



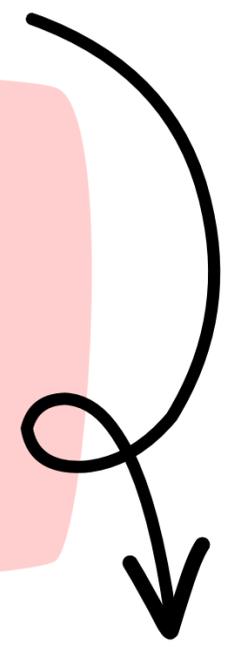
NUMBER AND ALGEBRA THINKER'S KEYS

STAGE 2
Number & Algebra **THINKER'S KEYS**

Whole Number	Addition & Subtraction	Multiplication
<p>The Brainstorming The code to a safe includes the numbers 8 1 4 2. Brainstorm all possible combinations and write them in ascending order.</p>	<p>The Combination Write a short number story that includes a combination of addition and subtraction. Illustrate the story.</p>	<p>The Inventions Invent a new type of written strategy to solve multiplication problems.</p>
<p>The Variation The number is 9527. Record this number as many ways as possible.</p>	<p>The Alternatives Imagine you had to use a calculator to work out $1000 - 252$ and the zero button was broken. How could you solve it?</p>	<p>The Interpretation Write a multistep word problem involving multiplication. Brainstorm a list of ways for solving the problem.</p>
<p>The Picture Draw a picture to help you understand what the symbols $<$ $>$ represent.</p>	<p>The Answer The answer is 24. Write 5 possible subtraction questions.</p>	<p>The Variation $\star \times \bullet = 32$ What could \star and \bullet be? How many different answers can you find?</p>

ELL Educates

Keep scrolling to see what's included!



TRANSFORM YOUR MATH LESSONS FROM BORING INTO EXCITING & THOUGHT-PROVOKING



Thinker's Keys spark critical and creative thinking in maths

Aligned with Stage 2 and 3 curriculum areas

3 engaging activities per topic for fun, deeper learning

Number & Algebra

THINKER'S KEYS

Place Number	Addition & Subtraction	Multiplication & Division
The Commonality The numbers 3 and 7 and 2 they have in common.	The Prediction Emily added 5 different numbers together to get 82. Provide 3 suggestions for what her numbers might have been. Is it possible she used only odd numbers? Why or why not?	The Brainstorming Brainstorm examples of every day situations that require you to use multiplication and division.
The Alphabet Write any words as you can that relate to number.	The Interpretation Matthew solved the following problem incorrectly: $78 + 56 = 124$ What mistake might he have made in his working out?	The Disadvantages List 5 disadvantages of using a calculator to solve multiplication and division problems.
The Picture Use a Venn diagram to sort the numbers between 1 and 30 into prime, composite, and those that are both prime and composite.	The Question The answer is 95. Write 3 complex addition and subtraction word problems for this answer.	The Variation $\blacksquare \times \star = 4341$ What might \blacksquare and \star be? How many different answers can you find?

The Sydney Teacher

INCLUDES ALL THESE AND MORE!

STAGE 2
Number & Algebra **THINKER'S KEYS**

Whole Number	Addition & Subtraction	Multiplication
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STAGE 2
Number & Algebra **THINKER'S KEYS**

Division	Fractions & Decimals	Patterns & Algebra
The Picture Draw pictures to show $27 \div 3$ Show different ways of working it out.	The Answer The answer is 1 and $\frac{3}{4}$. Write 5 possible questions.	The Construction Construct a number pattern that follows a pattern using addition.
The Variation $\star \div \bullet = 6$ What could \star and \bullet be?	The Commonality Explain how decimals connect to measurement.	The Brainstorming Brainstorm all the patterns you can find on a hundreds chart.

STAGE 3
Number & Algebra **THINKER'S KEYS**

Whole Number	Addition & Subtraction	Multiplication & Division
The Commonality Compare the numbers 3 and 7 and list 5 things they have in common.	The Prediction Emily added 5 different numbers together to get 82. Provide 3 suggestions for what her numbers might have been. Is it possible she used only odd numbers? Why or why not?	The Brainstorming Brainstorm examples of every day situations that require you to use multiplication and division.
The Alphabet List as many words as you can from A to Z that relate to number.	The Interpretation Matthew solved the following problem incorrectly: $78 + 56 = 124$ What mistake might he have made in his working out?	The Disadvantages List 5 disadvantages of using a calculator to solve multiplication and division problems.
The Picture Use a Venn diagram to sort the numbers between 1 and 30 into those that are prime and those that are composite.	The Question The answer is 95. Write 3 complex addition and subtraction word problems for this answer.	The Variation $\blacksquare \times \star = 4341$ What might \blacksquare and \star be? How many different answers can you find?

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STAGE 3
Number & Algebra **THINKER'S KEYS**

Fractions	Decimals	Patterns & Algebra
The Ridiculous What if all fractions were outlawed? List 5 consequences of living in a world where only whole numbers could be used.	The Variation $\blacksquare + \star = 5$ What might \blacksquare and \star be, if both are NOT whole numbers? How many different answers can you find?	The Picture Create a complex pattern using pictures or symbols. Ask a friend to find the rule for your pattern.
The Question The answer is $3 \frac{1}{2}$. Write 3 complex word problems for this answer.	The Prediction Sarah places 5 different decimals on a number line between 0 and 1. If all decimals have odd numbers in the tenths place and even numbers in the hundredths, what might her number line look like?	The Puzzle What is the value of \circ ? $\blacksquare + \blacksquare + \blacksquare = 21$ $\star \times \blacksquare + \star = 40$ $\star \times \circ + \circ = 60$
The Information Conduct research about Australia's population, and create a visual display that shows information about the country's demographic in fractions and decimals.	The Interpretation Sam converted $\frac{3}{4}$ into a decimal incorrectly, writing 3.4. Create a flow chart that shows step by step how to correctly convert the fraction into a decimal.	The Brainstorming Brainstorm examples of every day situations that require you to use patterns and algebra.

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CONTENTS

3 Thinker's Key activities are provided for each of the following topics:



STAGE 2

- Whole Number
- Addition & Subtraction
- Multiplication
- Division
- Fractions & Decimals
- Patterns & Algebra



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The Variation $\star \div \bullet = 6$ What could \star and \bullet be? How many different answers can you find?	The Commonality Explain how decimals connect to measurement.	The Brainstorming Brainstorm all the patterns you can find on a hundreds chart. List all the patterns you see.		
The Interpretation Sarah solved the following problem incorrectly: $36 \div 6 = 5$ What mistake could she have made in her working out?	Different Uses List different circumstances where you would use fractions and/or decimals in real life.	Prediction Key Create a number pattern and identify the rule that describes your pattern. Can you use your rule to make predictions about what numbers will appear later on?		

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HOW YOU CAN USE THIS RESOURCE



Start or extend lessons with creative tasks



Promote independent thinking through challenges



Differentiate easily for all learning levels



WHAT OTHERS ARE SAYING!

*“Students enjoyed these activities. **Something more creative than the usual worksheets.**”*

-Cassandra O.

*“This is fantastic! I love your resources. **They're so detailed and align so closely to the curriculum.**”*

-Alison N.



*“I used these as part of my **planing for my higher ability kids** and they loved the different challenges.”*

-Jennifer O.

LOOKING FOR MORE?



Power up your maths toolkit with this **Mathematics Thinker's Keys Pack** for more open-ended, creative tasks to enrich lessons and challenge curious minds!

MATHEMATICS THINKER'S KEYS

THE SYDNEY TEACHER

FRACTIONS

Name: _____ THINKER'S KEYS

THE ALPHABET	THE VARIATIONS	THE PREDICTIONS
List as many words as you can from A to Z that relate to fractions.	How many ways can you represent $\frac{3}{4}$ quarters?	\star is multiple of both 5 and 6. What might \star be? How many different answers can you find?
THE PICTURE	THE QUESTION	THE BRAINSTORMING
Explain how this picture relates to fractions. 	Write 5 complex word problems that equal $\frac{5}{8}$.	Brainstorm and create a mind map showing all the strategies that can be used to solve multiplication problems.
THE CONSTRUCTION	THE ALTERNATIVE	THE INTERPRETATION
Construct the longest paper chain you can in 15...	...	A student believes $4 \times 5 = 9$. Provide an explanation for this thinking. How would you correct their understanding of multiplication?

MULTIPLICATION

Name: _____ THINKER'S KEYS

THE ALPHABET	THE VARIATIONS	THE PREDICTIONS
List as many words as you can from A to Z that relate to multiplication.	\star is multiple of both 5 and 6. What might \star be? How many different answers can you find?	What do you want to be when you grow up? Predict 5 ways you will use multiplication in this job.
THE PICTURE	THE QUESTION	THE BRAINSTORMING
Explain how this picture relates to multiplication. 	Write 5 multiplication questions with a product of 200.	Brainstorm and create a mind map showing all the strategies that can be used to solve multiplication problems.
THE CONSTRUCTION	THE ALTERNATIVE	THE INTERPRETATION
Construct a multiplication match up game to test Year 5 and 6 students on their multiplication facts.	Find 3 ways to calculate 24×43 on a calculator that has a missing 4 key.	A student believes $4 \times 5 = 9$. Provide an explanation for this thinking. How would you correct their understanding of multiplication?

YEARS 5-6