Place value within 1

Notes and guidance

Children encountered numbers with up to 3 decimal places for the first time in Year 5. This understanding is recapped in this small step and built upon in the rest of the block.

Children represent numbers with up to 3 decimal places using counters and place value charts, identify the values of the digits in a decimal number and partition decimal numbers in a range of ways.

Children know the relationship between the different place value columns, for example hundredths are 10 times the size of thousandths and one-tenth the size of tenths.

In this step, numbers are kept within 1 to allow children to focus on the value of the decimal places. In the next step, they explore numbers greater than 1 with up to 3 decimal places.

Things to look out for

- Children may confuse the words "thousand" and "thousandth", "hundred" and "hundredth", and "ten" and "tenth".

- Children may use the incorrect number of placeholders, and so write the incorrect number.

Key questions

- What does each digit in a decimal number represent? How do you know?

- How many tenths/hundredths/thousandths are there in 1 whole?

- How many thousandths are there in 1 hundredth?

- What is the value of the digit _____ in the number _____?

- Which is greater, 0.3 or 0.14? How do you know?

Possible sentence stems

- There are _____ tenths, _____ hundredths and _____ thousandths.

  The number is _____

- There are _____ in _____

- _____ is 10 times/one-tenth the size of _____

National Curriculum links

- Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places

Place value within 1

Key learning

- Use the diagrams to complete the sentences in as many ways as possible.

  _____ is one-tenth the size of _____

  _____ is 10 times the size of _____

- Scott has made a number on a place value chart.

O	Tth	Hth	Thth

  Complete the sentences to describe Scott's number.

  There are _____ ones, _____ tenths, _____ hundredths and _____ thousandths.

  The number is _____

- Use a place value chart and plain counters to represent the numbers.

0.613		0.84		0.402		0.051

- Complete the number sentences.

  ▶ 0.2 + 0.06 + 0.009 = _____   ▶ 0.4 + _____ + 0.001 = 0.451

  ▶ _____ = 0.006 + 0.1 + 0.03   ▶ 0.6 + 0.003 = _____

- What decimal numbers are the arrows pointing to?

- Ron has partitioned 0.536

  0.536 = 0.4 + 0.13 + 0.006

  Use a place value chart to partition 0.536 a different way.

  Compare answers with a partner.

Place value within 1

Reasoning and problem solving
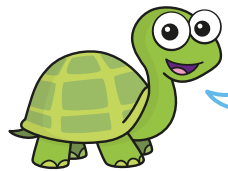
The more decimal places a number has, the smaller the number is.

Do you agree with Tiny?

Explain your answer.

No

O	Tth	Hth	Thth

Use four counters to make a number less than 1

What is the value of each digit in your number?

How many ways can you partition it?

multiple possible answers

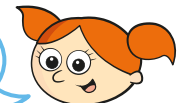| 0.454 | 0.44 | 0.445 | 0.345 |

The children are each thinking of a different decimal number.

My number has four hundredths.

Amir

My number is the smallest.

Alex

The sum of the digits in my number is 13

Dora

The tenths and hundredths digits in my number are different.

Dexter

Match each number to the correct child.

Amir: 0.44   Alex: 0.345   Dora: 0.445   Dexter: 0.454