Hello Year 6,

How are you? I am looking forward to seeing you next week.

I hope you managed to get outside this weekend, especially on Saturday, to enjoy the sunshine.

I managed to plant some new flowers in the garden, it feels like Spring is on the way.

This week we will continue to look at algebra.

Mar 1-09:12

Last week we looked at function machines.

Input ——→ [+ 4] ——→ Output

In this function machine, we input a number, then add 4 to that number, to get the output.

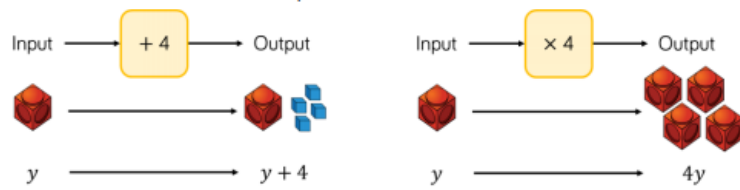So, if the input was 3, we would add 4, and the output would be 7.

When we don't know the value of the input, but we still want to express what the function machine will do, we can express the input as a letter, instead of a number.

Input ——→ [+ 4] ——→ Output
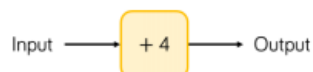
We could say $y + 4$

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Mo uses cubes to write expressions for function machines.

Input ——— $+4$ ——→ Output   Input ——— $\times 4$ ——→ Output

y ——————→ $y + 4$ y ——————→ $4y$

Mo has used cubes to represent the input and output, as well as letters, to try and help him to understand.

You can see the input y is represented by a red cube. When the function machine is $+4$, he ends up with a red cube $+4$ blue cubes. When the function machine is $\times 4$, he ends up with 4 lots of the red cube.

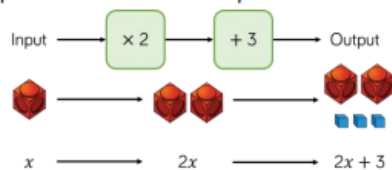Mar 1-09:20

Use Mo's method to represent the function machines.
What is the output for each machine when the input is a?

Input ——— $+2$ ——→ Output   Input ——— $\times 3$ ——→ Output

You can choose to just write the expression (something like $y + 4$ on the previous slide) or you can draw cubes and write the expression.

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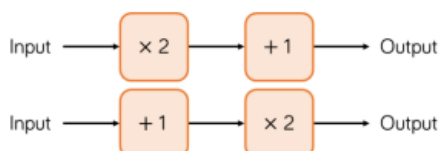Eva is writing expressions for two-step function machines.

Input → ×2 → +3 → Output

x —————— $2x$ —————— $2x + 3$

Use Eva's method to write expressions for the function machines.

Input → ×3 → +2 → Output   Input → ×5 → +2 → Output

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Amir inputs m into these function machines.

Input → ×2 → +1 → Output

Input → +1 → ×2 → Output

He says the outputs of the machines will be the same.
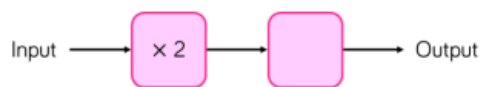
Do you agree?

Explain your answer.

Tip: Use cubes to represent what is happening with each of these function machines.

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This function machine gives the same
output for every input.
For example if the input is 5 then the
output is 5 and so on.

Input ——→ [× 2] ——→ [   ] ——→ Output

What is the missing part of the function?

What other pairs of functions can you
think that will do the same?

Mar 1-09:38

If ⭐ = 7 and ♡ = 5, what is the value of:

$$⭐ + ♡ + ♡ \ = \ _____$$

If $a = 7$ and $b = 5$ what is the value of:

$$a + b + b \ = \ _____$$

What is the same and what is different about this question?

Which letter represents the star? _____
Which letter represents the heart? _____
Would it still be correct if it was written as $a + b + c$?

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a + a + a can be written as 3a

b + b can be written as 2b

How else could you write:

c + c + c + c = _____

4y = _____

Mar 1-09:42

Substitute the following to work out the values of the expressions.

$$w = 3 \quad x = 5 \quad y = 2.5$$

- $w + 10$
- $w + x$
- $y - w$

Tip: Substitute is like a swap. So, in w + 10, where w = 3,
we can substitute or swap the value 3 for the w to get 3 + 10.

Mar 1-09:44

Substitute the following to work out the values of the expressions.

$$w = 10 \quad x = \frac{1}{4} \quad y = 2.5$$

- $3y$
- wx
- $12 + 8.8w$
- $wy + 4x$

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Here are two formulae.

$$p = 2a + 5$$

$$c = 10 - p$$

Tip: You need to work out the first formula, before you can work out the second.

Find the value of c when $a = 10$

Mar 1-09:47

Amir represents a word problem using cubes, counters and algebra.

Words	Concrete	Algebra
I think of a number		x
Add 3		$x + 3$
My answer is 5		$x + 3 = 5$

Complete this table using Amir's method.

Words	Concrete	Algebra
I think of a number		
Add 1		
My answer is 8		

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Write down algebraic equations for these word problems.
- I think of a number, subtract 17, my answer is 20
- I think of a number, multiply it by 5, my answer is 45

Match each equation to the correct bar model and then solve the value of x.

x	x	x
12		

$x + 5 = 12$

3	x
12	

$3x = 12$

x	5
12	

$12 = 3 + x$

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Thank you Year 6

Remember you can email photographs of your work to:

UKS2parents@epcollier.reading.sch.uk

Or bring any work you have done to school next week.

See you soon,

Mrs Yeandle

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