Home Learning TV – Lesson Plan

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| **Segment lesson planning details** |  | | | |
| Title for segment: | Data Squares | | | |
| Year levels *(e.g. Yrs1 – 3)*: | Year 4-7 | | | |
| NZC learning areas: | Maths and Statistics | | | |
| Purpose of lesson:  (What learners will learn) | * collect information on data squares * sort information into categories * answer questions by sorting, organizing and arranging information * make sensible statements about the information with supporting evidence | | | |
| Success Criteria – students will be able to:  (how they will know when they have learnt it) | Collect data on data squares  Organise data squares to answer questions | | | |
| **d** | | | | |
| Māori specific content i.e. the learning draws on Mātauranga Māori: | c | Pacific specific content i.e. the learning is focused on Pacific knowledge: | |  |
| **Segment production details** | | | | |
| Equipment requirements: | Printed out and cut up data squares (see attachments), ruler. Paper to cover table and marker pens | | | |
| Copyright requirements:  Please be specific: Source(*Seven Sizzling Sausages* by Sam Smith –URL link to the source), intended use (to demonstrate alliteration), and length (timings for video clips) | none | | | |
| **Segment links and attachments *(list all links to recordings or attachments, the source and confirm that copyright permissions are granted)*** | | | | |
| Links to recordings /resources |  | | | |
| Attachments | Data-set-1.pdf, Data-set-2.pdf | | | |
| **Segment plan content** | | | | |
|  | Teaching and learning activities linked to purpose | | High level script (key points/questions) | |
| **Activate**: Activating prior learning, knowledge of contexts and relationships  (3 min) | Introducing data squares – ensuring viewers understand how they work.  Presenter to create own data square about themselves | | Presenter greets viewers – multiple languages..  Today we will we be learning to:   * collect information on data squares * sort that information into categories * ask and answer questions about the information   Have you used data squares at school? This is what a data square looks like  **[Show a data square completed with information about yourself.]**  This data square has the answer to four questions about me – see if you can work out what they are.  The top one is pretty obvious. It says boy. That section is the answer to the question, “what is your gender?”  How about on the left – it says “whistle” (or “can not whistle” as appropriate). That’s easy to guess too..  On the right it says “right” (or “left”). What will that be about? That’s right – I’m right handed. Actually, when we collect data it’s important that the question be really specific. Some people might use one hand for throwing, but the other hand for writing. So that section is the answer to “what hand do you write with to produce your neatest work?”  At the bottom it says “oldest/middle/youngest (as appropriate)”. Any guesses what that one is for?... That’s about which order I was born in in my family. I was the [as appropriate] child in my family. Again – we need to be specific – so if I had been an only child I would have put oldest.  Is this data square unique to me? It tells you four things that are about me so it must be, right? Now let’s think carefully. Do you know anyone else that this data square could also be about? Is it the same as the answers you would give about yourself? Maybe someone in your whānau? Or maybe one of your friends at school is also a boy who is ### handed, can/can’t whistle and is the ### child in their family?  And is this the only data square I could have made about me? It’s the only one with those questions – because those are my answers to those questions – but I could have made a data square with quite different questions – maybe eye colour, or age, or favourite subject at school…  A data square is just like a mini snapshot of information about a person – it doesn’t tell you everything about them and it might be the same for more than one person. | |
| **Learn**: Introducing learning  Reinforce routines, provide multiple exposure to concepts, and strategies. Scaffolding learning  (7min) | Introduction of set of data, exploration of ways to sort and analyse it.    Comparison question – taking advantage of the multivariate nature of the data set. | | Now I’d like to show you what’s really neat about data squares. It’s not just that we can use them to record information we collect about people. It’s what we can do with them once we have the information recorded.  Here’s a set of data squares I made earlier, about a class of 24 students**. [Camera focus on data-set-1 printed out and cut out and laid out on the table]** I filled in the same information that I showed you on my own data square earlier on a square for each of them.  Now, because each person is on their own square I can move them around and sort them to find out things about that class. What do you think we could find out?  Are there more boys or girls in the class? Ok – lets sort them into two groups … **[Camera to focus on squares as presenter sorts them (30sec)]** There are 12 of each – I guess that’s not that surprising.  How about position in the family – What question might we ask about that? You think of a question and I’ll think of one and then we’ll see if we have the same idea. Which will be most common? **[Camera focus on squares as presenter sorts them (1min)]** There are 6 youngest children, 7 middle children, and 11 oldest children.  Why would there be more oldest children than middle or youngest children? Can you think of a reason?  I guess it makes sense, because any only children will all be oldest children, and middle children could be second, or third or even fourth or more depending how many kids there are in the family! If I arrange the squares like this they are like a bar graph so you can easily see the difference between the groups. **[Camera to focus on squares as presenter arranges squares like a bar graph (30 sec)]**  That’s all ok – but it’s not really much easier or better than just counting them if they were all on a list.  What if we wanted to ask a trickier question? Are boys or girls more likely to be able to whistle? How can we use the data squares to find out?  First I’ll quickly sort them back into boys and girls again**…[camera to focus on squares as presenter sorts them into boys and girls (30 sec)]**  Now I can sort each of those groups into two groups. **[keep camera on squares as presenter sorts into 4 groups, make sure you keep the squares arranged neatly so you can see the numbers (1 min)]**  Now, what can we see? 9 of the 12 boys can whistle, but only 8 of the 12 girls can whistle. So boys are more likely to be able to whistle.  Does that mean that boys are better at whistling than girls? It does for this class, but this class isn’t necessarily representative of all girls. If we had used a different class we might have quite different results! | |
| **Respond**: Providing opportunities to use and practice  (7 min) | Introduction of second set of data, including measurement data, exploration of ways to sort and analyse it.  **Presenter will need either a whiteboard table to write on or have the table covered in white paper with the squares setting on top of it.** | | Here is another set of data squares **[show data-set-2 on camera, sorted into year levels (10 sec)].** This time the information is a bit harder to work out so I’ll just tell you what each section is for.  The top section **(presenter points to top section 5 sec)** is for gender again – they are all either B or G.  The left hand section **(presenter points to left hand section 5 sec)** is for school year level. This time there is a mix – they aren’t all from one class – we’ve got some year 6s and some year 8s. I’ve got them sorted into year levels already.  The right hand section **(presenter points to right hand section, rearranges squares as she talks 30 sec)** is for age – look, if I sort the two year level piles into their separate age piles, we can easily see that year 6s are either 10 or 11 and year 8s are either 12 or 13.  The bottom section **(presenter points to bottom section 5 sec)** is for what we’ve called “ruler reaction time’. To work out the reaction score, one student holds a ruler vertically above the test student’s first finger and thumb; the bottom of the ruler is in line with the top of the thumb. The ruler is released and the test student closes their finger and thumb as quickly as they can to catch the ruler. The number of centimetres the ruler falls through the finger and thumb is the score. I’ll show you what that looks like. **[demonstrate with a ruler 20 sec]**  Can you think of any interesting questions we could ask about this set of data squares?  I want to ask something about reaction times – any ideas? Yes maybe we could ask whether boys or girls have faster reaction times? Or we could ask whether year 6s or year 8s have faster reaction times?  My data squares are already sorted into school years so let’s do that this time.  I’ll line up my Year 6 stacks with my year 8 stacks so we can compare them. I’ll write the different reaction scores along here so I have something to line them all up with**. (Presenter writes numbers 9, 10,11,12,13,14,15,17 onto the paper or table that squares are on 30 sec)**  **[line the data squares up with the numbers – it could end up looking like a stem and leaf graph – though at this level we wouldn’t refer to that 1min ].**  Well, this is interesting. The year 8s have the slowest and fastest times, **(Presenter points out the lines of squares 5 sec)** while all the year 6s are grouped in the middle. So how would you answer our question? Do year 8s or year 6s have faster reaction times?  We can’t tell for sure from this display, but if we wanted to, we could calculate the mean reaction time for each. For now, what we can say is that the range of reaction times for this sample was greater for year 8s **[indicate in display 5 sec]** than for year 6s **[indicate in display 5 sec].**  We are running out of time now, but I’m going to explore these data squares a bit more after you go to see whether I can find out whether boys or girls have a faster reaction time! **(possible extension activity if lesson has time)** | |
| **Share**: Learner and parent reflection on learning and engagement and what they can do next  **(1min)** | Recap lesson and encourage children to reflect.Opportunity to share learning with whānau and ideas for things viewers could do later. | | So what did we learn about today?  We learned to:   * collect information on data squares * sort that information into categories * ask and answer questions about the information   Talk to your whānau about what you’ve learned, and maybe you’d like to create some data squares for your class at school or for your friends and whānau!  I would love to hear about some of the things you are doing, remember you can email me at [info@hltv.co.nz](mailto:info@hltv.co.nz) or text to 5811  Ka kite ano. | |



