

Profile: Michelle (Key Stage 2)

Activity | Boxes

The focus of this activity is a game using place value and subtraction with numbers up to 1000. The game is played in pairs where pupils take turns to generate single digits using a set of cards. As each digit is generated, the player decides where to place it to form a valid inequality using either two-digit or three-digit numbers, and then replaces the card. The winner of the game is the player whose pair of numbers has the greater difference. In playing the game, pupils develop a strategy for placing a digit by considering the likelihood of getting a higher or lower number, and explain their strategy.

Activity | Brecon Beacons

The focus of this activity is ordering numbers up to 1000. Pupils are presented with a table of the heights of mountains in the Brecon Beacons, within which there is a deliberate error. They are asked to identify the error, to explain how they identified it and to correct it, and then to reorganise the data, starting with the highest and finishing with the lowest summit height.

Activity | Consecutive numbers

The focus of this activity is to identify and explain patterns that arise when adding together consecutive numbers.

Activity | Building triangles

In this activity, pupils aim to identify patterns in a sequence, find a rule in words for the pattern, use this rule to predict later entries in the pattern, and prove their rule for a specific entry. They use matchsticks or straws to develop patterns of increasing numbers of equilateral triangles laid edge-to-edge in a straight line, then attempt the same activity using squares.

<u>Game 1</u>		<u>Michelle</u>	<u>Eleri</u>			
T	U	T	U	T	U	
2	3	<	6	3	1	5
my score = 40			Eleri's score = 57			

<u>Game 2</u>				
T	U		T	U
9	1	>	3	9
my score = 52			Eleri's score = 69	
Score so far = 92			Score so far = 126	

<u>Game 3</u>						
H	T	U		H	T	U
9	6	1	>	5	2	1
my score = 440			Eleri's score = 862			
Score for 3 games = 532			Score for 3 games = 988			

How I play the game

H	T	U	>	H	T	U
↑				↑		
I want a high number here				I want a low number here. If		
If I get 9 or 8				I get 0 or 1 I		
I will put it here				will put it here		

Then I will get a big score.

H	T	U	<	H	T	U
↑				↑		
I want a low number here				I want a high number here		

Heights of Summits in the Brecon Beacons

<u>Summit</u>	<u>Height in metres</u>
Allt Lwyd	645 ✓
Bryn	561 ✓
Corn Du	873 ✓
Craig Pwllfa	768 ✓
Craig y Fanrddu	678 ✓
Cribin	795 ✓
Dawynt	824 ✓
Fan Big	598 ✓
Pant y Creigiau	565 ✓
Pen y Fan	886 ✓
Llwyn Mynyddod	2089 ✓
Y gyson	613 ✓

Llwyn Mynyddod is wrong because Pen y Fan is the highest in the Brecon Beacons. I think it has been written in feet.

2089	645 ✓	561 ✓	873 ✓	763 ✓	2089
886	678 ✓	598 ✓	824 ✓	795 ✓	886
873	613 ✓	565 ✓	886 ✓		873
824					824
795		2089 ✓			795
645 ↑					763
613)					678
678					645
					598
					565
					561

Consecutive Numbers

$$\begin{aligned} 0+1 &= 1 \\ 1+2 &= 3 \\ 2+3 &= 5 \\ 3+4 &= 7 \\ 4+5 &= 9 \\ 5+6 &= 11 \\ 6+7 &= 13 \\ 7+8 &= 15 \\ 8+9 &= 17 \\ 9+10 &= 19 \end{aligned}$$

Adding two consecutive numbers gives an odd number.

I can't make even numbers. I think this is because

$$\text{odd} + \text{even} = \text{odd}$$

and

$$\text{even} + \text{odd} = \text{odd}$$

$$0+1=1$$

$$1+2=3$$

$$2+3=5$$

$$1+2+3=6$$

$$3+4=7$$

$$4+5=9$$

$$1+2+3+4=10$$

$$5+6=11$$

$$3+4+5=12$$

$$6+7=13$$

$$2+3+4+5=14$$

$$7+8=15$$

$$13+14=27$$

$$1+2+3+4+5+6+7=28$$

$$14+15=29$$

$$9+10+11=30$$

$$15+16=31$$

$$16+17=33$$

$$7+8+9+10=34$$

$$17+18=35$$

$$11+12+13=36$$

$$18+19=37$$

$$8+9+10+11=38$$

$$19+20=39$$

$$8+9=17$$

$$5+6+7=18$$

$$9+10=19$$

$$2+3+4+5+6=20$$

$$10+11=21$$

$$4+5+6+7=22$$

$$11+12=23$$

$$7+8+9=24$$

$$12+13=25$$

$$5+6+7+8=26$$

These are some numbers I can't make.

I notice that some numbers can be made in more than one way.

$$\text{e.g. } 10+11+12=33$$

$$6+7+8=21$$

The numbers for the triangles go up in twos, because I add two sides each time.

Building Triangles

Shape	Matchsticks
	3
	5 = 3 + 2
	7 = 5 + 2
	9 = 7 + 2
	11 = 9 + 2

Number of triangles	Number of matchsticks
1	3 $\rightarrow 1 + 2$
2	5 $\rightarrow 1 + 4$
3	7 $\rightarrow 1 + 6$
4	9 $\rightarrow 1 + 8$
5	11 $\rightarrow 1 + 10$
6	13 $\rightarrow 1 + 12$
7	15 $\uparrow$
8	17 This gives
9	19 the 2 x
	table

The numbers for the squares go up in threes because I add three sides each time.

I tried the same with squares

Shape	Number of squares	Number of matchsticks
	1	4 $\rightarrow 1 + 3$
	2	7 $\rightarrow 1 + 6$
	3	10 $\rightarrow 1 + 9$
	4	13 $\rightarrow 1 + 12$
	5	16 $\rightarrow 1 + 15$
		$\uparrow$
		This gives the
		3 x table.