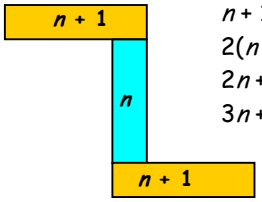
Session Six
Conceptualizing and Representing Linear Relationships
Solution Methods: Regina's Logo

Closed Methods

1. Tops, bottoms, and middle

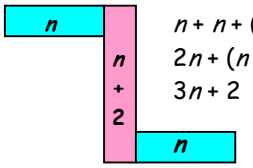


$n + 1 + n + 1 + n =$
$2(n + 1) + n =$
$2n + 2 + n =$
$3n + 2$

Two groups of $n + 1$ and one n
$y = 2(n + 1) + n$

size	tiles
1	2(1 + 1) + 1
2	2(2 + 1) + 2
3	2(3 + 1) + 3
4	2(4 + 1) + 4
n	$2(n + 1) + n$

2. Ends and middle

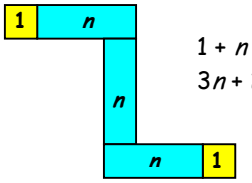


$n + n + (n + 2) =$
$2n + (n + 2) =$
$3n + 2$

Two groups of n and one group of $n + 2$
$y = 2n + (n + 2)$

size	tiles
1	2(1) + (1 + 2)
2	2(2) + (2 + 2)
3	2(3) + (3 + 2)
4	2(4) + (4 + 2)
n	$2(n) + (n + 2)$

3. Top, bottom, middle plus ones



$1 + n + n + 1 + n =$
$3n + 2$

Three groups of n and two ones
$y = 3n + 2$

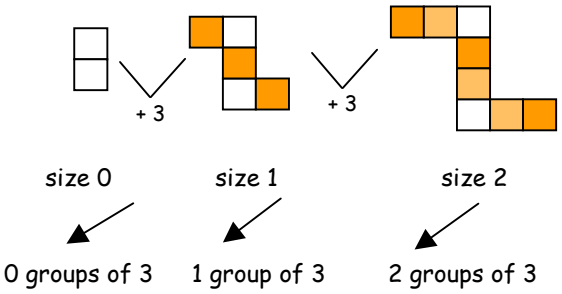
size	tiles
1	3(1) + 2
2	3(2) + 2
3	3(3) + 2
4	3(4) + 2
n	3(n) + 2

4. Finding an equation from a table

size	tiles	
0	2	
1	5	+3
2	8	+3
3	11	+3
4	14	

$y = 3x + 2$

Recursive Method



size	tiles
1	5
2	5 + 3
3	5 + 3 + 3
4	5 + 3 + 3 + 3

The orange tiles show where new tiles are being added on (+3 each time). The number of groups of 3 corresponds to the size number. This recursive view of the geometry can be related to the closed form of: $y = 2 + x(3)$.

The formal recursive formula: $y_n = y_{(n-1)} + 3$; initial = 2