

My Food, My Future Student Learning Resources

The activities in My Food, My Future focus on students accessing relevant nutrition information to make decisions about their own eating habits. The student learning resources have been developed for the New Zealand Curriculum, Science Level 4/5, allowing students to:

- Build on prior experiences working together to share and examine their own and others' knowledge,
- Ask questions, find evidence, explore simple models, and carry out appropriate investigations to develop simple explanations,
- Use their growing science knowledge when considering issues of concern to them,
- Link the properties of different groups of substances to the way they are used in society or occur in nature.

These learning activities could also link to learning in other curricula areas such as Social Sciences, Health, Food Technology and Mathematics.

The learning resources incorporate activities that explore budgeting, planning and shopping for meals based on students' understanding of nutrition information. Students use the Virtual Supermarket and the FoodSwitch app to better understand and apply this knowledge.

Teachers are able to select activities and incorporate these into their teaching plan as and when they deem appropriate.

Some of the activities have been designed for use with the Shopping in the Virtual Supermarket Programme or the FoodSwitch app. Providing students with (or students bringing) actual food packages to scan with the app can help support student understanding of nutrition information on food packaging.

The Virtual Supermarket can be downloaded from:

⇒ Windows Operating System: <ftp://ftp.sara.nl/pub/cave/outgoing/VuSuper/My%20Supermarket.zip>

⇒ Mac Operating System: <ftp://ftp.sara.nl/pub/cave/outgoing/VuSuper/My%20Supermarket%20MacOS.zip>

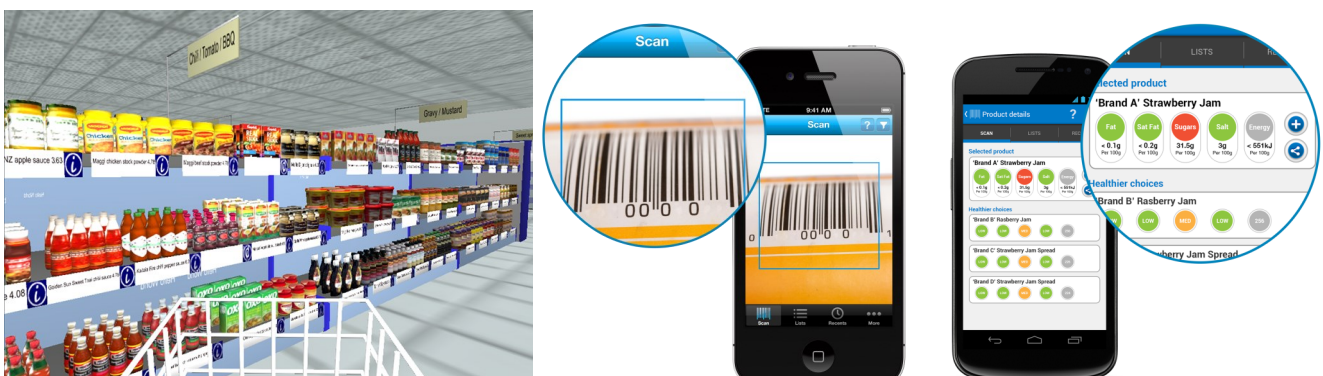
Instructions for the Virtual Supermarket can be found at: <http://www.lenscience.auckland.ac.nz/en/about/teaching-and-learning-resources/MyFoodMyFuture/Learning-Resources.html>

The FoodSwitch app can be downloaded from:

⇒ For Android users: <https://play.google.com/store/apps/details?id=nz.co.bupa.foodswitch>

⇒ For Apple users: <https://itunes.apple.com/au/app/foodswitch/id478225318?mt=8>

Instructions for using the FoodSwitch app can be found at: <http://www.lenscience.auckland.ac.nz/en/about/teaching-and-learning-resources/MyFoodMyFuture/Learning-Resources.html>



1. Carbohydrates: Check out your School Canteen
2. Lunches
 - 2a. School Lunches
 - 2b. The \$2.00 Lunch Challenge
 - 2c. Planning for the Family
3. Dinner Challenge
4. Takeaways vs Home - Cooked Meals
5. Comparing Nutrition Information
6. Kiri and Sam's Food Diaries
7. FoodSwitch Activity
8. Nutrition Information Panel
9. Meal Plan for Kiri or Sam



Check out your School Canteen

Visit your school canteen and identify 5 foods that are sold there.

For each of the foods, decide which type of carbohydrate it contains. Carbohydrates can be either:

- **Complex**, which release energy slowly. Whole grain foods and vegetables contain complex carbohydrates.
- **Simple**, which release energy quickly. Sugar-sweetened soft drinks, white sugar, biscuits, muesli bars and sweets contain simple carbohydrates.

Canteen food	Carbohydrate type: What kind of energy does it contain?	Traffic light colour for Fat	Traffic light colour for Saturated Fat	Traffic light colour for Sugar	Traffic light colour for Salt
<i>Chocolate fish</i>	<i>simple</i>	<i>amber</i>	<i>red</i>	<i>red</i>	<i>green</i>

Record your answers in the first 2 columns of the table.

If you are going to have a very busy afternoon and will not be eating until after you get home later, which of the 5 canteen foods would you eat for lunch to sustain your energy levels throughout the afternoon?

Which of the 5 canteen foods would not sustain your energy levels throughout the afternoon?

Use the Virtual Supermarket to find out the traffic light colours (red, amber, or green) of these canteen foods and complete the table.

What other foods could replace the foods in your canteen that do not sustain your energy levels? Use the virtual supermarket and traffic lights to help you choose healthier foods that will help sustain your energy levels.

Complete the table below with information about the healthier foods you have found using the virtual supermarket.


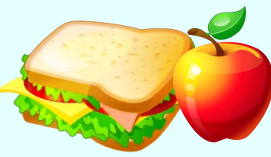
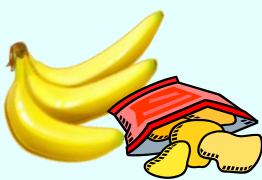



Better Food Choice	Carbohydrate type: what type of Energy	Traffic light colour for Fat	Traffic light colour for Saturated Fat	Traffic light colour for Sugar	Traffic light colour for Salt

The table below contains pictures of lunches for a teacher and her Year 11 students at *Carbo High School*.

What do you think about each of the lunches? Make sure you think about the person's activities during the afternoon!

Use the Virtual Supermarket and the traffic lights to look for foods that could be healthier options for these lunches.

Scenario	Lunch	What do you think about the lunches? How can they have healthier lunches?
Mrs Potter is a teacher taking classes from 12 noon to 3.30 pm		
Jenny is a student with diabetes		
Josh is a student with a 3 hour Biology exam in the afternoon		
Blake is a student playing rugby after lunch		

Lunches: The \$2 Lunch Challenge

Design a lunch (at least a sandwich and a piece of fruit) using any of the following ingredients. The cost of the lunch should be no more than \$2.

Food	Price per Serving
Wholemeal bread	7 cents / slice
Margarine	3 cents (two teaspoons)
Cheese	21 cents / slice
Lettuce	20 cents (enough for sandwich)
Mayonnaise	10 cents (1 dessert spoon)
Luncheon sausage	14 cents / slice
Tomato	38 cents (enough for sandwich)
Pickle	17 cents (2 teaspoons)
Marmite	6 cents (1 teaspoon)
Apple	30 cents each
Yoghurt	50 cents each
Muesli bar	37 cents each



Food Item	Price
Total	

Design and prepare lunches for your family for an entire week.

Use the virtual supermarket to find food items and ingredients to design the lunches.

Do you think you should include the following food items in your lunch plan?

Vegetables: beetroot (canned), carrots, celery, cucumber, red peppers

Protein: tuna, chicken, eggs, ham, baked beans

Fruit: banana, pear, kiwifruit

Carbohydrate: pita bread, panini, wraps, crackers, pasta

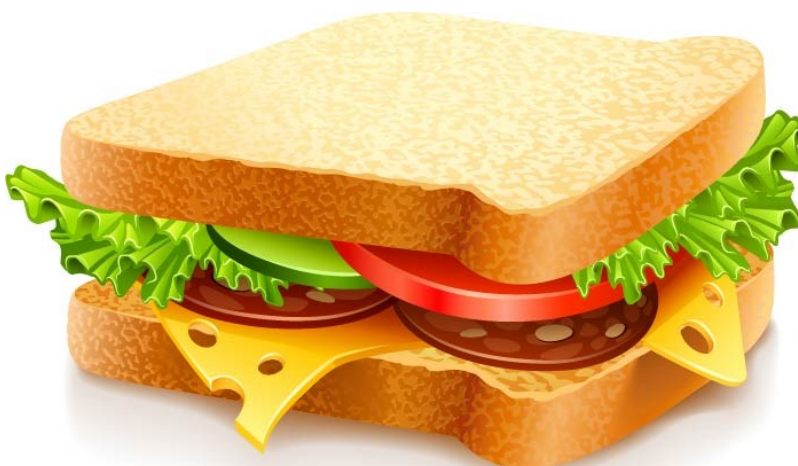
Spreads: honey, peanut butter, cream cheese, hummus

Lunch ideas:

After planning them, you could make the lunches for your family!

Take photos of your prepared lunches, post and share the pictures with friends through the LENSscience online forum:

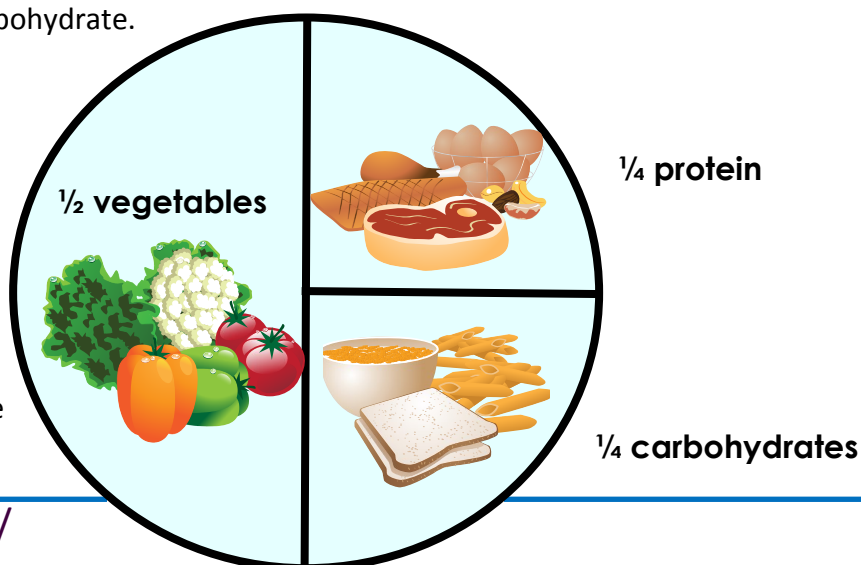
[http://lenscience.ac.nz/
community-groups/my-food-my-
future](http://lenscience.ac.nz/community-groups/my-food-my-future)



Design and cook a dinner for your family.

The challenge is for you to prepare a family dinner according to the following guidelines:

- Spend no more than \$3 for every family member you are cooking for.
For example, if you have 4 family members to cook for, you will spend a maximum of \$12 on the meal. (\$3 x 4 family members = \$12)
- Each family member's dinner plate should be $\frac{1}{2}$ filled with vegetables, $\frac{1}{4}$ with protein and the remaining $\frac{1}{4}$ with carbohydrate.
- Use at least 3 different coloured vegetables in your meal



Examples of coloured vegetables that you can choose from are shown below:

Purple: Beetroot (fresh/canned), Eggplants

Green: Broccoli, Brussels Sprouts, Celery, Asian Greens, Cabbage, Cucumber, Green Beans, Green Cabbage, Lettuce, Okra, Peas, Courgettes, Spinach, Silverbeet, Salad Greens, Spring Onions

Orange/Yellow: Carrots, Yellow Peppers, Tomatoes

Red: Chilli Peppers, Radishes, Red Cabbage, Red Onions, Red Peppers, Rhubarb, Tomatoes

Brown/ White: Cauliflower, Garlic, Ginger, Mushrooms, Onions, Parsnips, Turnips, Leeks



To get started with designing your meal

- Use the Virtual Supermarket to find ingredients and prices for your meal.
- Remember that your budget for the meal is \$3 per person.

Ingredients	Price
Total	



The price of vegetables is important when deciding which vegetable to buy. Vegetables in season are more likely to be cheaper than vegetable that are not in season.

What vegetables are currently in season?

Vegetables in season during winter	Vegetables in season during summer

Use the following websites to find which vegetables are in season:

- www.5aday.co.nz
- www.vegetables.co.nz

Research which vegetables are in season during May and June. These vegetables are likely to be cheaper than other vegetables.

Frozen or canned vegetables are a good option if the vegetables are not in season. Have you thought about using frozen or canned vegetables for your meal? You may want to use them in your meal plan to help you stay within budget.

Frozen vegetables	Canned vegetables

Brainstorm! What other ingredients can you use in your meal to help stretch your budget? For example using canned beans in a casserole means you need less meat. Meat is more expensive than a can of beans.

Ingredients



Take pictures of the dinner you prepared, and post and share on the LENSscience online forum.

Let's investigate how much it would cost to buy takeaway meals compared to cooking a similar meal at home.

Consider two common takeaway meals: fried chicken and pizza.

Takeaway 1 - Fried Chicken

Fried chicken, chips, potato and gravy (costing \$24.90)

- 8 pieces of fried chicken
- 1 large chips
- 1 large potato and gravy



List the ingredients you would use for home-cooked fried chicken. You can bake the chicken with your own herbs and spices (this could include paprika, garlic powder, oregano, coriander, basil, chilli powder).

Use the Virtual Supermarket to select your ingredients and record the price of each ingredient in the table below.

Ingredients	Price
Total	



Cost of Takeaway 1: \$24.90

Cost of my home-cooked fried chicken: \$_____

Takeaway 2: Pizza

Hawaiian (Ham, Pineapple and Mozzarella Pizza costing \$7.99)



List the ingredients you would use for a home-cooked version of the pizza. You can bake the pizza with your own selection of toppings (this could include capsicum, green beans, feta cheese and oregano or coriander, in addition to ham and pineapple—but it will make it cost more!).

Use the Virtual Supermarket to select your ingredients for your pizza and record the price of each ingredient in the table below.

Ingredients for my home-cooked Hawaiian Pizza

Ingredients	Price
Total	



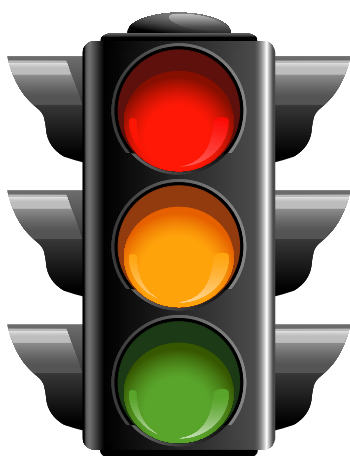
Cost of Takeaway 2: \$7.99

Cost of my home-cooked pizza: \$ _____

Nutritional Information can help us select which product is healthier.

We will examine two different brands of food items by comparing nutrition information using the virtual supermarket.

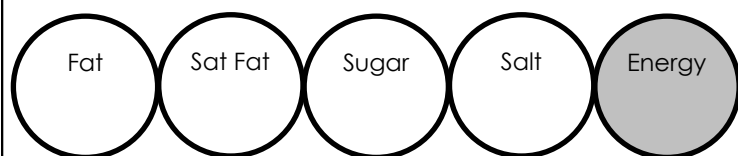
Coca Cola™ Regular and Coke Zero™



Amount per 100 mL	Coca Cola Regular	Coke Zero
Energy (kJ)		
Protein (g)		
Total Fat (g)		
Saturated Fat (g)		
Carbohydrate (g)		
Sugar (g)		
Sodium (mg)		

What are the traffic light colours for the drinks?

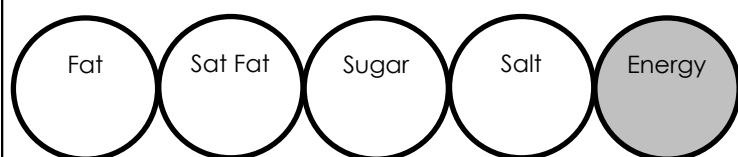
Traffic light colours



**Coca Cola™
Regular**



Traffic light colours



Coke Zero™

Based on the nutrition information and traffic light colours, which drink can be the healthier option? _____

Based on the nutrition information, explain why you think this:

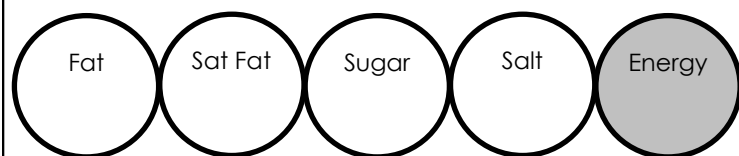
Crisps: Bluebird Salt & Vinegar (150 g) and Grainwaves Sour Cream & Chives (150 g)



Amount per 100 g	Bluebird Salt & Vinegar	Grainwaves Sour Cream & Chives
Energy (kJ)		
Protein (g)		
Total Fat (g)		
Saturated Fat (g)		
Carbohydrate (g)		
Sugar (g)		
Sodium (mg)		

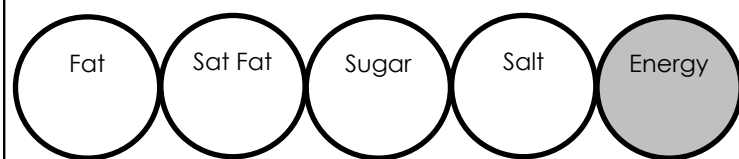
What are the traffic light colours for these crisps?

Traffic light colours



**Bluebird Salt and Vinegar
Potato Chips**

Traffic light colours



**Grainwaves Sour Cream &
Chives**

Based on the nutrition information, explain why one snack is a healthier option?

Biscuits: Tim Tams Original and Griffins Digestive Fruit

Amount per 100 g	Tim Tam (Original)	Griffins Digestive Fruit
Energy (kJ)		
Protein (g)		
Total Fat (g)		
Saturated Fat (g)		
Carbohydrate (g)		
Sugar (g)		
Sodium (mg)		



Examine the Total Fat (g), Saturated Fat (g) and Sugar (g) per 100g of biscuit.

Based on the nutrition information, explain why one type of biscuit is a healthier option than the other.

[illegible]

Kiri and Sam have both kept a food diary for the day, writing down everything they ate for.

The class will be divided into groups by the teacher. Each group will be assigned 2 meals belonging either to Kiri or Sam. Each group's task is to look at the foods in each of the meals and decide which of the following types of nutrients it contains:

- **Carbohydrates**

Starchy foods, such as bread, pasta, rice, potatoes, taro, and cereal are carbohydrate rich.

- **Fibre**

Fibre is a type of carbohydrate that helps with digestion of foods. Fibre can be found in fruits, vegetables and grains.

- **Vitamins and Minerals**

Vitamins and minerals help with growth, development and health. Fruits and vegetables contain vitamins and minerals.

- **Protein**

Protein helps to build muscle and bones. Good sources of protein include fish, chicken, cheese, yoghurt, milk and beans.


- **Sugar**

Sugar gives us fast energy but we don't need much of it. Sugar can be found in biscuits, honey, fruit juice, jam, sweets and ice-cream.

- **Fats**

Fats and oils help absorb vitamins and minerals and keep us healthy—as long as we don't eat too much of them. Fats are in oil, butter, margarine, cream, nuts, cheese and chips (in high amounts).





Breakfast
Weetbix with milk and sugar
Milo
Toast with vegemite and margarine

On the way to school
Muesli bar


Morning break
Chocolate milk and a sausage roll

Lunch
Spaghetti on a bun from the tuck-shop
Cookie and an apple
Drink of water

After school
Apple and some biscuits
Orange juice

Dinner
Chicken curry
Coleslaw and potatoes
Ice-cream and watermelon

Before bedtime
Drink of milk and biscuits



Breakfast
Tea with milk and sugar
Nutralgrain and milk and sugar
Toast and jam

On the way to school
Chocolate bar

Morning break
Cookie from the tuck-shop

Lunch
Peanut butter sandwiches
Pizza slice, biscuits
Drink of water

After school
Apples, ice-cream, and biscuits

Dinner
Sausages, rice risotto
Peas and corn

Before bedtime
Milo and biscuits

What did Kiri or Sam Eat?							
Kiri's/ Sam's Meals	Foods that have starchy carbohydrates	High Fibre Food	Food with lots of Vitamins and Minerals	Food high in Proteins	Food with lots of sugar	Food that have high fats and oils	
Breakfast							
On the way to school							
Morning break							
Lunch							
After school							
Dinner							
Before Bedtime							

The FoodSwitch app provides information that can help us make healthier food choices.

Use the **Food Barcode Cards** to create two different breakfasts.

Breakfast 1: _____

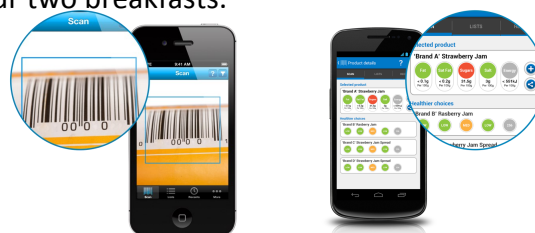
Breakfast 2: _____

Which of the breakfasts do you think is the healthiest, and why?

Use the **FoodSwitch app** to find the traffic light colours for each food item in the two breakfasts.

Note: traffic lights for fruits are provided on the cards, since unpackaged foods do not have bar codes.

Colour in the traffic light colours for each food in your two breakfasts.



Breakfast 1:

<p>Name of food or drink:</p> <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>	<p>Name of food or drink:</p> <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>
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<p>Name of food or drink:</p> <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>	<p>Name of food or drink:</p> <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>

Breakfast 2

Name of food or drink: _____ <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>	Name of food or drink: _____ <div> <div>Fat</div> <div>Sat Fat</div> <div>Sugar</div> <div>Salt</div> <div>Energy</div> </div>
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Based on the traffic light colours, which breakfast is healthier?

Give a reason for your breakfast choice.

Did any of the traffic light colours surprise you? Which traffic light colours were different to what you expected?

The teacher will divide the class into 4 groups. Each group will be assigned one of the following food categories.

- Breakfast cereals
- Sweet snacks
- Savoury snacks
- Frozen meals

Your group will be given the “Food and Nutrition Information Panel” booklet containing information on 5 food items from your category. The booklet contains a picture of the food item, the nutrition information label and circles labelled ‘Fat’, ‘Saturated Fat’, ‘Sugar’, ‘Salt’ and ‘Energy’ similar to the diagram below.

Your group’s task is to find and record the amount of Fat (g), Saturated Fat (g), Sugar (g) and Energy (kJ) in 100 g or 100 mL of each food. You need to look at the nutrition information label under the “**quantity per 100 g**” column (circled in the picture below).

The salt contents is already provided, as this needs to be calculated using the sodium value.

Based on the recorded information, your group needs to decide which traffic light colours need to be displayed for this product.



Nutrition Information (AVERAGE)					
servings per package - 12					
average serving size - 30g (3/4 metric cup)					
	quantity per serving	% daily intake per serving	per serve with 1/2 cup reduced fat milk	quantity per 100g	
ENERGY	480 kJ	6%	770 kJ	1610 kJ	
PROTEIN	1.4 g	3%	6.6 g	4.6 g	
FAT, TOTAL	0.1 g	0.2%	2.2 g	0.4 g	
- SATURATED	0.1 g	0.2%	1.4 g	0.2 g	
CARBOHYDRATE	26.5 g	9%	33.5 g	88.4 g	
- SUGARS	11.0 g	12%	18.0 g	36.5 g	
DIETARY FIBRE	0.4 g	1%	0.4 g	1.2 g	
SODIUM #	139 mg	6%	208 mg	465 mg	

Our traffic light colour prediction

Fat	Sat Fat	Sugar	Salt	Energy
_____ g	_____ g	_____ g	<u>1.1625</u> g	_____ kJ
Per 100g	Per 100g	Per 100g	Per 100g	Per 100g

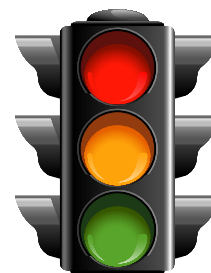
Actual traffic light colours

Fat	Sat Fat	Sugar	Salt	Energy

- 1) Your group needs to find the fat content of all 5 food items in your category. Fat content is described as **"Fat Total"** on the nutrition information panel. Record the amount of fat for each food under the circle labelled "Fat". Remember to use the **"quantity per 100 g"** column.
- 2) Compare the fat contents of all 5 foods. Colour the circles labelled 'Fat' according to the descriptions below.



Red - **high levels**
Amber - **medium levels**
Green - **low levels**



- 3) Repeat steps 1 and 2 for "Sat Fat" and "Sugar".



"Sat Fat" is described as "Saturated" on the nutrition information label. These mainly come from animal products and increase cholesterol levels in the blood.

"Salt" content cannot be found on the nutrition information label but can be calculated using "Sodium", (Sodium is found on labels).

The "Salt" content has been calculated for you.

- 4) Energy is measured in kilojoules (kJ). Record the "Energy" content for each food item per 100 g below the "Energy" circle.
- 5) After you have coloured in the traffic light colours for all your foods:
 - Compare your predicted traffic light colours with the actual traffic light colours using the Virtual Supermarket
 - Share your findings with the other groups in your class

Create a day's meal plan for Kiri or Sam


The picture below shows the New Zealand Heart Foundation's simple steps to healthier eating. A colourful variety of fruits and vegetables should make up most of what we eat. We should eat some wholegrain, high-fibre carbohydrates such as bread, cereal, grains and starchy vegetables. We should also eat some lean proteins such as fish, meat, chicken and eggs as and some dairy products such as yoghurt, milk and cheese. We can also eat some oils and nuts, but not too much. We should also cut down on the amount of junk food, takeaways and foods or drinks which are high in sugar, salt, and saturated fat.

Create a day's meals for **either** Kiri or Sam based on these recommendations, and what you have learned during this unit.

Use the food diary on the following page to create these meals.

You may decide to keep some of their food items from Activity 6, and change others.





Breakfast

On the way to school


Morning break

Lunch

After school

Dinner

Before bedtime



Breakfast

On the way to school

Morning break

Lunch

After school

Dinner

Before bedtime