

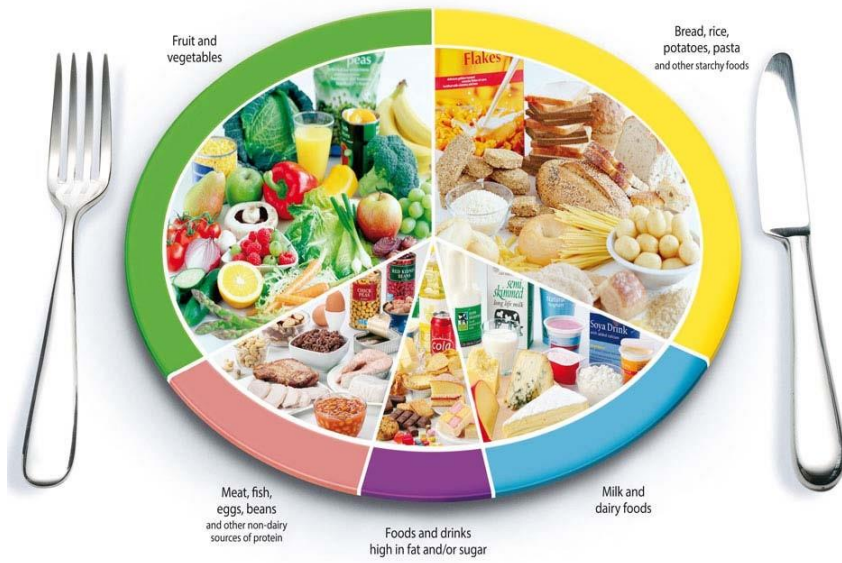
WJEC Food and nutrition

Revision booklet

Pupil Name _____



The Eatwell plate



For each of the sections of the Eatwell plate, write down the key nutrients and why they are essential for health.

Section name	Key nutrients	Why is this essential for health
Fruit and vegetables		
Bread, cereals and potatoes		

Milk and dairy		
Meat, fish and alternatives		
Food containing fat / sugar		

What counts as a portion?

What do the guidelines mean? Using the printed table cut and paste the right information in the correct box.

Guidelines	What it means?	Why?	How much?
1 Base your meals on starchy foods			
2 Eat lots of fruit and vegetables			
3 Eat more fish			
4a Cut down on saturated fat 4b Cut down on sugar			
5 Try to eat less salt			
6 Drink plenty of water			
7 do not skip breakfast			

8 Get active and try to be a healthy weight			
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Macro Nutrient

for?

Proteins

What is it needed

What are amino acids?

What are proteins with high biological value?

What are proteins with low biological value?

What about vegetarians and vegans?

Macro Nutrient

for?

Carbohydrates

What is it needed

What are carbohydrates made up of?

What is Glycaemic index?

Why are carbohydrates challenging for coeliac?

Fats

Macro Nutrient

What is it needed for?

What is cholesterol?

What form are fats?

What are saturated fatty acids?

What are unsaturated fatty acids?

What are Omega 3 and 6 fatty acids?

What are visible and hidden fats?

How can we cut down on fat in the diet?

Macro Nutrient

for?

Nutrient
Micro_____

Water-soluble vitamins

Vitamin B1

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Vitamin B2

Chemical name	
Functions	
Sources	
Deficiency	

Vitamin

Effect of cooking	
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B3

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Vitamin B6

Chemical name	
Functions	
Sources	
Deficiency	

Vitamin

Effect of cooking	
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B9

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Vitamin B12

Chemical name	
Functions	
Sources	

Vitamin

Deficiency	
Effect of cooking	

_____C

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Micro Nutrient

Fat-soluble vitamins

Vitamin A

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Vitamin D

Chemical name	
Functions	
Sources	
Deficiency	

Effect of cooking	
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Vitamin E

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Vitamin K

Chemical name	
Functions	
Sources	
Deficiency	
Effect of cooking	

Micro Nutrient

Minerals

Calcium

Functions	
Sources	
Deficiency	

Flouride

Functions	
Sources	
Deficiency	

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Iron

Functions	
Sources	
Deficiency	

Magnesium

Functions	
Sources	
Deficiency	

Phosphorus

Functions	
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Sources	
Deficiency	

Potassium

Functions

Sources	
Deficiency	

Selenium

Functions	
Sources	
Deficiency	

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Sodium

Functions	
Sources	
Deficiency	

Zinc

Functions	
Sources	
Deficiency	

Dietary Fibre

What does it do?

How much do we need?

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Where do we get it from?

Fluids

What does it do?

How much do we need?

Where do we get it from?

Individual Needs

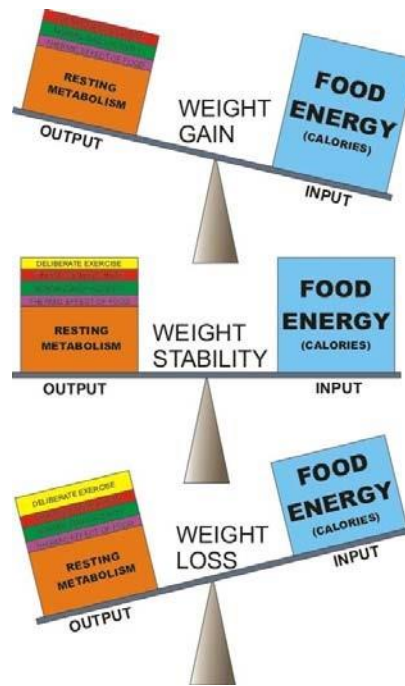
How do the following individual needs affect the nutritional needs of a person.

Babies - Pre weaning	
Babies – Post weaning	
Young children (pre school)	
School aged children	
Teenagers	
Eating disorders	
Older people	
Pregnancy	
Illness	
Recovering from an operation	
Low activity level	

High activity level		
Male		
Female		
Weight loss diets		
Vegetarians	Lacto-Ovo vegetarians	
	Lacto-vegetarians	
	Vegans	
Food allergies For example peanuts, eggs, strawberries.		
Lactose Intolerance		
Coeliac		
Diabetes	Type 1	

	Type 2	
Coronary heart disease		
Bowel disorders	Constipation	
	Diverticular Disease	
	Bowel cancers	
Bone and joint health		

Energy balance



Factors effecting consumer choice

For each of the factors in the table below explain how they affect consumer's choice.

Cost		
Culture		
Religion	Buddhism	
	Christianity	

	Hinduism	
	Islam	
	Judaism	
	Rastafarianism	
Ethics	Factory farming	
	Global warming	
	Fair trading	
	Environmental issues	

Organic foods	
Genetically modified foods	
Functional foods	
Fortified foods	

What do the following symbols mean and why are they important?





Packaging

Packaging protects food, keeps it safe and fresh for longer. Labels on packaging carry information, some of which is required by law.

The main purpose of packaging is;

- To preserve the food
- To protect the product from damage
- To make the product more attractive to the consumer
- To make it easier to transport the product

Packing materials.

Complete the table below to show the advantages and disadvantages of the following packaging materials;

Materials	Advantages	Disadvantages
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Paper and card		
Plastic		
Metal		
Glass		

Write below examples of food which are packaged using each of the materials;

Materials	Examples
Paper and card	
Plastic	
Metal	
Glass	

Explain why each of the following techniques are used, which foods they are used for and why they are appropriate;

Modified atmosphere packaging (MAP)	
Vacuum packing	
Tamper-proof packaging	

Environmentally friendly packaging	Reusable	
	Recyclable	
	Biodegradable	

What are the 3 key principles of Recycling?



Food Labelling

A food label can provide information which is useful to the consumer. In addition to the information, food labels attract customers by being colourful and attractive. Food manufactures know this and spend a lot of time and money designing packaging and labels in order to tempt consumers to buy their product.

Food labelling regulations require certain information to be given on all pre-packed foods.

What are the 10 pieces of information?

- 1.
2. 3.
4. 5.
6. 7.
8. 9.

10.

There are some pieces of information which are not a legal requirement but are seen as good practice to include on packaging. What are these?

11.

12.

13.

14.

15.

16.

How should nutritional information be displayed on packaging?

What is Quantitative Ingredient Declaration (QUID)?

What is the Traffic Lights system all about?

Why is allergy information important to display on packaging?

What other information might there be?

New developments in food.

Nanotechnology

Nanotechnology is the manufacture and use of materials and structures at the nanometer scale (a nanometer is one millionth of a millimetre). It offers a wide range of opportunities for the development of new products and for food packaging.

The texture of food can be changed as food spreadability and stability improve with nanosized crystals and liquids for better low fat foods.

The flavour of a food can be changed with bitter blocker or sweet and salty enhancers.

Nano-enhanced bacteria keep oxygen-sensitive foods fresher.

Smart foods

Smart foods is a collective term for the study of new developments in materials. Smart materials are;

-
-
-
-

-
-
-

Examples of where modified starch is used in food products;

-
-
-
-

Cooking Foods

Foods are cooked for different reasons;

- To make food easier to chew, swallow and digest.
- To destroy harmful bacteria and poisons and so make some foods safe to eat.
- To make foods more attractive and appealing, develop flavour and taste.
- To provide hot food when the weather is cold.
- To allow some food products to rise, thicken and set to get the result required.

Heat is passed to food by three different methods called, **conduction**, **convection** and **radiation**.



Conduction

Conduction is when heat passes through a solid material such as metal pans and food itself. Heat is conducted from molecule to molecule in solids and liquids. Metals used for tins, baking tins and pans are good conductors, which means that heat transfer is easy. Water is

	Advantages
	Disadvantages

Cooking methods

Method	Details and suitable foods.
Boiling	Cooking water in water Vegetables, eggs and ham.
Steaming	Cooking food above boiling water. Vegetables and fish.
Stewing or braising	Cooking food in liquid. Vegetables and meat.
Microwavin g	Cooking by microwave. Most foods are suitable.
Pressure cooking	Cooking food in liquid above boiling point. Vegetables, poultry.
Stir-frying	Frying in very little fat or oil. Vegetables, shellfish, meat.
Frying	Cooking food in fat or oil. Eggs, bacon, fish and sausages.
Grilling	Cooking food fierce heat or red glow. Steak, burgers, bacon.
Baking	Cooking food in the oven Bread, cakes, scones, biscuits.
Roasting	Cooking food in the oven with fat or oil. Meat and vegetables.

										Advantages
										Disadvantages

Effects of heat on food.

Changes take place during the cooking of food which can affect the appearance, flavour, texture and nutritive value of the food. All the nutrients are affected by heat in some way.

Nutrient	The effect heat has on the nutrient
Starch	
Sugar	
Fats	

Protein	
Dietary fibre	
Vitamins	
Minerals	

Sensory testing

Sensory analysis

Sensory analysis is a way of evaluating the taste of a product. The senses play an important part in evaluating the quality of a food product, it is important that food tastes, looks and smells good and has the correct texture.

Who do you think uses this?

-
-
-

Setting up sensory analysis

When carrying out sensory analysis it is important that your tasters know what they are tasting, what is expected of them and how to fill in the charts.

You must;

- Set up in a quiet area where tasters cannot talk to one another.
- Serve small portions of food in identical, plain containers.
- Serve all samples at that same temperature.
- Allow the testers to have a drink of water or lime water between each sample to clear their palette.
- Not to give too many samples at once as their taste buds can get tired.
- Use random codes for the products to avoid the taster being influenced by a name, this is called **blind tasting**.

Ranking tests

This test allows food to be put into a rank order, either according to how liked a product is or for a specific quality such as sweetness. The taster could be asked to rank in order different flavours of cupcakes, to discover the most popular flavour and to help determine which one will be produced. Triangle tests

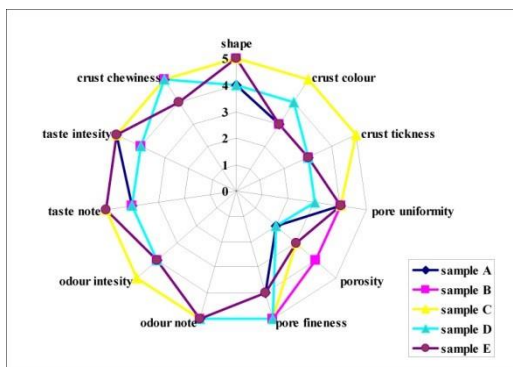
Triangle tests are carried out to see if testers can identify the odd one out where two products are the same and one is different. This can be used to see if one product is significantly different from the others and is used by companies who want to develop a product similar to others on the market.

Rating tests

Rating tests allow tasters to give samples or qualities a mark on a 5 or 7 point scale from 'extreme like' to 'extreme dislike'. Profiling tests

This type of test is similar to a rating test, but instead of using one quality or overall preference you rate the different sensory aspects.

These are usually produced as a star profile, using 6 or 8 points depending and are often marked out of 5.



Which of these testing methods did you use with your coursework and why did you find it useful?

How could you have improved your application of the testing in class?

Preservation of foods

Over the next 2 pages make notes on the different methods of preserving food on the power point in class. Note how that method preserves the food, the advantages and disadvantages of each method.

Preservation of food continued...

Additives in food

Food additives are substances put into processed food by manufactures. They may be natural, natural identical (copies of substances that occur naturally) or artificial.

The main groups are;

- Antioxidants
- Colours
- Flavour enhancers
- Sweeteners
- Emulsifiers
- Stabilisers
- Preservatives

All additives are thoroughly tested by the government and European Union (EU) before they are allowed to be used. The ones approved by the EU are given an 'E' number.

There is a concern that artificial colours and preservatives trigger hyperactive behaviour in children, and the development of particular types of cancer.

Checking the food label will give information on what ingredients and additives are in processed foods. People who are concerned about the impact of additives in food upon health should limit the amount of processed foods they eat and choose natural, unprocessed foods instead.

Complete the table below to describe what each of the different food additives does;

Antioxidants	
Colours	

Flavour enhancers	
Emulsifiers	
Gelling agents	
Preservatives	
Sweeteners	

Convenience foods

Convenience foods are packaged food that can be prepared quickly and easily.

Examples of convenience foods include;

- Canned –
- Cartons –
- Bottles and Jars –
- Packets –
- Chilled foods –
- Cook-chill foods –
- Fast foods –
- Takeaway foods –

Cook-chill meals have increased in popularity over the years because;

- They save time and effort.
- They make meal preparation easier.
- They have a longer shelf life.
- They are 'portion controlled'

What are the advantages of cook – chill foods?

What are the disadvantages of cook – chill foods?

Food hygiene

Food spoilage

Food spoilage is the deterioration of food to the point where it is no longer fit to be eaten. There are 3 types of micro-organisms that are responsible for food spoilage **bacteria, yeasts** and **mould**.

Bacteria

Yeasts

Mould

Enzymes

Another cause of food spoilage is enzymes. These are not micro-organisms but chemicals that can be found in food. **Enzymatic browning** occurs in fruit such as apples, making the surface go brown when cut. Enzymes can cause vitamin loss in food.

How can micro-organisms be useful in food production?

Controlling food spoilage

For micro-organisms to grow, they need the following conditions;

- Food
- Moisture
- Time
- Warmth
- Neutral PH
- Air

Growth of bacteria is slowed down if one of these conditions is removed. It is therefore important to understand how you can control the growth of micro-organisms, especially food poisoning bacteria.

In the boxes below state why that condition is important for bacterial growth and how it can be used to control the growth of bacteria.

Food

Moisture

Time

Warmth

Neutral PH

Air

What is meant by the term High Risk Foods?

What is the temperature danger zone?

How can foods be stored outside the temperature danger zone?

Food hygiene and safety

In order to prevent food poisoning it is essential to have high standards of hygiene and safety at all points of buying, storing, preparing, cooking and reheating foods.

Using the headings below, make notes on essential hygiene and safety.

Buying

Storing

Preparing

Cooking and reheating

Food Legislation and regulations

There is a range of legislation (laws and acts) in place that ensure food hygiene standards are followed. This is enforced by agencies such as environmental health department and the food standards agency.

Food safety Act 1990

The key requirements of the act are that food must comply with food safety and must be 'of the nature, substance and quality demanded' and must be correctly described or labelled.

The main responsibilities are;

- To ensure you do not include anything in the food, remove anything from the food or treat food in any way that would be damaging to the health of the person(s) eating it.
- To ensure that the food being sold is of the nature, substance and quality demanded by the consumer.
- To ensure the food is labelled, advertised and presented in a way that is not false or misleading.

Food safety (general food hygiene) regulations (1995)

These regulations set out basic food hygiene standards across Europe.

These can affect the whole food chain – from the farm to the shop or restaurant. Each food preparation premises must be registered with the local authority, where environmental health officers ensure that correct procedures and standards are being followed.

Environmental health officers

These are the people responsible for carrying out measures for protecting the public's health, this can include administering and enforcing legislation and providing support to minimise health and safety hazards.

They are responsible for;

- Inspecting food premises to check temperatures and equipment.
- Taking samples of foods being tested.
- Hygiene of food handlers and kitchens.
- Checking that HACCP procedures are being followed.

They have the authority to close premises down but their role is focused on prevention, consultation, investigation and education of the community regarding health risks and maintaining a safe environment.

Food standards agency (FSA)

This is responsible for the safety and hygiene of food across the UK. The FSA works with local authorities to enforce food safety regulations and has staff who work in UK meat plants to check that the requirements of the act are being met.

Their aims are to ensure;

- Foods produced or sold in the UK are safe to eat.
- Imported food is safe to eat.
- Food producers and caterers give priority to consumer interests in relation to food.
- Consumers have the information and understanding they need to make informed choices about where and what they are eating.
- Regulation is effective, risk-based and proportionate, is clear about the responsibilities of food business operators, and protects consumers and their interests from fraud and other risks.

- Enforcement is effective, consistent, risk-based and proportionate and is focused on improving public health.

Ingredients and recipes.

The properties of ingredients mean its qualities and characteristics, the function of an ingredient mean what the ingredient does as a job and why it is used.

For the function of the ingredients below describe what is does and give an example.

Properties and functions	Description	Example
Adding colour		
Adding flavour		

Adding texture		
Aerating		
Binding		
Bulking		
Emulsifying		
Glazing		
Preserving		

Setting		
Shortening		
Sweetening		
Thickening		

Key ingredients

Flour

What is it made from?	
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Can it be detrimental to health?	
What are the key properties of this ingredient?	
What different types can you think of?	

Sugar

What is it made from?	
Can it be detrimental to health?	

What are the key properties of this ingredient?	
What different types can you think of?	

Fats and oils

What is it made from?	
Can it be detrimental to health?	

<p>What are the key properties of this ingredient?</p>	
<p>What different types can you think of?</p>	

Basic mixtures

Bread

<p>How many types can you think of?</p>	
<p>How is this product made?</p>	
<p>What changes take place while cooking?</p>	

Why is this product eaten?	
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Biscuits

How many types can you think of?	
How is this product made?	
What changes take place while cooking?	
Why is this product eaten?	

Cakes

How many types can you think of?	
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How is this product made?	
What changes take place while cooking?	
Why is this product eaten?	

Pastry

How many types can you think of?	
How is this product made?	
What changes take place while cooking?	

Why is this product eaten?	
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Batters

How many types can you think of?	
How is this product made?	
What changes take place while cooking?	
Why is this product eaten?	

Sauces

How many types can you think of?	
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How is this product made?	
What changes take place while cooking?	
Why is this product eaten?	

Key terminology

Terminology	What does it mean
EAR	
DRV	
GDA	
NSP	
RNI	
Dehydration	

Fortified	
BMI	
Antioxidants	
Cholesterol	
Water soluble	

Fat soluble	
Anaemia	
Collagen	
Beta Carotene	
Peak bone mass	
Rickets	

Osteomalacia	
Adolescence	
Haemoglobin	
Metabolism	
Osteoporosis	
Digestion	
BMI	
Gluten	
<p>Fill in the sections below for any terminology you need to remember from during the revision lessons.</p>	
