

Year 6 Autumn 1

Unit 1: Place Value

Lesson 2: Identify, represent and partition numbers with up to three decimal places.

Lesson Objectives:

Identify, represent and partition numbers with up to three decimal places, and understand equivalence between place value columns.

Lesson Focus:

Children will consolidate their understanding of the base 10 number system by continuing to work with numbers up to three decimal places which was introduced in Year 5. As with the equivalence between place value columns of whole numbers, children will appreciate the equivalence between whole number and decimal place value columns e.g. 4 = 40 tenths or 400 hundredths or 4,000 thousandths.

Starter (No more than 10 minutes)

Count back in powers of ten from any number up to six-digits.

Show slide 1 of the SMART Notebook file and provide children with the resource sheet.

- *What number is written here?*

Eighty nine thousand one hundred and fifty-nine.

- *How do you write this number in the place value columns?*

Start in the tens of thousands (TTh) column with the digit 8 because this represents 80,000 and continue with each subsequent digit in the adjacent columns.

Write this in the top row of the table. Children to do this on their sheet.

Count back in tens from 89,159 down the table.

When the children have finished, model the answers on the slide for the children to check.

Ask:

- *When counting in tens, which digits: stay the same? Always change? Sometimes change?*

Agree that the ones digit stays the same when counting in tens.

The tens digit always changes when counting in tens.

The hundreds, thousands and ten thousands digits sometimes change when counting in tens.

Remove the screen shade and repeat for counting in tens of thousands from 546,140

Agree that the digits representing columns less than the counting step stay the same. The digit of the counting step always changes. Digits representing columns greater than the counting step sometimes change.

Count back from 89,159
in tens

HTh	TTh	Th	H	T	U

A grey counter is shown to the right of the table.

Initial Problem

Here are some place value columns.

HTh	TTh	Th	H	T	U

How many counters would you need in each column to have the same value as the counter shown?

Take feedback of children's responses. The Guided Learning will begin with a discussion of the place value columns and the relationships between them including where the names of the decimal columns derive.

Show slide 2 with the initial problem and ensure children have a place value chart and counters available.

Scaffold

What could the value of the counter be?

If the counter is worth ... how many of the column to the right is equal to this amount?

Extension

Explain how the names of decimals comes from this.

0.004

Repeat with page 9 where the number has zero as a place holder in two places.
Page 10 is available to provide further practice should the children need it.

Ask children to complete **Guided Learning Task 1** (write the numbers shown in the charts).

Guided Learning Task 1 (Write the numbers shown in the charts.)

a) _____

tens	ones	tenths	hundredths	thousandths
		1		

b) _____

tens	ones	tenths	hundredths	thousandths
	2			

Draw the counters to show this number:

c) Twenty-two point zero zero nine

tens	ones	tenths	hundredths	thousandths
	22			9

d) Show the same number a different way.

tens	ones	tenths	hundredths	thousandths

Children should use their own counters and chart if needed.

Extension:

- When showing 22.009 in a different way, how many options are there?

Children may need to be encouraged to remember that 2 ones is the same as 20 tenths or 200 hundredths or 2,000 thousandths. This knowledge can then be applied to the value of 20 in different place value columns. Whilst it would not be reasonable in a short space of time to find all the different ways, children should find a number of options.

Show slide 12 and ask the children to work in pairs and identify/say the number shown.

Take answers and agree that the number is **Eight point two nine six**. Say this together.

- Make the number using your counters on your chart.

Check children's charts before asking the question on the page.

- What are the parts that combine to make this number? How can your counters and place value chart help?

Share ideas then ask:

- What is the value of the digit 9?

The digit 9 has a value of 0.09 because it is nine hundredths. Remove the screenshade to reveal the part-whole model.

- What are the parts making up this number? Write 8.296 in the whole.

- Write the parts on your part-whole model?

Check children's part-whole model before answering together on the page.

- What is the 8 worth? 8 (ones). Write this in one of the parts.

- What is the 2 worth? 0.2 and write this in another part. Continue for the other parts until the page looks like the image on the right.

Show slide 13 and read the question. Ensure children make the number using their counters and place value charts.

- What is the number when these parts are combined?

Twenty eight point three one four. Write this on the slide.

Say the number together.

Show page 14 with the part-whole model.

- What number will be created when these parts are combined?

Children to show on their whiteboards (and use their counters and chart if necessary).

Agree that the number is six point seven nine two (6.792)

Move the parts into the whole to check before reading the number together.

Repeat with the next slide in which the parts are not in size order.

- Which part should we put into the whole first? The greatest value part: ones.

Repeat until the number is made.

hundreds	tens	ones	tenths	hundredths	thousandths
		8	2	9	6

What are the parts that combine to make this number?

hundreds	tens	ones	tenths	hundredths	thousandths
		8	2	9	6

What are the parts that combine to make this number?

8.296

8 0.2 0.09 0.006

What number would be made by combining these parts?
Show it on your table using your resources.

0.004 0.3 20

0.01 8

Part-whole model diagram:

Whole: _____

Parts: 6, 0.7, 0.09, 0.002

Part-whole model diagram:

Whole: _____

Parts: 0.3, 0.003, 9, 0.05

