

## **'Cooking' as a Project Management, Language and Maths Class**

Cooking a traditional French dish such as Beef Bourguignon, a hearty French beef stew, presents the opportunity for a 180 degree learning exercise. Cooking is not just about culinary skills... though they are admittedly invaluable in the junk food world in which we live; cooking gives you the opportunity to discuss some of the ethical and food safety issues involved, as well as presenting you with language and arithmetical learning opportunities.

Really! There's absolutely no reason why English and Arithmetic cannot be taught together with cooking, and those that argue against it becoming part of the core curriculum focus purely on the food and not enough on the organisational skills needed which range from learning about budgetary matters through project management to the discussion of topical and ethical issues. And why not add in some language skills as well? French in the case selected here.

Unfortunately, we live in a world of specialists and examining bodies don't think in this way; they don't see the bigger picture real life situations which involve young people maturing in a modern, media driven environment, having to cope with numerous sometimes conflicting issues; but... let's just imagine how things could be different:

**Today's lesson:** we are going to cook Boeuf Bourguignon (beef in the Burgundy style) using a classical French recipe. We will need one large pan for slow cooking and a frying pan. This traditional recipe has been chosen at:

<https://www.atelierdeschefs.fr/fr/recette/17741-boeuf-bourguignon-traditionnel.php>

### **Les ingrédients (pour 6 personnes)**

#### **Pour la viande**

- Boeuf à braiser : 1.5 kg
- Carotte(s) : 2 pièce(s)
- Oignon(s) : 1 pièce(s)
- Farine de blé : 30 g
- Gousse(s) d'ail : 2 pièce(s)
- Vin de Bourgogne : 1.5 l
- Huile d'olive : 3 cl
- Sel fin : 6 pincée(s)
- Moulin à poivre : 6 tour(s)
- Fond de veau : 40 cl

#### **Pour la garniture**

- Lardon(s) : 150 g
- Oignon(s) grelot : 150 g
- Champignon(s) de Paris : 150 g
- Beurre doux : 50 g
- Huile d'olive : 3 cl

#### **Pour le dressage**

- Persil plat : 0.25 botte(s)

### **Ingredients for 6 people**

#### **For the meat**

- Stewing/Braising steak 1.5 kg
- 2 carrots
- 1 onion
- 30gm flour
- 2 pieces of garlic
- Burgundy wine 1.5 l
- Olive oil 3cl
- Salt – 6 pinches
- Pepper – 6 grinds
- Veal stock – 40 cl

#### **For the Garnish**

- Streaky bacon 150 g
- Small onions 150 g
- Button mushrooms 150 g
- Butter 50 g
- Olive oil 3 cl

#### **For the dressing**

- Flat (Italian) parsley ¼ bunch

## Descriptif de la recette

**1/ La veille** - Couper la viande. Éplucher et tailler en gros morceaux les carottes et l'oignon. Éplucher les gousses d'ail. Mettre la viande et la garniture dans le vin rouge et faire mariner toute une nuit au réfrigérateur.

**2/ Pour la viande** - Égoutter la viande et la garniture en conservant le vin. Séparer la garniture et la viande. Effeuillez le persil, conserver les tiges pour la cuisson et les feuilles pour le dressage.

Dans une cocotte chaude, mettre l'huile de tournesol et colorer les morceaux de viande environ 1 min de chaque côté. Ajouter la garniture aromatique, assaisonner de sel fin puis cuire doucement pendant 3 min. Ajouter la farine et cuire à nouveau 1 min tout en mélangeant pour bien incorporer la farine. Mouiller avec le vin rouge puis avec le fond de veau. Ajouter les tiges de persil et compléter avec de l'eau si nécessaire, faire bouillir puis baisser le feu et laisser mijoter pendant 2h30.

Lorsque la viande est cuite, la retirer de la cocotte, passer la sauce au chinois pour la filtrer, vérifier sa texture et si elle est encore trop liquide, la réduire pendant quelques minutes. L'assaisonner de sel et de poivre.

**3/ Pour la garniture** - Éplucher les champignons au couteau. Disposer les oignons pelés dans une poêle, ajouter de l'eau à mi-hauteur et 20 g de beurre. Couvrir au contact avec un papier sulfurisé et cuire jusqu'à évaporation complète de l'eau. Lorsque ils commencent à caraméliser, ajouter 1 cuillère à soupe d'eau et bien enrober les oignons de caramel.

Dans une casserole d'eau froide, mettre les lardons et faire bouillir pour les blanchir. Bien les égoutter, puis les colorer dans une poêle antiadhésive bien chaude. Réserver ensuite sur du papier absorbant. Dans la même poêle, mettre un filet d'huile d'olive et faire sauter les champignons pour les colorer. Réserver.

**4/ Pour le dressage** - Ciseler les feuilles de persil. Dans un plat, déposer la viande, verser dessus la sauce et disposer les garnitures.

## Recipe Instructions

### 1/ The previous Day

Cut up the meat. Peel and cut the carrots into large pieces. Peel the pieces of garlic. Marinate the meat and the garnish (carrots, onions, garlic) in red wine overnight in the refrigerator

### 2/ For the meat

Drain the meat and garnish while retaining the wine. Separate the garnish from the meat. Remove the leaves from the parsley and keep the stems for cooking and leaves for the final presentation.

In a hot pan, put olive oil and brown the pieces of meat for about 1 minute on each side. Add the aromatic garnish, season with salt and cook gently for 3 minutes. Add flour and cook again for 1 min while mixing well to incorporate the flour. Pour in the red wine and veal stock. Add the parsley stalks, add water if necessary and boil before lowering the heat and simmering for 2h30.

When meat is cooked, remove it from the pot, pass the sauce through a sieve, check the texture and if it is too liquid, reduce it for several more minutes. Season with salt and pepper.

### 3/ For the garnish

Peel the mushroom with a knife (nb: not necessary today but trim stems).

Arrange peeled baby onions in a pan, add water halfway up and 20 g butter. Cover in contact with wax paper and bake until the water has completely evaporated. When they begin to caramelize, add 1 tablespoon of water and coat them well.

In a pan of cold water, place the bacon and boil to blanch. Drain well, then brown them in a hot non-stick pan. Set aside on absorbent paper. In the same pan, put the olive oil and sauté the mushrooms to colour them. Set aside.

### 4/ To serve

Chop parsley leaves. In a dish, place the meat, pour over the sauce and arrange the toppings.

## Arithmetic

When it comes to mathematics, we can add the ingredients to calculate weight but we can also look at them in terms of their nutritional content and percentages. Protein, fat and carbohydrates are referred to as the 'macronutrients'. There are of course many other important ingredients such as vitamins and minerals.

### Major 'Meat' ingredients (M)

MEAT	Weight*	Total Net Carbs	Net Carbs /100gm	Total Fibre	Fibre /100gm	Total Protein	Protein /100gm	Total Fat	Fat /100gm
Braising Beef**	1,5 kg	0	0	0	0	30	20	30	20
Carrot	200 gm	14	7	6	3	2	1	0	0
Onion	200 gm	14	7	4	2	2	1	0	0
Wheat flour***	30 gm	22	72	1	2	3	11	0	1
Red Wine	1,5 l	45	3	0	0	0	0	0	0
Olive oil	30 ml	0	0	0	0	0	0	30	100
Veal Stock	400ml	4	1	0	0	8	2	4	1
<b>TOTAL M</b>	<b>3.86 kg</b>	<b>90 gm</b>		<b>11 gm</b>		<b>45 gm</b>		<b>67 gm</b>	

Nb: The wine contains alcohol (about 12%) but this will almost all be evaporated during the long cooking process. Alcohol boils at 78°C though some residue binds with the water.

- \*Leaner cuts will have more protein and less fat
- \*\*Liquid quantities are approximately the same in litres/kilos
- \*\*\*Substitute a gluten free flour if desired

### For the garnish (G)

MEAT	Weight	Total Net Carbs	Net Carb /100gm	Total Fibre	Fibre /100gm	Total Protein	Protein /100gm	Total Fat	Fat /100gm
Streaky bacon	150 gm	2	1	0	0	18	12	68	45
Baby onions	150 gm	11	7	3	2	2	1	0	0
Mushrooms	150 gm	3	2	2	1	5	3	0	0
Butter	50 gm	0	0	0	0	1	1	41	81
Olive oil	30 ml	0	0	0	0	0	0	30	100
<b>TOTAL G</b>	<b>530 gm</b>	<b>16 gm</b>		<b>5 gm</b>		<b>26 gm</b>		<b>139 gm</b>	
<b>GRAND TOTAL</b>	<b>4.39 kg</b>	<b>106 gm</b>		<b>16 gm</b>		<b>71 gm</b>		<b>206 gm</b>	

### Arithmetic – continued

With a total initial cooking weight of 4.39 kilos (M + G), we can calculate the percentages for the ingredients:

Net Carbs:	106/4390	= 2.41%
Fibre:	16/4390	= 0.36%
Protein:	71/4390	= 1.62%
Fat:	206/4390	= 4.69%

We can also choose to **calculate calories**:

	Weight (gm) for total quantity	Calorie weighting factor (density)	Total calories	Calories per 100 gm (rounded)
Net Carbs	106	4	424	10
Fibre	16	0	0	0
Protein	71	4	284	6
Fat	206	9	1,854	42
<b>TOTAL</b>	<b>399 gm</b>		<b>2,562 Cal</b>	<b>58 Cal</b>

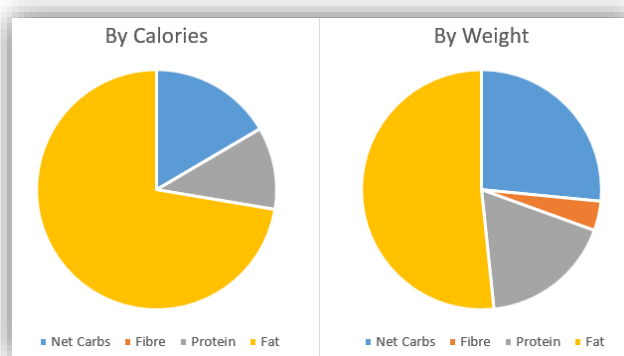
Nb: The cooked weight of the Boeuf Bourguignon will be a bit less than 4 kilos after cooking with the water content reducing and the alcohol evaporating. Worth measuring for precision?

**Additional Exercise Ideas:**

Q1/ Think through a portion size and calculate the macronutrient levels

Q2/ Seek out a vegetable choice which adds more carbs and particularly fibre to the main dish

Q3/ Discuss the differences in macronutrient proportions by weight and by Calories in the Boeuf Bourguignon recipe we have studied.



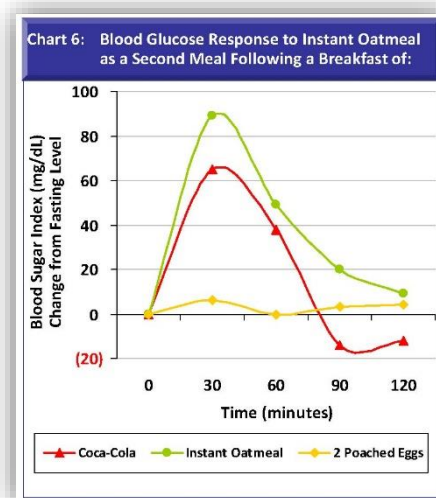
Macronutrients in Boeuf Bourguignon

**Other Potential Points of Learning**

1. Project Management: Plan the whole cooking and timing process into one 8 hour day.
2. Compare a portion of Boeuf Bourguignon served with a side dish of your favourite vegetables and a glass of water, to a Big Mac meal (or equivalent).
3. Learn about the effect different foods have on blood sugar levels. Discuss what might be the likely impact of eating Boeuf Bourguignon with grilled tomatoes and green beans...

Source: <http://pathways4health.org/2012/02/28/metabolic-stress/>

4. Learn about literal translations and approximate translations from French to English.
5. In this overall context, discuss issues and reasons for being a vegetarian... or an omnivore.
6. Using the Internet, research when mankind first started cooking and what the world's first cooked meals probably looked like? What did they cook in? What did they cook on?



Learning Point 3: Impact of different breakfasts on blood sugar levels vs Coca Cola

**Also:** Consider food safety standards and some of the ethical issues involved in meat production.

Example: [A note on the use of veal stock for UK readers.](#)

Although in Europe, eating veal is seen as no different from eating other meats, the situation in the UK is different, mostly because of the legacy of scandalous conditions reported in the 1980's. Even today, people are still concerned about the thought of meat from young cattle and yet quite content to eat young sheep in the form of lamb. Interestingly, the average supermarket chicken is now less than 2 months old and these days, veal must be 6 months old to be sold as such.

More information in these informative articles:

<http://www.theguardian.com/environment/2012/may/27/rose-veal-jimmy-doherty>

<http://www.telegraph.co.uk/foodanddrink/foodanddrinknews/10770703/Why-its-time-to-welcome-back-veal.html>

All macronutrient quantities and ratios from: <http://nutritiondata.self.com>

Put together by [www.fatisourfriend.com](http://www.fatisourfriend.com) - Using science to support proven ancestral eating habits.