

FIZZ learning and teaching module outline

Reducing sugary drink consumption: Exploring a complex issue to support behaviour change

NB: This learning module outline and resources will be available on the Fizz website:

https://fizz.org.nz/index.html

https://fizz.org.nz/activities.html

Sugary drinks

Sugary drinks are a major source of added sugars but are not a necessary part of a healthy diet. They are nutrient-poor and there are many better beverage alternatives. Sugar in liquid form (beverages) is more detrimental to metabolic health than sugar in solid form (in foods) as the sugar is more quickly ingested and readily absorbed (Sundborn et.al. 2019). Overconsumption of sugary drinks is directly associated with weight gain and increased risk of developing non-communicable diseases including Type 2 diabetes and dental caries (Malik & Hu, 2022). There are negative impacts on concentration, learning and behaviour (Sundborn et al., 2022). However, as with other nutritional and substance consumption behaviours, the drivers of purchase and consumption of sugary drinks are complex.

Education drawing on social marketing approaches and gamification to increase knowledge of sugar content in beverages and health risks associated with excess sugar intake has been shown to be effective in changing attitudes towards the over-consumption of sugary drinks in the short term (Sundborn et al., 2021). However, because of complex influences on sugary drink consumption, sustained behaviour change can be challenging to achieve over the longer term (Kelly & Barker, 2016).

Understanding and achieving behaviour change in complex systems

Research in the field of behavioural science/science of behaviour change suggests that human behaviours are not isolated instances of individual thought and action. Behaviours are part of and arise from interrelated systems of influence (Kelly & Barker, 2016). In other words, individuals are drawn into various behaviours by personal circumstances and external social, cultural, economic, environmental influences. As people participate in a behaviour, they construct and reinforce those same practices and influences.

Influences include exposure and messaging from a young age via family and social situations and commercial marketing of sugary drinks. For example, if people succumb to the influence of marketing to purchase and consume sugary drinks, they create individual habits. As well, they contribute to the creation of a social environment where sugary drink consumption is normalized, further perpetuating sugary drink prevalence and consumption behaviours in wider society. Sustained change does involve shifts in behaviour, but does not rely solely on this. Change involves understanding and altering the messages, the infrastructure, and policy and regulatory environments that are driving and being driven by sugary drink consumption behaviours (Kelly & Barker, 2016; Malik et al., 2022).

Exploring complexity with students

Students who understand complex systems-level influences on human behaviour are less likely to attribute health issues to personal-level blame. They are more likely to explain causes of

issues from multiple perspectives and appreciate that for any issue or circumstance, there are multiple and complex drivers. Students who understand complexity in this way are more likely to prioritise and recommend multi-level systems changes (Leung & Cheng, 2020). For example, instead of attributing sugary drink over-consumption to a lack of individual willpower, students will be more likely to understand and support economic and environmental changes such as reducing the influence of sugary drink producers and marketers and increasing public and political appetite for health-supporting policies such as a sugar tax.

In a learning context such as sugary drinks, pre-existing knowledge and experience from students who identify as belonging to a range of ethnicities will be available as a richly diverse resource. As part of exploring and understanding complexity, it is vital that learners see their own languages, cultures and identities represented as a normal part of the "valued knowledge of school." The interaction of diverse cultural identities that students contribute to the learning by being invited to draw on their own funds of knowledge will add to a sense of knowing from different perspectives (Si'ilata et al., 2019; Trask et al., 2023).

Currently sugary drinks are the single largest food item that contributes sugar to the diet of New Zealanders. The overall learning objective of the FIZZ module is to support shifts in students' understanding of and attitudes to effect long-lasting changes in their own and others' sugary drink consumption behaviours.

Note: Learning will depend on teachers' objectives and orientations to curriculum and subject area, assessment, and student needs. The foci and strategies (Figure 1 and pages 6-11) are suggestions only.

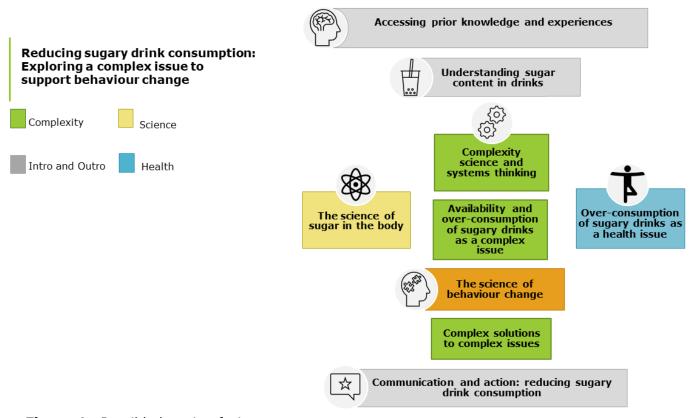


Figure 1. Possible learning foci

FIZZ: Exploring a complex issue to support behaviour change

Module Overview

The FIZZ module outline is intended to facilitate the exploration of sugary drink purchase and consumption behaviours as a complex issue.

The materials have been designed to provide direct support as well as scope for adaptation and improvisation in response to learner needs. For example, resources such as Teacher PowerPoints provide educative support in the form of slide scripts and prompts for discussion.

The materials have been designed by drawing on the following research-based strategies:

The Va'atele Framework: Va'atele is the Samoan name for the ocean-voyaging double-hulled canoe of Pacifica peoples. The Va'atele metaphor is used as a framework for Pasifika learners' success to demonstrate how educators might both privilege and utilize students' linguistic and cultural resources within curriculum learning at school. The framework guides opportunities for Pacifica learners and all learners to make meaningful connections between home and school funds of knowledge (Si'ilata et al., 2019). Strategies include:

- opportunities for students to present/write in their own language
- use oral presentation, storying and song
- use humour
- incorporate co-constructed and collaborative group tasks
- use models of Tuakana/teina, e.g., peer teaching and knowledge sharing, strengths-based collaboration
- in teacher and student resources, use languages and represent cultures and identities as a normal part of the "valued knowledge of school".
- use choral reading, memorization, and recitation as part of learning

Social marketing approaches Social marketing approaches recognize that behaviour is influenced by a wide range of factors including social norms, cultural values, personal beliefs, and environmental influences (Aceves-Martins et al., 2016; Hastings and Haywood, 1991). Social marketing uses traditional marketing approaches with an orientation to social good, i.e., for the benefit of individuals and society. For example, identifying and analyzing complex underlying factors that contribute to sugary drink consumption and using that knowledge to raise awareness and support behaviour change. Strategies include:

- Understanding students' lived experiences
- Drawing on theories of behaviour change
- Supporting students to consider actual and perceived costs and benefits related to sugary drink consumption who benefits from the sale of sugary drinks?
- Supporting student understanding of barriers and enablers that influence an inclination to behave in the desired way

Gamified elements are incorporated to enhance student engagement and learning:

- Competition, points, rewards
- Challenges
- · Choice and autonomy in learning
- Collaboration and social interaction

The aim is to develop competencies (attitudes, skills, capabilities) that support learners to take informed action towards improving their own health and well-being and that of their community in the context of sugary drinks. In addition, the aim is to support and demonstrate the transferability of these competencies to other health behaviour change contexts.

Learning in this module aims to support student's understanding, knowing, and doing related to purchase and consumption of sugary drinks by:

- using science/health conceptual knowledge
- developing an appreciation of complexity and systems thinking
- drawing on understandings of the science of behaviour change
- engaging in argumentation, decision-making, and critical action related to sugary drink consumption.

Learning is aligned with the New Zealand Curriculum (NZC) Science and Health and Physical Education learning areas at Levels 5 and 6. The module includes learning objectives, suggested learning activities, judgement statements and supporting resources for teachers, drawing on pedagogies that are likely to engage diverse learners and Māori and Pacific learners.

Links to New Zealand Curriculum subject essence statements:

Science: "in science, students explore how both the natural physical world and science itself work, so that they can participate as critical, informed, and responsible citizens in a society in which science plays a significant role" (Ministry of Education, 2007, p. 17).

Health and PE: In health education, students develop their understanding of the factors that influence the health of individuals, groups, and society: lifestyle, economic, social, cultural, political, and environmental factors. Students develop competencies for mental wellness, reproductive health and positive sexuality, and safety management, and they develop understandings of nutritional needs. Students build resilience through strengthening their personal identity and sense of self-worth, through managing change and loss, and through engaging in processes for responsible decision making. They learn to demonstrate empathy, and they develop skills that enhance relationships. Students use these skills and understandings to take critical action to promote personal, interpersonal, and societal well-being (NZC, p. 23).

Students could:

Develop and demonstrate understanding of science/health conceptual knowledge related to excessive sugar consumption

- explain the science behind what sugar does to the body
- discuss long-term health impacts and risks of over-consumption of sugary drinks
- recall recommended levels of sugar consumption per day for different ages groups and sexes
- show how to calculate amounts of sugar in drink labelling information
- explain why sugar in liquid form (beverages) is more detrimental than sugar in solid form (in foods)

Use tools from complexity and systems science to explain perspectives and influences on sugary drink consumption

- articulate their own perspective and consider and discuss multiple perspectives
- develop awareness that people adhere to (or give weight to) different perspectives to a greater or lesser extent (Leung & Cheng, 2020)
- survey food and beverage environments to support understanding of barriers and enablers related to sugary drink consumption
- identify systems-level influences on sugary drink purchase and consumption (e.g., political, economic, structural, social, environmental, educational, cultural)
- provide examples of feedback loops that positively and negatively influence sugary drink consumption
- apply the concept of change over time to consider and distinguish between short- and long-term thinking and consequences

Explore and apply concepts related to the science of behaviour change

- investigate and apply psychosocial models of behaviour change to plan actions
- investigate and apply decision-making theory to plan actions, e.g., delay discounting, fast and slow thinking, future thinking future thinking

• use the process of regressive inferencing to describe why people might behave as they do, i.e., work backwards from the point of sugary drink consumption to understand social, political, economic and other influences (Kelly & Barker, 2016).

Engage in argumentation and decision-making and recommend critical action related to sugary drink consumption

- use mapping and visual organisers to organise ideas, identify areas for inquiry, and structure arguments
- design a social media challenge to reduce sugary drink consumption
- conduct a direct, guided, or structured inquiry to investigate a selected issue related to the over-consumption of sugary drinks
- seek and make use of peer and teacher feedback to improve their learning
- debate, discuss, use role plays or persuasive writing
- use science communication skills to compose a video/rap/blog/academic poster/oral presentation that communicates their learning to family and community

New Zealand Curriculum Achievement Aims

Learning area	Level	Students will		
Science	5-6	Nature of Science	Participating and contributing	Develop an understanding of socio-scientific issues by gathering relevant scientific information in order to draw evidence-based conclusions and to take action where appropriate.
	6	Living World	Life processes	Relate key structural features and functions to the life processes of plants, animals, and micro-organisms and investigate environmental factors that affect these processes.
Health and Physical Education	5	Healthy communities and environments	Societal attitudes and values	D1: Investigate societal influences on the well-being of student communities.
	6	Personal health and physical development	Personal growth and development	A1: Investigate and understand reasons for the choices people make that affect their well-being and explore and evaluate options and consequences.

Possible NCEA Achievement Standards

Science 91920	1.1 Internal	Develop a science-informed response to a local socio-scientific issue https://ncea.education.govt.nz/science/science/1/1?view=standard
Health Studies (preparation for)	1.2 External	Demonstrate understanding of factors that influence hauora https://ncea.education.govt.nz/health-and-physical-education/health-studies/1/3?view=standard

Questions for focusing inquiry:

What are the health benefits to reducing sugary drink consumption? What are the health risks associated with sugary drink over-consumption?

Why is behaviour change (reducing sugary drink consumption) across different levels of society – individual, family, community, and government – often so hard to sustain?

Learning outlines

Learning Foci	Understand/Know/Do	Suggestions for pedagogies/strategies	Supporting resources
	What can students do with what they know and understand?	What learning experiences will support the development of understanding, knowing and	
	What learning will endure beyond school (Hipkins et al., 2022)?	doing?	
Accessing prior knowledge and experiences	Define and give examples of sugary drinks. Discuss/inquire: consumption of sugary drinks - What, Why, When, Where and How? Identify and categorise types of sugary drinks and alternatives. Ask and record curious questions about the issue of sugary drink consumption.	Seed the classroom with learning materials before beginning the topic. For example, media articles, advertising materials. Develop and maintain a visual display of traditional drinks from various cultures, including both sugary drinks and healthier alternatives. Conduct a rapid survey of class purchase and consumption habits. Respond to provocations to generate discussion about sugary drinks using pre-post surveys and discussion starters. Develop and maintain a KWL Chart throughout learning: Students communicate what they already know about sugary drinks, what they want to know, and what they have learned. Brainstorm influences on sugary drink consumption. Encourage broad thinking across personal-level, societal, business-sector influences.	Multi-lingual resources displaying images and information about each of the focusing inquiry questions (above). Images and information about traditional drinks from a range of cultures. Recent media articles, advertising materials promoting sugary drinks, and health promotion resources related to sugary drinks. Rapid survey tool Provocations as discussion starters KWL chart FIZZ Accessing prior knowledge and resources FIZZ Activities page
Understanding sugar content in drinks	Correctly state the number of grams of sugar in one teaspoon of sugar.	Blind taste-test a range of drinks and estimate the amount of sugar in 330 ml (select from bags of sugar provided)	Research the sugar content of common beverages and

Complexity science and systems thinking	Correctly estimate/calculate the total number of teaspoons and grams of sugar in a variety of beverages. Apply guidelines for sugar consumption, both free and natural including the 3-6-9 rule. Describe components and principles of complex systems and how they interact: emergence, interconnectedness, non-linear relationships, feedback loops, unintended consequences, systems adaptation, and resilience. Apply systems thinking to explain influences on sugary drink consumption. Identify components of the sugary drink system (such as producers, distributors, marketers, consumers, and regulatory bodies), and suggest opportunities to disrupt negative influences. Provide examples of feedback loops that positively and negatively influence sugary drink consumption. Explain the importance of looking for patterns over time when attempting to analyse and predict short- and long-term consequences of changes to a system.	Survey the sugar content in a range of drinks and represent the sugar content by measuring out teaspoons of sugar, per 100 ml. The teaspoon campaign -Direct teaching supported by visual display/PPt Systems modelling activity where students move around the room to model/become part of a complex system. Direct teaching supported by visual display/PPt Discuss stories to illustrate feedback loops Students make up their own stories to illustrate feedback loops. Survey grandparents and elders about beverage consumption when they were young – what non-alcoholic drinks did they make/buy/enjoy? Discuss stories or videos illustrating how and why sugary drink consumption has changed over time Make a timeline to map changes over time in sugar production and consumption across societies and cultures. Explore and analyse GUiNZ beverage data. Community Survey: Work in pairs or small groups to survey their community about their sugary drink consumption habits and attitudes towards reducing consumption. Analyze findings and share results with others.	create a chart or infographic to share with the class. FIZZ Teacher PowerPoints FIZZ Student worksheets Video analysis: Larry's teeth LENScience Systems Science for Health Living resources Systems modelling activity PowerPoint slides Feedback loop stories Survey support Change over time video/stories Timeline template
The science of sugar in the body	Classify types of carbohydrates, including sugars, starches, and fibres and understand the need for carbohydrates as a source of energy for the body. Recognize and correctly order steps in the process of digestion and metabolism of carbohydrates in the body.	Complete a graphic organiser to help students classify and compare/contrast types of carbohydrates, including sugars, starches, and fibres. Explore the process of digestion and metabolism of carbohydrates in the body using simulations/modelling. For example: (preferably require the students to invent/come up with the model) e.g., mimic the mechanical breakdown of	Graphic organiser template Materials for modelling FIZZ Teacher PowerPoint

	Compare and contrast the nutritional value of different types and sources of carbohydrates in terms of their structure, digestion, and impact on blood sugar levels to highlight nutritionally pointless /empty calories in sugary drinks. Illustrate how sugar is metabolized and used by the body. Explain how Type 2 diabetes develops.	food in the stomach – use a plastic bag with crackers/bread and water/vinegar. Transfer to a stocking or similar to represent peristalsis and nutrient absorption in the small intestine. Investigate the breakdown of starches into sugars using amylase to replicate the action of digestive enzymes and the iodine test for the presence or absence of starch/glucose with Benedict's. Model or illustrate the effect of sugar on tooth enamel over time, i.e., some bacteria in our mouths feed on sugars producing acids that can harm teeth. Gamified quizzes to assess knowledge and understanding. Watch and discuss/unpack interactive videos or animations that depict glucose metabolism and homeostasis: glucose transport/absorption, the role of insulin/glycogen storage and release, and the role of glucagon.	FIZZ Polar bear video SLH Obesity resources Concept cartoon FIZZ Quizzes LENScience Type 2 Diabetes resources
Over- consumption of sugary drinks as a health issue	Examine the evidence and discuss the health impacts of excessive sugary drink consumption. For example: • the role of sugary drinks in increasing the risk of developing NCDs including Type 2 diabetes, dental caries (tooth decay), conditions of overweight and obesity. • reasons for why sugar in liquid form is more detrimental to metabolic health than sugar in solid form • detrimental effects of sugary drinks on oral health • detrimental effects of sugary drinks on concentration, learning, and behaviour	 Access trustworthy sources to verify or refute a series of claims, for example: Sugary drinks promote weight gain by adding empty calories to the diet. Over-consumption of sugar in sugary drinks interferes with insulin production which over time can increase the risk of developing Type 2 diabetes and other NCDs. The sugar in sugary drinks activates reward systems in our brain which make us feel good and want to consume more sugary drinks. Develop a consequence wheel or draw a flow diagram to illustrate health impacts. Research factors and then design a points-based system to assess and demonstrate relative risk, for example, allocate points for different sugary drink consumption levels, age, and pre-existing health conditions. Use the system to assign risk scores to different scenarios. Use the system to discuss how the concept of perceived and actual 	Evidence sources, e.g., summarised results from academic articles Consequence wheel template Examples of points-based systems

Understand and explain the idea of relative risk in the context of sugary drink consumption. Examine and rank the most significant health benefits of reduced sugar in the diet. Availability and over-consumption of consumption of sugary drinks is a complex issue. Triang	
over- availability and over-consumption of visualise and discuss perceived relative	
Investigate, analyse, and discuss environmental and other influences, e.g., economic factors influencing the marketing and product placement, on sugary drink purchase and consumption. Explore personal, social, and environmental factors including barriers and enablers to sugary drink consumption to understand challenges in achieving and sustaining behaviour change. Sugary drink consumption. Investigate 'change over time' in sugar production and consumption and make links to industry gains and economic factors. Analyse peer vignettes that tell a story about the complex issues associated with sugary drink consumption from different perspectives – e.g., multinational companies profiting from ill health. Arrange sugary drink system factors and influences on a concept map skeleton. (Terms/ideas supplied to speed up the process). Use a Mentimeter poll spider diagram to show different weightings of perspectives and influences on sugary drink consumption. Environ	cept map skeleton and d cards timeter poll ronment Mapping teacher is

		gratification and distract from long-term negative health consequences?	
The science of behaviour change	Investigate and understand key principles that underlie successful behaviour change from behaviour change research e.g., awareness of triggers, using choice architecture or environmental changes to nudge behaviour change, rewards and incentives, small/achievable changes, understand different strategies work for different people. Acknowledge that behaviour change can be hard to achieve. Use the process of regressive inferencing to analyse why people might behave as they do. Use a decision matrix. Understand and apply the concepts of delay discounting and short- and long-term thinking, and stress reactivity. Investigate and tell stories of success related to achieving health behaviour change. Discuss the effectiveness of framing health messages in a positive or negative way. Investigate the effectiveness of personal health data and tracking apps.	Envisage and design: what would a shop supporting community health look like? Read and discuss a case study on a community's efforts to reduce sugary drink consumption. Identify the different factors involved such as social norms, access, and advertising, and discuss how these factors contribute to the complexity of the issue. Regressive inferencing: work backwards from the point of sugary drink consumption to understand social, political, economic, and other influences (Kelly & Barker, 2016). Engage in episodic future thinking – imagine a situation in the future – if current behaviour continues – what will the consequences or outcomes be? Imagine different reactions and outcomes. Reflect on, discuss, and analyse decision-making using scenarios: • What types of decisions and factors influence the choice to buy/consume sugary drink? • Explore concepts of fast and slow thinking, and how to make a conscious, thoughtful choice – consider both values and facts. • Understand trade-offs between smaller short-term rewards/pleasure and long-term benefits (delay discounting). Recognise and value long-term rewards to improve in-the-moment decision-making.	Local case studies of community action, e.g., school policy, workplace wellness campaign, local action against advertising, use of a mobile app The Decision Playbook Scenarios and prompts Encouraging Health Behaviour Change: Eight Evidence-Based Strategies AAFP Using health psychology to help patients: theories of behaviour change - PubMed (auckland.ac.nz) Behaviour Change: Ministry of Health. (n.d.). Retrieved from https://www.health.govt.nz
Complex solutions to complex problems	Draw on developing knowledge of complex systems and behaviour change to research, evaluate, and recommend strategies to reduce sugary drink consumption. Related to the chosen strategy/ies: Explore and explain multiple perspectives, take a position and	Conduct an issues debate, for example, 'Should soft drinks be banned?' Investigate the co-benefits of reduced sugary drink consumption. E.g., positive environmental impacts in reducing emissions-intensive consumption by making behavioural and lifestyle changes.	Debate topics Perspectives question scaffolds

	express supporting arguments, and counterarguments/rebuttals.	Develop a concept cartoon to illustrate multiple perspectives including science/health, social, economic	Systems diagrams illustrating points and levels of influence
		Research and recommend strategies at one or more points or levels of influence: individual, community, government, education, industry, advocacy, health and community / NGO sectors. For example, tax on sugary drinks recommended by WHO and implemented by some PICTS, cases where policy reforms have been effective e.g., plain packaging/health warnings on tobacco.	Consequence wheel template Concept cartoon exemplars
Communication and action: Reducing sugary drink consumption	Formulate and deliver a persuasive argument, supported by evidence, about potential drawbacks of overconsumption of sugar. Design and construct a visual or oral illustration (representation of the	Rap competition – write ChatGPT prompts to develop a rap song that communicates a specific message about sugary drinks. Improve the ChatGPT suggestions and perform the raps with the best rap message and performance receiving a prize.	FIZZ activities page Examples of ChatGPT prompts
	illustration/representation of the argument, such as rap, poster or infographic.	Design a social marketing campaign, for example, a 'healthy hydration' social media challenge. Use "product subversion" – use humour or exaggeration to promote a healthy alternative or produce a parody or satirical version that highlights negative health consequences. Share all ideas and vote for the best advertisement.	Examples of sugary drink marketing and product subversion Examples of rating systems and infographics e.g., traffic lights, stars.
		Present a poster message using PowerPoint poster templates. Role-Play: script and present a role-play to encourage others to reduce their sugary drink consumption or to illustrate the use of a behaviour change strategy. Collaborate with researchers to co-write or review an article for publication see, for example, https://kids.frontiersin.org/ Form a Health Committee, survey student/whanau school community, and develop and advocate for, a sugary drink policy at their school. E.g., communicate with the BoT.	A0 Poster template (made in PowerPoint)

	Design a front-of-pack labelling/rating system and infographic to illustrate sugar content in drinks (in teaspoons per drink).
--	--

References

- Ehrich, L. C., Kimber, M., Millwater, J., & Cranston, N. (2011). Ethical dilemmas: A model to understand teacher practice. *Teachers and Teaching*, *17*(2), 173–185. https://doi.org/10.1080/13540602.2011.539794
- Hastings, G. & Haywood, A. (1991). Social marketing and communication in health promotion, *Health Promotion International*, 6(2), 135–145. https://doi.org/10.1093/heapro/6.2.135
- Hipkins, R., Tolbert, S., Cowie, B., & Waiti, P. (2022). *Enduring competencies for designing science learning pathways*. New Zealand Council for Educational Research. https://www.nzcer.org.nz/research/publications/enduring-competencies-designing-science-learning-pathways
- Keast, R. S. J., Swinburn, B. A., Sayompark, D., Whitelock, S., & Riddell, L. J. (2015). Caffeine increases sugar-sweetened beverage consumption in a free-living population: A randomised controlled trial. *British Journal of Nutrition*, 113(2), 366–371. https://doi.org/10.1017/S000711451400378X
- Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult? *Public Health*, 136, 109–116. https://doi.org/10.1016/j.puhe.2016.03.030
- Leung, J. S. C., & Cheng, M. M. W. (2020). Conceptual change in socioscientific issues: Learning about obesity. *International Journal of Science Education*, 42(18), 3134–3158. https://doi.org/10.1080/09500693.2020.1856966
- Malik, V. S., & Hu, F. B. (2022). The role of sugar-sweetened beverages in the global epidemics of obesity and chronic diseases. *Nature Reviews Endocrinology*, *18*(4), Article 4. https://doi.org/10.1038/s41574-021-00627-6
- Ministry of Education. (2007). *The New Zealand Curriculum*. http://nzcurriculum.tki.org.nz/The-New-Zealand-Curriculum
- Si'ilata, R., Samu, T. W., & Siteine, A. (2018). The Va'atele Framework: Redefining and transforming Pasifika education. In E. A. McKinley & L. T. Smith (Eds.), *Handbook of Indigenous Education* (pp. 1–30). Springer Singapore. https://doi.org/10.1007/978-981-10-1839-8_34-1Sundborn, G., Thornley, S., Merriman, T. R., Lang, B., King, C., Lanaspa, M. A., & Johnson, R. J. (2019). Are liquid sugars different from solid sugar in their ability to cause metabolic syndrome? *Obesity* (Silver Spring). *227*(6):879-887. https://doi.org/10.1002/oby.22472
- Sundborn, G., Thornley, S., Grey, C., Gentles, D., Jackson, R. T., Swinburn, B., ... & Lang, B. (2021). Gamification and sugar: A school-based pilot study of social marketing and gamification approaches to reduce sugary drink intake in Pasifika school students. *Asia Pacific Journal of Public Health*, 33(6-7), 727-733. https://doi.org/10.1177/10105395211030133