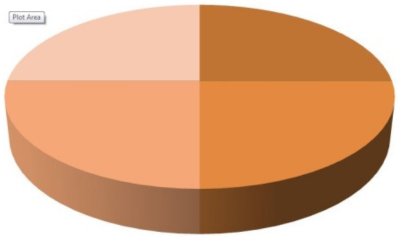
Using 4ths. *Stg 5/E6*  *props & rats*  Name: ____________________________

We know that fractions show a whole or a set that has been sliced into equal parts. Fourths are the same, and they even have their own special name – **quarters**! Quarters are fairly easy to deal with, because you can halve a half to get them. (The word 'quarter' comes from the ancient Latin word 'Quartus').

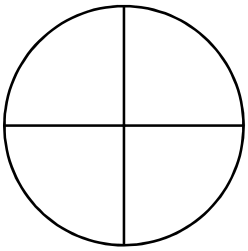
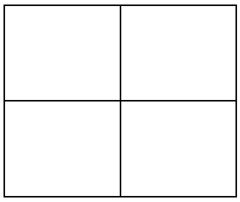
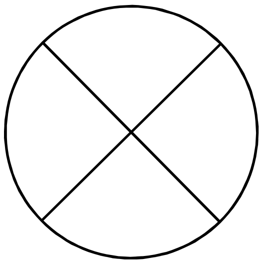


1/4

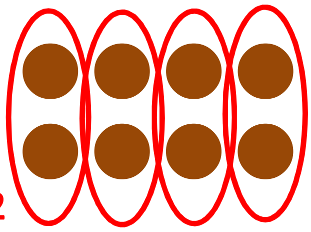
1 ← The number on top - 'the numerator' says you are dealing with **1** part.

4 ← The 'denominator' tells you that it has been chopped into **4** parts

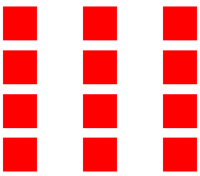
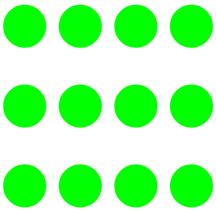
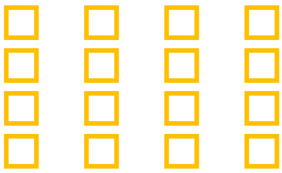
Colour in these fractions: (But don't use yellow. Yellow's yuck)

1/4  3/4  2/4  4/4 

Now, let's try chopping up some sets! The idea is the same, but you end up with 4 smaller equal groups within your original number. By equal sharing, you can quickly see that 8 things put into 4 groups, gives you 2 in each sub-set. We know how this goes! Let's try for ourselves:



1/4 of 8 = 2

1/4 of 12 =   **3/4 of 12 = __**   **2/4 of 16 = __**   **1/4 of 20 = __**

OK, this time without pictures: (Ok, I must admit, these are quite a bit harder, but I trust you – You can do it! You can use counters if you get stuck)

1. 1/4 of 16 = ___   2. 2/4 of 16 = ___   3. 3/4 of 16 = ___
4. 1/4 of 24 = ___   5. 2/4 of 24 = ___   6. 3/4 of 24 = ___
7. 1/4 of 28 = ___   8. 2/4 of 28 = ___   9. 3/4 of 28 = ___
10. 1/4 of 32 = ___   11. 2/4 of 32 = ___   12. 3/4 of 32 = ___
13. 1/4 of 36 = ___   14. 2/4 of 36 = ___   15. 3/4 of 36 = ___
16. 1/4 of 40 = ___   17. 2/4 of 40 = ___   18. 3/4 of 40 = ___

'One quarter' in Te Reo Māori is *Kotahi hauwhā*. 'Three quarters' is *toru hauwhā*

Dave Moran 2015

Using 4ths. *Stg 6*  *props & rats*  Name: ___________________________

Remember, fractions and division are very much alike, but fractions get more interesting because you can talk about **more** than just one part. We already know, for example that **1/4 of 12 is 3,** and so if you have **¾ of 12,** it must be **9,** because **3 x 3 = 9.** The numerator (top number) tells you how many parts of the number you get. So what would **5/4 of 12** look like? The number 12 is still chopped into quarters, but now there is a whole set plus another piece. The quick way to do this is to just multiply the numerator by whatever the unit fraction comes to. The unit fraction ($1/4^{th}$) of 12 is **3**. So **5/4ths** is simply **5 x 3 = 15.** Trust me it's easier than it sounds:

1. 1/4 of 16 = ___
2. 5/4 of 16 = ___
3. 7/4 of 16 = ___
4. 1/4 of 24 = ___
5. 5/4 of 24 = ___
6. 7/4 of 24 = ___
7. 1/4 of 32 = ___
8. 5/4 of 32 = ___
9. 7/4 of 32 = ___

Do you reckon it's possible to **add and subtract fractions**? I'd say so – Remember, when adding fractions with the same denominator, just leave it the same – just use the numerator. Super easy. E.g.

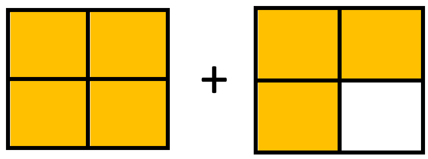
$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

Really, all we're doing is some very basic maths! 1 + 2 = 3. Even your teacher can do that! Supposing they've had enough coffee.

a. 2/4 + 2/4 = ____
b. ¼ + ¼ = ____
c. ¾ + ¼ = ____
d. ¾ + ¾ = ____
e. 2/4 + ¾ = ____
f. ¾ + 5/4 = ____
g. ¾ - ¼ = ____
h. 5/4 – ¾ = ____
i. 7/4 – 4/4 = ____

As you can see, sometimes you end up with fractions with a larger numerator than denominator. These, as we know, are called 'improper' fractions. So then, what is a 'proper' fraction? That's when we write any sets that can be made complete into whole numbers. (*What on Earth…?)* Take **4/4ths** when you have the full set, it's the same as saying you have **1** whole thing. So **4/4 = 1.** That means we can **simplify** improper fractions to show wholes as well. E.g **7/4** is the same as **1** and **¾**, or **1¾** (4/4 + ¾)

Try some, I think you'll enjoy the smooth flavour:



6/4 = (4/4 + 2/4) = ____
8/4 = (4/4 + 4/4) = ____
7/4 = (4/4 + 3/4) = ____

9/4 = (4/4 + 4/4 + 1/4) = ____
11/4 = (4/4 + 4/4 + 3/4) = ____

5/4 = ____
10/4 = ____
12/4 = ____
16/4 = ____

You doin' OK buddy? Good! I bet you're wondering now, *how do I turn quarters into decimals*? Actually it's pretty easy. **1 ÷ 4 = 0.25**, so every **¼ = 0.25 –** then **2/4 = 0.5** and **¾ = 0.75 –** So, we can Multiply by these decimals in the same way we use fractions. E.g **0.25 x 12 = 3** (because 1/4 of 12 = 3) '**x**' = '**of**' with fractions.

a. 0.25 x 16 = ____
b. 0.5 x 16 = ____
c. 0.75 x 16 = ____
d. 0.25 x 24 = ____
e. 0.5 x 24 = ____
f. 0.75 x 24 = ____
g. 0.25 x 32 = ____
h. 0.5 x 32 = ____
i. 0.75 x 32 = ____

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