage use of strategies, eg add 5 to add 10 - 1<br/>• Play again and see if they can beat their total.</p> <p><b>Example:</b><br/>A 5 card, then a 6 equals 11 (strategy 5+5+1), then add 8 equals 19.<br/>Children call out their total as they go.</p> <p>5, 11, 18, 25.</p> <p><b>Differentiation:</b><br/>• Increase or decrease the amount of time.<br/>• Only use cards 1 - 10 for lower primary.<br/>• Use jack, queen, king or 11, 12, 13 for upper primary.</p> | <p><b>Tuesday</b></p> <p><b>Launch and Tune In</b></p> <p><b>Dice Wars</b> 2-4 dice<br/>10 counters</p> <p><b>SKILL:</b> Addition or Multiplication</p> <p><b>How to:</b><br/>• Each player starts with 2 dice and 5 counters (tokens).<br/>• The objective of the game is to capture all of the other player's dice.<br/>• On the count of three, both players roll their dice. Each player adds up the sum of his/her two dice, and whoever has a higher number gets to "steal" a mark from the other player.<br/>• Continue playing until one player has all 10 tokens.</p> <p><b>Note:</b> Encourage using strategies to add the dice quicker, eg doubles, near doubles, friends of 10</p> <p><b>Differentiation:</b><br/>• Using a double (trumps any other number), and you get to steal TWO dice from the other player<br/>• For older kids, try using three dice!<br/>• Two round practice multiplication instead of addition skills.</p> | <p><b>Wednesday</b></p> <p><b>Launch and Tune In</b></p> <p><b>5 Cards to 100</b> 36 cards: 1 (Ace) to 9</p> <p><b>SKILL:</b> Addition</p> <p><b>Aim:</b><br/>To combine your cards so they equal 100. The winner is the person whose score is closest to 100 at the end of the game.</p> <p><b>How to:</b><br/>• The dealer hands out 5 cards to each player.<br/>• Players combine the cards in their hand to try and make them equal 100, using addition only. They can combine numbers to make a two digit number, or keep them as single digit numbers.</p> <p> <math display="block">\begin{array}{r} 10 \\ + 10 \\ + 10 \\ + 10 \\ + 10 \\ \hline = 50 \end{array}</math> <math display="block">\begin{array}{r} 10 \\ + 10 \\ + 10 \\ + 10 \\ + 10 \\ \hline = 107 \end{array}</math> </p> <p>• The player who has their answer closest to 100 wins.<br/>• The cards are collected, shuffled and dealt again to start a new round.</p> | <p><b>Thursday</b></p> <p><b>Launch and Tune in</b></p> <p><b>Total Three</b> 3 dice</p> <p><b>SKILL:</b> Addition, Subtraction, Multiplication</p> <p><b>Years 4-6:</b><br/>An activity for two players<br/>Players take turns to roll the two dice and complete the following calculations on each roll:<br/>✓ add the two numbers shown on the dice<br/>✓ find the difference between the two numbers<br/>✓ multiply the two numbers<br/>Add the three numbers to produce the score for that round.</p> <p>For example (player 1):<br/> <math>6 + 3 = 9</math><br/> <math>6 - 3 = 3</math><br/> <math>6 \times 3 = 18</math><br/>         Score = <math>9 + 3 + 18 = 30</math></p> <p>After 10 rounds the player with the highest total is the winner.<br/>To make the activity more challenging change the type of dice used to 8, 10, 12 or 20 sided.</p> <table border="1"> <thead> <tr> <th>Roll</th> <th>Sum</th> <th>Diff</th> <th>Prod</th> </tr> </thead> <tbody> <tr><td>1</td><td>10</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td></tr> </tbody> </table> | Roll   | Sum | Diff | Prod | 1 | 10 |  |  | 2 |  |  |  | 3 |  |  |  | 4 |  |  |  | 5 |  |  |  | 6 |  |  |  | 7 |  |  |  | 8 |  |  |  | 9 |  |  |  | 10 |  |  |  | <p><b>Friday</b></p> <p><b>Launch and Tune In</b></p> <p><b>Make 100</b> 2 Dice</p> <p><b>SKILL:</b> Addition, Subtraction, Multiplication, Division</p> <p><b>Years 4-6:</b><br/>• The aim is to make a total of 100 or as close to 100 as possible.<br/>• Players take turns to roll the two dice and combine the numbers with any operation to produce a score. The player who reaches 100 or is closest to 100 is the winner.<br/>• Encourage players to record their choices and calculations.<br/>• For example:</p> <table border="1"> <thead> <tr> <th>Dice throw</th> <th>Calculation</th> <th>Running total</th> </tr> </thead> <tbody> <tr><td>4 and 6</td><td><math>4 + 6 = 24</math></td><td>24</td></tr> <tr><td>1 and 6</td><td><math>1 + 6 = 6</math></td><td>20</td></tr> <tr><td>2 and 5</td><td><math>2 \times 5 = 10</math></td><td>30</td></tr> <tr><td>6 and 6</td><td><math>6 \times 6 = 36</math></td><td>75</td></tr> <tr><td>6 and 3</td><td><math>6 \times 3 = 18</math></td><td>60</td></tr> <tr><td>2 and 3</td><td><math>2 \times 3 = 6</math></td><td>66</td></tr> <tr><td>6 and 1</td><td><math>6 \times 1 = 6</math></td><td>100</td></tr> </tbody> </table> | Dice throw | Calculation | Running total | 4 and 6 | $4 + 6 = 24$ | 24 | 1 and 6 | $1 + 6 = 6$ | 20 | 2 and 5 | $2 \times 5 = 10$ | 30 | 6 and 6 | $6 \times 6 = 36$ | 75 | 6 and 3 | $6 \times 3 = 18$ | 60 | 2 and 3 | $2 \times 3 = 6$ | 66 | 6 and 1 | $6 \times 1 = 6$ | 100 |
| Roll   | Sum   | Diff   | Prod  |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 1  | 10  |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 2  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 3  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 4  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 5  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 6  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 7  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 8  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 9  |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 10   |   |  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| Dice throw   | Calculation   | Running total  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 4 and 6  | $4 + 6 = 24$  | 24   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 1 and 6  | $1 + 6 = 6$   | 20   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 2 and 5  | $2 \times 5 = 10$   | 30   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 6 and 6  | $6 \times 6 = 36$   | 75   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 6 and 3  | $6 \times 3 = 18$   | 60   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 2 and 3  | $2 \times 3 = 6$  | 66   |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |
| 6 and 1  | $6 \times 1 = 6$  | 100  |   |        |     |      |      |   |    |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |    |  |  |  |   |            |             |               |         |              |    |         |             |    |         |                   |    |         |                   |    |         |                   |    |         |                  |    |         |                  |     |

**Vocabulary in Mathematics:**

Students should be able to communicate using the following language: plus, **sum**, add, addition, **increase**, minus, the difference between, subtract, subtraction, **decrease**, equals, is equal to, empty number line, strategy, digit, estimate, round to.

|  |   |  |   |   |
|--|---|--|---|---|
| <p><b>Conceptual Development</b></p> <p>Competent problem-solvers are efficient at keeping track of what they Know and how well their attempts to solve the problem is proceeding. The continually ask:<br/>-What am I doing?<br/>-Why am I doing it? and -<br/>How will it help me?</p> | <p><b>Conceptual Development</b></p> <p>Write the following numbers on a piece of paper/ page in your Maths book.<br/>16, 29, 4, 13, 42, 10, 19, 23, 17, 30, 6, 46.<br/>Ask your student to select 2 or three numbers and show a connection between them using addition or subtraction. Can any be used to make 'friendly numbers'?</p> | <p><b>Conceptual Development</b></p> <p><b>Strategy Two - Chunking or Number Splitting</b> (mental and written) Numbers can be split in many ways. Familiarity with number splitting increases options for adding and subtracting mentally.<br/>1. Explain to the student that numbers can be "chunked" or</p> | <p><b>Conceptual Development</b></p> <p><b>Strategy Three - Compensation Rounding, estimating and number splitting</b> are the foundations for the strategy of compensating when adding or subtracting. Compensation in the form of rounding and adjusting is one of the most</p> | <p><b>Conceptual Development</b></p> <p>Think of what the following situations look like. Draw a picture or write an equation to represent each one.<br/>Explain what you picture/ equation represents and solve the problem.</p> <p>1. There are four groups of students. Each group contained seventeen</p> |
|--|---|--|---|---|

**Strategy One - Bridging through and back 10**

This strategy builds on the knowledge of friendly numbers as well as on rainbow facts.

1. Write on your book the number sentence  $9 + 4 =$ .
2. Ask the student to look at the example and explain how knowing about friendly numbers can help them work out the answer.
3. Introduce the idea of "Bridging through 10". Making/turning the number into a friendly number.
4. Using the number sentence written on your book, you +1 to nine to make ten (a friendly number) then add the remaining three.
5. Write the number sentence  $80 + 60 =$  on the board. Have the student use the same process as in the previous step to work out the answer. (+20 to eighty to make one hundred (friendly

"split" in many ways to make mental computation easier.

2. Write the number sentence  $32 + 61 =$  on the board. The Student splits the number into tens and ones. They then add the tens, then add the ones and then add the whole thing together.
3. Write on a piece of paper or your maths book,  $312 + 268 =$ . Get the student to show how they would chunk/split to work out the answer.
5. Write on a piece of paper or your maths book,  $564 - 321 =$ . Get the student to show how they would chunk/split to work out the answer.

$$\begin{array}{l} 32 + 61 = 93 \\ 30 + 60 = 90 \\ 2 + 1 = 3 \end{array}$$

$$\begin{array}{l} 564 - 321 = 243 \\ 500 - 300 = 200 \\ 60 - 20 = 40 \\ 4 - 1 = 3 \end{array}$$

frequently used strategies for addition and subtraction.

1. On a piece of paper or in your MTHs book, write the addition sum  $51 + 17 =$ .
2. Without explaining why, cross out the 51 and change it to 50.
3. Ask the student why they think you did this. Is adding 50 + 17 together going to give a good estimate of the answer. Why/why not?

Have the student discuss there thinking.

4. What if an exact answer is needed? What has to be done? Why is 1 added on at the end?
5. Repeat the process with some more examples. Eg.  $62 + 43$  or  $18 + 31$
6. When students can explain the need to adjust or compensate for an earlier rounding, ask them to look at an example for subtraction  $72 - 29 =$ .
7. Which number should be compensated this time? 72? 29?

students. How many students were there altogether?

2. Soldiers were lined up at parade. There were nine rows of soldiers. In most of the rows stood five soldiers, but in two of the rows one soldier was away sick. How many soldiers were there?
3. I made \$10.50 every week from odd jobs. How long did it take me to save \$64?

number) then add the remaining forty).

6. Have the student work through some examples where they need to bridge through. Use smaller numbers as well as three digit numbers to see how the strategy can be extended. (eg.  $346 + 16 =$  becomes  $+ 4$  to 346 to get 350 then add the remaining 12 to get 362)

7. When they are comfortable with this strategy, have them practice bridging back through 10. Using the same initial two examples.

- $13 - 4 = -3$  away from 13 to get ten (friendly number) then minus the remaining one to get an answer of 9
- $140 - 60 = -40$  away from 140 to get one hundred (friendly number) then minus the remaining twenty to get an answer of 80.

8. This might be easier to round 29 up to 30. 30 then becomes a friendly number. We can then subtract 30 from 72 in our heads.

9. Ask the student to explain how to move from the estimated number to an exact answer. In particular, ask the student to explain as clearly as they can why 1 was added at the end of the subtraction example.

<https://www.youtube.com/watch?v=xUICOGYcAmQ>

**Compensation, change methods**

From: A Maths Dictionary for Kids by Jenny Ether at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

In compensation, one number is rounded to ten or a hundred then the answer is adjusted to compensate for the change.

|  |  |
|--|--|
| $\begin{array}{r} 56 + 38 = 56 + 40 - 2 \\ = 96 - 2 \\ = 94 \end{array}$       | $\begin{array}{r} 94 - 38 = 94 - 40 + 2 \\ = 54 + 2 \\ = 56 \end{array}$       |
| $\begin{array}{r} 623 + 198 = 623 + 200 - 2 \\ = 823 - 2 \\ = 821 \end{array}$ | $\begin{array}{r} 786 - 298 = 786 - 300 + 2 \\ = 486 + 2 \\ = 488 \end{array}$ |

Change methods are similar but the second number (not the answer) is adjusted to compensate for the change.

|   |   |
|---|---|
| $\begin{array}{r} 56 \quad \rightarrow \quad 54 \\ + 38 \quad \rightarrow \quad + 40 \\ \hline 94 \end{array}$      | $\begin{array}{r} 94 \quad \rightarrow \quad 96 \\ - 38 \quad \rightarrow \quad - 40 \\ \hline 56 \end{array}$      |
| $\begin{array}{r} 726 \quad \rightarrow \quad 723 \\ + 197 \quad \rightarrow \quad + 200 \\ \hline 923 \end{array}$ | $\begin{array}{r} 923 \quad \rightarrow \quad 926 \\ - 197 \quad \rightarrow \quad - 200 \\ \hline 726 \end{array}$ |

**Addition Opposite Change**      **Subtraction Same Change**

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## Rainbow Facts

From: A Maths Dictionary for Kids by Jenny Eatner at [www.amathdictionaryforkids.com](http://www.amathdictionaryforkids.com)



0 1 2 3 4 5                      5 6 7 8 9 10

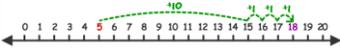
|               |               |
|---------------|---------------|
| $0 + 10 = 10$ | $10 + 0 = 10$ |
| $1 + 9 = 10$  | $9 + 1 = 10$  |
| $2 + 8 = 10$  | $8 + 2 = 10$  |
| $3 + 7 = 10$  | $7 + 3 = 10$  |
| $4 + 6 = 10$  | $6 + 4 = 10$  |
| $5 + 5 = 10$  | $5 + 5 = 10$  |

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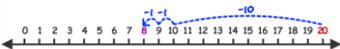
## Jump strategy

From: A Maths Dictionary for Kids by Jenny Eatner at [www.amathdictionaryforkids.com](http://www.amathdictionaryforkids.com)

A strategy that adds or subtracts a number in jumps according to place value.



$5 + 13$  in jumps =  $5 + 10 + 1 + 1 + 1 = 18$



$20 - 12$  in jumps =  $20 - 10 - 1 - 1 = 8$

The jump strategy on a hundreds chart.



[https://www.youtube.com/watch?v=qeJ\\_M5AK\\_1k](https://www.youtube.com/watch?v=qeJ_M5AK_1k)

Learning Journal

Learning Journal

Learning Journal

Learning Journal

Learning Journal

|  |   |  |  |  |
|--|---|--|--|--|
| <p>Write and draw an image to explain your understanding of 'Friendly numbers'.</p> <p>Can you write/ draw a 'concept card' to explain the rainbow strategy and how this strategy can be used for numbers beyond 10.</p> | <p>Can you write/ draw your thinking from the above task into your journal.</p> | <p>Can you write/ draw a 'concept card' to explain the strategy of chunking and splitting. On your card should be your understanding of the strategy and how to use it to perform addition and subtraction sums.</p> | <p>Parent/ Carer watches the 'Frog Puzzle' clip:<br/> <a href="https://mathpickle.com/project/jumping-frogs/">https://mathpickle.com/project/jumping-frogs/</a></p> <p>Have the student draw 5 lily pads</p>  <p>Place 5 objects (counters, buttons, pasta bows etc.), 1 on each lily pad to represent the frogs. Can the frogs jump to each lily pad (1 counter can jump 1 space, 2 counters can jump 2 spaces etc. so that all 'frogs' are on a lily pad?</p> <p>Draw/ write your strategy.<br/> Can you try 6 lily pads?</p> | <p>Draw and reason about each of the above problems. How do you know your calculations are correct? What strategy did you use to solve them?</p> |
|  |   |  |  |  |