RICH MATHEMATICAL TASK BOOKLET

# NUMBER & ALGEBRA

## YEAR 5-6 EVEN YEARS

## Copy Masters

## Task 1

Moana is playing Monopoly with her friends. She had $235 in monopoly money. After she had bought two properties, she had only $119 in monopoly money left. How much did she spend to buy the two properties?

Moana is playing Monopoly with her friends. She had $1327 in monopoly money. After she had bought five properties, she had only $158 in monopoly money left. How much did she spend to buy the five properties?

## Task 1 (independent)

Work with a partner and make flash cards to practice the 7 times-tables. Write the fact on one side and the answer on the other side. Test each other and note the ones that you don't know instantly and practice writing these out and saying it aloud to yourself four times.

Use a place value house and solve the following equations:

246 + 352 =

374 + 314 =

545 + 1253 =

2561 + 339 =

6331 + 1899 =

What do you notice? Justify your thinking.

## Task 2

Mere and Hurae are playing the Game of Life. Hurae wins the golden lottery and now has $7442. Before he won the golden lottery, he had $2789. How much money did he win?

Mere and Hurae are playing the Game of Life. Hurae wins the golden lottery and now has $5432. Before he won the golden lottery, he had $4785. How much money did he win?

## Task 2 (independent)

Work with a partner and make flash cards to practice any of the 1 to 6 times-tables that you don't know instantly. Write the fact on one side and the answer on the other side. Use the new flash cards and the 7 times-tables ones to test each other and note the ones that you don't know instantly and practice writing these out and saying it aloud to yourself four times.

Solve the following equations:

535 – 266 =

434 – ☐ = 216

☐ – 539 = 182

2 544 – 1 689 =

## Task 3

Junior's mum needs to order tipani flowers to make 'ei katu for his sister's wedding. There are 19 people in the bridal party and each 'ei katu needs 26 tipani flowers. How many flowers will Junior's mum need to order?

Junior's mum needs to order tipani flowers to make 'ei katu for his sister's wedding. There are 18 people in the bridal party and each 'ei katu needs 22 tipani flowers. How many flowers will Junior's mum need to order?

## Task 3 (independent)

Make flash cards for the 8 times-tables with a partner. Write the equation on one side and the answer on the other. Use the flash-cards to test each other. For any that you don't know instantly, write it out and say it aloud four times.

Solve the following equations:

17 x 23 =

29 x 21 =

38 x 37 =

Represent your solution strategy using equations and an area model.

## Task 4

Nga and her family are planning a family reunion. It is Nga's job to look at what funding is needed for this and she needs make an accurate estimate for fundraising. Nga says that there are 284 people coming including children and that $36 per person should cover the costs for them all.

How much do they have to fundraise?

What if they had to raise or lower the cost?

Explore whether your solution strategy would work with other possible amounts.

## Task 4 (independent)

Use your flash cards with a partner to practice your times-tables. For any that you are unsure of, write them out and say them out loud at least four times.

Solve the following equations:

31 x 98 =

78 x 63 =

145 x 56 =

What patterns did you notice and use to help you solve the equations?

Would the patterns work for any numbers when multiplying?

## Task 5

At Polyfest, there are 278 dancers in the Sāsā group.

If they sit in rows of 15, how many rows will there be?

Will there be some people left over to make back row which is not the same size as the front rows?

What possible numbers would they have to use to get the exact numbers in every row and with no people left over?

Make sure you can prove this using an example which you can explain and justify.

## Task 5 (independent)

Solve the following equations:

556 ÷ 25 =

866 ÷ 42 =

765 ÷ 33 =

## Task 6

Our school is going on a picnic and using buses to take all the children, teachers, and adults. Each bus can take 46 passengers and there are 942 people to transport.

How many buses do we need?

What numbers could you use with your solution strategy that would mean you had the same number of people in every bus?

Be ready to explore and explain at least three other sets of numbers.

## Task 6 (independent)

Make flash cards for the 9 times-tables with a partner. Write the equation on one side and the answer on the other. Use the flash-cards to test each other. For any that you don't know instantly, write it out and say it aloud four times.

Solve the following equations:

387 ÷ 49 =

822 ÷ 73 =

778 ÷ 86 =

$1 \div \frac{1}{2} =$

$2 \div \frac{1}{4} =$

## Task 7

Can you work together in your group to solve these number sentences? Make sure that you develop an explanation of how you solved these that everyone can share.

18 + 7 = __ + 6

__ + 16 = 29 + 14

85 – __ = 86 – 28

185 – 29 = __ – 26

674 + 56 – __ = 671

73 + 5 + 3 = 73 + __

## Task 7 (independent)

Solve these equations:

16 + 9 = __ + 8

__ + 18 = 25 + 16

63 – __ = 73 – 28

132 – 47 = __ – 45

453 + 67 – __ = 451

69 + 4 + 2 = 69 + __

## Task 8 (whole class option)

Work together to decide which equations are true or false. Make sure that everyone in your group agrees and can explain.

398 + 467 = 396 + 469

657 + 18 = 657 + 9 + 10

85 – 34 = 87 – 36

8 x 7 = (8 x 5) + 8

9 x 7 = (10 x 7) – 7

16 + 17 + 18 + 19 + 20 = 21 + 22 + 23 + 24

## Task 8 (independent)

Explain and justify which number sentences are true and false:

19 = 1 + 8 + 10

15 + 17 = 16 + 18

225 – 178 = 235 – 168

25 – 5 = 20 – 2

183 – 87 = 181 – 89

5 + 18 + 87 = 6 + 17 + 87

Write your own true and false number sentences.

## Task 9 (whole class option)

Tasa is working out if the number sentences are true or false

14 x 6 = (10 x 6) + (4 x 6)

32 x 3 = (30 x 3) + 2

17 x 4 = (8 x 4) + (8 x 4)

24 x 15 = (12 x 15) + (12 x 15)

He notices patterns when working out which are true or false. What do you think he notices?

Does this always work?

Use the equipment (grid paper, counters to build arrays) to explore the relationship.

Can you write your own examples using different numbers?

## Task 9 (independent)

Write your own set of number sentences to describe this in as many ways as possible.

Make connections across the number sentences. What patterns do you notice?

Why do your patterns work?

Will these work with other numbers? Can you write them as a generalisation?

## Task 10 (whole class option)

Hemi's teacher asks him to multiply 5 x 4 x 2

Hemi solves the problem by changing it to 5 x 8

Hemi also thinks that you could solve the problem by changing it to 20 x 2

Work in a group and explore whether you agree or disagree with how Hemi's ideas.

Does Hemi's idea work with different numbers?

Does it work for addition, subtraction, and division?

Use the material to explore and prove whether it works for different operations.

## Task 10 (independent)

Lola's teacher asks her to solve 36 ÷ 12 =

Lola thinks that she can solve the problem by taking away 12.

How do you think Lola would solve this?

Would this always work? Can you test this with different numbers?

What is a conjecture that you can make related to division and subtraction?

## Task 11 (optional task)

The library needs to be packed up to be moved. There are 2953 books that need to be packed and each box will fit 187 books. How many boxes are needed?

## Task 11 (independent)

Solve the following equations:

7085 ÷ 385 =

8643 ÷ 221 =

9999 ÷ 2133 =

$\frac{1}{2} \div \frac{1}{4} =$

## Task 12 (optional task)

Solve these problems:

55 x 48 =

23 x 471 =

867 x 898 =

What patterns and operational properties did you use to help you solve the problems?