Home Learning TV: Middle Science and Maths

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| **Segment lesson planning details** |  | | | |
| Title for segment: | Why is Equality Important? | | | |
| Year levels *(e.g. Yrs1 – 3)*: | Year 4-7 | | | |
| NZC learning areas: | Maths and Statistics; Social Sciences | | | |
| Purpose of lesson:  (What learners will learn) | Learners will know fractions in everyday use.  Learners will be able to use a range of additive and multiplicative strategies with fractions.  Learners will be able to engage critically with societal issues. | | | |
| Success Criteria – students will be able to:  (how they will know when they have learnt it) | Learners will be able to find fractions of an area.  Learners will be able to find fractions of an amount.  Learners will be able to compare fractions.  Learners will be able to reflect on and evaluate what is fair. | | | |
| **d** | | | | |
| Māori specific content i.e. the learning draws on Mātauranga Māori: | c Whānaungatanga: Considering Māori and Pāsifika value of collectivism vs individualism. | Pacific specific content i.e. the learning is focused on Pacific knowledge: | | Considering Māori and Pāsifika value of collectivism vs individualism. |
| **Segment production details** | | | | |
| Equipment requirements: |  | | | |
| 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) |  | | | |
| **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 | Power Point | | | |
| **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 | Activating prior knowledge of equals sign  Activating prior knowledge of fractions | | Presenter greets everybody.  Today we will we be learning to   * find fractions of an area. * find fractions of an amount. * compare fractions. * reflect on and evaluate what is fair.   Today we’re going to start by thinking about the equals sign. Have a look at this equation. Do you think this is true or false?  (presenter says one half equals one quarter plus one quarter and writes on whiteboard):  1/2 = ¼ + ¼  Talk to someone at home, do you agree or disagree with each other? I’ll give you one minute!  **Camera to focus in on equation**  So who said that was true? How did you know that?  Let’s think about what this sign means: (presenter points to ‘=’ on the whiteboard).  Lots of people believe the = sign means the answer. but in maths it means ‘the same as’  So is a ½ the same as ¼ + ¼?  Yes it is. Let’s look (presenter draw a square cut in half, and cut one half into quarters)  This shows us that half (presenter colour in the ½ of the square) is the same as two quarters.  Do you agree with me?  Now let’s look at another equation.  (presenter says one half equals one third plus one third and writes on whiteboard):  ½ = 1/3 + ⅓.  I’ll give you another minute to talk to someone about whether you think this is true or false and why.  **Camera to focus in on question**  Who thought this was true? Who thought this was false?  The answer was false, let’s look at why.  (presenter draw two rectangles one above the other, one showing ⅔ and one showing ½).  Wow that makes it really clear! Can you see now why the equation is false?  Now let’s look at both of these equations in terms of fairness.  Thinking about sharing, which one of those equations would be fair? (presenter points to both equations on the whiteboard)  If you thought 1/2 = ¼ + ¼ you were right. Both sides are the same and the equation is balanced.  So, why is equality important?  Think about it this way - if you did half the mahi should you receive all the pay?  This leads us to today’s problem.  (6mins) | |
| **Learn**: Introducing learning  Reinforce routines, provide multiple exposure to concepts, and strategies. Scaffolding learning | Introduction of problematic task  Representation of the fractional amounts using area model.  Pressing students to rename fractional parts as eigths.  Students to consider understanding of fairness and equality.  Representation of the fractional amounts of money using area model. | | Uncle Bob asked his nephews if they wanted to earn some extra money painting the driveway fence.  He said he would pay $90.00 all up and they could decide how it would be split.  John said he should get half because he is the eldest!  Bobby said it should be based on the amount of work each person does and Taniela said we should share it equally three ways.  Taniela turned up first, worked really hard and painted ½ the fence.  Bobby came after his league training and painted 3/4 of what was left.  John slept in and he painted the rest.  If we were in school I could give you five minutes to work on this but I cannot do that on T.V so I am going to give you a minute to think about this and to work out which fraction of the fence each cousin painted. Then we will look at the problem together. If you have paper and pencils you could get a piece of paper and see if you can show your thinking in two different ways.  **IMAGE 1** on the screen while students are working on this. (1min)  How did that go?  Let’s have a look at Uncle’s fence together.  **IMAGE 2**  The green part shows what Taniela painted. What fraction was that again?  That’s right a half. So what fraction is left to paint? Oh did you say a 1/2 ?  You were correct!  Lets have a look at what Bobby painted. He painted ¾ of what was left.  Let’s split the fence into equal parts so we can work out what fraction of the whole fence Bobby painted.  **IMAGE 3**  Remember we said Taniela painted half the fence. In our new representation, what fraction is that?  Turn and talk to someone around you about what you think and why?  (Presenter pauses 20 secs while camera shows image 3 on screen)  Did you say 4/8? Cool. So what fraction is the yellow part that Bobby painted?  Turn and talk to someone around you about what you think and why?  (Presenter pauses 20 secs while camera shows image 3 on screen)  Did you say 3/8? You’re right!  That must mean that John only painted 1/8!  **IMAGE 4**  So now we’ve worked out what fraction of the whole fence each cousin painted.  Remember Uncle Bob offered to pay the cousins $90.00 to paint the whole fence? Let’s work out what fraction of the money each of the cousins will get.  John said he should get half because he is the eldest and the other two should share what is left.  Bobby said it should be based on the amount of work each person does and Taniela said we should share it equally three ways.  If we split the money John’s way - where he gets half and the others share the rest - how much would they get?  John would get half of of $90.00 which is …….(presenter pause) (presenter to use think out loud as they work this out)  Yes $45.00  Taniela and Bobby get half of $45.00 which is ….(presenter pause) (presenter use think out loud as they model how to work this out)  Yes $22.50  I wonder if that’s fair?  Let’s look at Bobby’s way based on the amount of mahi each person did.  Taniela painted 4/8 of the fence so he would get 4/8 of the money which we know is S45.00.  Bobby painted 3/8 of the fence and John only painted 1/8. Let’s have a look at how to work that out.  **IMAGE 5**    So we know $45.00 is 4/8. How can we work out 1/8?  I'll give you one minute to try to figure this out.  (focus on image 5 for 1 min)  How did that go? Did you think about dividing the $45.00 by 4?  **IMAGE 6**    So 1/8 of the work would get John $11.25  Now work out what Bobby gets….  If you said 3 x $11.25 = $33.75 you are correct  Lets breakdown how much each gets paid using Bobby’s way based on the amount of mahi each person did.  **IMAGE 7**  I wonder if that’s fair?  Taniela proposed sharing the payment equally between the 3 of them. That would mean they would get ⅓ of the $90 each. We can just divide the ninety dollars into three equal amounts.  **IMAGE 8**  (8 mins ) | |
| **Respond**: Providing opportunities to use and practice | Students participate to consider what is fair | | Let’s have a look at them altogether then decide which way of sharing was the fairest? Remember to think about who did most mahi and does this matter? I’m going to give you some time to talk to someone at home about this.  **IMAGE 9** (1 min)  What did you think?  Maybe you thought it was fair for John to get the most because he’s the oldest.  Maybe you thought Taniela should have got the most, because he did the most mahi.  Maybe you thought Taniela’s suggestion that everyone should get the same amount was the fairest because they all got an equal share, and they had all worked together to paint the fence.  Hmmmm, Taniela’s plan is fair if Bobbie and John had other jobs to do for the family first. Then it would be fair to share the money in thirds.  Bobby’s plan is fair if it’s about who did the most mahi, and remember John slept in.  John’s plan is fair if you were privileged enough to be the first born!  (2 min 15 sec) | |
| **Share**: Learner and parent reflection on learning and engagement and what they can do next | Recap lesson and encourage children to think of fractions and equality in their lives.Opportunity to share learning with whanau, and provocation introduced for further discussion. | | Do you remember our goals for today? Yes, that’s right we were going to learn how to   * find fractions of an area. * find fractions of an amount. * compare fractions. * reflect on and evaluate what is fair.   So what did we learn today about the equals sign and fractions?  We learnt the equals sign means the same as, not the answer.  We learnt a lot about fractions and equal shares. We learnt about finding fractions of the whole fence, and fractions of half the fence. We also learnt about finding fractions of money.  And what did we learn about equality, fairness and social justice?  We learnt that sometimes it’s fair to split things equally and sometimes it’s fair for those who work the most to get more. We also learnt that sometimes things aren’t fair and some people get more just because of privilege, like John being first born in this example.  Talk to your whānau about fairness in society. Is New Zealand a fair society? Do we have an equal distribution of wealth? I think there’s something here for all of us to think about.  Ka kite ano.  (1min 15 sec) | |