Supplementary Table S1. Details and descriptions of all 61 food categories, including the Food Chapter each food category belongs to, according to the New Zealand FOODFiles Food Composition Database [19].

Food chapter[1]		Food category	
		Name	**Description**
A	Bakery products	Breads and rolls, wholegrain[2], fortified[3]	Bagels, bread, English muffins, and flat breads with additional fortification, all grains including gluten-free varieties
		Breads and rolls, refined grain, fortified	White (including gluten-free) bagels, bread, English muffins, and flat breads with additional fortification
		Breads and rolls, wholegrain, unfortified	Bagels, bread, English muffins, and flat breads with no fortification, all grains including gluten-free varieties
		Breads and rolls, refined grain, unfortified	White (including gluten-free) bagels, bread, English muffins, and flat breads with no fortification
		Bakery desserts	Sweet buns, sweet biscuits, cakes, cupcakes, banana breads, sweet scones and muffins, pudding, pie, danishes, éclairs, doughnuts, pavlova
		Savoury biscuits	Crackers, wafers, rice cakes, and crispbreads
C	Beverages, non-alcoholic	Fruit juices	Commercial and non-commercial juices
		Sweetened beverages	Fruit drinks, cordials, soft drinks, flavoured mineral waters, sports drinks, and energy drinks
		Liquid/fortified breakfast	Milo prepared with milk, unfortified beverage flavourings prepared with milk, beverage bases unmixed, and breakfast cereal beverages
		Dairy milk substitutes	Soy beverages and rice beverages including smoothies and milkshakes
		Flavoured milk	Iced coffee, milk with flavouring, milkshakes, thick-shakes, and fruit smoothies with milk
D	Breakfast cereals	Breakfast cereal, RTE, fortified, sugar ≤ 15g/100g[4]	Fortified ready-to-eat breakfast cereals and muesli varieties, with or without fruit and nuts, and lower in sugar. *E.g., Weet-bix, cornflakes, rice bubbles*
		Breakfast cereal, RTE, fortified, sugar > 15g but ≤30g/100g	Fortified ready-to-eat breakfast cereals and muesli, with or without fruit and nuts higher in sugar. *E.g., All Bran, Special K*

		Breakfast cereal, RTE, unfortified, sugar ≤ 15g/100g	Unfortified ready-to-eat breakfast cereals and muesli varieties, lower in sugar. *Eg, Puffed wheat, unfortified wheat biscuits*
		Breakfast cereal, RTE unfortified, sugar > 15g but ≤30g/100g	Unfortified ready-to-eat breakfast cereals and muesli higher in sugar. *Eg, muesli, unfortified breakfast flakes with dried fruit added*
		Breakfast cereal, RTE, sugar > 30g/100g	Discretionary ready-to-eat breakfast cereals E*g, Cocoa Pops*
		Hot porridge	Porridge with and without (milk, sugar, honey and dried fruit)
E	Cereals and pseudo-cereals	Pasta and noodles	Pasta and noodles, plain without additions
		Pasta and noodles, with additions	Pasta and noodles with additions, such as canned spaghetti in tomato sauce, ravioli, and macaroni cheese
		Rice and grains	Rice, quinoa and couscous without additions
F	Dairy	Dairy milk full-fat	Fluid milk, condensed milk, and milk powder full-fat (3.3%)
		Dairy milk reduced fat	Fluid milk, condensed milk, and milk powder, fat 1.5%
		Dairy milk skim	Fluid milk, condensed milk, and milk powder, fat <1%
		Yoghurt full-fat	Yoghurt, plain and sweetened varieties, > 3% fat
		Yoghurt reduced fat	Yoghurt, plain and sweetened varieties, ≤ 3% fat
		Cream	Cream, sour cream, and whipped cream
		Cheese	Cheese blocks and grated cheese, all varieties
		Cheese ultra-processed[5]	Cheese slices ('plastic cheese')
		Ice-cream and ice-confections	Ice-cream, sweetened ice desserts, gelato
		Butter	Butter

G	Eggs	Eggs	Eggs, without additions
J	Fats and oils	Oils	Vegetable and seed oils
		Margarine and margarine-like spreads	Dairy blends, margarines and table spreads
K	Fin fishes	Fresh fish	Fish (baked, boiled, roasted, smoked)
		Fish, battered and fried	Fish (battered/crumbed and fried, including frozen)
		Canned fish	Canned tuna, salmon, sardines, mackerel
L	Fruits	Fresh fruit	Raw fruits and fruit salads
		Commercial fruit, no added sugar	Canned fruits (drained, with juice)
		Commercial fruit with added sugar	Canned fruits (with syrup)
		Dried fruits	Dried fruits
M	Meats	Red meat, fat fully trimmed	Beef, lamb, pork, veal, kangaroo with all fat removed
		Red meat, fat semi or untrimmed	Beef, lamb, pork, veal, kangaroo with fat still present, or only partially removed
		Poultry	Chicken and duck
N	Meat products	Ultra-processed meats	Bacon, ham, prosciutto, salami, corned beef, turkey deli-sliced, spam, and beef jerky
		Processed meats	Sausages (beef, pork, chicken), frankfurters, saveloys
Q	Nuts and seeds	Nuts and seeds	Chia seeds, nuts (peanuts, almonds, pistachio, pine), nut butters
R	Recipes[6]	Batter-based products	Crepes, pancakes, pikelet, waffles, fritters

S	Sauces	Dips	Dairy-based dips, guacamole, and hummus
		Sauces, cream-based	Cream/oil based sauces used frequently in the NZ diet, such as coconut cream, cream-based simmer sauces, and mayonnaise
		Sauces, tomato-based	Tomato-based sauces used frequently in the NZ diet, such as tomato sauce, canned tomatoes and tomato-based pasta sauce
T	Shellfishes	Shellfish	Crabs, prawns, scallops, squid
U	Savoury snack foods	Savoury snacks	Potato crisps, corn chips, popcorn, snack mixes, and 2-minute noodles
W	Sugars, confectionaries, sweet spreads	Sweet spreads and syrups	Sugar, honey, and maple syrups, jams and sweet spreads
		Sweet snacks	Chocolate, bars, licorice, honeycomb, lollies, marshmallows, muesli and cereal bars
X	Vegetables and pulses	Potatoes, red kumara, and taro unprocessed	Baked, boiled, fried, grilled, or BBQ'd potatoes, Owairaka Red kumara and taro.
		Potatoes, red kumara and taro, processed	Fries, hash-browns, and wedges (potatoes, Owairaka Red kumara and taro).
		Orange/yellow vegetables	Carrots, orange/gold kumara, pumpkin
		Green leafy vegetables	Lettuce, spinach, silverbeet, bok-choy, watercress
		Other vegetables	Broccoli, cabbage and cauliflower, leeks, onions, peas and beans, beetroot, root vegetables that are not orange or yellow, zucchini, tomato, mushrooms, onions, leeks, and green bananas
		Vegetable dishes	Vegetable casseroles, vegetable curries, vegetable stir-fry, vegetable salads without additions, coleslaw, and potato salad
		Meat substitutes/legumes and dishes	Beans, lentils, baked beans plain and in (sauces, curry, salads and casseroles), tofu, and tempeh

[1] Each food category can be matched to one of the food chapters outlined in the New Zealand Food Composition Database (25).
[2] Where specified, wholegrain versions of a food were grouped together; thus, refined versions of a food were also grouped together.
[3] Where specified, fortified foods were grouped together; non-fortified foods were thus also grouped together.

[4] Where applicable, classifications based on nutritional properties were used: High or moderate fat foods were grouped together, and reduced or skimmed versions of a food were grouped together; Foods with a similar sugar content were grouped together; Foods high in sugar and classified as discretionary were grouped together.

[5] Where possible, foods within each level of processing (NOVA classification) were grouped together.

[6] A selection of foods were excluded. These were: mixed dishes and takeaway foods, due to them containing more than one other food category and therefore creating added complexity that would be unfeasible to model; organ meats and offal, due to a low frequency of consumption; tea and coffee, due to contributing negligible calories to the diet.; water, due to contributing negligible calories to the diet; alcohol, due to contributing negligible nutrients to the diet; supplements, due to contributing negligible calories to the diet; infant formula and baby foods, due to no household member being an infant or baby.