Decimal differences

Children subtract pairs of numbers with consecutive digits and different numbers of decimal places, and look for patterns in their answers.

Skills practised:

- Counting up to subtract numbers with different numbers of decimal places

***Conjecture**: Subtracting numbers with consecutive digits produces a pattern in their answers.*

What to do:

Children work individually or in pairs.

1. Use counting up (Frog) to work out 9.8 – 7.65 and keep a note of both the subtraction and the answer.
2. Now work out 8.7 – 6.54 and keep a note of the subtraction and your answer.
3. Carry on this pattern of subtractions, 7.6 – 5.43, 6.5 – 4.32, 5.4 – 3.21, making a record of all your subtractions and their answers.

Can you predict the answer to the next subtraction?
Why do you think the sequence of subtractions gives such a pattern?

HINT: Look at the difference between the decimal parts of each number in a subtraction.

4. Now try 12.3 – 4.56, 23.4 – 5.67, 34.5 – 6.78 and so on.

What happens this time? This is a harder pattern to explain! It might help to look at how the whole number parts of the pair of numbers in each subtraction are increasing, and then how the decimal parts are increasing.

Investigate your own sequences of subtractions with consecutive digits,
e.g. 9.87 – 6.5,
8.76 – 5.4,
7.65 – 4.5.
For this sequence, you can use place value to subtract rather than counting up (Frog). See what other patterns you can find, and think why they occur.

Aim:

- To look for patterns and use these to make predictions
- To explain the reasons behind some patterns
- To begin to pursue own line of enquiry

Minimum number of calculations expected

10