Home Learning TV: Middle Mathematics

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| **Segment lesson planning details** |  |
| Title for segment: | Tongan Ngatu |
| Year levels *(e.g. Yrs 4-7)*: | 4-7 |
| NZC learning areas:  | Geometry- Transformation |
| Purpose of lesson:(What learners will learn) | Students will learn to:* describe transformations found in everyday artifacts.
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| Success Criteria – students will be able to:(how they will know when they have learnt it) |  Students will be able to:* generalise knowledge of transformations using vocabulary such as reflection, translation, rotation and dilation
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| **Segment content/context details *(as appropriate)*** |
| Māori specific content i.e. the learning draws on Mātauranga Māori: |   | Pacific specific content i.e. the learning is focused on Pacific knowledge: |  Tui Emma Gillies hauhau heilala 'o Tupouto'a Ngatu- Traditional cloth made from the bark of the mulberry tree |
| **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) | Tui Emma Gillies - ko e hauhau heilala 'o Tupouto'aSulieti Fieme'a Burrows is Tui Emma Gillies's mother, living in Auckland New Zealand. She works alongside Tui in designing and creating Tongan designs, merging contemporary and traditional patterns.A picture containing building, rug, fabric, shirt  Description automatically generated<https://www.tapapacifica.com/> <https://www.gettyimages.co.nz/detail/news-photo/maori-wood-carving-pattern-news-photo/532878301> <https://www.freecreatives.com/patterns/arabic-pattern.html>  |
| **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  |  |
| **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 |  | Malo e leilei everyone. Today in maths we are going to learn about three types of transformations:* translation
* reflection
* rotation

There is also dilation which involves making things bigger or smaller. But we are not looking at that today.Let's warm up our maths brains first!What do you notice is happening here? (show slide 2) What will the next two spaces look like?That’s right, the triangle has been shifted along the line - this can be called a slide, or a translation.What do you notice is happening in the second image? (show slide 2)Can you draw what the next two images will look like?That’s correct, the shape has been flipped - this can be called a reflection.What do you notice is happening on the third line? (show slide 2)Can you draw what the next two images will look like?That’s right, in each position the heart has rotated by a quarter or 90 degrees. That is called rotation.Let’s have a look together at what the next images look like. (Presenter shows slide 3) |
| **Learn**: Introducing learningReinforce routines, provide multiple exposure to concepts, and strategies. Scaffolding learning  |  | Our lesson today is looking at Tui Emma Gillies - ko e hauhau heilala 'o Tupouto'a (ko e like tena koe, hauhau, howhow, heilala’o like hay lala, Tupouto'a like, Dupou do a) Heilala is a flower for chiefs. It is considered as the native flower for Tonga. The special heilala flowers are traditionally worn by chiefly women or men but you can wear a kahoa heilala (heilala necklace) on special occasions. You might have seen this worn at very special occasions like weddings, birthdays or graduations. In today’s lesson we are looking at the hauhau heilala of Tupouto’a. Tupouto’a is the chiefly name given to the Crown Prince. The Tongan pattern is only used for the royal family and for Tupouto’a especially. Malie! (Wow)! Look at this amazing artwork! Can you see the heilala flower here? (Slide 4) (15 seconds)This artwork involves many types of transformations. It is a fantastic example about how every culture possesses a rich history of mathematics. It is all around you at home and in the community. Can you find a translation in this artwork? (Slide 4) (15 seconds) Remember a translation is when a shape slides across the surface. Tell someone in your house where you notice a translation.Sai ‘aupito! (Good work) The triangle slides along the artwork. (Slide 5) (15 seconds) Can you find an example of a reflection in the artwork? (Slide 6) (15 seconds). Remember a reflection is when a shape is flipped or is a mirror image. Tell someone in your house where you notice a reflection in this artwork. (Slide 6)Sai ‘aupito (Good work). The diamonds, the triangles and the heilala flower are reflections of each other. (Slide 7)Now, can you find an example of rotation? (Slide 8) (15 seconds). Remember a rotation is when a shape or object is turned to the right or left or turned clockwise or anticlockwise. Tell someone in your house where you notice a rotation in this artwork. Can you tell how much it has rotated by? (Slide 8)‘Oku ke tonu, tika ‘aupito! (Remember t in Tongan is pronounced as D) The flower on the left has rotated half a turn or 180 degrees and the flower on the right has rotated a quarter turn or 90 degrees. (Slide 9)Now, can you stand up and do a 180 degree rotation of yourself? What do you notice? Which way are you facing now?Now do a 90 degree rotation. What do you notice? Which way are you facing now?How about a 360 degree rotation. What do you notice? Which way are you facing now?Awesome!!! Can you now do a 45 degree rotation? What do you notice? Which way are you facing now?Whew!!! I bet you are feeling a little dizzy after all those rotations. |
| **Respond**: Providing opportunities to use and practice  |  | We have seen that transformations are common in the Tongan culture. They are also common in all cultures around the world and within Aotearoa, New Zealand. Have a look at the following patterns. Do you notice any transformations?What do you notice in this Arabic artwork? (Slide 10) (15 seconds) Tell someone in your whanau.What do you notice in this Fijian Masi? (Slide 11) (15 seconds) Tell someone in your whanau.What do you notice in this Samoan Siapo? (Slide 12) (15 seconds) Tell someone in your whanau.What do you notice in this Māori carving? (Slide 13) (15 seconds) Tell someone in your whanau.That's right! They all contain lots of different transformations because as we mentioned earlier every culture has a rich history of mathematics and maths is all around us.We all have things about us that are different, but we also have lots of things that are the same. We should celebrate our similarities and our differences. Now...can you find some examples of transformations in your own home. Remember to talk to your family about them. You can draw some and make a piece of your own artwork. Ka kite anō see you next time! |
| **Share**: Learner and parent reflection on learning and engagement and what they can do next |  | Today we learnt about transformations and that there are transformations everywhere. Keep a look out for them when you are out and about. |