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)
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| Success Criteria – students will be able to:(how they will know when they have learnt it) | Describe height (distance), weight and volume as attributesOrder heights in centimetresRead digital scales in gramsRead lineal scales for volumeRecognise decrease and increaseCount 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 learningReinforce 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. |