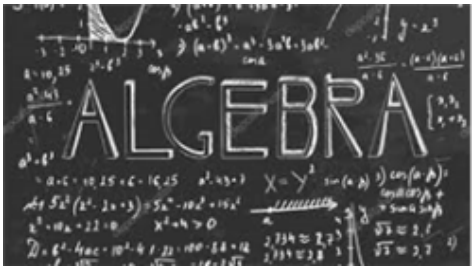
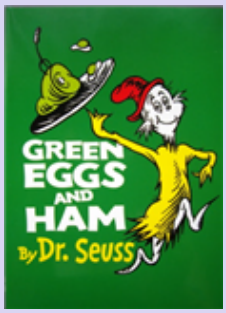
1.2.21

This week's maths topic is...



L.O. To use algebraic expressions

Alfie has two versions of the same book. He sells both of them for £8 altogether. How much is each book worth?



How could we write this as an expression?

$2b = £8$

$8/2 = b$

$b = £4$

L.O. To use algebraic expressions

Problem	Situation	Expression
Mike is doing a sponsored cycle. For every mile he cycles, Mike receives £3 in sponsorship. His company also adds £100 to the total.	Mike cycles m miles.	3m + 100

What is the total if Mike cycles 100 miles?

What would the expression be?

How much money did he raise?

$$3m + 100$$

$$(3 \times 100) + 100 = £400$$

L.O. To use algebraic expressions

Problem	Situation	Expression
Fin buys 1 large pizza and 5 small pizzas for a party.	The total cost is £12.75 *How much does one small pizza cost?*	

What would the expression be? **L + 5s = £12.75**

s = £2

L + (5 x £2) = £12.75

12.75 - 10 = 2.75

L.O. To use algebraic expressions

A taxi firm charges 90p for a call out and then 30p for every mile you travel with them

How much would it cost for a 5 mile journey?

What would the algebraic expression be?

30m + 90 = Total cost

150p + 90p = 240p

L.O. To use algebraic expressions

Algebra is all about finding missing numbers or finding different values - this means that there are several different ways we can do this.

If a=4, b=5, c=6 and d=7, calculate the answers:

d - a = 3	7 - 4 = 3
3b = 15	3x5= 15
2a + c = 14	8 + 6 = 14
2d + a = 18	14 + 4 = 18
3c + d = 25	18 + 7 = 25
10b - 5a = 30	(10x5) - (5x4) = 30

L.O. To use algebraic expressions

Algebra is all about finding missing numbers or finding different values - this means that there are several different ways we can do this.

If a=4, b=5, c=6 and d=7, calculate the answers:

1) a+b+c=
2) c-a=
3) 2a=
4) 3d=
5) 2c+d=
6) 3a + 2b=
7) 4b-3a+c=
8)a+b+c+d=
9) $d+b^2=$
10) $3c+3^2=$
11) d^2-c^2 =
12) $a^3-a^2=$

Work out what number the shape represents in each calculation:

a) ▼ ÷ 3 = 12 ÷ 2
b) ●² x ● = 27
c) 4 x ●² = 16
d) 24 - ◆ = 16 + ◆
e) 3(★ + ★ + ★) = 18
f) 5♠ = 3♠ + 10

L.O. To find pairs of values

$$a + b = 6$$

a	b
5	1
4	2
3	3
1	5
2	4

$$a - b = 5$$

a	b
10	5
20	15
12	7
100	95
576	571

L.O. To find pairs of values

X and Y are whole numbers.

- X is a one digit odd number.
- Y is a two digit even number.
- $X + Y = 25$

Find all the possible pairs of numbers that satisfy the equation.

x	y
1	24
3	22
5	20
7	18
9	16

L.O. To find pairs of values

$c \times d = 48$

What are the possible integer values of c and d?
How many different pairs of values can you find?

c	d
12	4
6	8
48	1

L.O. To find pairs of values

You need to find **AT LEAST** 2 pairs for each. Try to find more!

*	**	***
1) a+b=10	6) d=1/2 e	11) ac=48
2) c+d=12	7) 2a=b	12) ab=13
3) e+f=28	8) b=3c	13) $\frac{c}{d}=4$
4) g+h=13	9) a+b=49	14) $\frac{a}{b}=12$
5) ca=24	10) $y=m^2$	

Extension

Find the **only** pair of numbers that makes both of these calculation pairs correct

e) pk = 60 and k - p = 11

f) m x 2n = 36 and n ÷ m = 2

g) 3f ÷ h = 9 and f + 2h = 35

L.O. To understand how to find the nth term

What is the next term?

1 4 9 16 25

1st 2nd 3rd 4th 5th

How is the sequence being generated?
What is this sequence called?

L.O. To understand how to find the nth term

These sequences are created using a formula including 'n' which means any number.

For the 1st number n = 1, for the 2nd number n = 2 and so on.

1st 2nd 3rd 4th 5th

21, 22, 23, 24, 25... **n + 20**

1st 2nd 3rd 4th 5th

-11, -10, -9, -8, -7... **n - 12**

1st 2nd 3rd 4th 5th

6, 8, 10, 12, 14... **2n + 4**

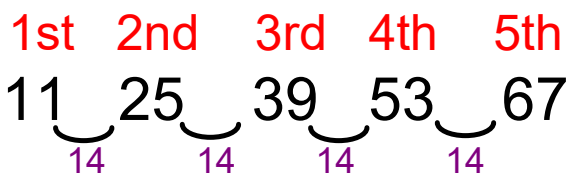
L.O. To understand how to find the nth term

1st	2nd	3rd	4th	5th
5	8	11	14	17
	3	3	3	3

3n + 2

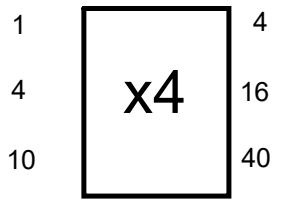
1st	2nd	3rd	4th	5th
7	12	17	22	27
	5	5	5	5

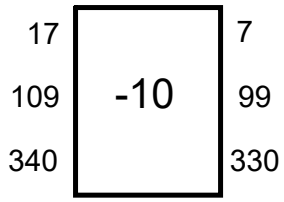
5n + 2



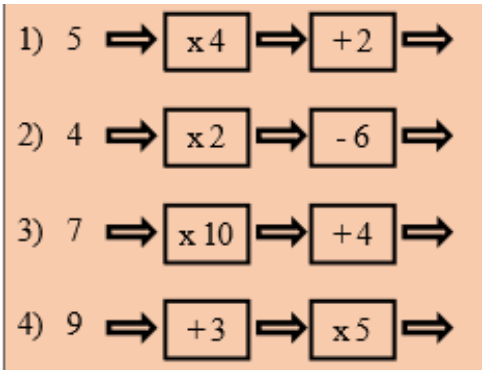
$14n - 3$

L.O. To use function machines with a given formula





L.O. To use function machines with a given formula



What would happen if you put ten into each machine?

L.O. To use function machines with a given formula

20 ⇨ ÷4 ⇨ +8 ⇨ 13

48 ⇨ ÷2 ⇨ - 11 ⇨ 13

7 ⇨ x 10 ⇨ +20 ⇨ 90

90 - 20 = 70

70/10 = 7

Attachments

Reasoning end of unit algebra.pdf

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