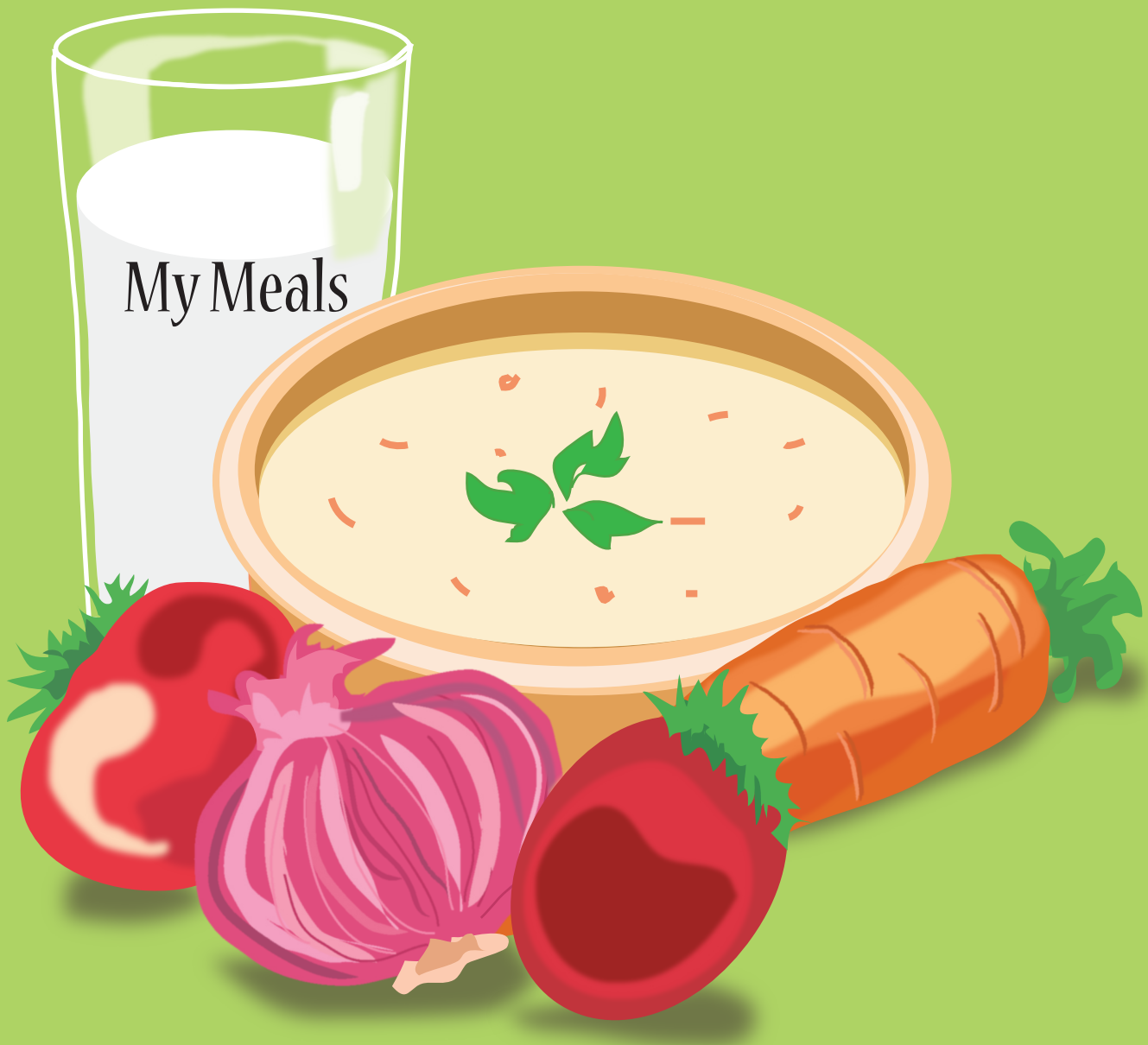
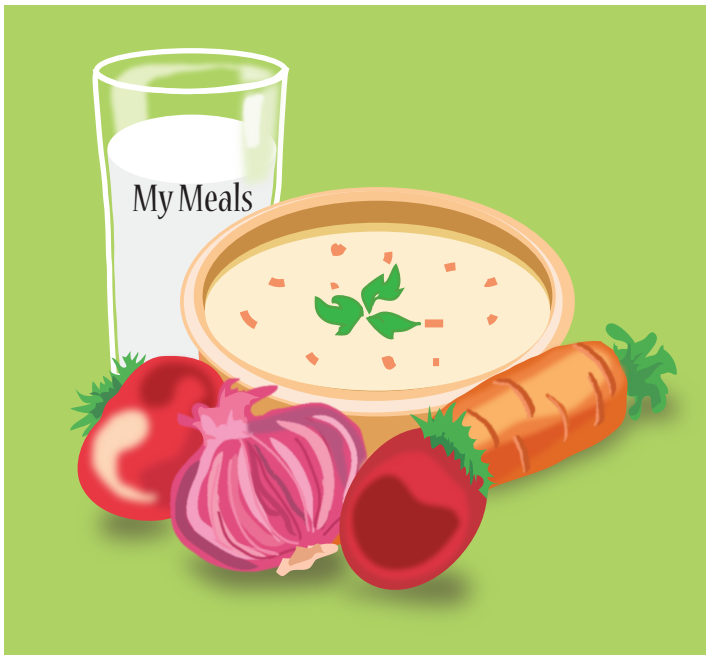
My Meals



Meal Analysis using the Nutrition Program

A step by step guide



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Artwork Annabel Ridgwell

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Meal Analysis

Contents

This book provides a step by step guide to help you get started with using the My Meals section of the Nutrition Program. Students can work their way through the tasks and compare results.

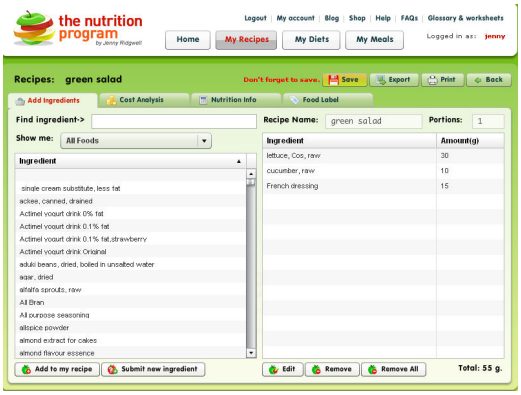
Meal analysis - step by step

In My Meals you can find out how healthy a meal is.
First you need to create a recipe for the foods that are eaten at the meal.
Drinks need recipes too.

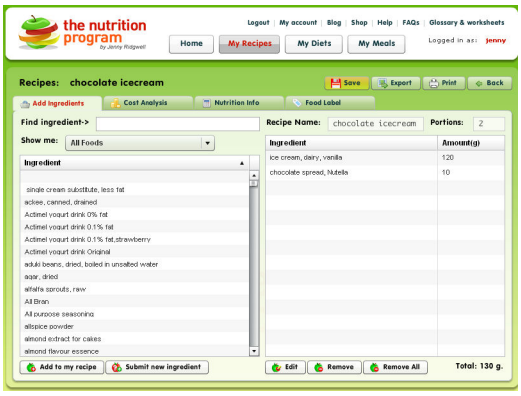
In this example, the meal is made up of

- Chilli con carne
- Green salad
- Chocolate icecream
- Cup of coffee.

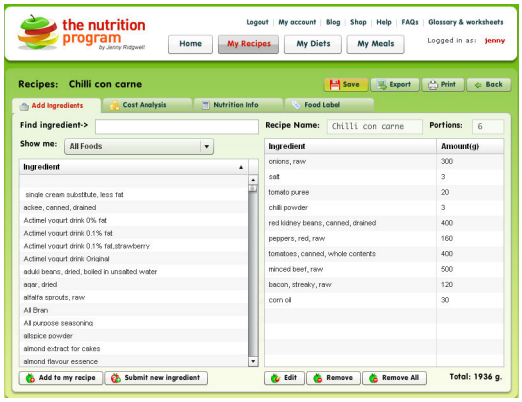
The recipes are saved and ready to use.



Green salad recipe



Chocolate icecream recipe



Chilli con carne recipe

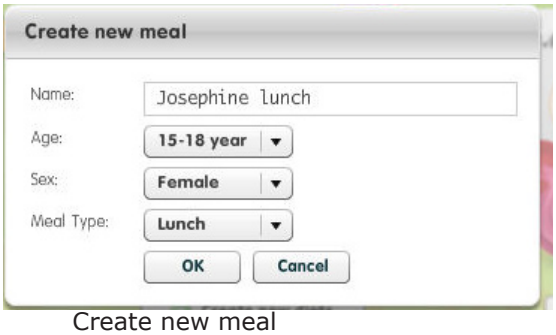
Meal analysis - step by step

Meal analysis

Click Create new meals.

- Fill in the screen
- Give the meal a name
- Select the age range for the person
- Sex - male or female
- Meal Type - breakfast, Lunch or Dinner.

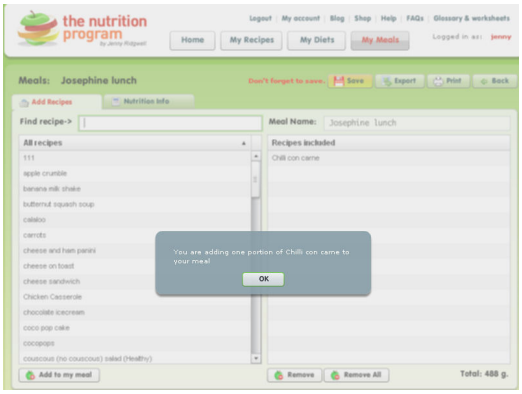
Click OK if you are ready.



Create new meal

The program will analyse one portion of the meal for the nutritional needs of the age and sex of the person that you have chosen.
So in the example, the *lunch* will be analysed for

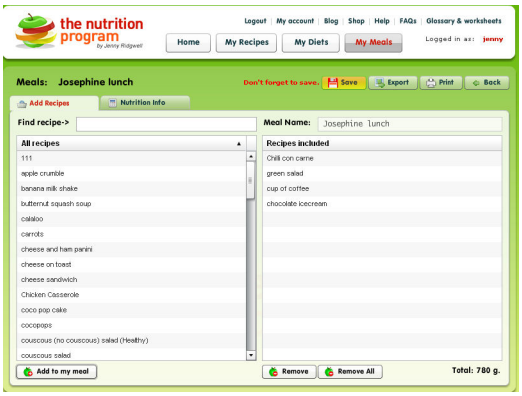
- Josephine,
- *age 15-18*
- and *female*.



Add the Chilli recipe then complete the recipes for the meal.

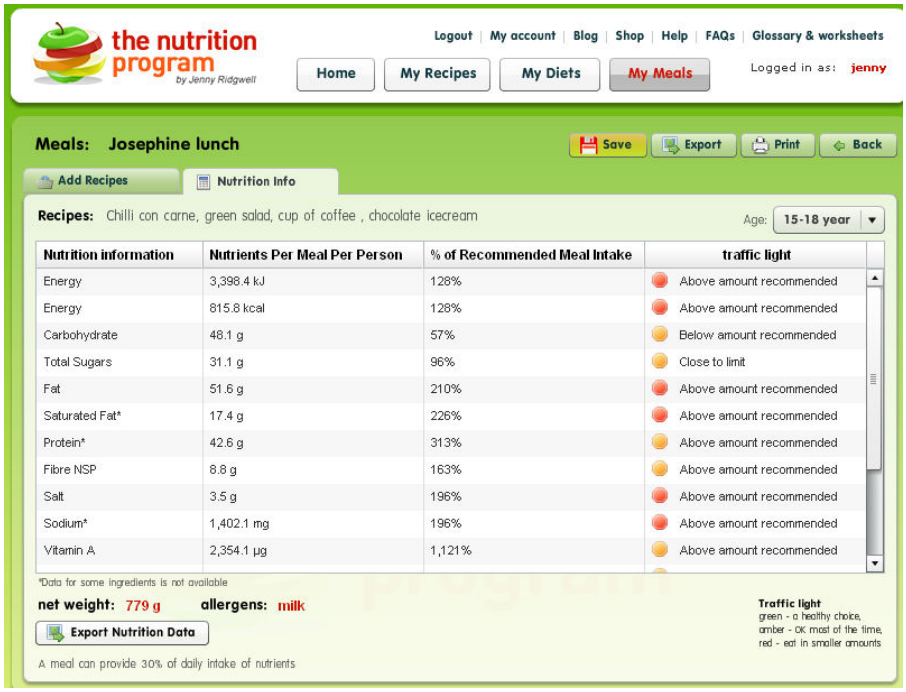
Add the recipes to the lunch meal.
Click the Chilli con carne, and a portion is added to the Meal section.

Complete until all the recipes, including the cup of coffee are added.
Then save.



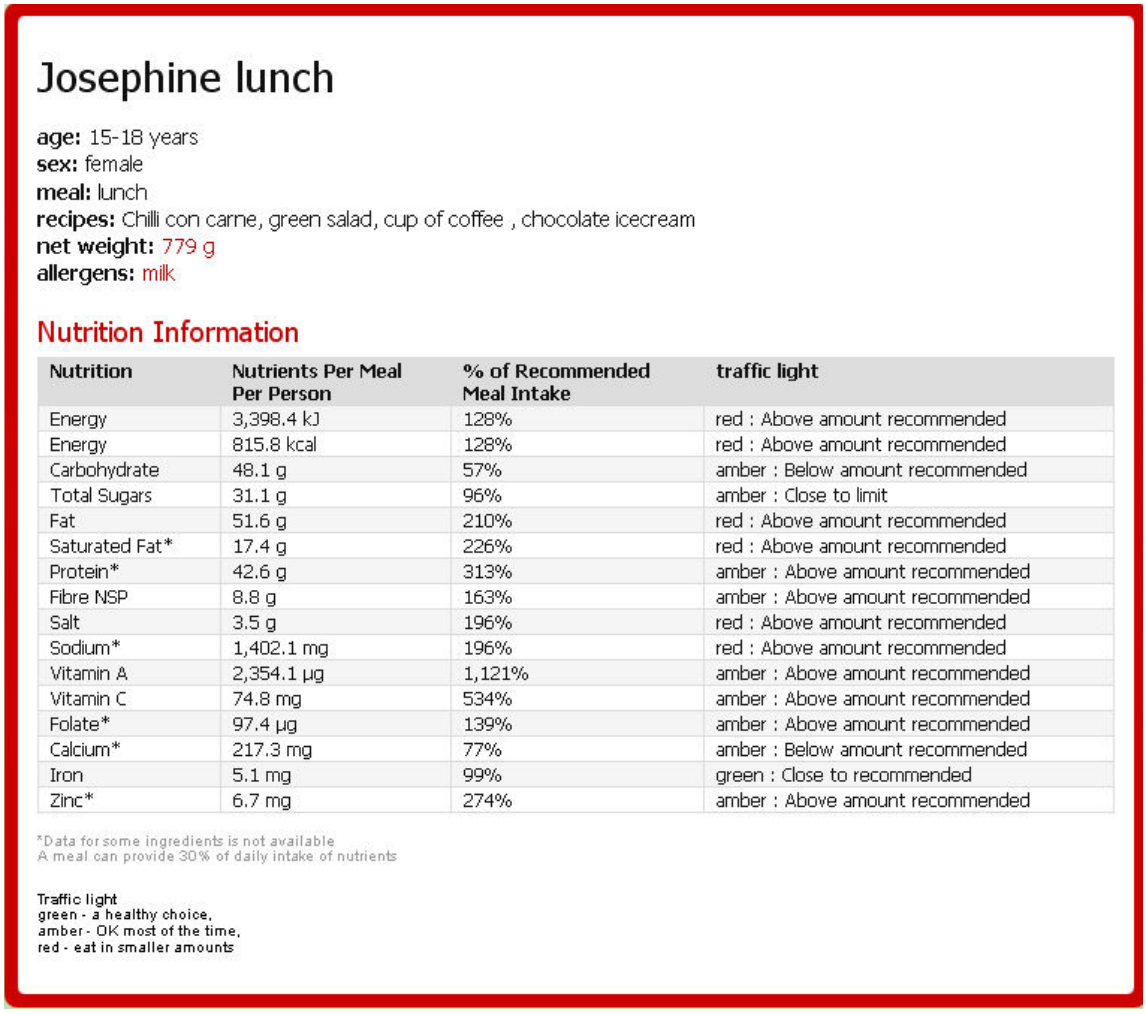
The Nutrition Info shows

- Nutrients per meal per person
- % of Recommended Meal Intake
- Traffic lights.



Meal analysis - step by step

Export the Meal analysis
Click Export Nutrition Data on the screen.
If a chart like this does not appear, contact your IT expert as you may have a popup block in place.



Josephine lunch

age: 15-18 years
sex: female
meal: lunch
recipes: Chilli con carne, green salad, cup of coffee , chocolate icecream
net weight: 779 g
allergens: milk

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
Energy	3,398.4 kJ	128%	red : Above amount recommended
Energy	815.8 kcal	128%	red : Above amount recommended
Carbohydrate	48.1 g	57%	amber : Below amount recommended
Total Sugars	31.1 g	96%	amber : Close to limit
Fat	51.6 g	210%	red : Above amount recommended
Saturated Fat*	17.4 g	226%	red : Above amount recommended
Protein*	42.6 g	313%	amber : Above amount recommended
Fibre NSP	8.8 g	163%	amber : Above amount recommended
Salt	3.5 g	196%	red : Above amount recommended
Sodium*	1,402.1 mg	196%	red : Above amount recommended
Vitamin A	2,354.1 µg	1,121%	amber : Above amount recommended
Vitamin C	74.8 mg	534%	amber : Above amount recommended
Folate*	97.4 µg	139%	amber : Above amount recommended
Calcium*	217.3 mg	77%	amber : Below amount recommended
Iron	5.1 mg	99%	green : Close to recommended
Zinc*	6.7 mg	274%	amber : Above amount recommended

*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
green - a healthy choice,
amber - OK most of the time,
red - eat in smaller amounts

What does the chart mean?
A meal - be it breakfast, lunch or dinner can provide up to 30% of daily intake of nutrients.
The meal that you put into the program will work out the nutritional value of that meal for 30% of the daily requirements for the age and sex of the person whose meal you want to analyse.
The chart on the next page shows the data that we have used to calculate the requirements by age and sex. The data is based on figures provided by the School Meals Trust and the COMA report.

What do these things mean
*A * beside the nutrients*
Manufacturers do not always supply all the nutritional data for the foods that are on the database. When some data is missing you will see * beside the nutrient.
Check the recipes you have used for more information.

Traffic lights
The colours show
- green - a healthy choice
- amber - OK most of the time
- red - eat in smaller amounts.

Meal analysis - step by step

What does the results tell us?

Energy is 128% which may mean the portions are too big.
The total weight of the meal is 779g - a lot.

Fat and saturated fat are very high and show red in the traffic light system.

To make changes:

- reduce the portion sizes
- look at the recipes to see how you can lower the fat and make a healthier version.

Salt (sodium) are very high, so change the recipes to lower the salt.

This chart shows the traffic light boundaries used for each nutrient for the total meal.

Nutritional recommendations

The data shown on the program should only be used as a guideline to help show if meals are too high in fat, sugar or salt.

People vary in size, metabolic rate, activity levels and dietary needs.
The data shown on the program is shown as an average guideline.

But remember that the meal is a part of a whole day, and whole week of eating, so snacks, drinks and other meals can contribute to our nutritional needs.

	green	amber	red
comments	a healthy choice	OK most of the time	'above amount recommended'.
Energy kJ / kcal	in between 95% below and up to 105%	below 95% 105-120% above	120% above recommended
Carbohydrate g	in between 90% and up to 120%	below 90% if above 120%	
Total sugars g	below 80%	80-100%	if above 100%
Fat g	below 80%	80-100%	if above 100%
Saturated fat	below 80%	80-100%	if above 100%
Protein	90- 120%	below 90% if above 120%	
Fibre NSP	in between 90% and up to 130%	below 90% if above 130%	
Salt g	below 80%	80-100%	if above 100%
Vitamin A ug	in between 90% and up to 120%	if 90% and below if above 120%	
Vitamin C mg	in between 90% and up to 120%	if 90% and below if above 120%	
Folate ug	in between 90% and up to 120%	if 90% and below if above 120%	
Calcium mg	in between 90% and up to 120%	if 90% and below if above 120%	
Iron mg	in between 90% and up to 120%	if 90% and below if above 120%	
Zinc mg	in between 90% and up to 120%	if 90% and below if above 120%	

Meal analysis - step by step

The results

This meal chart shows that the lunch is

- Too high in fat and saturated fat so maybe the portions are too large
- The fibre content is good
- Salt is very high and something must be done
- Vitamin A and C are high which is OK
- Calcium is too low.

Josephine lunch

age: 15-18 years
sex: female
meal: lunch
recipes: Chilli con carne, green salad, cup of coffee , chocolate icecream
net weight: 779 g
allergens: milk

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
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*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
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amber - OK most of the time,
red - eat in smaller amounts

To do
Plan your own lunch with a main course and a dessert or fruit and include a drink. Test it out for your age group and see how healthy it is. Write some comments on your results and compare your results with others.

Meal analysis - quick guide

In My Meals you can find out how healthy a meal is.
First you need to create a recipe for the foods that are eaten at the meal.
Drinks need recipes too.

Meal analysis
Click Create new meals.

- Fill in the screen
- Give the meal a name
- Select the age range for the person
- Sex - male or female
- Meal Type - breakfast, Lunch or Dinner.

Click OK if you are ready.

The program will analyse one portion of the meal for the nutritional needs of the age and sex of the person that you have chosen.
So for example, the *lunch* will be analysed for Josephine, *age 15-18* and *female*.

Add the recipes you have created to the lunch meal.

Complete until all the recipes, including drink are added.
Then save.

You are ready to look at the Nutrition info.
Export the Meal analysis
Click Export Nutrition Data on the screen.
If a chart like this does not appear, contact your IT expert as you may have a popup block in place.

Nutritional recommendations

The data shown on the program should only be used as a guideline to help show if meals are too high in fat, sugar or salt.

People vary in size, metabolic rate, activity levels and dietary needs.
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But remember that the meal is a part of a whole day, and whole week of eating, so snacks, drinks and other meals can contribute to our nutritional needs.

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Manufacturers do not always supply all the nutritional data for the foods that are on the database. When some data is missing you will see * beside the nutrient.
Check the recipes you have used for more information.

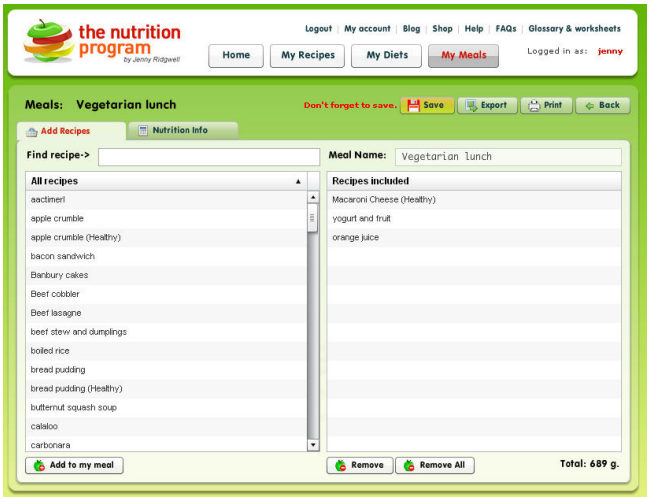
Traffic lights
The colours show

green - a healthy choice
amber - OK most of the time
red - eat in smaller amounts.

Make a vegetarian lunch

Task

Make a vegetarian lunch for a 11 year old girl which could be served by the School Meals Service.

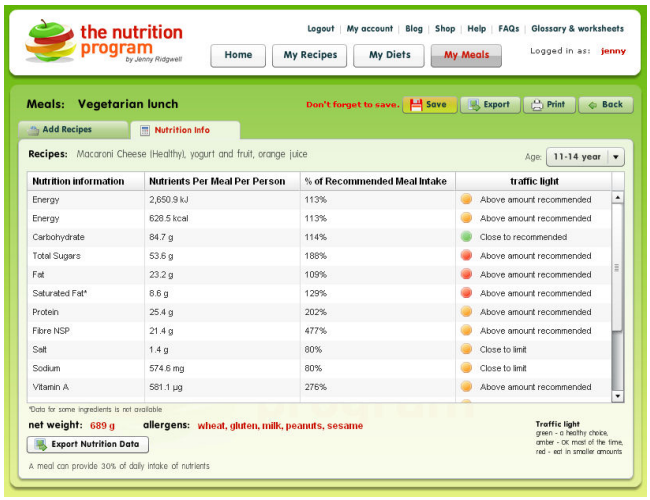


Put the recipes for the meal into My Meals

Ideas
This vegetarian lunch includes

- Macaroni cheese
- Yogurt with fruit
- Orange juice

Create the recipes and save them
Open My meals.
Create the meal analysis for a teenage girl, for lunch.
Add the three recipes.



Look at the Nutrition info analysis.
This shows that the meal is very high in fat and saturated fat so the recipe for macaroni cheese must be changed.

Macaroni cheese is made from macaroni, white sauce and cheese, so look at the recipe and see how to lower the fat.
You can add vegetables such as peas and leeks.

Make a vegetarian lunch

Look at the analysis.
This shows that the meal is very high in fat and saturated fat so the recipe for macaroni cheese must be changed.

The portion size has been reduced to help this and now the meal looks healthier.

Vegetarian lunch

age: 11-14 years
sex: female
meal: lunch
recipes: Macaroni Cheese (Healthy), yogurt and fruit, orange juice
net weight: 689 g
allergens: wheat, gluten, milk, peanuts, sesame

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
Energy	2,650.9 kJ	113%	amber : Above amount recommended
Energy	628.5 kcal	113%	amber : Above amount recommended
Carbohydrate	84.7 g	114%	green : Close to recommended
Total Sugars	53.6 g	188%	red : Above amount recommended
Fat	23.2 g	109%	red : Above amount recommended
Saturated Fat*	8.6 g	129%	red : Above amount recommended
Protein	25.4 g	202%	amber : Above amount recommended
Fibre NSP	21.4 g	477%	amber : Above amount recommended
Salt	1.4 g	80%	amber : Close to limit
Sodium	574.6 mg	80%	amber : Close to limit
Vitamin A	581.1 µg	276%	amber : Above amount recommended
Vitamin C*	174.7 mg	1,426%	amber : Above amount recommended
Folate	152.5 µg	217%	amber : Above amount recommended
Calcium	572.5 mg	204%	amber : Above amount recommended
Iron	1.9 mg	37%	amber : Below amount recommended
Zinc	2.8 mg	90%	green : Close to recommended

*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
green - a healthy choice,
amber - OK most of the time,
red - eat in smaller amounts

The meal has been changed and now looks much healthier but the saturated fat is still slightly too high.

If vegetables were served with this meal, and the portion of macaroni cheese was smaller, this would lower the fat content.

To do
Plan a vegetarian lunch with two courses. Choose an age group and see how healthy it is.

Write some comments on your results and compare your results with others.

Meal for teenage girl rich in iron

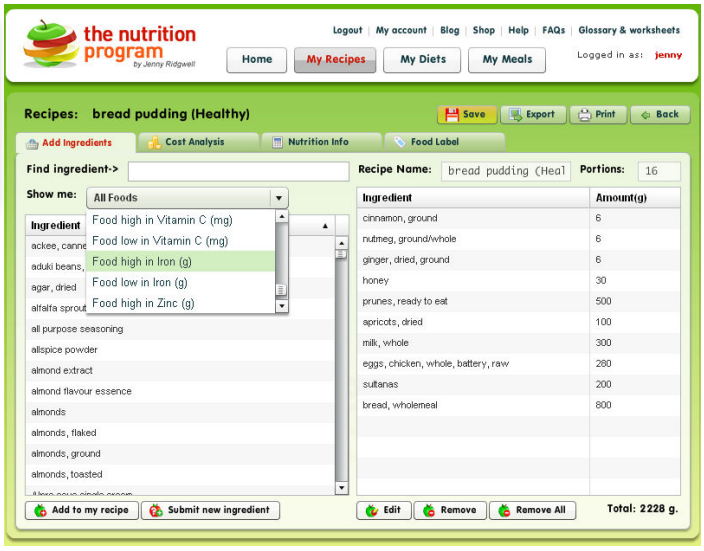
Task

Create a meal for a teenage girl which supplies enough iron.

The first task is to find out which foods are good sources of iron.

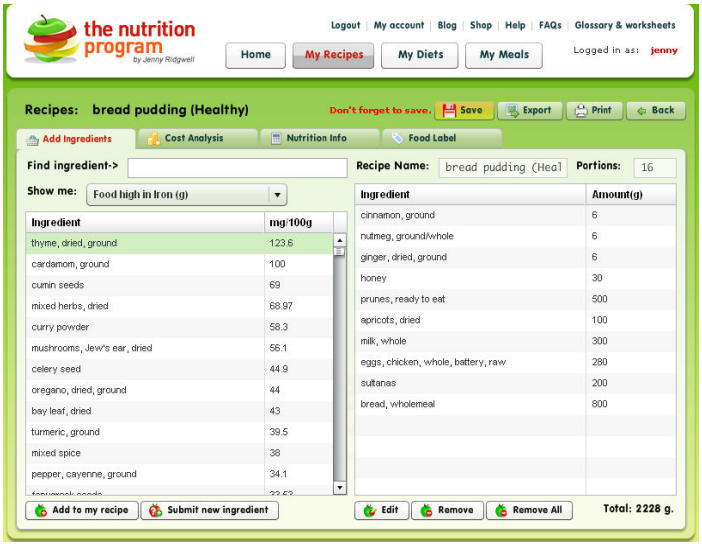
The program shows you foods which are high in iron, but many of them can't be eaten in large quantities.

These include cardamom, cumin and curry powder and you only need a tiny amount of these ingredients in a recipe.



Choose the drop down Foods High in Iron

Scroll down and find foods which will be more useful.



The list is shown

Now create a recipe.

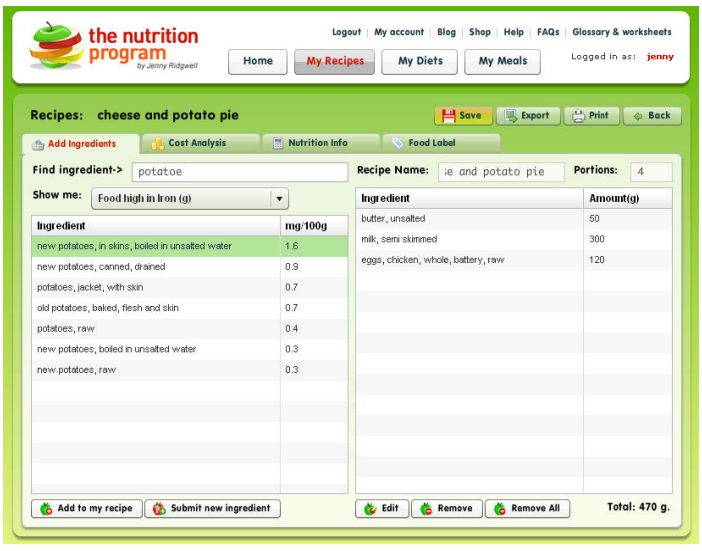
This example shows cheese and potato pie.

Add the ingredients.

If you keep the Food high in iron clicked on it will show you the ingredients you can choose.

For the cheese and potato pie, the potatoes highest in iron are new potatoes in skins, boiled in unsalted water.

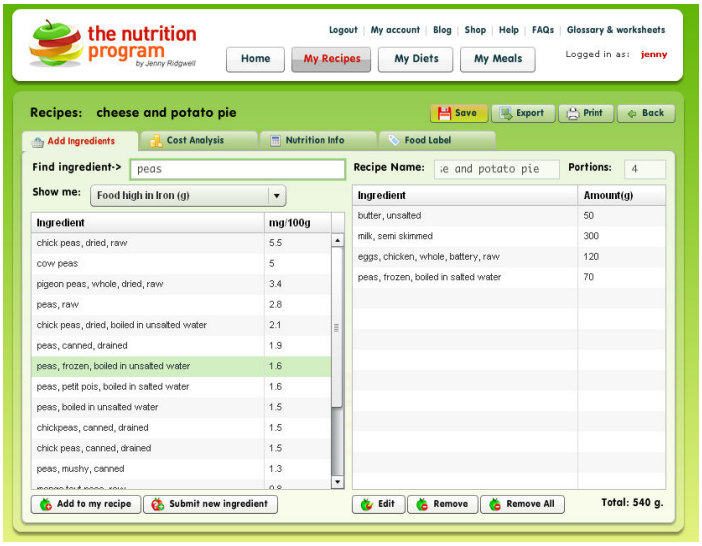
It shows the amount of iron mg/ 100g so potatoes have 1.6 mg iron.



Meal for teenage girl rich in iron

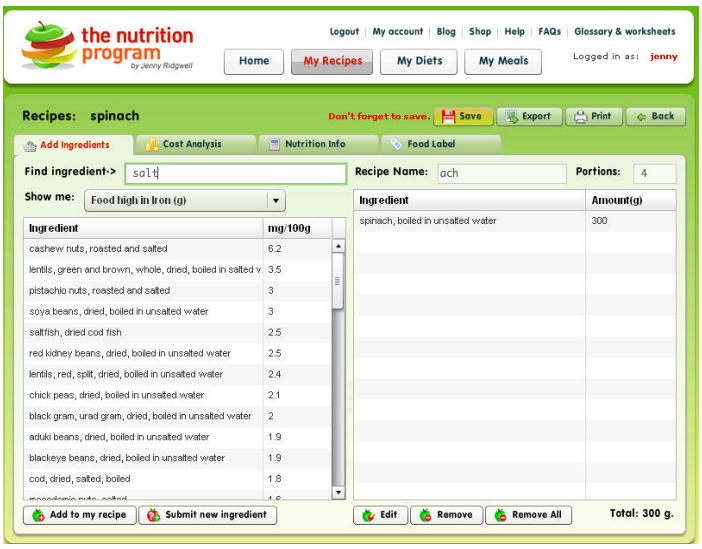
Now choose ingredients to add more iron – for example peas.

Then save the recipe and look at the nutrition information.



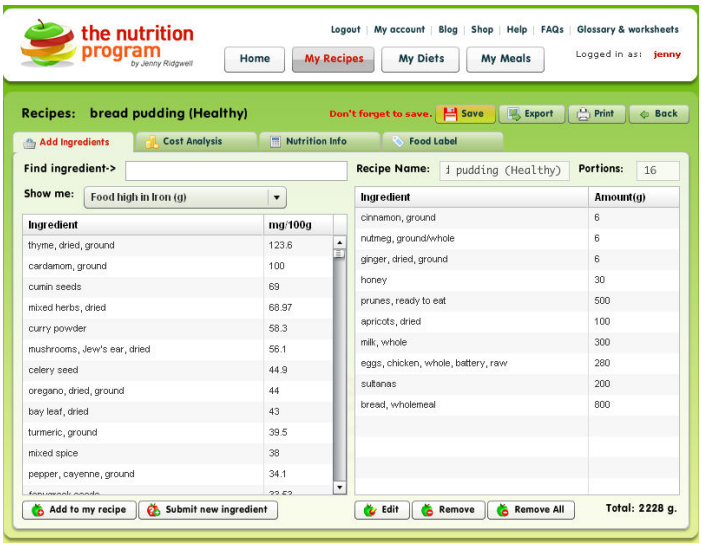
What vegetables could be served?

I've chosen boiled spinach. So the recipe contains cooked spinach and salt is added. However, when the program searches for salt it does not appear – this is because it contains no iron so it is way down the bottom of the screen.



The recipe for bread pudding is the dessert and this will be served with custard.

Finally there is a cup of tea!

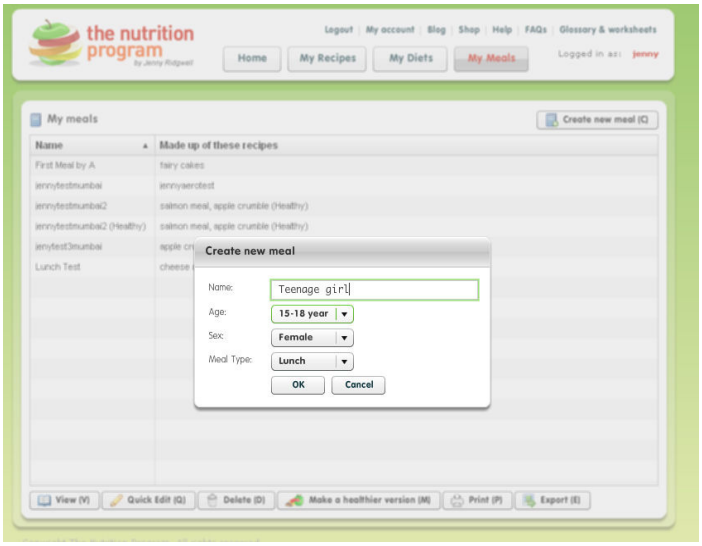


Meal for teenage girl rich in iron

Meal analysis

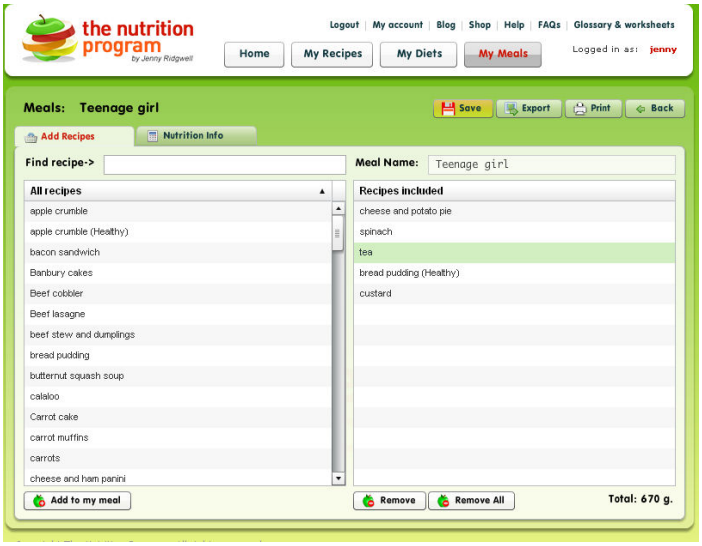
Click My meals and choose to create the meal for a teenage girl for lunch.

Fill in the details on screen.



The meal is

- Cheese and potato pie
- Spinach
- Bread pudding
- Custard
- Tea



Add all these recipes to the meal and save it.

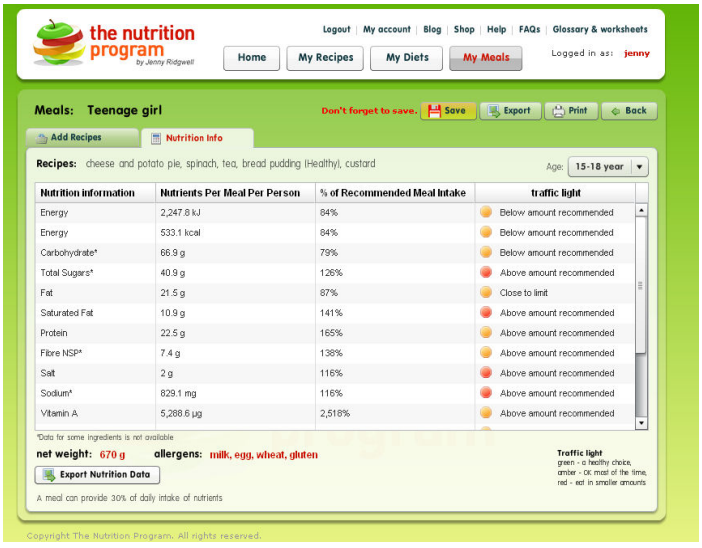
Remember you have to have created the recipes before you can add one portion to the meal.

How well have you done?

Save the meal and then check the Nutrition info.

This gives the 14 nutrients.

It shows the % of the recommended meal intake and the traffic light system.



Meal for teenage girl rich in iron

What do the results mean?

The chart shows that the sugars, saturated fat and salt are too high, so the recipes need changing to make them healthier.

But the aim of the task was to provide enough iron and you can see from the chart that this aim has been met.

Export the work which shows that iron is close to recommended amount so a job well done!

Teenage girl

age: 15-18 years
sex: female
meal: lunch
recipes: cheese and potato pie, spinach, tea, bread pudding (Healthy), custard
net weight: 670 g
allergens: milk, egg, wheat, gluten

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
Energy	2,247.8 kJ	84%	amber : Below amount recommended
Energy	533.1 kcal	84%	amber : Below amount recommended
Carbohydrate*	66.9 g	79%	amber : Below amount recommended
Total Sugars*	40.9 g	126%	red : Above amount recommended
Fat	21.5 g	87%	amber : Close to limit
Saturated Fat	10.9 g	141%	red : Above amount recommended
Protein	22.5 g	165%	amber : Above amount recommended
Fibre NSP*	7.4 g	138%	amber : Above amount recommended
Salt	2 g	116%	red : Above amount recommended
Sodium*	829.1 mg	116%	red : Above amount recommended
Vitamin A	5,288.6 µg	2,518%	amber : Above amount recommended
Vitamin C*	10.4 mg	74%	amber : Below amount recommended
Folate*	138 µg	197%	amber : Above amount recommended
Calcium*	494.6 mg	176%	amber : Above amount recommended
Iron*	5.2 mg	101%	green : Close to recommended
Zinc*	3 mg	124%	amber : Above amount recommended

*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
green - a healthy choice,
amber - OK most of the time,
red - eat in smaller amounts

To do
Plan a meal for a teenage girl which is rich iron. Look at the results and make changes if needed.

Write some comments on your results and compare your results with others.

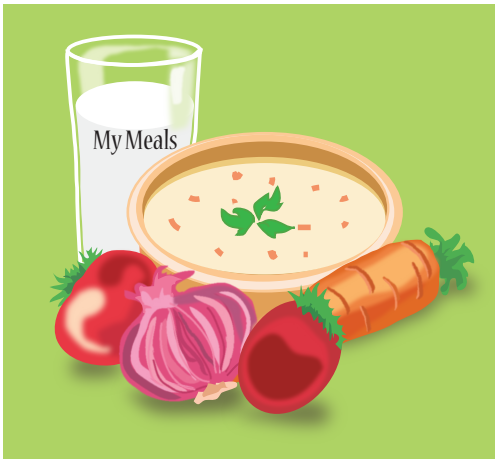
Make a healthy packed lunch

Task

Make a healthy packed lunch

Try and choose a healthy packed lunch for the following people

- A 7 year old boy
- A 14 year old girl
- A 16 year old boy
- A 25 year old woman
- A 40 year old man.



To do
Recipes

Create recipes for the packed lunch.

Choose a sandwich such as cheese and pickle and create the recipe in My Recipes.

Sandwich ingredients

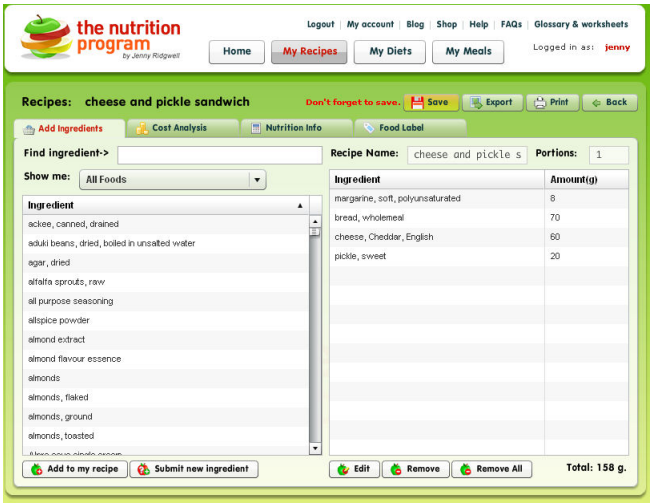
- 2 slices of bread,
- butter or spread,
- cheese,
- pickle.

Save the recipe.

You might want to include some crisps, fruit and a drink so you need to create recipes for these. The easiest way is to call them Extras and then add the things that you have chosen such as an apple.

Something sweet

You might include yogurt or a recipe such as bread pudding. Again, create the recipe and save it.



Create the recipe for the sandwich.

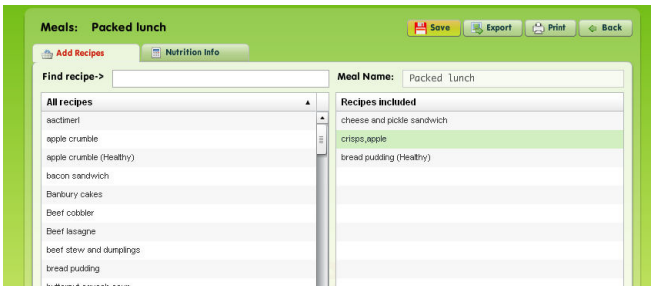
My meals

Open my meals and select the age for the person you are designing the packed lunch for. We are choosing a 16 year old boy.

Choose the recipes that you want for the packed lunch.

It could be

- Cheese and pickle sandwich
- Crisps, apple and orange juice



Add the recipes to the Meals

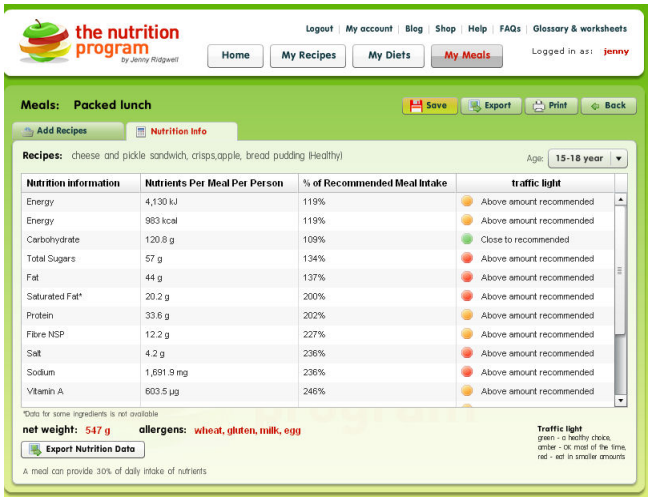
Make a healthy packed lunch

- Bread pudding.

Test the nutritional value of the packed lunch.

Does it provide 30% of the daily needs for that person?

If not make changes to the portion sizes or the recipe.



Test out the packed lunch for the other people. As people get older their nutritional needs increase so you may have to include more items in the packed lunch.

Further work

Here are some packed lunch recipes that you can test out to see how healthy they are. Look up the recipes on the internet. and add them to a packed lunch.

- Cheese and onion flan
- Coleslaw
- Samosas
- Chicken sandwich with salad
- Fruit salad

To do

1. Create a really unhealthy packed lunch – save it into your work and show why it is so unhealthy.
2. Create 3 lots of healthy packed lunch which could be shown to parents of primary school children.
3. Create your favourite packed lunch and explain why you like it.

Packed lunch

age: 15-18 years
sex: male
meal: lunch
recipes: cheese and pickle sandwich, crisps,apple, bread pudding (Healthy)
net weight: 547 g
allergens: wheat, gluten, milk, egg

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
Energy	4,130 kJ	119%	amber : Above amount recommended
Energy	983 kcal	119%	amber : Above amount recommended
Carbohydrate	120.8 g	109%	green : Close to recommended
Total Sugars	57 g	134%	red : Above amount recommended
Fat	44 g	137%	red : Above amount recommended
Saturated Fat*	20.2 g	200%	red : Above amount recommended
Protein	33.6 g	202%	amber : Above amount recommended
Fibre NSP	12.2 g	227%	amber : Above amount recommended
Salt	4.2 g	236%	red : Above amount recommended
Sodium	1,691.9 mg	236%	red : Above amount recommended
Vitamin A	603.5 µg	246%	amber : Above amount recommended
Vitamin C*	63.7 mg	455%	amber : Above amount recommended
Folate*	113.9 µg	162%	amber : Above amount recommended
Calcium	661.2 mg	188%	amber : Above amount recommended
Iron	5.8 mg	146%	amber : Above amount recommended
Zinc	5.2 mg	158%	amber : Above amount recommended

*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
green - a healthy choice,
amber - OK most of the time,
red - eat in smaller amounts

Look at the results and find out how well you have done.

Meal for £5

Task

Design a healthy meal for four people that will cost no more than £5.

Firstly, carry out some research to find out which foods are expensive and which are better value.
Foods like rump steak and types of fish can be expensive.

Choose inexpensive foods with high nutritional value such as eggs, cheese, peas, beans and lentils and buy seasonal fruits and vegetables to keep in budget.

Create your recipes.

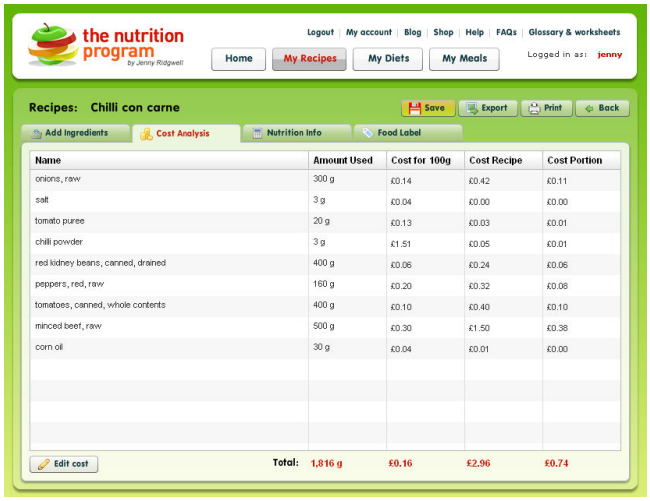
This is the choice

- Chilli con carne
- Boiled rice
- Apple crumble
- Custard.

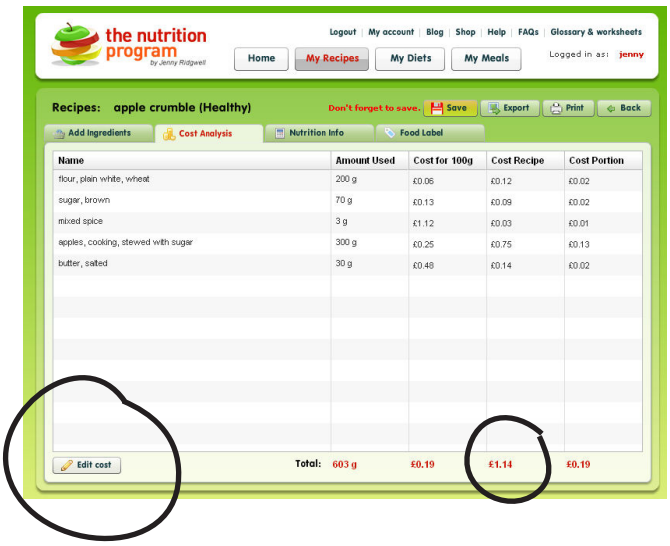
Look at the costing of each recipe and write down the total cost.
You may disagree with some of the prices which may vary in your area. If so, click the Edit button and change them. You can check prices on supermarket shelves on the internet.

In this example, the total meal is £4.93.

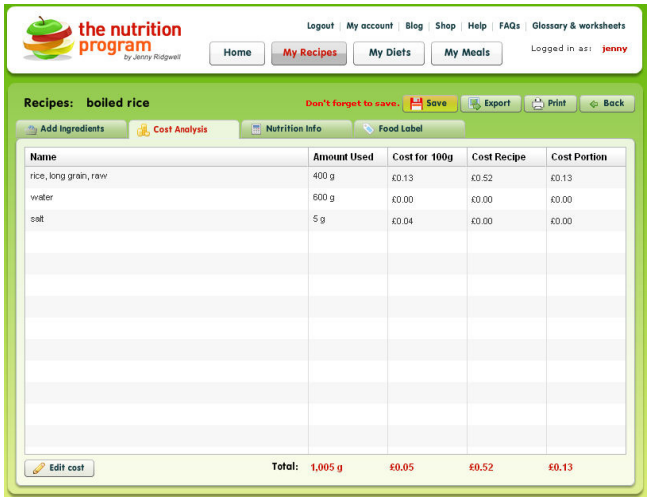
If your meal is within the £5 budget you can proceed to see if it is healthy.



This is the costing for Chilli con carne



This is the costing for Apple crumble - you can edit the cost.



This is the costing for Boiled rice

Meal for £5

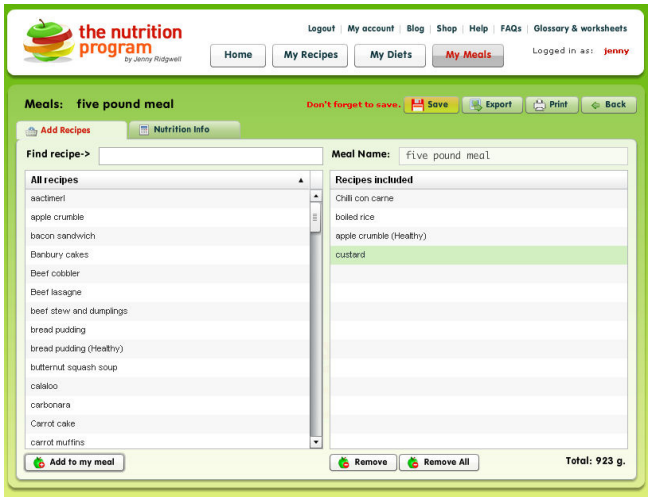
If it costs more than £5 make some changes.
Go to My Meals.

Choose the average age for the people you are designing for.

For example if it is two parents (aged 40) and two teenagers (15), the average age is 28 years. Choose male or female.

Enter the recipes into your meal and save. Save the meal and look at the Nutrition info. This is the choice

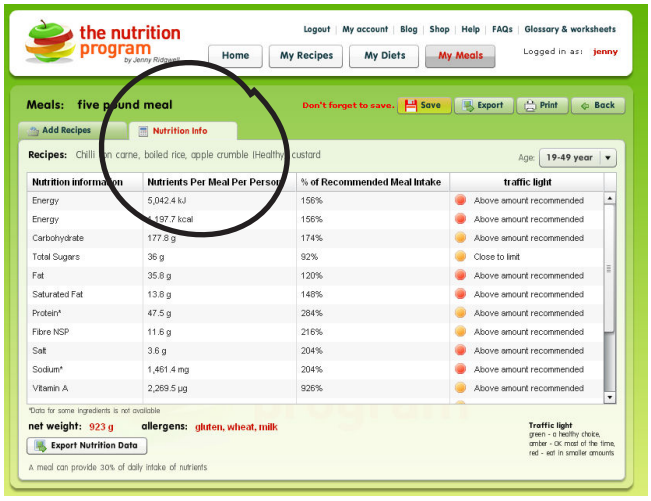
- Chilli con carne
- Boiled rice
- Apple crumble
- Custard.



The four meals are added to My Meals

In this example when all the recipes have been added, you can see that the meal provides more calories (energy) than is needed, so the portion sizes need to be reduced.

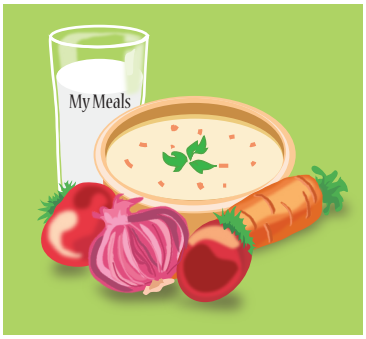
Go back to the recipes and change something – in this case, the amount of meat in the Chilli con carne is reduced.



My Meals shows the nutritional analysis

The portion sizes of all the recipes needs to be looked at as the meal supplies too much food, so these have been changed.

Meal for £5



Analyse the results

The final meal meets the targets, and the only thing that needs to be looked at is the amount of salt in the meal as it is too high.

This screen shows the final analysis of the meal which is quite healthy.

five pound meal

age: 19-49 years
sex: male
meal: dinner
recipes: Chilli con carne, boiled rice, apple crumble (Healthy), custard
net weight: 612 g
allergens: gluten, wheat, milk

Nutrition Information

Nutrition	Nutrients Per Meal Per Person	% of Recommended Meal Intake	traffic light
Energy	3,493.7 kJ	108%	amber : Above amount recommended
Energy	828.6 kcal	108%	amber : Above amount recommended
Carbohydrate	136.4 g	133%	amber : Above amount recommended
Total Sugars	29.1 g	74%	green : Below limit
Fat	21.2 g	71%	green : Below limit
Saturated Fat	8.8 g	95%	amber : Close to limit
Protein*	28.2 g	109%	amber : Above amount recommended
Fibre NSP	6.9 g	129%	green : Close to recommended
Salt	2.1 g	121%	red : Above amount recommended
Sodium*	870.7 mg	121%	red : Above amount recommended
Vitamin A	1,191.4 µg	486%	amber : Above amount recommended
Vitamin C	42.2 mg	391%	amber : Above amount recommended
Folate*	50.6 µg	72%	amber : Below amount recommended
Calcium*	247.2 mg	100%	green : Close to recommended
Iron	3.6 mg	121%	amber : Above amount recommended
Zinc*	3.6 mg	109%	green : Close to recommended

*Data for some ingredients is not available
A meal can provide 30% of daily intake of nutrients

Traffic light
green - a healthy choice,
amber - OK most of the time,
red - eat in smaller amounts

Salt is too high for this meal, so the recipe for Chilli con carne needs changing.

The meal supplies a good range of nutrients so is quite a healthy meal and meets the price limit of £5 too.

To do
Plan a meal for £5 with two courses. Choose an age group and see how healthy it is.

Write some comments on your results and compare your results with others.

School lunches - compare the nutrition

To do
Use My Meals to find out which of the lunches is the healthiest.

Lunch choices	
Lunch 1 Cottage pie 220g Sweetcorn 85g Green beans 85g Gravy 25g Rice pudding 120g Sultanas 25g Orange juice 160g	**Lunch 2** Jacket potato 150g Cheese 50g Broccoli 90g An orange 150g Yogurt, low fat, fruit 150g Milkshake 250g
Lunch 3 Chicken korma 300g Rice, white, boiled 100g Peas, boiled 70g Apple sponge pudding 100g Custard 120g Water 150g	**Lunch 4 – Packed lunch** Crisps Cheese sandwich Apple Bounty bar Coca cola

Tips on making recipes
If you want to include foods and drinks such as crisps and Coca Cola in your meals, you will need to create a recipe first.
This may seem strange – so create Crisps and cola and add the choices to the recipe and save.

This chart shows the data that is used for the Meals analysis in the program

Nutrient	Min or max	4- 6 male	4-6 female	7-10 male	7-10 female	11 to 14 male	11 to 14 female	15-18 male	15-18 female	19-49 male	19-49 female	50-64 male	50-64 female	65+ male	65+ female
Energy kj	max EAR	2148	1938	2472	2184	2781	2376	3453	2649	3180	2430	2979	2397	2631	2283
kcal	EAR	515	463	588	522	666	554	826	633	765	582	714	570	630	543
Carbohy-drate g	Min	69	61.8	79	69.6	89	73.8	110	84.4	102	77.6	98.6	76	88.5	74
Total sugars	Max	25	25	28.5	28.5	34.1	28.5	42.4	32.4	39.2	29.9	36.6	29.2	32.4	27.8
Fat g	Max	20	18	23	20.3	25.9	21.3	32	24.6	29.7	22.6	28.8	22.6	25.8	21.6
Saturated fat g	Max	6.3	5.6	7.2	6.3	8.1	6.7	10.1	7.7	9.3	7.1	9	7	8.1	6.8
Protein g	Min RNI	5.91	5.91	8.5	8.5	12.6	12.6	16.6	13.6	16.7	13.5	16	14	16	14
Fibre NSP g	Min	4.2	3.6	4.8	4.2	5.4	4.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
salt g	max SACN	0.9	0.9	1.5	1.5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
sodium mg	max SACN	357	357	595	595	714	714	714	714	714	714	714	714	714	714
Vitamin A ug	Min RNI	140	140	175	175	210	210	245	210	245	210	245	210	245	210
Vitamin C mg	Min RNI	10.5	10.5	10.5	10.5	12.25	12.25	14	14	14	14	14	14	14	14
Folate ug	Min RNI	35	35	52.5	52.5	70	70	70	70	70	70	70	70	70	70
Calcium mg	Min RNI	158	158	193	193	350	280	350	280	245	245	245	245	245	245
Iron mg	Min RNI	2.1	2.1	3	3	4	5.2	4	5.2	3	3	3	3	3	3
Zinc mg	Min RNI	2.3	2.3	2.45	2.45	3.15	3.15	3.3	2.45	3.3	2.45	3.3	2.45	3.3	2.45
EAR	Estimated average requirement														
RNI	Reference Nutrient Intake														
SACN	Scientific Advisory Committee on Nutrition														

Meal analysis - nutrients

Minimum levels are set for these nutrients because too little can be harmful:
Carbohydrate, Protein, Fibre, Vitamin A, Vitamin C, folate, calcium, iron, and zinc.

Maximum levels are set for these nutrients because too much can be harmful:
sodium - shown as salt
fat and saturated fat
NMES - we do not have NMES data available for many foods, so have shown Total sugars.

Food energy (or energy from food) comes from carbohydrate, fat and protein and should be in the following proportions:

- not less than 50% from carbohydrate
- not more than 11% from NMES
- not more than 35% from fat
- not more than 11% from saturated fat
- protein.

The meal analysis investigates 14 nutrients which are considered important in our diets.

Carbohydrates
There are two types of carbohydrate – starches and sugars.
Starchy carbohydrates should provide the main source of energy in the diet and should form the main component of a meal.

Sources of starchy carbohydrate
Bread of all types, rice, pasta, noodles, potatoes, yam, oats, cassava, couscous, breakfast cereals, wheat grains like bulgar wheat, lentils, red kidney beans and black eye beans.

Food and drink high in NME sugars often provide calories but few other essential nutrients.
A diet high in NME sugars contributes to tooth decay.

Sources of NME sugars
Table sugar, jam, honey, sweetened drinks, cakes, pastries, ice cream, sweets, biscuits, confectionery and chocolate.

Fat has more than twice the calories weight for weight of carbohydrate. It is a concentrated source of energy and provides essential fatty acids.
High fat intake can lead to excess energy intake and weight gain.

Sources of fat
Butter, lard, margarine, fat spreads, oils or dressings such as mayonnaise, chips and other deep-fried food, potato waffles, garlic bread, pastries, cakes, biscuits, creamy puddings, meat or meat products such as pasties.

There are two types of fat
Saturated fat comes mainly from animals.
Unsaturated fat comes mainly from plants and fish.
A diet high in saturated fat can cause high cholesterol levels and increase the risk of diseases such as coronary heart disease, diabetes and some cancers.

Sources of saturated fat
Butter, lard, some margarine, cream, coconut oil or cream, palm oil, mayonnaise, salad cream, meat products (e.g. pies, burgers or sausages), hard cheeses (e.g. cheddar), cakes or biscuits.

Protein is important for the growth and repair of body tissues like muscles. School students are growing fast so protein is particularly important for them.

Sources of protein
Meat, fish, milk, cheese, eggs, yoghurt, nuts and seeds, red kidney beans, chickpeas, lentils, cereals and meat alternatives (e.g. tofu).

Fibre is essential for a healthy digestive system. It assists bowel function and prevents problems such as constipation.

Meal analysis - nutrients

Sources of fibre
Brown rice, oats, wholegrain cereals, muesli, potatoes with skins, wholemeal pasta, wholemeal bread, bulgar wheat, lentils, chickpeas, red kidney beans, fruit and vegetables.

Sodium is a component of salt.
Salt is needed to maintain fluid balance in the body and for nerve and muscle function.
Too much salt can cause high blood pressure, which may lead to a stroke, heart disease and kidney problems.

Sources of sodium
Ready made soups and sauces, gravy, processed food, some breakfast cereals, salty snacks (e.g. crisps and salted nuts), bacon, ham, sausages, pizza, cheese and condiments.

Vitamin A is important for growth and tissue repair, good eyesight and the immune system.

Sources of vitamin A
Oily fish, eggs, liver, cheese, butter and milk. Yellow, orange and red coloured fruits and veg such as carrots, peppers, apricots, oranges, butternut squash, sweet potato, tomatoes and dark green leafy vegetables.

Vitamin C is needed for wound healing and the structure of blood vessels and skin.
Vitamin C is an antioxidant which helps to protect the body from infections and disease. Vitamin C enhances iron absorption.

Sources of vitamin C
Fruits – especially citrus fruits (oranges, lemons, limes, grapefruit), berries and kiwi fruits.
Vegetables (including frozen) – especially broccoli, green and red

Folate is essential for blood cells, the nervous system and helps prevent anaemia.
It is particularly important in the early stages of pregnancy as it helps to protect the baby from neural tube defects such as spina bifida.

Sources of folate
Liver, yeast extract, orange juice, green leafy vegetables (e.g. spinach), green beans, beetroot, chickpeas, black-eye beans, broccoli, peas and brown rice.
Breakfast cereals are fortified with folate.

Calcium is essential for strong bones and teeth, especially during childhood and adolescence when the skeleton is growing. It is also important for muscle and nerve function as well as blood clotting. Pupils with low calcium are at risk of developing osteoporosis or brittle bones in later life.

Sources of calcium
Dairy products such as milk,cheese, yoghurt, canned fish with bones (e.g. salmon and pilchards), broccoli, cabbage, dried fruits, tofu, red kidney beans, chickpeas and soya beans.
White and brown bread are fortified with calcium.

Iron is needed for the production of red blood cells which carry oxygen around the body. Iron plays an important role in maintaining a healthy immune system. It is especially important for teenage girls.
Iron deficiency can cause anaemia which may result in headaches and insomnia.

Sources of iron
Red meat, offal (especially liver and kidney), canned fish, eggs,dark green leafy vegetables, peas, wholegrains (e.g. brown rice),nuts and seeds, red kidney beans, black-eye beans, lentils, chickpeas, dried apricots and raisins.

Zinc has a number of important functions, including growth and tissue repair, wound healing and the immune system.

Sources of zinc
Red meat, offal (especially liver and kidney), eggs, fish, milk and other dairy products, cereals, red kidney beans, soya products, lentils, chickpeas and nuts.

Details taken from Nutrition based standards School Food Trust.

Meal analysis - nutrients

Use the Traffic light chart and the Meal analysis nutrients to answer the questions.

	green	amber	red
comments	A healthy choice	OK most of the time	'above amount recommended'.
Energy kJ / kcal	in between 95% below and up to 105%	below 95% 105-120% above	120% above recommended
Carbohydrate g	in between 90% and up to 120%	below 90% if above 120%	
Total sugars g	below 80%	80-100%	if above 100%
Fat g	below 80%	80-100%	if above 100%
Saturated fat	below 80%	80-100%	if above 100%
Protein	90- 120%	below 90% if above 120%	
Fibre NSP	in between 90% and up to 130%	below 90% if above 130%	
Salt g	below 80%	80-100%	if above 100%
Vitamin A ug	in between 90% and up to 120%	if 90% and below if above 120%	
Vitamin C mg	in between 90% and up to 120%	if 90% and below if above 120%	
Folate ug	in between 90% and up to 120%	if 90% and below if above 120%	
Calcium mg	in between 90% and up to 120%	if 90% and below if above 120%	
Iron mg	in between 90% and up to 120%	if 90% and below if above 120%	
Zinc mg	in between 90% and up to 120%	if 90% and below if above 120%	

Questions

1. Which four nutrients will show as a red traffic light if there is too much of them in a meal?
2. Explain how you would lower the amount of these nutrients in a meal.
3. If the energy value of the meal shows red, what does this mean?
4. How can you lower the energy value of the meal?
5. If the fibre for the meal is too low, how can it be improved?
6. How can you increase the carbohydrate content for the meal if it is low?
7. How would you increase the following nutrients in the meal. Give three examples in each case. Vitamin A
8. Vitamin C
9. Folate
10. Calcium
11. Iron
12. Zinc?

Answers on the crossword page.

Meal analysis GCSE tasks

Meal analysis tasks

Create a lunch for a teenage girl.
Make sure that the meal supplies enough iron for her needs.
Show which foods are good sources of iron in this meal.

Make a breakfast for a hungry teenage boy.
Show how you have supplied enough protein in the meal, and a good supply of vitamin C, calcium and iron.

A recent survey found that 74% of school meals consumed by girls aged 11–18 did not contain enough folate.
Your task is to prepare a meal for this group and show how you have supplied enough folate.

A recent survey found that 80% of school meals eaten by boys aged 11–18 and 77% of school meals eaten by girls aged 11–18 did not contain enough calcium.
Your task is to prepare a meal for this group and show how you have supplied enough calcium.

A recent survey found that 79% of school meals eaten by boys aged 11–18 did not contain enough fibre.
Your task is to prepare a meal for this group and show how you have supplied enough fibre.

A recent survey found that 76% of school meals eaten by boys aged 11–18 contained too much fat.
Your task is to prepare a meal for this group and show how you have not supplied too much fat.

A/S level task

Students need to do some research to find out good sources of different nutrients, design recipes that meet the given criteria, make them and justify the results.
They can also make a recipe card, showing the ingredients, method of making and nutritional information.

A/S FOOD TECHNOLOGY ASSIGNMENT

MAKING

- Plan and make a nutritionally balanced one dish main meal.
- Apply your knowledge of hygiene, safety and quality control throughout the making process.
- Display and photograph your product.

RECIPE CARD

Produce an attractive recipe card that should include:

- A photograph of the finished dish.
- List ingredients and quantities.
- Clear step by step instructions for making the dish.
- Provide nutritional analysis and information for a serving and a 100g (you will need to use the Nutrition Program).
- Include a range of modifications.

Tasks
1. Research the nutritional needs of your chosen dietary group.

- What might influence their dietary choices and opinions?
- What are their nutritional needs (DRVS') and why?
- What recommendations would you make to ensure they meet their needs?
- Plan a 2 day menu for them and justify your choices.
- Present your findings to the group.

2. Keep a food diary of everything you eat and drink for 3 days.

- Analyse your food diary using www.nutritionprogram.co.uk.
- Present your nutrient intake using tables, charts and graphs.
- Discuss if your diet is healthy and balanced and explain why.
- What implications might this have on your long term health?
- Suggest ways to improve your diet.

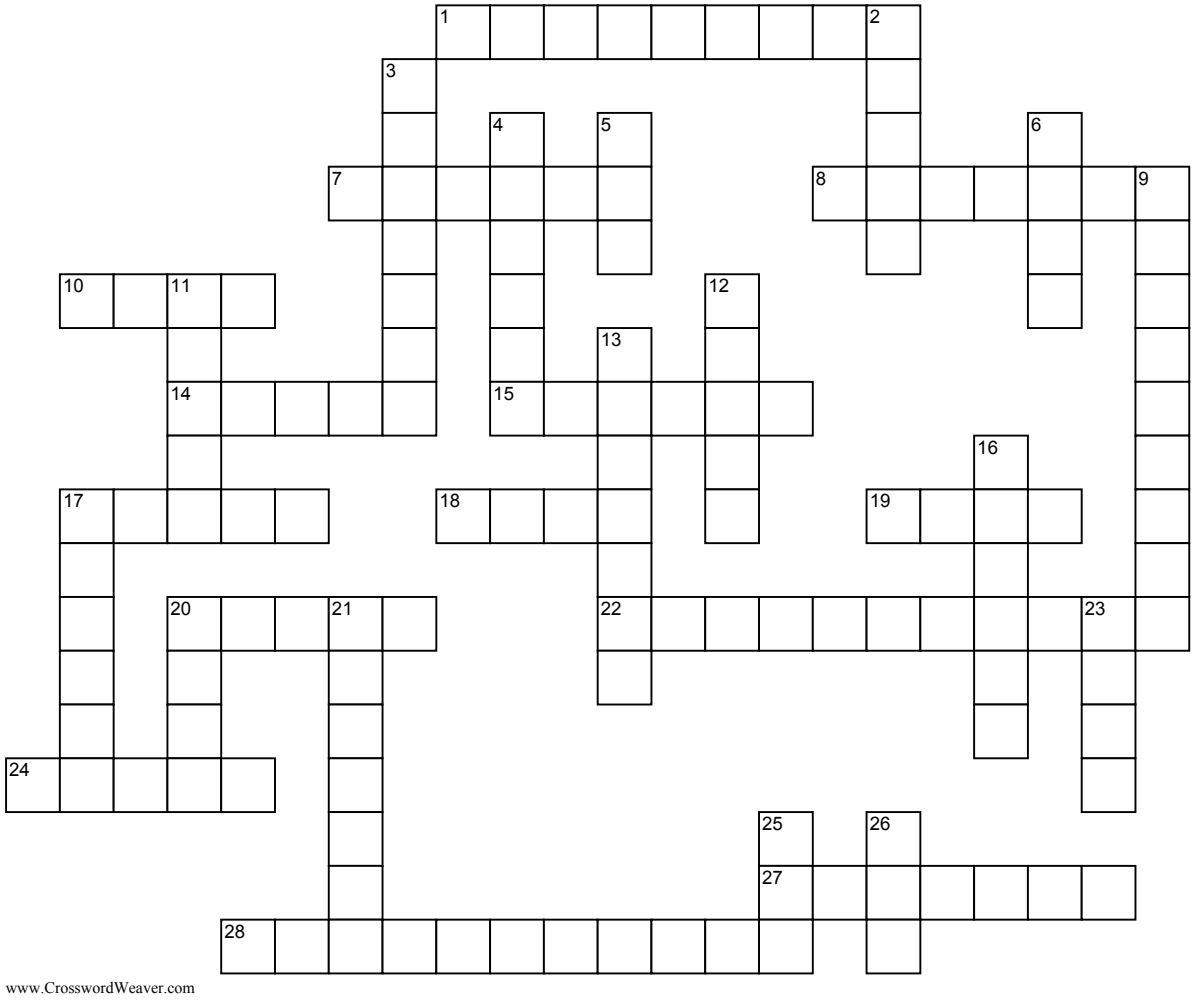
Further sources of information:
www.nutrition.org.uk
www.food.gov.uk

2. Plan and make a savoury main course dish that will:

- provide your daily requirement of protein
- contribute to five a day
- contain less than 20g total fat and less than 10g saturated fat

My thanks to J Chaffey for this work

My meals crossword



ACROSS

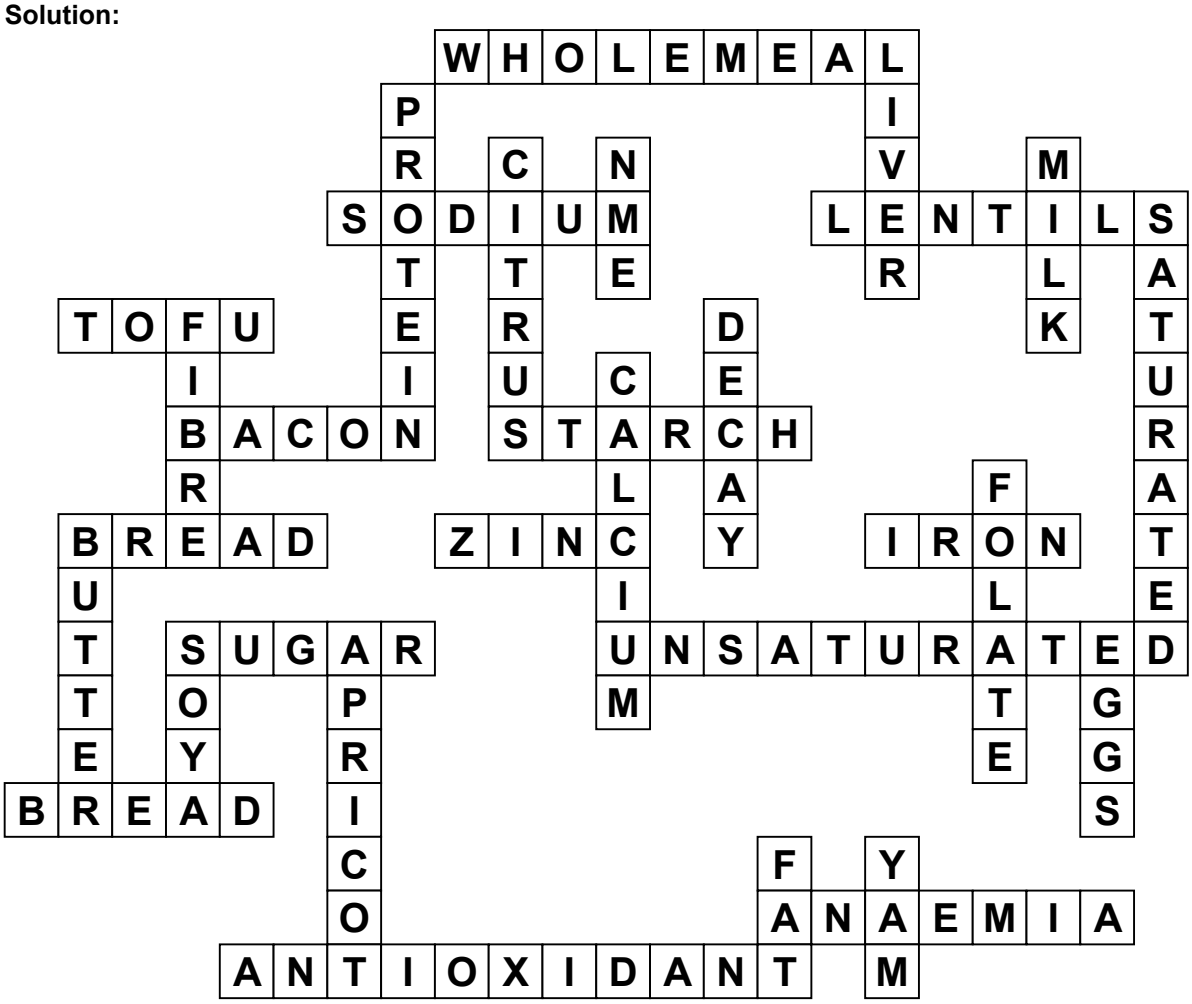
1 Flour with high fibre.
7 Name for salt in food.
8 Source of protein.
10 Meat alternative.
14 Source of salt.
15 Type of carbohydrate.
17 Source of carbohydrate.
18 Needed for growth and tissue repair.
19 Needed for red blood cells.
20 Type of carbohydrate.
22 Type of fat.
24 Fortified with calcium.
27 Iron deficiency.
28 Vitamin C.

DOWN

2 Source of folate.
3 Needed for growth and repair.
4 Type of fruit high in vitamin C.
5 Name for table sugars and jam.
6 Source of calcium.
9 Type of fat.
11 Essential for a healthy digestive system.
12 What happens to teeth with too much sugar.
13 Needed for strong bones.
16 Essential for blood cells.
17 Source of fat.
20 Beans with calcium.
21 Fruit with high vitamin A.
23 Source of zinc.
25 Provides twice the calories of carbohydrate.
26 Source of carbohydrate.

My meals crossword

Solution:



Answers to Questions

1. Sugars, fat, saturated fat, salt.
2. Sugar – cut down on sugary ingredients and table sugar, Fat – cut down on added fats such as butter and oil., Saturated fat – cut down on foods with saturated fat such as meat, pastries, fats. Salt – reduce the salt and stock cubes added to a meal.
3. If the energy is red, the meal provides too much energy to meet needs.
4. Lower the energy value of the meal by reducing the portion size and decreasing the amount of fat and including more fruit and vegetables.
5. Increase the fibre by adding wholemeal cereals and fruit and vegetables.
6. You can increase the carbohydrate content by adding starchy vegetables, potatoes, bread, pasta and cereals.
7. Vitamin A- oily fish, eggs, cheese, yellow and orange fruit and veg
8. Vitamin C – fresh fruits and vegetables
9. Folate – liver, beans, broccoli, peas, breakfast cereals
10. Calcium – dairy products, green vegetables, white bread
11. Iron – red meat, green vegetables, dried fruit
12. Zinc – red meat, eggs, cereals.

Useful resources

The School Food Trust
http://www.schoolfoodtrust.org.uk

This valuable website shows
- A guide to introducing the Government's food-based and nutrient-based standards for school lunches
- Example compliant menus with associated nutritionally analysed standardised recipes
- Additional case studies from secondary schools that are compliant with or working towards the nutrient-based standards for school lunches.
- Very useful website to get information on how to analyse school meals. Remember, The Nutrition Program uses the same criteria to evaluate the nutritional value of school meals.

British Nutrition Foundation
Provides nutrition information for teachers, health professionals, scientists, and general public. A very useful website to help find information about food.
www.nutrition.org.uk

Food Standards Agency
Provides loads of information about food and nutrition.
www.food.gov.uk