

Discovering number patterns

Investigation 1 Discovering odd and even numbers (PAS1.1)

Model each counting number from 1 to 20 by grouping your counters into two rows. Record your work in the table below using numerals and drawings.

Counting numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, ...			
Odd numbers		Even numbers	
Number	Representation with counters	Number	Representation with counters
1	○	2	○ ○
3	○ ○ ○	4	○ ○ ○ ○

Describe the pattern you have created by modelling odd and even numbers.

Explain the meaning of an odd number and an even number.

Investigation 2 Adding two odd numbers (PAS1.1, NS1.2)

$3 + 7 = \underline{\quad\quad}$ $5 + 9 = \underline{\quad\quad}$ $17 + 21 = \underline{\quad\quad}$ $39 + 25 = \underline{\quad\quad}$

What have you noticed about the answers to each question? _____

Do you think this will always be true? _____ Check: _____ + _____ = _____

Describe your discovery. _____

Investigation 3 Adding an odd number and an even number (PAS1.1, NS1.2)

$9 + 10 = \underline{\quad\quad}$ $13 + 8 = \underline{\quad\quad}$ $7 + 16 = \underline{\quad\quad}$ $23 + 30 = \underline{\quad\quad}$

What have you noticed about the answers to each question? _____

Do you think this will always be true? _____ Check: _____ + _____ = _____

Describe your discovery. _____

Investigation 4 Adding consecutive odd numbers in ascending order (NS1.2, NS2.3, PAS2.1)

Continue writing the pattern below to discover the first six terms.

$1 = 1 \leftarrow \text{1st term}$

$1 + 3 = 4 \leftarrow \text{2nd term}$

$1 + 3 + 5 = \underline{\quad\quad} \leftarrow \text{3rd term}$

$1 + 3 + 5 + 7 = \underline{\quad\quad} \leftarrow \text{4th term}$

$\underline{\quad\quad\quad\quad\quad} = \underline{\quad\quad} \leftarrow \text{5th term}$

$\underline{\quad\quad\quad\quad\quad} = \underline{\quad\quad} \leftarrow$

Describe this number pattern. _____

What is special about the answers? _____

Investigation 5 Adding consecutive counting numbers in ascending order (NS1.2, PAS1.1, NS4.1)

Continue writing the pattern below to discover the first seven terms.

$1 = 1 \leftarrow \text{1st term}$

$1 + 2 = 3 \leftarrow \text{2nd term}$

$1 + 2 + 3 = \underline{\quad\quad} \leftarrow \text{3rd term}$

$1 + 2 + 3 + 4 = \underline{\quad\quad} \leftarrow \text{4th term}$

$\underline{\quad\quad\quad\quad\quad} = \underline{\quad\quad} \leftarrow \text{5th term}$

$\underline{\quad\quad\quad\quad\quad} = \underline{\quad\quad} \leftarrow$

$\underline{\quad\quad\quad\quad\quad} = \underline{\quad\quad} \leftarrow$

Describe this number pattern. _____
