Home Learning TV – Lesson Plan – 27 September

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| **Segment lesson planning details** | |  | | |
| Title for segment: | | Popcorn | | |
| Year levels *(e.g. Yrs1 – 3):* | | 1-3 | | |
| NZC learning areas/ KCs: | |  | | |
| Purpose of lesson:  (What learners will learn based on the above) | | **Measurement**  * Order and compare objects or events by length, area, volume and capacity, weight (mass), turn (angle), temperature, and time by direct comparison and/or counting whole numbers of units. (Level One) * Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time. (Level Two) * Partition and/or combine like measures and communicate them, using numbers and units. (Level Two) | | |
| Success Criteria – students will be able to:  (how they will know when they have learnt it) | | Describe height (distance), weight and volume as attributes  Order heights in centimetres  Read digital scales in grams  Read lineal scales for volume  Recognise decrease and increase  Count in multiples (skip count) | | |
| **Segment plan content** | | | | |
| Stage | Teaching strategies linked to purpose | | Learning tasks and activities | High level script (key points/questions for presenter) |
| **Beginning of lesson:**  Activating prior learning and relationships | Orientate students to the context of cooking popcorn.  Connect Māori words to English. | | Introduce the episode of Suzy’s world as historic.Connect Māori to English meanings. | Kia ora, Talofa, Namaste(greeting)*S: A few years ago, I made this episode of Suzy’s World.* *It’s about what makes popcorn go pop? The Māori words for popcorn are kānga pāhūhū. Kānga is corn and pāhūhū means…you guessed it…pop or crackle!**You’re in for a treat.* |
| **Main part of lesson (a) :**  Introducing learning  Reinforce routines, provide multiple exposure to concepts, and strategies. Scaffolding learning | Generate exciting in viewing the height of popping corn. | | Measure height in centimetres using a ruler. | Play full episode of Suzy’s World.Camera back to Suzy who is munching popcorn.*S: I remember. The water inside popcorn turns to steam as it heats up. The steam expands inside the hard, outer layer, then pop!* *Did you know that the world record for popcorn is 1 metre? That’s one metre, 100 centimetres in the air.**Ladies and gentleman, boys and girls, and now we have it, the high jump final. Into the pot go 10 athletic popcornssss and on goes the heat.*Position a metre ruler or tape measure behind the stove. Time lapse until popping occurs.*S: And here’s the first attempt, the second … etc.**Let’s look at that again folks* (slow motion if possible). Call it like an Olympic event., e.g., 30 centimetres, that’s a long way off the record. Highlight if a popcorn does not pop. *That’s no surprise. About 20 in every 100 pieces don’t have enough water to pop. Athletes need to stay hydrated.**S: And the winner is Cornelius Kernel* (holding up a piece) *with a jump of x centimetres. Wow! That’s quite a-maise-ing.*Short break between segments: ***Joke:*** Why are popcorn eaters such good listeners? They have lots of ears. (Sick joke sound) |
| **Main part of lesson (b)**  Providing opportunities to use and practice | Demonstrate how to organise an investigation based on a two questions. | | Introduce weight and volume as attributes for measurement.Measure the attributes using standard devices and simple units.Describe increase and decrease of weight and volume.Organise data in a table to look for pattern and ease load on working memory. | *S: I’ve been thinking. Oil goes into the pot and water goes out of the popcorn. I wonder if popcorn loses weight when it cooks – probably.**Popcorn also gets a lot bigger in size when it pops. But how much bigger? This calls for an expert Suzy investigation.* *I am going to carefully measure the amount of popcorn I put in. I’ll use a teaspoon. I want to make one litre of popped corn. That’s enough to fill this jug.* (if possible, use a transparent jug with graduated scale).*The recipe says that I need six teaspoons. That doesn’t sound much. Here goes, count with me.* (Measure in 6 teaspoons, counting as you do).*S: That really doesn’t look like enough. Look closely, it hardly shows on the side of the jug.* (Close up) *It’s about 30 millilitres so 30 ‘mils’. Let’s add that to the record (see below).**S: Let’s see what the popcorn weighs.* (you will need sensitive scales. Tip onto scales). *That about 30 grams. Hmmm…30 mils of popcorn weighs slightly less than 30 grams.* Write data in the record.(an interesting alternative, last resort, is to make a balance from a coat hanger, snap lock bags, tape, and string. Popcorn goes in one bag. Water slowly tipped into the other until they balance. 1 mL of water weighs 1g.)*S: Okay here goes. Cooking time. Remember Suzy, turn on the stove.*Forward to cooked popcorn.*Let’s see if six teaspoons of popcorn made fills 1 litre when it is cooked.*Tip cooked popcorn into the jug. If the amount is not enough or too much just ask:*That’ not enough, or too much. How many teaspoons should I have used?**That’s almost perfect. 1 litre is 1000 mL (Add to record) Now what does the cooked popcorn weigh?*Measure by putting the jug onto the scales.*S: Look at that. The popcorn gets heavier.* *Huh? That’s weird.* (Camera shakes in “no” fashion). *What?* *Oh, I see. I am measuring the jug as well.*Tip the popcorn into a bowl. Put jug on scales and press tare to calibrate. *That’s better. The scales will treat the jug as though it weighs nothing.**Let’s see. The cooked popcorn weighs about 25 grams. (*Add to record).*S: Suzy’s conclusion: popcorn loses weight when it is cooked. I suppose that is the water that turns to steam.**(Note: Popcorn loses about 15% of its weight when cooked)**The weight doesn’t go down that much but look at the volume. It increases a lot when it is cooked. Over 30 times as much as it was before!**Short break: Maybe a recap of the previous section (compressed)* |
| **End of lesson:**  Learner and parent reflection on learning and engagement and what they can do next | Relate counting to context in an investigational context.  Set follow-up tasks.  Farewell (humour) | | Count a set of objects in equal groups (skip count) | S: After all that talk about popcorn my voice is quite husky. It’s almost time to pop off. It’s time to watch another show.Reach in and grab a handful while gazing mindlessly at the camera.S: *Did you ever wonder how many popcornsssss are in each handful? Ten? More than ten? How about 20?*Lay popcorn out for counting. Group the corn in twos or five.*Help me out here. 2, 4, 6, etc. or 5, 10, 15, ..* Deliberately count the extras by ones.S: *Now not everyone’s hands are the same size. My hands are probably a bit larger than yours (holding up to the camera). That’s something to investigate. How many popcornsss fit in one handful? Is each handful the same?**Remember the things you might do after watching this…*(Suzy to summarise)*You may have thought about other foods in your culture/pantry that change size, shape, weight when cooked and what causes these changes – ahhh kitchen science!**Or start investigating and observing with your whanau, what did your food like in its ‘uncooked’ state to how it becomes to be on your plate?**Well that’s it for now. Hāere ra, Tofa and Alavida* (little finger movement). *I’m giving you a microwave so you can cook popcorn.* |
| **Segment links and attachments** | | | | |
| List attachments and source: |  | | | |
| Links to recordings and source: | Popcorn – Suzy’s World https://youtu.be/swN6mxPZvkI | | | |
| **Segment production details** | | | | |
| Teacher talking time: | **~ 14 mins** | | | |
| Equipment requirements: | Popcorn, pot, bowl, gas hotplate, oil, tape measure or ruler, duct tape (or similar), digital scales (sensitive to grams), teaspoon, 1 litre measurement jug, smaller measurement jug (optional), paper/whiteboard, pen. | | | |