Session 1

To start

Work out the answer to each of these calculations.

Calculation	Answer	Calculation	Answer
734 x 60 =		342 x 80 =	
143 x 70 =		425 x 90 =	

How could partitioning help?

Mr G's WAGOLL
(What A Good One Looks Like)

326 x 40

300 20 6

If 30 x 4 = 120…
And if 30 x 40 = 1200
Then 300 x 40 = 12000

If 20 x 4 = 80…
Then 20 x 40 = 800

If 6 x 4 = 25…
Then 6 x 40 = 240

12,000 + 800 = 12,800

12,800 + 240 = 13,040

Session 1

Main task

Can you work out how many blocks would be needed to make the next 8 dogs in the sequence? Also include the body sections!

Dog number	Body	Legs	Tail	Ears	Nose	Head	Total
6	8	12	1	1	1	1	24
7							
8							
9							
10							
11							
12							

Session 1

Challenge

How many cubes for dog 100?

Dog number	Body	Legs	Tail	Ears	Nose	Head	Total
6	8	12	1	1	1	1	24
7	9	14	1	1	1	1	27

Remember:

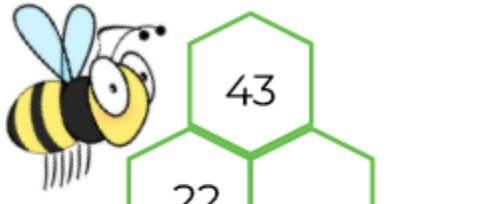
To work out the body we use the formula:
DOG NUMBER + 2

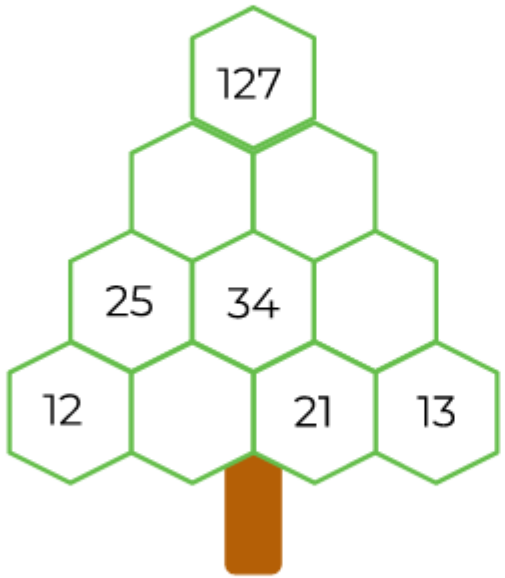
To work out the legs we use the formula:
DOG NUMBER x 2

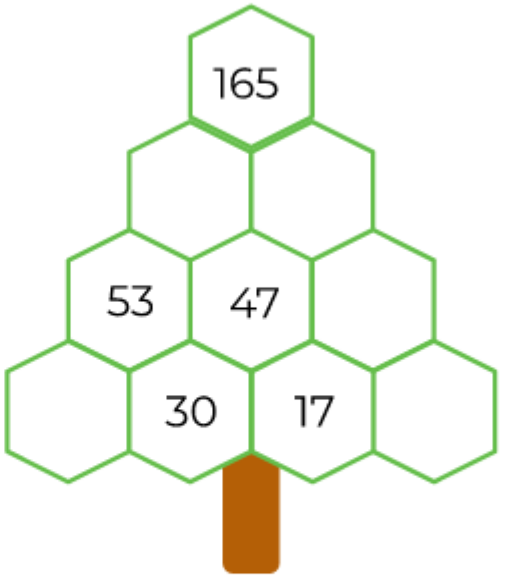
Session 2

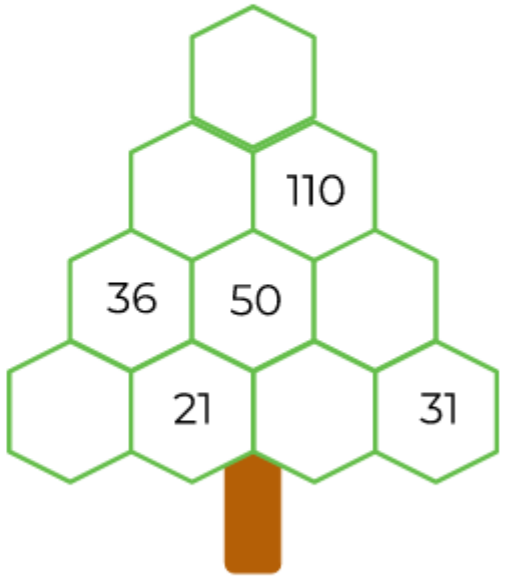
To Start

Complete the number trees. The number at the top is the sum of the two numbers below it.









Session 2

Moving on

Can you work out how many blocks would be needed to make the first 6 steps in the sequence?

Step	Total Blocks
1	1
2	4
3	
4	
5	
6	

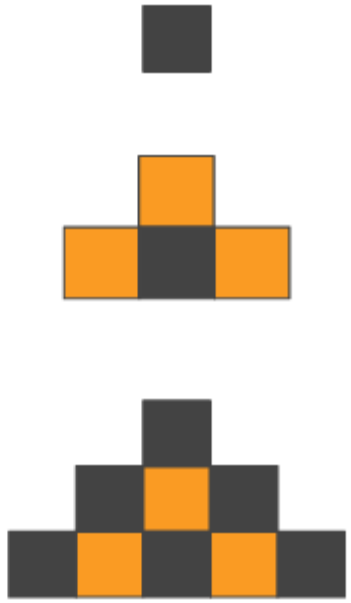
What is the rule of this sequence? What happens to the total cubes value each time? Explain in a sentence:

Session 2

Main task

What other patterns can we spot if we break it down even more?

Step number	New blocks	Total blocks
1	1	1
2	3	4
3		
4		
5		
6		
7		
8		

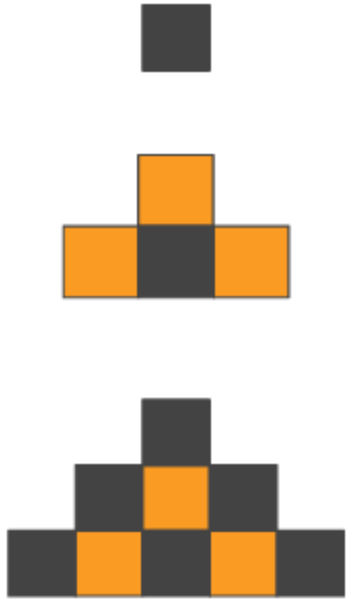


Session 2

Challenge

Using what we know, how can we work out the number of blocks for ANY step number?

Step number	Way to work it out	Total
1	**1x1 or 1^2**	**1**
2	**2 x 2 or 2^2**	**4**
3		
9		
10		
20		
50		



Session 3

To Start

Times tables speed challenge

	4	8	7	10	5	6	9	2	3
4									
9									
8									
10									
11									
12									
6									
7									
5									

Session 3

Moving on

Can you work out how many blocks would be needed to make the first 6 steps in the sequence?

Step	Total triangles
1	1
2	4
3	
4	
5	
6	

What is the rule of this sequence? What happens to the total number of triangles each time? Explain in a sentence:

Session 3

Main task

Lets go a step further now and record more information

Step	new matches	Total matches	Triangles
1	3	3	1
2	6	9	4
3			
4			
5			
6			
7			
8			

Session 3

Challenge

What do we notice? Can you explain 3 things that you notice here?

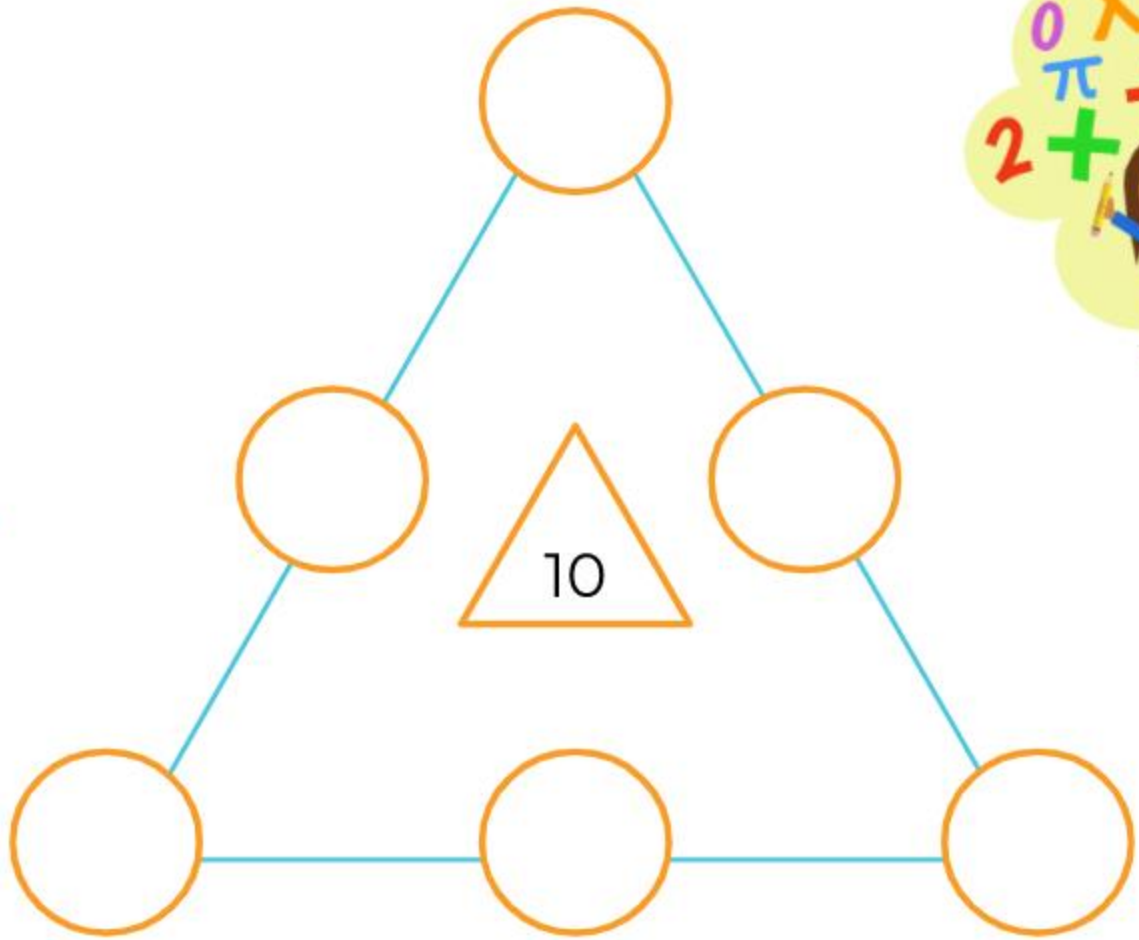
Step	new matches	Total matches	Triangles
1	3	3	1
2	6	9	4
3	**9**	**18**	**9**
4	**12**	**30**	**16**

Session 4

To Start

Can you fit the numbers:

1, 2, 3, 4, 5 and 6 into the circles so that each 3 circles joined by lines have the same total of 10?



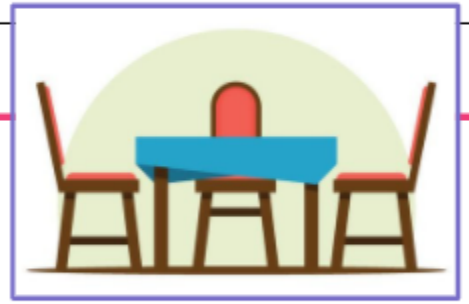
Session 4

Moving on

Can you work out how many chairs would be needed to make the first 8 steps in the sequence?

Term	Total chairs
1	4
2	6
3	
4	
5	
6	
7	
8	

What is the rule of this sequence? What happens to the total chairs value each time? Explain in a sentence:



Session 4

Main Task

If the number of chairs increases by 2 each time, can you fill in this information?

Term	Total Tables	Total Chairs
Term 13		
Term 15		
Term 17		
Term 19		
Term 21		
Term 23		
Term 25		
Term 27		

Pay attention to which term of the sequence it is

Session 4

Challenge

The formula to work out the number of chairs is quite easy:

Number of the term +1
Then
Multiply by 2

Term	Total chairs
1	**4**
2	**6**

1 + 1= 2 then 2 x 2 = **4**
2 + 1= 3 then 3 x 2 = **6**

Term	Calculation	Total chairs
31		
47		
130		

How can we use this to work out how many tables we would need for 422 people?

Session 5

To Start

Can you complete the number grid by putting the numbers into the correct places?

	1												
	7												
	4												
	9												
	5												
					3	2	5	4	0				

3 DIGITS		4 DIGITS	
149	536	1943	7561
261	675	2845	8237
348	796	3371	8263
472	813	3491	9057
483		5247	9842
		5962	

5 DIGITS		6 DIGITS	7 DIGITS
14259	52076	405183	2394608
~~17495~~	57346	843925	7265713
28136	63307		
~~32540~~	65074		
37281	72751		
42310	82714		

Session 5

Task 1

Can you work out the rule for each of these sequences? Tick the increasing sequences.

Sequence	Rule
25, 50, 75, 100, 125, 150, 175, 200	
-5, -10, -15, -20, -25, -30	
1600, 800, 400, 200, 100, 50, 25	
46, 62, 78, 94, 110, 126, 142	
1001, 931, 861, 791, 721, 651	
5000, 1000, 2000, 40, 8	

Session 5

Task 2

Can you write the first 6 terms in each sequence? – follow the rule and pay attention to the start number

1. The rule is add 11, the start-point is 17

2. The rule is add 25, the start-point is 37

3. The rule is subtract 23, the start point is 29

4. The rule is subtract 9, the start point is 15

5. The rule is add 104, the start point is -94

Session 5

Task 3

Can you write the first missing terms in each sequence?

Sequence	Rule
150, 190, _____ , 270, 310, _____	
29, 34, 39, 44, _____, _____	
-9, -18, -27, _____ , _____ , -54	
6.4, 6.9, _____, _____, 8.4, 8.9	
9.9, 8.7, _____, 6.3, 5.1, _____	
-44, -25, _____, 13, _____, 51	