



Year 6 Algebra Knowledge Organiser

Star Vocabulary

Rule	A set way to solve a calculation.
Expression	A mathematical phrase containing numbers and letters.
Formula	A rule written with numbers and letters.
Inverse	The opposite of another operation. <i>Multiplication/Division Addition/Subtraction.</i>
Equation	A number sentence that has two equal sides separated with an equals sign.

I can use a bar model or part whole model to help to solve missing number questions.

I can use algebra to solve word problems.

Sentence Stems

It can't be... because...
I noticed that...
It must be ... because...
If...then...
This is different because...
This is the same because...
This is true here because...
I already know that... so...

Misconceptions

Children may think an expression such as $2y$ means $2 + y$.

When solving equations such as $36 - x = 23$, children may solve the incorrect inverse calculation, calculating $23 + 36$ instead of $36 - 23$.

We can use letters to represent a value we do not know for certain, or that can change.

You can write $2n$ instead of $2 \times n$ or $n \times 2$.
This rule can be written $7 + 2n$.

a) The rule is to add on 4 each time: 4, 8, 12, 16, ... but that will take a long time if there are 100 frogs or more!

This reminds me of missing number calculations like $\square \times 4$. I will use a table to find the rule.

Number of frogs	1	2	3	...	10	100	1,257	σ
Number of legs	1×4	2×4	3×4	...	10×4	100×4	$1,257 \times 4$	$\sigma \times 4$

Do you remember what this model is called? We will use it to represent different equations. Can you predict what equation is being represented here?

36	x
42	

We will need to work systematically to find all the solutions to one equation. We can use a table to help us order and record our solutions.

Perimeter of rectangle	If $\sigma =$	Then $b =$
20	$\sigma = 1$	$20 \div 2 - 1 = 9$
20	$\sigma = 2$	$20 \div 2 - 2 = 8$
20	$\sigma = 3$	$20 \div 2 - 3 = 7$

a) When $5 \times n$ is written as $5n$, it is called an **expression**.

Number of Stars	Points for Level 1
1	$5 \times 1 = 5$
2	$5 \times 2 = 10$
3	$5 \times 3 = 15$
4	$5 \times 4 = 20$
n	$5n$

When a specific value is given for n , you **substitute** the value for n into the rule. So here you substitute 13 for n .

If the value of n is 13, that means 13 stars have been collected.
The rule is $5n$ which means $5 \times n$ or $n \times 5$.
When $n = 13$, $5n = 5 \times 13$.
 $5 \times 13 = 65$
If the value of n is 13, you will have 65 points.

Factual & Conceptual Fluency progression

