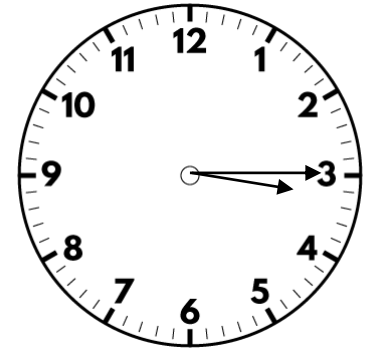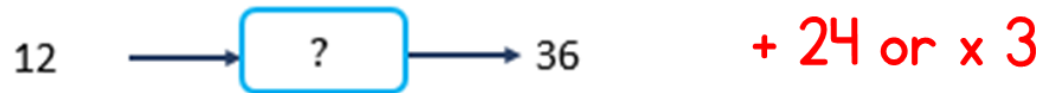1) Use the formula $A = lw$ to work out the value of A when $l = 6$ and $w = 8$ **48**

2) What might the rule be for this function machine?

$$12 \longrightarrow \boxed{?} \longrightarrow 36$$ **+ 24 or x 3**

3) Write $\dfrac{2}{5}$ as a decimal   **0.4**

4) Divide 2394 by 7   **342**

White Rose Maths

RECALL

In ×3 then -10 OUT

In -10 then ×3 OUT
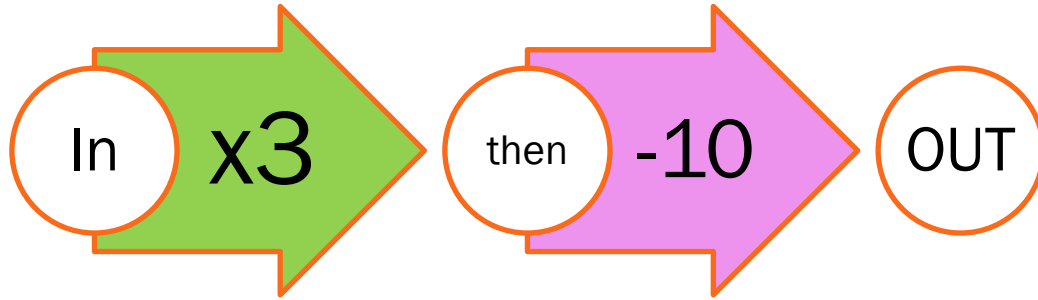
- Create a table for each function machine.
- Do you get the same outputs when the operations are swapped?
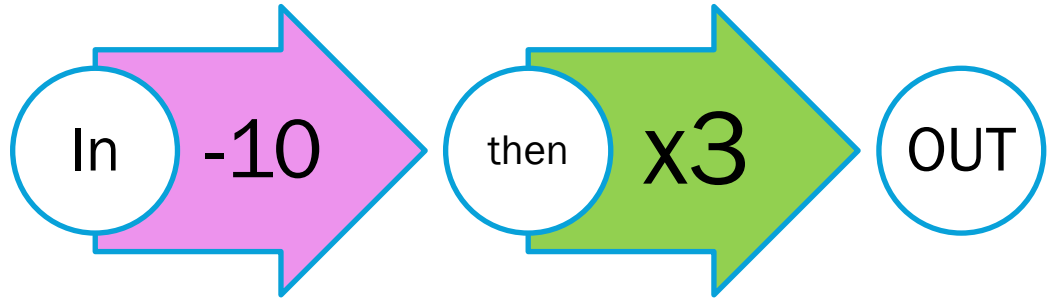
Input	11	12	13	14	15	20	30
Output							

I CAN SOLVE A VARIETY OF NUMBER PROBLEMS USING FORMULAE AND ALGEBRAIC EQUATIONS

PROBLEM SOLVING (19VIII) 2ND MARCH 2020

LEARNING HABITS?
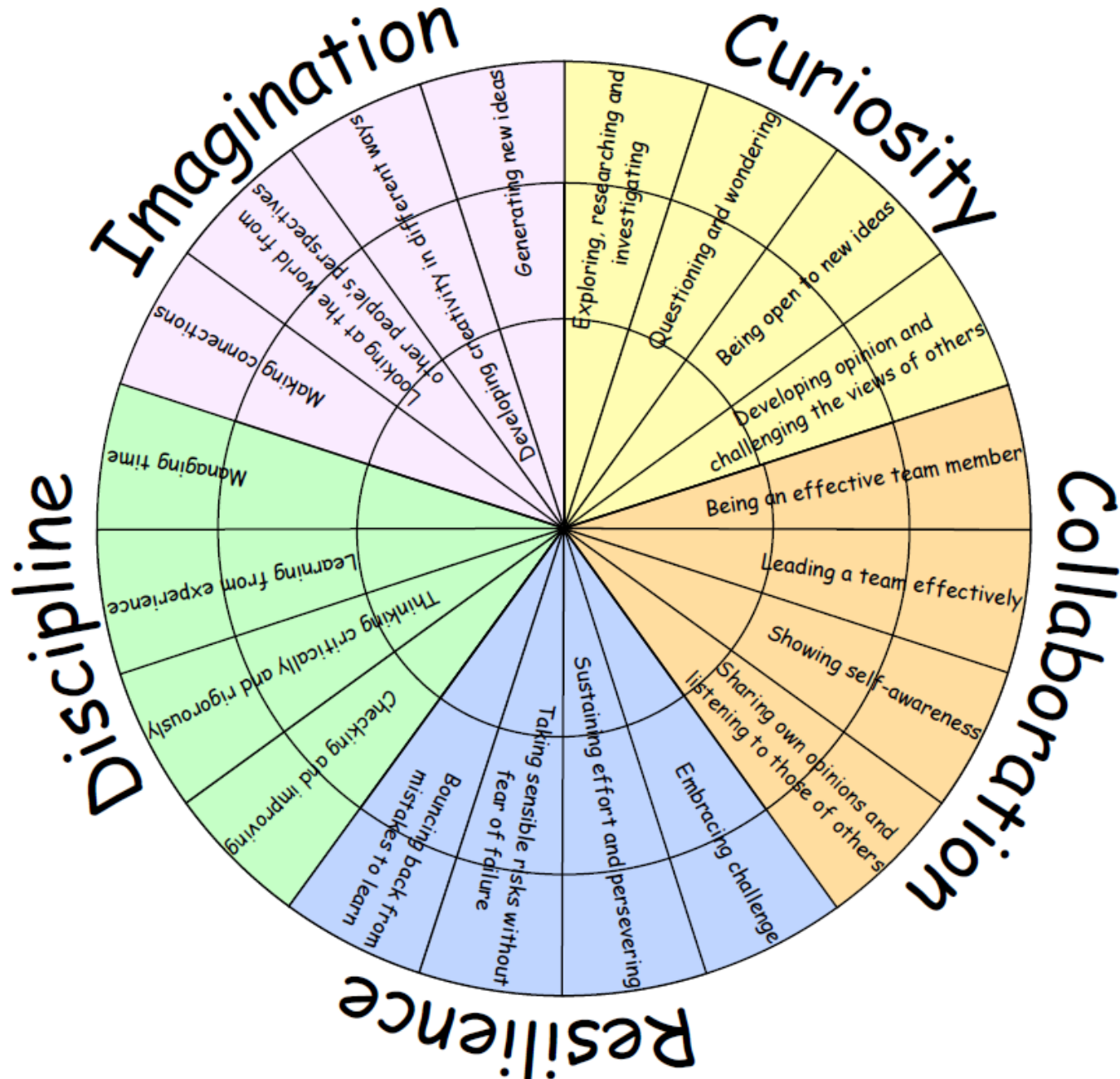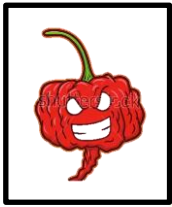

Learning habits wheel with six segments:

Curiosity
- Exploring, researching and investigating
- Questioning and wondering
- Being open to new ideas
- Developing opinion and challenging the views of others

Collaboration
- Being an effective team member
- Leading a team effectively
- Showing self-awareness
- Sharing own opinions and listening to those of others

Resilience
- Embracing challenge
- Sustaining effort and persevering
- Taking sensible risks without fear of failure
- Bouncing back from mistakes to learn

Discipline
- Checking and improving
- Thinking critically and rigorously
- Learning from experience
- Managing time

Imagination
- Making connections
- Looking at the world from other people's perspectives
- Developing creativity in different ways
- Generating new ideas

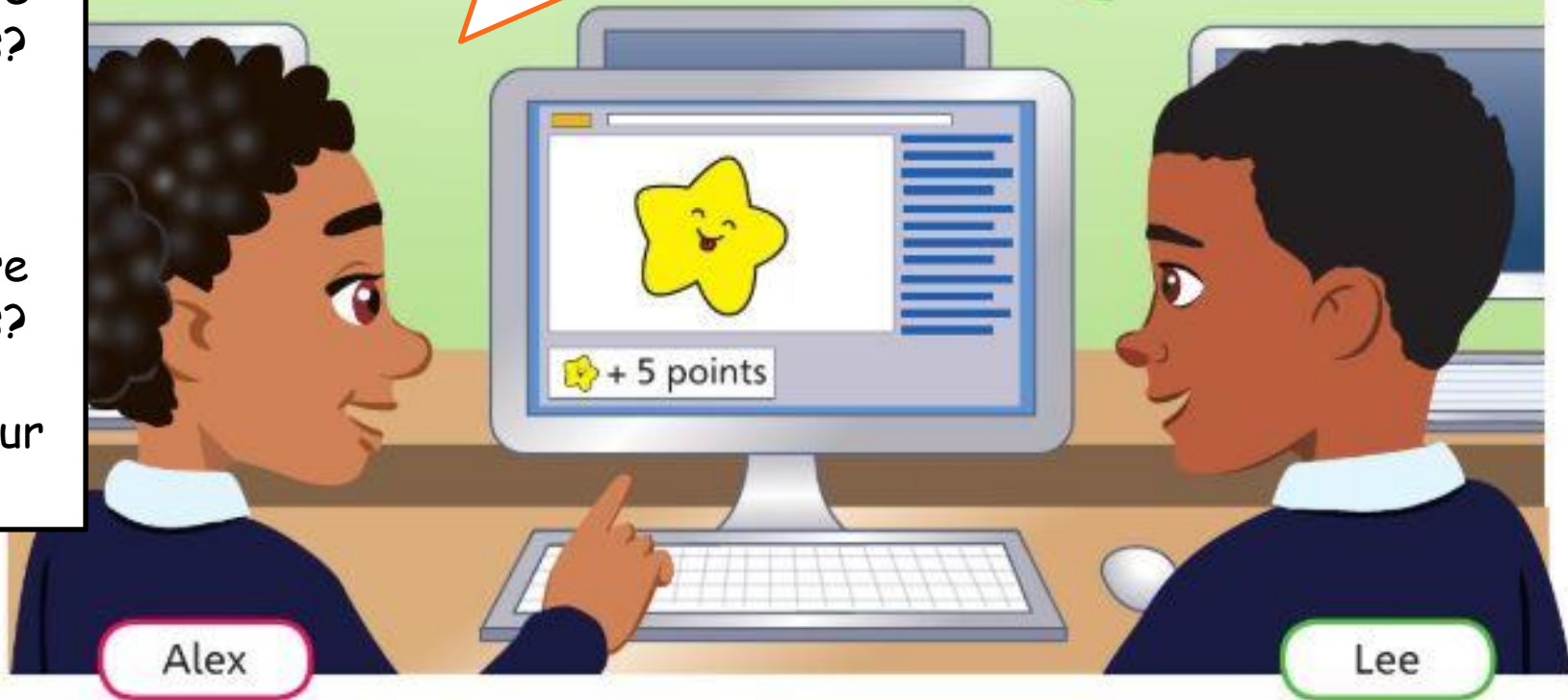On level 1, before you start you have 10 points and get 5 points for each star you collect.

I will code the rule to calculate the points for *n* stars collected.

Can I score 215 points?

Explain.

Can I score 319 points?

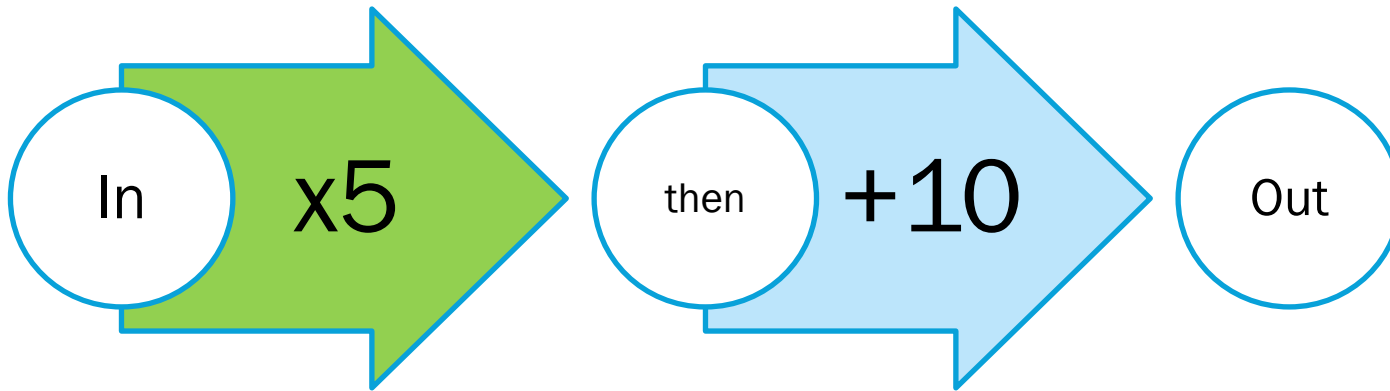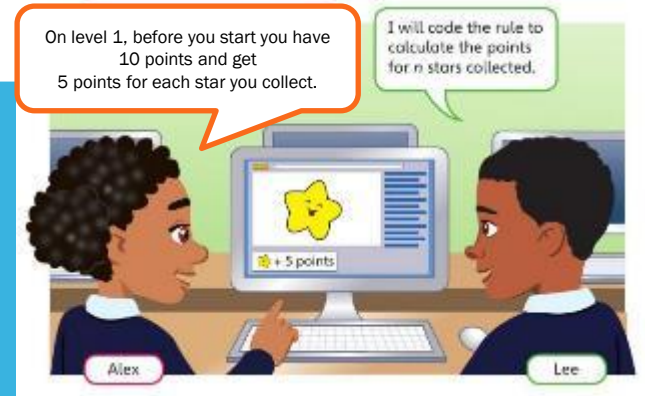Explain your answer.

+ 5 points

Alex

Lee

GUIDED PRACTICE

1. Can you create a table to show the score for the number of stars (n)?
2. Can you draw a function machine to show this sequence?
3. Can you write the sequence as a formula (algebraic equation)?

Stars (n)	1	2	3	4	5	6
Points	15	20	25	30	35	40

In → x5 → then → +10 → Out

Points = 5n +10

How many points will you have if you have collected 30 stars?
How many stars will you have collected if your score is 210?

On level 1, before you start you have 10 points and get 5 points for each star you collect.

I will code the rule to calculate the points for n stars collected.

🌟 + 5 points

Alex

Lee

On level 2 of the game, you start with 50 points. You gain 25 points every time you collect a ring.

Input → x25 → +50 → Output

Rings	1	2	3	4	5	10
Points						

On level 3 of the game, your aim is to collect coins. Each coin is worth 150 points. You start with 500 points. Can you complete the following?

Input → ? → ? → Output

Coins	1	2	3	4	5	10
Points						

On level 4 of the game, you start with 200 points. You have 60 seconds to collect as many coins as possible and you score 15 points per coin.

Input → ? → ? → Output

Coins	1	2	3	4	5	10
Points						

DIVE DEEPER 1

1) I pay for some tickets online. Each ticket costs £25. There is a £8 postage charge.

a) Draw a table showing the costs of tickets from 1 to 10.

Ticket	1	2	3	4	5	6	7	8	9	10
Cost										

b) Draw a function machine.

| Input | → | ? | → | ? | → | Output |

c) How much would it cost to buy tickets for the whole class (30 children)?

2) I order some photos online.
Each photo costs 35p.
There is a 75p delivery charge.

a) How much would 20 photos cost?

b) If I spent £6, how many photos did I buy?

DIVE DEEPER 2

3) A shop prints t-shirts.
It costs £3.20 for the t-shirt.
For each colour you want on the t-shirt, it costs 60p.

a) How much would it cost for a t-shirt with 3 colours printed on it?

b) Geoffrey has £7. How many colours could he have on his t-shirt?

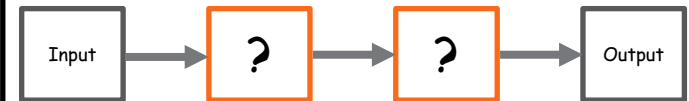4) Cooking a turkey properly requires the following instructions:

45 minutes + 20 minutes per kilogram.

a) How long does a 3kg turkey need to be cooked for?

b) How long does a 3.5kg turkey need to be cooked for?

5) On YouTube, you have to pay £5 to set up your account. You receive 40p for each view of your video.

a) Draw a function machine.

| Input | → | ? | → | ? | → | Output |

b) How much money would I have after 150 views?

On level 2 of the game, you start with 50 points. You gain 25 points every time you collect a ring.

Input → x25 → +50 → Output

Rings	1	2	3	4	5	10
Points	75	100	125	150	175	300

On level 3 of the game, your aim is to collect coins. Each coin is worth 150 points. You start with 500 points. Can you complete the following?

Input → x150 → +500 → Output

Coins	1	2	3	4	5	10
Points	650	800	950	1100	1250	2000

On level 4 of the game, you start with 200 points. You have 60 seconds to collect as many coins as possible and you score 15 points per coin.

Input → x15 → +200 → Output

Coins	1	2	3	4	5	10
Points	215	230	245	260	275	350

DIVE DEEPER 1

1) I pay for some tickets online. Each ticket costs £25. There is a £8 postage charge.

a) Draw a table showing the costs of tickets from 1 to 10.

Ticket	1	2	3	4	5	6	7	8	9	10
Cost	33	58	83	108	133	158	183	208	233	258

b) Draw a function machine.

Input → x25 → +8 → Output

c) How much would it cost to buy tickets for the whole class (30 children)?

£758

2) I order some photos online.
Each photo costs 35p.
There is a 75p delivery charge.

a) How much would 20 photos cost?

£7.75

b) If I spent £6, how many photos did I buy?

15

DIVE DEEPER 2

3) A shop prints t-shirts.
It costs £3.20 for the t-shirt.
For each colour you want on the t-shirt, it costs 60p.

a) How much would it cost for a t-shirt with 3 colours printed on it?

£5

b) Geoffrey has £7. How many colours could he have on his t-shirt?

6 colours

4) Cooking a turkey properly requires the following instructions:

45 minutes + 20 minutes per kilogram.

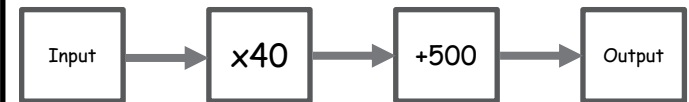a) How long does a 3kg turkey need to be cooked for?

105 minutes

b) How long does a 3.5kg turkey need to be cooked for?

115 minutes

5) On YouTube, you have to pay £5 to set up your account. You receive 40p for each view of your video.

a) Draw a function machine.

Input → ×40 → +500 → Output

b) How much money would I have after 150 views?

£65

SELF-ASSESSMENT

- Some will even use inverse equations
- Some will use formula too
- Most will be to draw tables and function machines
- All will use draw tables to answer questions