**Contents:**

Blank fraction, decimal and percentage walls and instructions for filling them in

***Challenge*** activities, to work towards the ***Extension*** aims, or to practise your justifying and explaining skills

Link to [completed wall](https://www.barefacedmaths.co.uk/resources/FractionWall.png) to check your work

**Aims:**

To understand that all the possible ways of writing ‘a particular number that is less than a whole’ are just different ways of expressing the SAME sized amount

To be able to find several different ways to write any given number between zero and one

***Extensions:***

To understand that there are infinitely many ways to write any number between zero and one

To understand that this is useful for ‘real life’ arithmetic with fractions, decimals or percentages *{& for exams!}*

**After each activity:**

Mark your work from the [completed wall](https://barefacedmaths.co.uk/resources/FractionWall.png)

See if you can work out WHY any parts went wrong

Ask a teacher or [**online tutor**](https://www.mgse.co.uk/) for help if you are unsure of anything

**Activities:**

**1 Fraction Wall:**

Print off a copy of the wall on the next page, and fill in all the cells, following the procedure laid out in the first few rows

i.e. whenever you write in a new fraction, check upwards with the edge of a ruler, to see if there is a ‘simpler’ fraction which is the same size as the whole of your new fraction

e.g.



***Challenges:***Try to find the simplest version of all, where there are several fractions the same size

 Can you write down any RULES for working out simpler versions?

 Can you write down any rules for WHY certain fractions do NOT have simpler versions?

**Fraction Wall**

|  |
| --- |
| 1 |
| 1 / 2 | 2 / 2 = 1 |
| 1 / 3 | 2 / 3 | 3 / 3 = 1 |
| 1 / 4 | 2 / 4 = 1 / 2 | 3 / 4 | 4 / 4 = 1 |
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**2 Decimal Wall:**

Print off a copy of the wall from the next page and complete the process of turning all of your fractions from the Fraction Wall, into their decimal versions.

Use a calculator or long division, remembering that a fraction is just two numbers with a ‘÷’ between them

The numbers have just been moved onto the ‘spots’!

e.g. **1 / 5 = 1 ÷ 5 = 0.2** *{from the calculator}*

When the answer has a lot of digits, write down the first four digits from your calculator display.

***Challenges:*** When you get lots of digits, try to ROUND the answer to four decimal places or write it as a recurring decimal, if you have space!

 Can you write down any RULES for which types of fractions have lots of digits?

**Decimal Wall**

|  |
| --- |
| 1.0 |
| 0.5 | 1.0 = 1 |
| 0.3333 | 0.6667 | 1.0 = 1 |
| 0.25 | 0.5 | 0.75 | 1.0 = 1 |
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**3 Percentage Wall:**

Print off a copy of the Percentage Wall, and finish it by taking all of the decimals from your Decimal Wall and **multiplying** them by 100

e.g.

 **0.125 x 100 = 12.5**

 **So 0.125 = 12.5% or 0.125 is the same size as 12.5%**

Don’t forget to write ‘%’ after each one – 0.2 is the same size as 20 **%**, but it is NOT the same size as 20!

***Challenge:*** Think about this:

Remember that ‘***per cent*** ’ means ‘out of a hundred’ in Latin

So ‘percent’ is just how many objects would be in the required fraction of one hundred objects

The symbol ‘%’ reminds you, because ‘/’ is from the ‘÷’ sign in a fraction, and the two circles are the two zeros from ‘100’!

e.g. **if there are 100 people in a room, and HALF of them are women, how many women are there?**

 **1 / 2 of 100**

**Alternatively:**

**1 / 2 of 100**

**= 100 ÷ 2**

**= 50**

**So there are 50 women**

**= 1 ÷ 2 x 100**

**= 0.5 x 100**

**= 50**

**So there are 50 women**

What happens when there are 200 people? Or 500?

**Remember 50% = 50/100 = 1 / 2** i.e. **1 / 2 of any whole amount is the same as 50% of it**

**Percentage Wall**

|  |
| --- |
| 100% |
| 50% | 100% |
| 33.33% | 66.67% | 100% |
| 25% | 50% | 75% | 100% |
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