Foodsee Convenience stores Annotation Manual – Image data

Introduction
Convenience stores are often located within close proximity to schools, and observational evidence suggests that they are a key source of unhealthy food in children's diets in many countries. However, little is known about the nature and extent of the foods and beverages available to children in convenience stores, and their actual purchasing behaviour. Wearable cameras provide a means of capturing children's behaviours and environments in real-time.

Using image data from the Kids'Cam project, this study will investigate the role of convenience stores in children's food environments. A random sample of 169 children from 16 randomly selected schools in Wellington, New Zealand, wore cameras for four days that automatically took photographs every 10s. Images taken inside of convenience stores will be selected and coded for the type and quantity of foods and drinks available and accessible to the children within the stores. Children's purchasing behaviours, including their movement around the stores and products purchased will also be documented.

Study Objective:

To examine and describe children's interaction with the consumer food retail environment of convenience stores, specifically:

> Food and beverage **availability** and **accessibility**
> **Purchasing** and **consumption** patterns in convenience stores
> Food and beverage **marketing** in convenience stores

Study Definitions
Consumer retail food environment: The conditions customers encounter when entering a store, including price, availability, promotion, and nutritional information (Ferguson, 2015)

Availability:

Availability: Refers to the adequacy of the supply of food (FAO, 2006; Caspi et al, 2012).. In this study food availability will be measured by counting the variety of food items or drink items in the photos and classifying them by category. At least one photo from each participant will be used to count the total number of individual food items in the instore environment rather than the categories represented.

Availability encounter: When a food or drink is clearly identified in an image. A food or drink product may only be coded once regardless of how many times it appears in subsequent images. Note there will often be more than one food availability encounter in an image.

Accessibility: Refers to the locational access to the food supply (Ferguson 2015). In this study this concept relates to the placement of items that can be easily accessed by children within their arms reach. For example the height at which items are displayed or items on the counter top rather than behind the counter will be recorded for each photo. When coding note that 'arms reach' refers to the arms reach of a child generally rather than specific to a participant.

Purchasing:

Food or Beverage purchase: Beverage purchase: A sequence of images that shows a purchase transaction in exchange for a food or drink item. May include an exchange at a shop counter, till, or with a peer, etc. May or may not include the image of a payment.

Consumption:

Eating or Drinking Episode: A sequence of images where a food or drink item is available and being consumed. An eating or drinking episode is initiated by the presence of a food or drink item. It is followed by the participant handling the food or drink item and/or a decrease in the amount of food or level of the drink. It may or may not include the lifting of the item to the lips. It is concluded by the absence of the food or drink item within the images.

Marketing

Marketing: 'any form of commercial communication or message that is designed to, or has the effect of, increasing recognition, appeal and/or consumption of particular products and services. It compromises anything that acts to advertise or otherwise promote a product or service.' (WHO, 2012) Instore marketing includes on-shelf displays, displays at check outs, pay points and end of aisles in supermarkets, special offers and pricing incentives (WHO, 2012).

Marketing Exposure: When food or beverage marketing of a single type for the same product is present in at least one image. Each food or Beverage Marketing exposure is only coded ONCE per convenience store encounter.

Frequency: The number of independent marketing exposures that contribute to the total number of exposures to food and beverage marketing.

Nature: The types of exposure in relation to the way the product is advertised. Relates to the marketing medium used to advertise the product as well as the setting the marketing exposure occurs in.

Annotating an Image

All images that have been previously coded as 'convenience store' or 'service station' in the main Kids'Cam study will be re-examined, and those images that show the in-door environment of either a convenience store or service station will be codedThe images for coding have been saved on to a password protected memory stick, and will be coded by one researcher. Coding for each image will be recorded on an excel sheet. Field notes will also be taken from the images to add extra detail. For example notes will record if healthy food is placed out of reach of children, or nature of the price marketing i.e. 2 for 1 deals on sugary drinks.

General Annotation Rules

1) For each convenience store encounter, scan all the images to get a sense of the child's encounter with the store. Scan each image using the checklist of categories to note which images provide information about whether a certain category of food is available in the store, and the placement of this item. Note the images that have the clearest view of each particular category. For example, sometimes an item will be in the background of one image, but in the foreground of another. Therefore coding should only occur for the image where the item is clearest. If possible a hand-drawn diagram of the store encounter could be drafted by the coder, noting the category and placement of items for the store encounter.

Checklist of Categories

List number of product brands per category, and number items per products within a margin of error. Different flavours of a branded product – usually represented by different coloured packaging are not a different product brand. Where there a different flavours i.e Eta Chips Salt and Vinegar, Eta Chips Chicken, Eta Chips Sour Cream and Chives they equal one branded product. However each individual item within the product category will then be counted.

| |
|---|
| Confectionary (packet) |
| Single serve confectionary |
| Lolly Mixture |
| Sugary Drinks and Juices |
| Ice-cream |
| Chocolate |
| Fast food |
| Chewing Gum |
| Snack Foods |
| Cookies,cakes and pastries |

Milk product (unhealthy)
Other: Non-specified –frozen potato products, dips
Processed meats
Milk and Milk Products
Water
Breads and Cereals
Fruit and Vegetables
Meat and Alternatives
Mixed Meals
Non Food

Placement checklist
Fridge
Freezer
Shop display
Shop fixture
Shelf
Shelf beside counter
High shelf/wall
Counter top
behind counter
under counter
above counter

2) You **MUST** take a short break every 30 minutes of annotation as continuous spells of annotation over this time are prone to measurement error.

3) From the 28th of September 2014- 5th of April 2015 the times have not been adjusted for daylight savings. For example, the annotation framework will show 6am when it is really 7am. Participant numbers 600800-190120 affected.

Setting Annotation Rules

1) There are 2 settings to code for either convenience store or service station. See definitions in appendix.

2) Setting events are usually defined by a door or identifiable entrance/exit. If there is no such feature, then it is up to the coder to define the threshold. For example this image indicates the entrance to a service station.
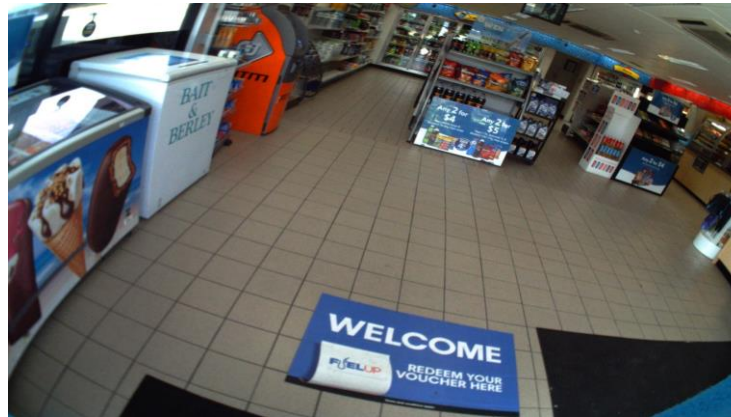
3) The *Setting* is coded by where the food or beverage encounter is occurring, not where the participant is standing. Only **ONE** setting is to be coded for each available item. For example:

Because the encounter is occurring within the Convenience Store this image would be coded:

Convenience Store

Because it can be difficult to determine the difference between convenience stores and supermarkets from the outside it is possible to retrospectively annotate these if new information is presented that changes code. For example:

In this situation it is acceptable to retrospectively go back and re-annotate the supermarket tags as convenience store.

Coding is completed when the child leaves the indoor convenience store or service station environment. This will be indicated on the excel sheet) so that the total number of food availability or marketing exposures for each convenience store or service station encounter can be calculated.

Annotation Rules

Product Availability (Food and Beverage)

1) For an image to be coded for product availability, the coder must be able to clearly identify a food or beverage exposure. The coder must be 100% certain about the identity of a food or beverage exposure.

   Food or Beverage Exposure: When a new food or drink item is clearly identified in an image.

2) Food and Beverage availability is only coded **ONCE** per convenience store encounter. The picture where the item present is clearest will be coded as *Available.* If the same food or drink item occurs in previous or subsequent images within the same encounter, it is **NOT** coded for availability.

3) If a separate food or drink item is introduced within an existing encounter (e.g. purchasing a second food item), then it is a considered a new exposure. The initial image that introduces the additional item will be coded as *Available*.

4) Product is coded for the Category. Key categories include Confectionary Single Serve, Lolly Mixtures, Confectionary (General), Chocolate, Iced Confectionary, Chewing Gum, Cookies etc., Snack-foods, and Sugary Drinks. See description.

The number of products means the number of different types of item within a category that is available. For example

This image has at least 15 types of single serve confectionary. The number of actual items of single serve confectionary is also counted. In this photograph it is 100 (approx.).

Marketing (Food and Beverage)

1) For an image to be coded for marketing, there must be 50% of the logo or brand name or registered trademark (colours and shapes do not count) present in the initial frame. See 'Marketing exposure' definitions

(a) If you are unsure about a brand or logo, it is recommended that you search the internet in order to identify the brand.

2) The instore marketing environment will be measured for the following categories:

Packaging
Product Placement Accessible
Product Placement (where in shop)
Promotion if in Manufactured supplied Display Box or Fixture, Fridge (Drinks) or Freezer (Iced Confectionary)
Point of Sale Price ticketing
Product Packaging
Sign

See the section on definitions for further explanation of these codes. The number of different exposures (for example the number of branded ice-cream fridges or the number of product package categories) will be counted for. However the first two codes Product Placement Accessible or Product Placement, will simply be recorded yes or no to indicate if the photo represents an example of that type of marketing.

5) Food and Beverage Marketing is only coded **ONCE** per convenience store encounter. The picture where the item present is clearest will be coded. If the same food or drink item occurs in previous or subsequent images within the same encounter, it is **NOT** coded.

Food or Beverage Type Annotation Rules

1) All images will be coded on an excel spread sheet for product, packaging, placement, promotion and price. For each image, the participant number, time of photo, date and image number will be recorded. For a food or drink item to be coded, the coder must be able to clearly identify to 100% certainty a food or beverage category. *See Food and Beverage Definitions*

2) Food or beverage category is only coded **ONCE** per encounter. The picture where the item present is clearest will be coded for its category. Subsequent or previous images that contain any part of the food or drink item are **NOT** coded if they are part of the same encounter.

3) An encounter is finished when there are **5** consecutive images without the item.

4) There may be two or more food or beverage categories in one image. All need to be coded for, following the checklist.

5) When two or more of the same product are present they are coded as one encounter. The total number of separate products within a category of food will be coded for. Due to the nature of convenience store environment, the category 'confectionary' will be separated into confectionary, lolly mixtures and chocolate. The total number of different products within each category will be counted to the nearest approximate number. Different flavours of a branded product – usually represented by different coloured packaging are not a different product brand. Where there a different flavours i.e Eta Chips Salt and Vinegar, Eta Chips Chicken, Eta Chips Sour Cream and Chives they equal one branded product. However each individual item within the product category will then be counted

6) If a food or drink item cannot be determined (at 100% plus certainty) because it lacks identifiable features, the item is coded as *Food or drink- Undetermined (1,2 or 3+).* . If drink items with clear liquids and coloured liquids cannot be determined, they are to be coded as *Drink Item- Undetermined.*

   When an image is marked as *Food or Drink Item- Undetermined*, previous images can be re-evaluated to identify if contents can be determined

7) Other items (e.g. coffee, tea, alcohol, etc.) that are not categorized in the beverage type categories can be coded as *Other.*

Availability and Marketing: Convenience stores

All the images inside a convenience store will be coded for the categories of food or beverages in the image. The instore marketing will also be coded. In addition to this notes will be taken by the coder to describe the child's interaction with the store.

Images will need to be magnified to full screen for coding.

Image	Setting	Category	Core /NC	X Products	X Items	Package Y/N	Placement Accessible Where in shop?	Promotions	No.	Signs	C/NC	Price

									If branded display core/nc?				Promotion
1234	CS	Confectionary SS	2	8	20	Y	Yes	Side of counter	0	0	0	0	No Side of counter
1234	CS	Lolly Mixture	2	3	11	N	Yes	Side of counter	0	0	0	0	No
1234	CS	Chocolate	2	13	35	Y	Yes	Side of counter MSD	2	1	2	NC	Yes

Qualtative notes – *Note the placement of the lollie mixtures and other forms of confectionary at the childs height so that they are within very easy reach. Also note two signs – one for ice-cream behind the counter and one promoting moro on the Cadbury display – Moro 'A fistful of awesome". Also note the plastic bottle – brand identifable hanging from the ceiling*

Core Non Core Not Applicable

Not Applicable =0
Core =1
Non Core=2

Availability and Marketing

Image	Setting	Category	Core /NC	X Products	X Items	Package Y/N	Placement				Promotions		
							Accessible	Where in shop?	If branded display C/NC?	No.	Signs	C/N C	Price Promotion
1111	Conv	Sugary Drinks and Fruit Juice	2	10+	55	Y	Y	Fridge	2	4	0	0	Y
1111	Conv	Water	1	1	15	Y	Y	Fridge	1	1	0	0	Y
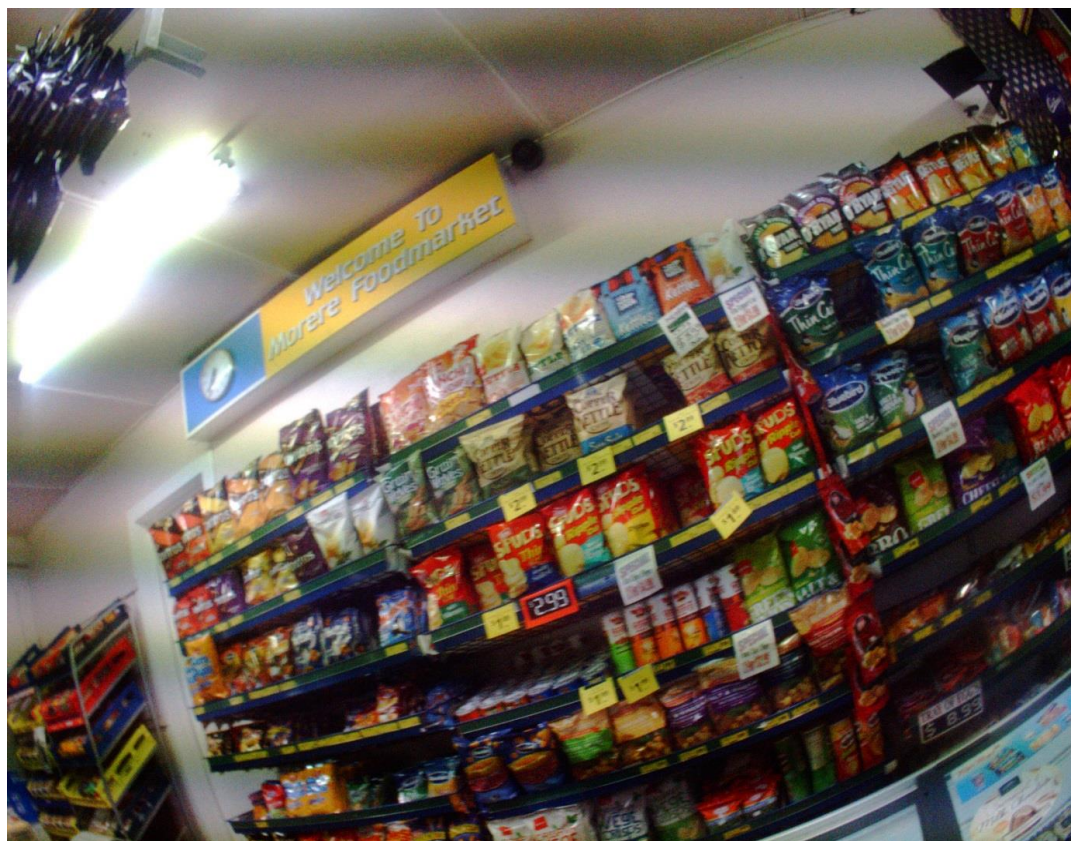
Image	Setting	Category	Core /NC	X Products	X Items	Packaging Y/N	Placement		Promotions				Price Promotion
							Accessible	Where in shop?	If branded display c/nc?	X=	Signs	C/NC	
2222	CS	Snack foods	2	10+	88	Y	Yes	Shef	o				
2222	CS	Breads and Cereals	1	5-9	5-9	Y	Yes	Shelf	0	NA	NA	NA	Yes
2222	CS	Meat and meat alternative (egg)	1	1	1	Y	Yes	Shelf	0	NA	NA	NA	Not Visible

Image	Setting	Category	Core /NC	X Products	X Items	Packaging Y/N	Placement		Promotions				
							Accessible	Where in shop?	If branded display core/nc?	No.	Signs	C/ NC	Price Promotion
3333	CS	Chocolate	2	2	5	Y	No	High Shelf	0	0	NA	0	No
3333	CS	Breads and Cereals	1	3	3	Y	No	Behind Counter	NV	0	NA	0	NV
3333	CS	Other	0	10+	30	Y	No	High Shelf	0	0	NA	0	No

Qualitative notes

Access that healthy food (weetbix) is placed out of reach of children

*Note price is only on Pringle container * (Need to expand image to see if can identify Pringle container)*

Purchasing annotation rules:

1) For an image to be coded as *Purchased*, the coder must be able to clearly identify a beverage purchase. The coder must be 100% certain about the identity of a beverage purchase to code for *Purchased*.

   Food or Beverage purchase: A sequence of images that shows a purchase transaction in exchange for a food or drink item. May include an exchange at a shop counter, till, or with a peer, etc. May or may not include the image of a payment.

2) Purchasing is only coded **ONCE** per purchase. Once a purchase is identified, the initial picture of the given exchange point will be coded as *Purchased*. The subsequent images in which the purchase occurs will **NOT** be coded.

3) An item purchased is considered finished at the last image the participant is present at the given exchange point for the purchase.

Consumption

1) For an image to be coded as *Consumed (following Purchase)*, the coder must be able to clearly identify an eating or drinking episode, to a 100% level of certainty.

   Eating or Drinking Episode: A sequence of images where a food or drink item is available and being consumed. An eating or drinking episode is initiated by the presence of a food or drink item. It is followed by the participant handling the food or drink item and/or a decrease in the amount of food or level of the drink. It is concluded by the absence of the food or drink item within the images.

2) Consumption is only coded **ONCE** per episode. The initial picture where the item is handled for consumption will be coded as *Consumed*. If the same item occurs in subsequent images within the same eating or drinking episode, it is **NOT** coded for consumption.

3) An eating or drinking episode is considered finished at the last image the item(s) is visible for the date.

4) If a separate food or drink item is introduced for consumption within an existing episode it is considered a new episode. The initial image that introduces the additional item being handled for consumption by the participant will be coded as Consumed. Note only those items purchased at Convenience stores or Service Stations that are then consumed will be recorded.

Images would be coded as:

Image 3

| Image	Setting	Category	C/NC	X=	Purchase ?	What?	Consumption	What?
4444	Conv	Iced Confectionary	NC	2	Yes	Iced Confectionary	No	
4445	Conv	PC	PC	PC	PC	PC	Yes	Iced Confectionary

PC = Previously Coded

Notes:

Group of 3 (2 friends and camera wearer) enter convenience stores. Deliberate over freezer (add in time), before buying as a group 3 iced confectionary products, and camera wearer consumes theirs on outside of store

Uncodable Images

1) **Dark/Obstructed/Blurred** - Any image or set of images where the visibility of the image is poor to the extent the coder is unable to accurately determine what is happening in the image or series of images in question. Could be due to dark/blurred/obstructed images.
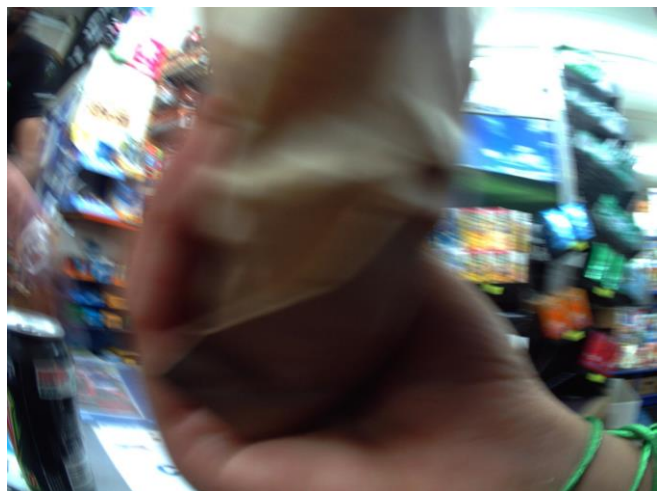
This photo cannot be coded as it is blurred and the over 50% of the image is blocked.

This photo can still be coded for the drinks and price marketing that is visible as the image is not over 50% blocked.

Uncertain of Correct Annotation

1) If a coder is uncertain on what an image should be coded as or whether it should be coded at all, they may code it uncertain. The image will be checked and coded later by another coder.

Uncertain (*Setting*)→Uncodable (*Context*)→Check (*Food or Beverage Type*)

Definitions

Setting

Definition: The place or type of surrounding where something is positioned or where an even takes place.

Setting	Definition
Convenience store – indoor	A smaller style food retail store with two or fewer checkouts (Thornton & Kavanagh, 2012). E.g. Dairy, Fix, Seven Eleven, neighbourhood corner store; Four Square; When the number of checkouts is not clearly visible then look for identifiable features such as independent store names (e.g. David's Food market) or the words Dairy, Convenience Store, Fix etc.
Service station	An establishment beside a road the predominantly sells petrol and oil and sometimes having the facilities to carry out maintenance (Oxford Dictionaries, 2015) An establishment selling petrol and food including Z, Caltex, BP, Mobil. This definition includes the petrol pumps and forecourt area but not the street-side advertisements (coded as street).

Context
Definition:

Context	Definition
Available	Supply or presence of food or beverages.
Purchased	A sequence of images that shows a purchase transaction in exchange for a food or drink item. May include an exchange at a shop counter, vending, till, or with a peer, etc. May or may not include the image of a payment.
Consumed	A sequence of images where a food or drink item is available and being consumed. It is initiated by the presence of an item and followed by the participant handling the item and/or a decrease in the level of the drink or amount of food. It may or may not include the participant lifting the item to their mouths. It is concluded by the absence of the item within the images.
Instore Marketing	Instore marketing includes on-shelf displays, displays at check outs, pay points and end of aisles in supermarkets, special offers and pricing incentives (WHO, 2012).

Medium	Definition
Product Placement Accessible	Accessible Yes/No In this study the camera is worn at the chest height of the child. Therefore items that are within the forefront of the photo are within easy reach of the child. Photos where products are displayed at the child's eye level or within easy reach of a child are therefore coded 'Yes". Items place on high shelfs or behind counters are coded 'No'. When coding note that 'arms reach' refers to the arms reach of a child generally rather than specific to a participant.
Product placement	Where in shop? Options include freezer, fridge, shelf, shop display, shop fixture, high shelf/wall, Counter top, above counter, Behind Counter, and Under Counter.
Branded Display	If branded display core/non-core? Many display fixtures are supplied by a manufacture to display their branded products. Examples include branded confectionary boxes e.g. Cadbury's or stands (e.g. chuppa chups). These will be coded for if they are core or non-core categories. The number of branded displays including branded drinks fridges or ice-cream freezers will also be counted. For branded fridges one door (with a brand on the top) =1.
Price Promotion	Yes/no If a price promotion is clearly visible in the photograph, this is recorded as yes. Examples of price promotions include 2 for 1 deals on products, shelf talkers, or hand written prices on lolly mixtures/ single serve confectionary bins.
Product packaging Yes/No	Product labelling and packaging designs (WHO, 2015). Includes all food and beverage packaging seen in any setting. Includes bags, wrappers and boxes with food and beverage logos.

| Sign | Any word, letter, model, banner, placard, board, hoarding, billboard, poster, symbol, emblem, notice, name, image, character, outline, spectacle, display, delineation, announcement, device or representation, or any other means of a similar advertising nature intended to principally attract attention, whether a specific constructed device, structure or apparatus, whether painted, printed or written, carved, inscribed, endorsed or projected onto a place or otherwise fixed or attached to any wall, roof, fence, rock, stone, structure, canvas or stationary vehicle (Hutt City Council, 2014) | **In store Marketing medium** |

Product Categories

Category	Definition
Core	Milk and Milk products: plain milk; cheese; yoghurt; milk alternatives – soy, rice, almond; excludes milk products <10g/100g sugar
	Water: Plain
	Breads and Cereals: all breads and cereals, rice, pasta, noodles, crackers, rice crackers, flat breads, crumpets, instant noodles. Excluding breakfast cereals categorized as non-core > 15g sugar per 100g
	Fruit and veg: includes dried fruit, canned, fresh and frozen
	Meat and alternatives: meat/eggs/nuts – fresh meat, nut products such as peanut butter, legumes fish
	Mixed meals: sandwiches, sushi (KidsCam Manual)

| Non-Core | Confectionary (packet) e.g. packet of Fruit Bursts. M&Ms and Pineapple Lumps are counted as confectionary (not chocolate).

Single serve confectionary (i.e. confectionary that is 10c or 20c per individual item – including K-bars)

Lolly Mixtures – individual lolly mixtures in paper or plastic bags

Chocolate - both individual 50g bars to 250 g bars of block chocolate. Easter Eggs are included within the chocolate category.

Cookies, cakes and pastries: Cakes, muffins, sweet biscuits, sweet and savoury pies, sweet and savoury pastries, slices, scones, sausages rolls

Cereal (unhealthy): Cereals with >15g/100g total sugars

Fast Food: E.g. Burger, Hot Chips, Fried Fish, Fried Chicken, Pizza

Ice Cream: Ice cream and iced confectionary

Milk product (unhealthy): Dairy food and yoghurt >10g/100g total sugars, custard

Other: Non-specified –frozen potato products, dips

Processed meats: Salami, Sausages, beef jerky and dried meats, bacon, ham, delicatessen meats

Snack foods: Muesli Bars, potato chips, extruded snacks, snack bars, fruit straps, fruit squeezes

Sugary drinks and juices: Includes carbonated beverages and soft drinks including Coke Life; sports drinks; energy drinks; flavoured milks (chocolate milk), fruit drinks(e2, Ribena); powered drinks (Milo, Raro); cordial; fruit juices; iced tea; breakfast drinks (Up & Go); flavoured waters |
|---|---|

Placement checklist
Fridge
Freezer
Shop display
Shop fixture
Shelf
Shelf beside counter
High shelf/wall
Counter top
behind counter
under counter
above counter

Definitions:

Shop display – but perhaps it should just say Display – because most displays are provided by manufacturers and therefore will show branding…

Shop fixture – e.g in the petrol stations there are good examples of fixtures that are part of the shop…

Counter top – look up dictionary re definition…

Summary sheet

Core Non Core Not Applicable

Not Applicable =0

Core =1
Non Core=2

Setting	Context	Product Category / Marketing medium List number of brands per category, and number of products per category within a margin of error	Placement
Convenience store - indoor	Product	Confectionary (packet) e.g Fruit Burst, Pineapple Lumps, M&Ms	Fridge
Service station	Packaging	Single serve confectionary	Freezer
		Lolly Mixture	Manufacture supplied display fixture
	Placement	Sugary Drinks and Juices	Display Shop Fixture
	Price Promotions	Ice-cream	Shelf
		Chocolate Single Serve and Block including Easter Eggs	Shelf beside counter
	Purchase	Fast food	High shelf/Wall
		Chewing Gum	
	Consumed	Snack Foods	Counter with Cash Register
		Cookies,cakes and pastries	Behind Counter
		Milk product (unhealthy)	Under Counter
		Other: Non-specified –frozen potato products, dips	Counter bench (side)
		Processed meats	
		Milk and Milk Products	
		Water	
		Breads and Cereals	
		Fruit and Vegetables	
		Meat and Alternatives	
		Mixed Meals	
		Non Food	