

Vignette 7 – Place Value: rename and round

SUMMARY KEYWORDS

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SPEAKERS

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Welcome to vignette seven. And we will now look at the areas of renaming and rounding as we journey through the key concepts of place value. So in terms of renaming, we've also found in some of the research that in a study of upper primary students understanding of whole number place value, Rogers in 2014, found that the ability to actually rename numbers in multiple ways was a strong indicator of a deep understanding of place value. When the Aotearoa New Zealand curriculum actually states that a understanding of place value is necessary before we teach and expose students to formal traditional algorithms, renaming is an area that we wanted to promote and communicate across to you to see what this actually looks like visually. We can see here that if we take a number of 36, you know, it can be renamed as one 10 and 26 ones, and also two 10s and 16 ones. And over the years, in working with students across years five up to year 13, we've found that even starting with older kids at the basics for two or three minutes, gives them an instant understanding of what we're talking about. So quite often, we find and we will recommend that you go back to two or three digit numbers first, even for students who are in level four and level five. Also with 3 digit numbers it's good for them to explore this, and then to prove it using materials that Robyn referred to earlier. And that's why we put that diagram in the bottom corner, because we're always emphasizing that triangle of 'see, say and write, and model'. So that's a quick look at renaming. Another example, in what we found in our investigations across the schools in both Aotearoa New Zealand and Australia is that simple situations like this in level three and four classrooms generates a lot of discussion around how numbers have been renamed. And in vignette nine we will be going into some rapid routines of how to do this more instantaneously for you. But a situation like this creates a lot of initial confusion, discussion, proving. So the mathematical reasoning strand is activated instantly, by getting kids to explore and be creative in ways to rename these things.

This is just a lovely little rapid routine, a fun little activity that children can do. And when children are investigating this routine, it's really important that they get out that equipment again. So get out those decipipes so they can make them investigate. I have 14 tenths and seven hundreds, who am I? So how are they going to do it? Get the equipment out so they can play, explore and investigate. That's really key. And this is another one, three truths and a lie. And so another great way for children to explore the understanding behind these place value ideas is that equipment. So with this one, it's three point two

tenths can be represented with that 14 decipipes. Is that true? Or is that a lie. So get the equipment out, play with it, and try and get them to be quite systematic about this. By now children should be able to be systematic. So get a graph out, make them record each step, be systematic, and you're modeling in your recording. And this is a great little activity to show and see where their understanding is around decimals.

I suppose if teachers haven't got instant access to things like decipipes, and any base 10 equipment could work, maybe even like 10 frames to have solid 10 frames as representing one whole. So there's lots of ways we could...

There certainly is, yes, just make sure you can even with your unifix cubes, make them into groups of 10 and cover them and that can be your whole but it can also be unpacked to be tenths as well. This is another really great activity that really supports an ability to round numbers. And so because this is a central for children to understand estimation, approximation of calculations and checking results. So with this activity, you have a piece of string, and you have your benchmarks of zero and one but these can change these benchmarks and you can put zero and five. And so it's just about where do these decimals fit in a whole. And so children get a post it (note) that they can write their own decimals, and then go and clip them and have discussions. And this I think is a great activity for that, because you can go and start talking about and defending where you are going to put 0.81 where does it fit on our number line as such? So lots of discussions can be had around the language and understanding.

Another quick open-ended routes here would be a game that's a bit of a rounding rodeo type game where students are encouraged to write the numbers you can see here 100 to 1000, in multiples of 100. And the students are asked to roll the dice, and zero to nine dice are best this and once they rolled three numbers, for example, a two, five and a seven, then they can rearrange the order of those numbers. So the five may represent 10s, the five may represent hundreds. And then in this particular case, the student decided I want to cross out the number 700. I can rearrange a 2, 5, 7 and have seven lots of 100, two lots of 10, five lots of one, which is 725 and defend that. And if teachers model this with their students, they can get that essential communication. So when students are talking or sharing, they can use the language of expansion and renaming that we've referred to earlier. So it's not just a game without structure. It's actually a structured game that promotes deep understanding and also essentially the communication of the correct maths terminology.