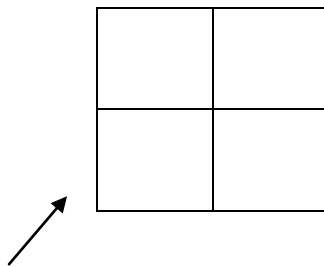


Ever since I can remember mathematics has been my *big elephant in the room*. During primary school I developed a fear of mathematics and quickly became ashamed of my lack of knowledge in the subject. At such a young age, when I was still so impressionable this was not hard to do. Children quickly pick up on the stigma that goes with mathematics and if they are not as quick at learning it as others in their classes, they soon develop a *grudge* against it, well I did. I cannot remember having a teacher that could explain the concepts of the math's we were learning properly. It was always explained as if there were only one way to do something, and if you were not able to do it *their* way you were ridiculed. I have always been quite a shy person, and not one to put my hand up or approach the teacher if I was having difficulty. I realized when I decided to apply for university for teaching that I was going to have to overcome my fear of learning mathematics. After all how can I teach the future generations if I don't understand what I'm teaching? One of the mathematic concepts that have always troubled me is fractions. What are they? Adding and subtracting them, multiplying and dividing them and converting mixed to improper and improper to mixed. This has always frustrated me! I figure, that I use fractions on a weekly, maybe even daily basis in everyday tasks. So why have I always struggled with fractions in a classroom setting? I think my brain gets to a point where it has an overload of numbers and freaks out. Instead of staying calm and taking each concept in slowly, especially once I had developed that *fear* of math's my brain just chose to ignore it and block it out in any way possible. Another area that has always boggled my mind is percentages! How do you work them out? How do you relate them to decimals and fractions? Why do I not understand how to use percentages when they are such a big part of day to day tasks? These were just a few of my frustrations growing up but have become even more exasperating as I have matured, and have had to deal with them more increasingly in everyday life.

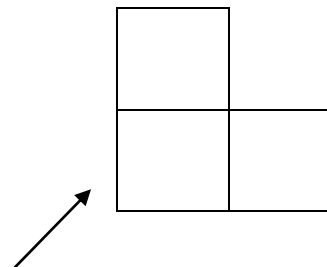
Fractions

What are they?

At the beginning of this topic I remember wanting to sink right down into my chair, avoid eye contact with the tutor and just wanting to run away as soon as they were mentioned. So, what is a fraction? Well part of me of course knew what a fraction was but could never actually explain what it is to another. Now I am able to explain to someone that a fraction is an amount which is used to express a part of a whole. This explanation was made clear to me in one of my lectures for the unit. Just a quick example of a fraction; if I had a whole chocolate cake to myself which was cut into four pieces (the four being the whole number) and I ate one piece. I would have three pieces left, shown as a fraction this would be $\frac{3}{4}$ meaning that I have three parts or three pieces left from my whole cake.



1 whole of a chocolate cake divided into four parts,



$\frac{3}{4}$ of a chocolate cake.

Another way to think of a fraction is as a division. So if I decided to share my chocolate cake between four people we would each have one piece and as a fraction this would be shown as $\frac{1}{4}$, because there are four parts of my whole chocolate cake to be divided by four people. This is a very simple example but I feel that I am now able to confidently explain this to children.

Adding and subtracting fractions.

Now when it came to adding and subtracting fractions that have the same denominator I was happy and comfortable to do the math. Obviously because you are simply just adding or subtracting the numerators and the denominators remained the same. Making the equation a simple addition or subtraction. Although when it came to an addition or a subtraction of two fractions with different denominators, I would immediately freak out and again try to block the problem out. I now understand that when you are given such a sum where the denominators are of different values you simply multiply the numerator and denominator of the first fraction by the second fractions denominator, and then multiply the second fractions numerator and denominator by the first fractions denominator.

For example;

– – — I work this out by multiplying four (numerator of first fraction) by three (denominator of second fraction). Four threes are twelve, so I place that as my first numerator of the new number sentence. I then multiply seven (first fractions denominator) by three which is twenty one which becomes my first denominator (and if done correctly the second fractions denominator should be twenty one as well). My next step is to then multiply the second fractions numerator and denominator by seven so seven ones are seven and three sevens, twenty one. Both fractions now share the same denominator so it is just a case of simple addition. Twelve plus seven equates to nineteen, giving the answer of nineteen over twenty one (working out shown below).

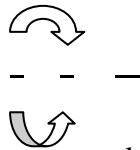
$$\frac{4}{7} + \frac{3}{7} = \frac{19}{21}$$

I take a little longer than other people to take information in and don't have the ability to memorize such things immediately. To help my brain retain this information, I repeated similar sums over and over on paper (checking my answers on a calculator) until I could explain it to my partner, without having to look at my notes.

Multiplying and dividing fractions.

Multiplying and dividing fractions seemed even more overwhelming than adding and subtracting fractions. Simply because I find that I am more comfortable with addition and subtraction than I am with multiplying and dividing. So if I was having difficulties with adding and subtracting fractions how on Earth was I meant to multiply and divide them? During this unit I have learnt that doing these types of sums are really not all that scary once you know the concept behind it. During my help class for this unit our tutor took us through this concept and I quickly realized how easy it is. To multiply two fractions you simply multiply the two numerators together and then the two denominators together simplifying if possible.

For example;



multiplying one by one and four by five.

To divide two fractions is a similar method, except you flip the second fractions numerator and denominator and then multiply the two fractions together.

For example;



Mixed versus improper.

I don't think I have ever been able to convert a mixed fraction to an improper (and vice versa) confidently, again as a result of me ignoring my difficulties with mathematics. During the help class provided for this unit my tutor made this concept look so much simpler than I ever thought it could be! So to convert a mixed fraction to an improper fraction you multiply the whole number by the denominator and then add the numerator amount.

So for example;

$$\frac{17}{4}$$

so the seventeen becomes the new numerator and the four remains the denominator and now you have an improper fraction. To do the reverse (convert an improper to a mixed) I have learnt that to do this you need to divide the numerator of the fraction by the denominator and the remainder that does not divide evenly becomes the numerator of the new fraction.

For example;

$$\frac{14}{3}$$

fourteen divides by three four times evenly, with two being the remainder. Again to remember this type of method I spent time repeating similar conversions so that my brain would retain it.

I am so pleased to be able to say that I am not so anxious when it comes to fractions anymore and I really enjoyed using *hotmaths* for this topic. I found that it covered a lot about fractions, and the questions and quizzes helped me assess my own progress. Fractions don't seem so scary now that I am starting to grasp the concepts that go with the equations. I really enjoyed this topic and have an entirely different outlook on it now after studying it.

Percentages.

Working them out.

It took me a little longer to understand percentages compared to peers in my class. When speaking to other people they all seemed to be quite confident with them. I have discovered that I am a kinesthetic learner. So when I am learning something I need to physically do whatever it is I am trying to learn, repeating it until I fully understand it and can remember it. After discovering this I applied it to percentages, again using methods that my help class tutor demonstrated to us. So for example; I got my first assignment back from my tutor for *Language for Learning and Teaching* last week. She had written my mark as ten and a half out of fifteen but I wanted to know what percentage I had gotten so I could compare it to the grade table. So using my recently learnt skills that I have acquired from Mathematics for Teaching, I had a real life percentage problem I had to solve. So I divided the ten and a half by fifteen and then multiplied it by one hundred;

I was so pleased with myself, the major factor being that I remembered how to do this. This was a major confidence boost for me engaging me even more so into this topic. During the semester I became a follower of the television series *Excess Baggage*; the contestants were a mixture of celebrities and everyday people competing in a weight loss show. Each week they were measured and their results were given in percentages. I found myself wanting to know how they had worked out certain percentages. Before undertaking this unit I would not have even thought about how or why, I didn't care and thought I didn't need to know. It was exciting to see that I was actually taking control of my learning and becoming curious about things, that in the past I would

not have bothered with. So for example; in week one, one of the female contestants' waist was measured at one hundred and thirty six point five centimeters over the duration of the show she had succeeded in reducing it to one hundred and one centimeters. They displayed this as a twenty six percent loss; curious as to how they had found the percentage I got to work. After a short while I realized that it wasn't too different to how I had discovered the percentage of my assignment explained previously. So I started by working out the difference in centimeters, so one hundred and thirty six point five subtract one hundred and one equals thirty five point five. I then divided the thirty five point five by one hundred and thirty six point five which gave me zero point twenty six. Next I multiplied it by one hundred (moving the digits two places to the left) resulting in twenty six, adding a percent sign and that is the percentage.

I have also learnt that if I have been given an amount say fifteen thousand, three hundred and sixty and I needed to find a percentage of eleven point eight. I would divide the percentage by one hundred then multiply it by the whole amount, which would give me one thousand, eight hundred and twelve point forty eight.

— 1 812.48

Another example of where I have learnt how to apply a percentage into a real life situation, is if I were travelling down south and my total trip is seven thousand kilometers and I have only travelled thirty five percent so far. How many kilometers have I got left? So for this I would divide the percentage by one hundred and then multiply by the total kilometers of the trip. I would then subtract the answer from the total amount of kilometers. So thirty five divided by one

hundred is zero point three five, multiplied by seven thousand equals two thousand, four hundred and fifty kilometers. Lastly I would subtract two thousand, four hundred and fifty from seven thousand equating to four thousand, five hundred and fifty.

—

Comparing percentages, fractions and decimals.

Before this unit I never realized how closely related percentages, fractions and decimals were. Haylock really helped me understand this thought, he wrote up a table consisting of fractions, their equivalent decimal and percentage. I have referred back to this table numerous times and have put a lot of time into studying it so that I retain the information within it.

For example; the fraction $\frac{1}{2}$ is equivalent to the decimal 0.5 which is equivalent to the percentage 50%. To turn the fraction into a decimal you divide the numerator by the denominator, and then move the digits two places to the left to find the percentage. The following table has really helped me in seeing the relationships between fractions, decimals and percentages.

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%

-	0.4	40%
-	0.6	60%
-	0.8	80%
—	0.1	10%
—	0.3	30%
-	0.33	33%

(Derek Haylock, 2010)

Since beginning this unit I have been relating what I have learnt to real life situations which I have never been able to do before. What a great feeling, I have really started to face my fears and do something about them instead of ignoring them. I now look at percentages as another great way to express a proportion of something in day to day activities. Which is really important, considering I am studying to be a teacher and a lot of results are given as percentages by teachers. So it really is a need to know concept and I have finally grasped it, it may have taken me longer than desired but I can feel confident facing percentages now!

My opinion on mathematics is entirely different now compared to seven weeks ago. I have come to terms with my different style of learning and have realized that it is not such a bad thing to be the one who doesn't *click* like others do when it comes to maths. I just have to take my time and persevere when learning new concepts. I am now able to say that I enjoy learning and studying mathematics and am not as afraid of it as I once was. I have always thought of mathematics as a subject that makes no sense and always wondered why it is so important to have a vast understanding of it. This unit has re-introduced me to the subject, refreshed me on the few topics I was competent with and allowed me to explore topics that I have sheltered myself from. I think that although I have had a rough journey with mathematics, beginning in early primary. I will

now be able to see the signs of my future student's that may be facing difficulties and help them before they get to the point that I did, ashamed, and disliking the subject. Through my years at Murdoch I will hope to gather a wide range of resources for teaching maths and to teach it in a fun and inviting environment. I want my future students to enjoy learning mathematics as I am now.

Reference

Derek Haylock. (2010). Mathematics explained for primary teachers (4th ed., pp. 241-242). London: SAGE Publications LTD.