

# Place value – charts and partitioning tool

## Overview

This file enables you to explore the process of partitioning numbers into multiples of 1000, 100, 10, 1, 0.1, 0.01 and 0.001 as appropriate. You can start with a number and identify the value of the separate digits or start with the various multiples arranged in a place value chart that can be combined to generate a number. You can choose the range of numbers that you would like to focus on with your pupils from a menu page.

### Place Value Charts

You can use these charts to support the pupils' understanding of place value. Click on the parts of your chosen number, they will turn yellow. Now you can reveal the number in the box at the bottom.

You can also use the tool to partition numbers.

Choose from the list below the range of numbers that you wish to use.

Place Value Charts	Partitioning Tool
Multiples of 1 and multiples of 10	Partitioning tens and ones
Multiples of 1 to multiples of 100	Partitioning hundreds, tens and ones
Multiples of 1 to multiples of 1000	Partitioning thousands, hundreds, tens and ones
Multiples of 0.1 and multiples of 1	Partitioning ones and tenths
Multiples of 0.01 to multiples of 1	Partitioning ones, tenths and hundredths
Multiples of 0.001 and multiples of 1	Partitioning ones, tenths, hundredths and thousandths
Multiples of 0.01 to multiples of 10	Partitioning tens, ones, tenths and hundredths
Multiples of 0.001 and multiples of 1000	Partitioning thousandths to thousands

## Place value charts - How to use

When you click on the white cells they will turn yellow and their contents will be added to the total  
A second click will remove them from the total

The total of the highlighted cells will automatically be calculated here

Click here to clear the chart and the total to start again

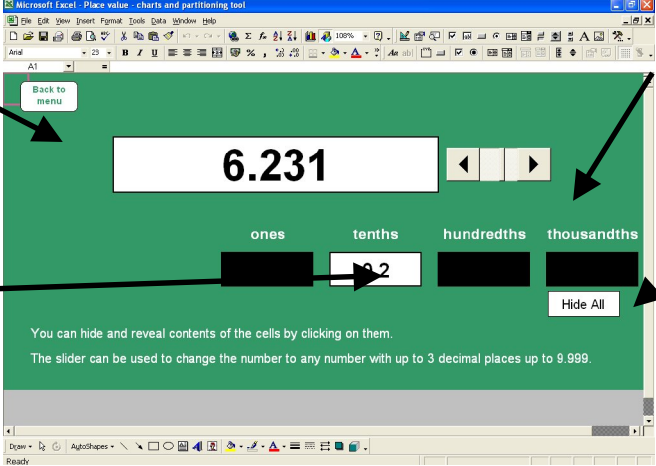
Click here to return to the main menu

Click here to reveal the total of the highlighted cells

## Place value charts - Key questions and prompts

- What number will I make if I combine these?
- Which cells do I need to highlight if I want to make the number 11.04?
- Give me an example of a number that will not have a cell highlighted in the second row.
- If I want to change the number to 34.47, what will I need to change?
- How can I add 0.1 to this number?
- Tell me some numbers that I can create with just two clicks?
- What is the highest number that I can make? ... and the lowest?
- If I add another row to my chart, below the bottom row, what numbers will it contain?
- Highlight 45. What is  $45 \div 10$ ? What changes do I need to make to the cells to show 4.5? What will happen if I divide 4.5 by 10? How can I use the chart to find  $38.6 \div 10$ ?

## Partitioning tool - How to use



The screenshot shows the Microsoft Excel Partitioning tool interface. At the top, the number 6.231 is displayed in a white box. Below it are four columns labeled 'ones', 'tenths', 'hundredths', and 'thousandths'. The 'tenths' column contains the digit '2' and is partially obscured by a black rectangle. A slider is positioned below the 'tenths' column, with a '0.2' label. A 'Back to menu' button is in the top left, and a 'Hide All' button is in the bottom right. A text box at the bottom explains: 'You can hide and reveal contents of the cells by clicking on them. The slider can be used to change the number to any number with up to 3 decimal places up to 9.999.'

Click here to return to the main menu

Use the slider to change the number that you are going to partition

Click on the cells containing the numbers to hide and reveal their contents

Click here to hide all of the numbers  
You can then reveal the number that you are going to partition before you change it

## Partitioning tool - Key questions and prompts

- How many tenths are there in this number?
- What will be hidden behind each black rectangle?
- What is the value of this digit?
- What will happen if I change the number to 6.232? ... What about if I change it to 6.331?
- Tell me a number that will have no hundredths.
- Watch what happens to the parts of the number as I gradually increase the number by 0.001 at a time?
- What about if I decrease it?
- What number will I get if I add 1 tenth ... 2 tenths ... 3 tenths etc?
- If this digit is reduced by 3 – what impact does that have on the whole number?
- Tell me some numbers that have 9 tenths.