

Alternating chains

Children create chains of alternating positive and negative numbers and look at the patterns in their totals.

Skills practised:

- Adding positive and negative numbers

Conjecture: *It is possible to predict the total of a chain of numbers in a sequence of alternating positive and negative numbers.*

What to do:

Children work individually or in pairs.

1. Start a chain of positive and negative numbers.
2. Find the sum of the numbers in the chain.
Is the sum positive or negative?
3. Create the chain one number longer.
4. Find its sum. Is it positive or negative?
5. Create the chain one number longer.
6. Find its sum. Is it positive or negative?
7. Continue like this until you have a chain with 12 numbers.

Look at the pattern. Can you predict what the sum of a chain of 20 numbers would be?

Can you say what the sum of a chain of 21 numbers would be?

Try different types of number in your chain,
e.g. +1, -3, then +1, -3, +5, then +1, -3, +5, -7, and so on.
How about trying square numbers... +1, -4, +9, -16, etc.

+1, -2,

sum = -1

+1, -2, +3,

sum = +2

+1, -2, +3, -4,

sum = -2

+1, -2, +3, -4, +5,

Aim:

- To explore patterns in chains of alternating positive and negative numbers

Minimum number of calculations expected
20