Zig Zag Education

Food and Nutrition GCSE | AQA | a8585

Topic Tests

For GCSE AQA Food Preparation and Nutrition

zigzageducation.co.uk

POD 8592

Contents

Teacher's Introduction

This resource comprises 26 topic tests covering the new AQA Food Preparation and Nutrition GCSE (9–1) specification (2016 onwards). Each topic test contains questions that cover all of the GCSE Food Preparation and Nutrition theory outlined in the specification, presented in an exciting and engaging manner to ensure student satisfaction.

Each topic test starts with either quick, short-answer questions or fun, basic activities that ensure the fundamental ideas of each topic are understood by the student. This also provides an initial opportunity for students to identify which areas they least understand and may need to revisit during revision. Questions then increase in difficulty and culminate with either longer, essay-style questions or detailed activities, which are both engaging and help consolidate learning. A range of question styles has been used to expose students to different question types and to give variety, as well as providing plenty of practice with questions in an exam-style format. For example, each topic test contains visual aspects such as diagrams and pictures as well as more conventional short, exam-style questions. This resource also provides opportunities throughout for students to apply their knowledge of the practical cooking skills required for their practical assessment to ensure they develop a thorough understanding of the content.

Tests are typically between 20 and 35 marks and should take no longer than 30 to 45 minutes to complete. However, some tests may have slightly fewer or more marks available according to the content of the topic.

These tests are provided in a write-on format to make them easy to use in class or for homework and in non-write-on format, saving you photocopying costs. Mark allocations and answers are provided to help with marking and to save teachers' time.

April 2018

Specification Reference

Topic Test	Specification Reference	
3.2 Food Nutrition and Health		
1.	3.2.1.1	**Macronutrients:** *Proteins*
2.	3.2.1.2	**Macronutrients:** *Fats*
3.	3.2.1.3	**Macronutrients:** *Carbohydrates*
4.	3.2.2.1	**Micronutrients:** *Vitamins*
5.	3.2.2.2–3.2.2.3	**Micronutrients:** *Minerals; Water*
6.	3.2.3.1–3.2.3.1	**Nutritional needs and health:** *Making informed choices; Energy needs; nutritional analysis*
7.	3.2.3.4	**Nutritional needs and health:** *Diet, nutrition and health*
3.3 Food Science		
8.	3.3.1.1	**Cooking of food and heat transfer:** *Why food is cooked and how heat is food*
9.	3.3.1.2	**Cooking of food and heat transfer:** *Selecting appropriate cooking met*
10.	3.3.2.1	**Functional and chemical properties of food:** *Proteins*
11.	3.3.2.2	**Functional and chemical properties of food:** *Carbohydrates*
12.	3.3.2.3	**Functional and chemical properties of food:** *Fats and oils*
13.	3.3.2.4–3.3.2.5	**Functional and chemical properties of food:** *Fruit and vegetables; Rai*
3.4 Food Safety		
14.	3.4.1.1–3.4.1.3	**Food spoilage and contamination:** *Micro-organisms and enzymes; Sign Microorganisms in food infection*
15.	3.4.1.4	**Food spoilage and contamination:** *Bacterial contamination*
16.	3.4.2.1	**Principles of food safety:** *Buying and storing food*
17.	3.4.2.2	**Principles of food safety:** *Preparing, cooking and serving food*
3.5 Food Choice		
18.	3.5.1.1	**Factors affecting food choice:** *Factors which influence food choice*
19.	3.5.1.2	**Factors affecting food choice:** *Food choices*
20.	3.5.1.3	**Factors affecting food choice:** *Food labelling and marketing influences*
21.	3.5.2	**British and international cuisines**
22.	3.5.3	**Sensory evaluation**
3.6 Food Provenance		
23.	3.6.1.1	**Environmental impact and sustainability of food:** *Food sources*
24.	3.6.1.2–3.6.1.3	**Environmental impact and sustainability of food:** *Food and the enviro Sustainability of food*
25.	3.6.2.1	**Food processing and production:** *Food production*
26.	3.6.2.2	**Food processing and production:** *Technological developments associa health and f*

1. How much energy should be provided with protein in a balanced diet?
   A. 15% ❑
   B. 30% ❑
   C. 50% ❑
   D. 5% ❑

2. i) Edamame is another name for dried soy beans.
   TRUE/FALSE

   ii) Quorn™ is suitable for vegans.
   TRUE/FALSE

   iii) Kwashiorkor can develop very quickly.
   TRUE/FALSE

   iv) There are 20 essential amino acids.
   TRUE/FALSE

3. Fill in the gaps using the keywords below. Note that some of the keywords may

carbohydrates	*low biological value*	*primary*
alternative	*amino acids*	*secondary*
high biological value	*bean curd*	*tofu*

   i) Proteins are built from _____. There are 20 types, and

   is called a _____ protein.

   ii) Proteins are a _____ source of energy. One gram of pr

   amount of energy as one gram of _____.

   iii) Textured vegetable protein is also called _____. It can

   _____ to meat.

4. List **two** functions of proteins in a human body

   1. .....

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   2. .....

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5. i) Define protein complementation.

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ii) Identify **two** plant sources of high biological value protein.

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iii) Give **two** examples of foods which apply protein complementation.

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6. Identify **one** effect of excessive protein consumption for health.

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7. Explain why protein deficiency may put a stop to growth in children.

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8. Explain why vegans are at a higher risk of developing protein deficiency and a way of preventing it.

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1. Identify **three** sources of unsaturated fats:

   - ❑ Lard
   - ❑ Butter
   - ❑ Salmon
   - ❑ Beef
   - ❑ Rapeseed oil
   - ❑ Walnuts

2. Give **two** examples of visible and two examples of non-visible fats of animal origin.

   Visible fats:

   .....

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   Non-visible fats:

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3. Describe the difference in chemical structure of saturated and unsaturated fats.

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4. Identify how much energy (as a percentage) should be provided from fats in the diet.

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5. i) Describe **two** functions of fats in the human body.

   Function 1:

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   Function 2:

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   ii) Suggest **two** health effects of fat deficiency.

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6. i) Describe hydrogenation.

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ii) Name what kind of a harmful fat can be produced as a result of hydrog

.....

iii) Name one product which is produced by the process of hydrogenation.

.....

7. Name **two** different types of cholesterol found in human blood and state ho them affects the risk of cardiovascular disease.

1. .....

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2. .....

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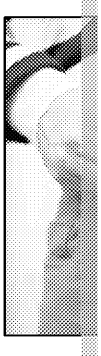
8. Consider how excessive intake of fats can affect the health of a population.



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1. i) Define monosaccharides.

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ii) Give **three** examples of monosac[illegible]de

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2. Identify sources of intrinsic sugars (multiple answers needed).

- ❑ Natural yoghurt
- ❑ Toffee sauce
- ❑ Ketchup
- ❑ Chocolate bar
- ❑ Unsweetened orange juic
- ❑ Fresh mango

3. List **two** dietary sources of disaccharides.

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4. Fill in the gaps in the text below using the key[illegible]s below. Note that each o[illegible] may be used once, more than once or not at all.

primary	*50%*	*35%*	
	fat	*before*	
	vitamin	*after*	

i) Carbohydrates are the _____ source of energy in the hum[illegible]

ii) They act as a _____ sparer, which means that they are us[illegible]

provide energy, so that the _____ can be used for growth [illegible]

iii) Carbohydrates can be divided into three groups: _____ , _[illegible]

fibre.

iv) In a balanced diet, _____ of en[illegible]gy should be provided by

_____ of ene[illegible]gy should come from the _____

5. i) Dietary fibre helps to lower blood cholesterol levels.

TRUE/FALSE

ii) A balanced diet should provide 50g of dietary fibre.

TRUE/FALSE

iii) High-fibre diet improves calcium absorption.

TRUE/FALSE

iv) Dietary fibre can help to prevent diverticulitis.

TRUE/FALSE

6. What is the function of insoluble fibre?

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7. i) Identify **three** sources of dietary fibre.

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ii) Name one condition caused by excessive fibre consumption.

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8. Discuss how excessive consumption of sugars can affect the health **of an individual** and suggest two ways an individual can prevent these negative health effects.

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1. Describe the difference between water-soluble and fat-soluble vitamins.

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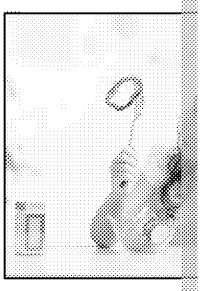
2. Identify the fat-soluble vitamins below:



- ❑ Thiamin (vitamin B1)
- ❑ Retinol (vitamin A)
- ❑ Folic acid (vitamin B9)
- ❑ Cholecalciferol (vitamin D)
- ❑ Phylloquinone (vitamin K)
- ❑ Tocopherol (vitamin E)

3. For each of the vitamins below complete its reference nutrient intake (RNI) for 15-year-old boys and girls.

	Vit. B1	Vit. B2	Vit. C	Vit. D
Boys				
Girls				

4. i) Vitamin A allows us to see in dim light.

TRUE/FALSE

ii) Night blindness is a condition caused by vitamin D deficiency.

TRUE/FALSE

iii) Vitamin D is found in oily fish and dairy products.

TRUE/FALSE

iv) Riboflavin deficiency may lead to scurvy.

TRUE/FALSE

5. List **three** sources of vitamin E.

1. .....
2. .....
3. .....

6. Deficiency of which vitamin causes a disease called spina bifida?

.....

7. List the main symptoms of pellagra – a disease caused by niacin deficiency.

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8. Where is vitamin K produced in the body?

.....

9. Explain why it is important to experience the symptoms of an excess of water-s

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10. i) Define antioxidants and explain their health benefits for the body.

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ii) Which vitamins are considered antioxidants?

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11. i) List three factors that cause vitamin loss during cooking and preparatio

1. .....

2. .....

3. .....

ii) Name **two** vitamins which are especially sensitive to the factors listed i (are damaged most easily).

1. .....

2. .....

12. Fill in the gaps using the keywords below. Note that some of them may be i

thiamine	*carbohydrates*	*scurvy*	
iron	*collagen*	*B12*	
excess	*beriberi*	*bones*	

i) Vitamin B1, also called _____ __ g is necessary for the proper m

_____. Se e d cy may cause _____ dis

ii) Vita _____ , also called cobalamin, is necessary for build

nerve cells. It is found only in _____-derived foods. For this

at risk of developing a deficiency.

iii) Vitamin _____ , known as ascorbic acid, is necessary for the

_____ from foods. This vitamin is necessary for the product

which is an important protein in the skin. A lack of it can cause _____

13. Describe **two** health problems caused by vitamin D deficiency and offer **two** preventing them.

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1. What is the RNI for sodium for adults?
   - A. 100mg a day ❑
   - B. 1000mg a day ❑
   - C. 160mg a day ❑
   - D. 1600mg a day ❑

2. What is the DRV for calcium for teenagers?
   - A. 800mg for girls, 1000mg for boys ❑
   - B. 800g for girls, 1000g for boys ❑
   - C. 800mg for boys, 1000mg for girls ❑
   - D. 800g for boys, 1000g for girls ❑

3. Approximately how much water should be consumed each day by a healthy
   - A. 1 litre ❑
   - B. 2 pints ❑
   - C. 2 litres ❑
   - D. 4 glasses ❑

4. Deficiency of which mineral can cause goitre?

   .....

5. List **two** potential health effects of excessive sodium consumption.

   1. .....
   2. .....

6. Indicate **two** symptoms of iron deficiency anaemia.

   1. .....
   2. .....

7. List **two** minerals which can be provided with water.

   1. .....
   2. .....

8. Fill in the gaps using the keywords below. Note that some of them may be i

skin	*teeth*	*osteoporosis*
deficiency	*calcium*	*phosphorus*
rash	*depression*	*excess*

i) _____ and vitamin D work t[illegible] help grow strong, he[illegible]

may cause _____ [illegible]ildren and _____ in adu[illegible]

ii) Pho[illegible]us [illegible]ises _____ and is necessary in many che[illegible]

_____ , it can lead to their demineralisation.

9. Explain why teenage girls and women need more iron than boys and men.

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10. Complete the table to indicate one source and one function of each mineral has been given for you.

Mineral	Source	
Phosphorus	*Red meat, dairy [illegible]cts, fish, poultry, bre[illegible]s, beans and lentils*	*Helps release **en** healthy **bones a***
Calciu[illegible]		
Sodium		
Fluoride		
Iodine		
Iron		

11. Explain how improper intake of fluoride affects dental h[illegible]lth.

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12. i) Describe **two** functions of water in the body.

1. .....

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2. .....

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ii) Indicate **three** ways in which water is lost from the body.

1. .....

2. .....

3. .....

iii) Identify **three** situations when extra fluid might be needed and then explain two of them in more detail.

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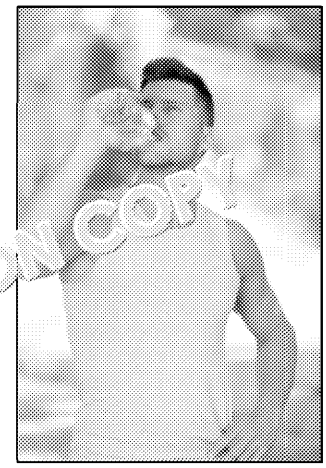
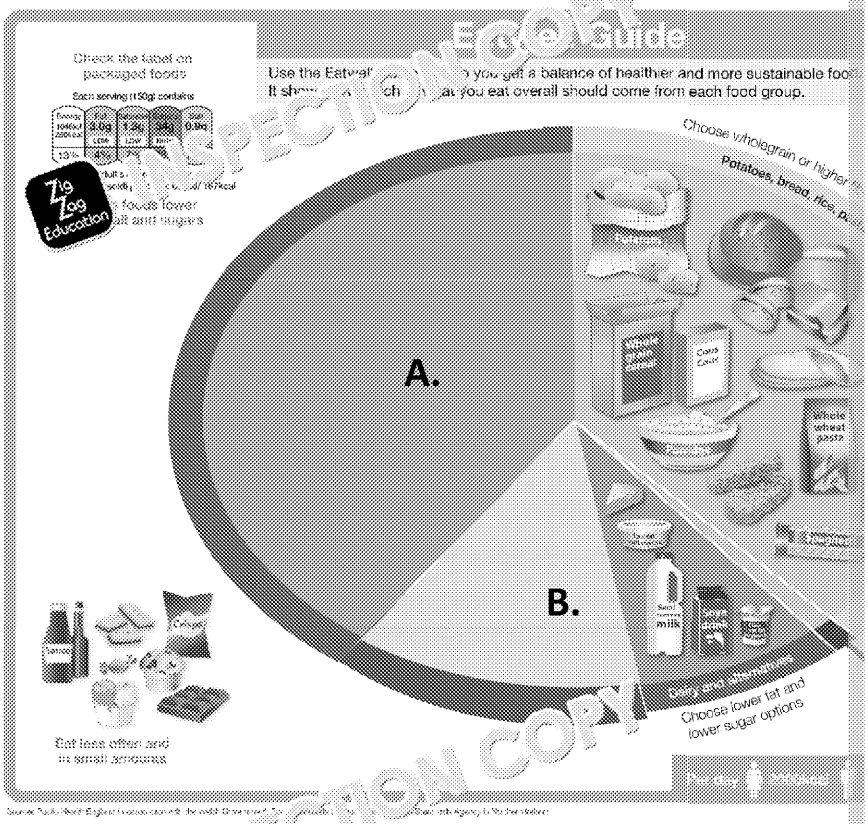


1. Complete the Eatwell Guide (below) to name and describe the three missing
Then provide a food source you would expect to find in that group.



	Food group	Description
A.		
B.		
C.		

2. i) Define BMR and explain the importance of two factors that affect it.
BMR is

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Factor 1

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Factor 2

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ii) Define PAL.

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iii) Explain how BMR and PAL affect the total energy expenditure of an individual.

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3. Explain the dietary requirement for each of the following life stages.

i) Small children

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ii) Teenagers

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iii) Adults

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iv) The elderly

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4. i) From the foods below circle those which are suitable for vegetarians.

fish pie	*cottage pie*	*ham sandwich*
chicken broth	*pizza margherita*	*tuna salad*
fruit smoothie	*milkshake*	*scrambled eggs*

ii) From the foods below circle those which are suitable for vegans.

fish pie	*cottage pie*	*ham sandwich*
chicken broth	*pizza margherita*	*tuna salad*
fruit smoothie	*milkshake*	*scrambled eggs*

5. Indicate how much energy (as a percentage) should be provided by different nutrients in a balanced diet.

Proteins	
Fats	
Complex carbohydrates	
Free sugars	

6. Lisa wants to maintain a healthy body weight and stay fit.

i) What foods should she avoid? Give **two** examples.

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ii) What foods should she eat in larger amounts? Give **two** examples.

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iii) What else can she do to keep her body fit? Give one example.

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7. i) Define lactose intolerance.

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ii) State one symptom characteristic of lactose intolerance.

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iii) List **two** products or dishes not recommended for individuals with this c

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8. List **two** situations / health conditions in which a high-fib e diet might be of b

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9. Discuss dietary recommendations for coeliac disease.

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10. Read the recipe for a fish pie below. Suggest one modification that would m
    - a vegan
    - a coeliac
    - a person on a high-fibre diet
    - a three-year-old child

    given that a typical portion is about 300g. Justify your answers.

Ingredients	In 100g	
Potato Carrot Chedd Len Hadd Salmon Olive oil Salt, pepper	kcal	136
	Carbohydrates	8g
	Proteins	9g
	Fats	7.5g
	Sodium	3.5g
	NSP	1g

i) A vegan

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ii) A coeliac

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iii) A person on a high-fi[illegible] diet

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iv) A three-year-old child

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1. Explain the relationship between diet, nutrition and health.

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2. The m[illegible]t-[illegible]ated health conditions include (multiple answers needed)
   - ❑ n[illegible]s
   - ❑ dental caries
   - ❑ coronary heart disease
   - ❑ mumps
   - ❑ flu
   - ❑ iron deficiency anaemia

3. i) Obesity is a risk factor of developing many other diseases.

   TRUE/FALSE

   ii) The main symptom of diabetes is increased level of blood sugar.

   TRUE/FALSE

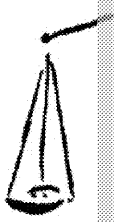
   iii) Hypertension is a disease in [illegible]d pressure is too low.

   TRUE/FALSE

   iv) Ir[illegible]ency anaemia increases the risk of heart failure.

   TRUE/FALSE

4. What is the healthy BMI scope?
   - A. Below 18.5kg/m^2 ❑
   - B. From 18.5kg/m^2 to 24.9kg/m^2 ❑
   - C. From 25kg/m^2 to 29.9kg/m^2 ❑
   - D. Over 30kg/m^2 ❑



5. i) Define osteoporosis.

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   ii) Sug[illegible]**tv**[illegible] recommendations for people with osteoporosis.

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6. i) What are the two main factors that can cause rickets?

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ii) Explain how nutritional needs change for an individual with rickets.

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7. i) Identify **two** possible causes of type 2 diabetes.

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ii) Give an example of a food which should be avoided by a person sufferi

.....

8. Identify **two** possible risk factors of hypertension.

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9. Describe how a high intake of fat may affect cardiovascular health.

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10. Evaluate how improper intake of micronutrients may affect dental health.

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11. Assess dietary needs of a teenage girl in order to prevent iron deficiency ana

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TT8 Cooking of food and heat transfer: *Why food is ... is transferred to food*

1. i) Cooking helps to make food safe to eat by deactivating toxins.

   TRUE/FALSE

   ii) Cooking makes the colour of ... vegetables more vivid.

   TRUE/FALSE

   iii) Co... helps to make the smell of food less pronounced.

   TRUE/FALSE

   iv) Cooking improves the texture of food by causing fats to set.

   TRUE/FALSE

2. i) Define shelf life.

   .....

   .....

   ii) Explain how cooking affects the shelf life of food.

   .....

   .....

3. Cooking helps to in... the variety of the diet. Indicate three dishes that c... ingredi...

   i) Eggs

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   .....

   .....

   ii) Beef

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4. Describe how cooking he... to d... flavours of food and provide an exam...

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5. Identify one way in which cooking would affect the texture of:

   i) Meat

   .....

   ii) Tomato-based sauce

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   iii) Sponge cake

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6. Explain how convection currents work and suggest where or when are they u

   .....

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7. Describe how heat is transferred in conduction.

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8. Explain how microwaves work to heat up food.

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9. Describe the difference between convection and radiation and provide an e
   their use in cooking.

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TT9 Cooking of food and heat transfer: *Selecting c methods*

1. Water-based cooking methods include (multiple answers needed)

❑ Baking	❑ Stir-frying
❑ Simmering	❑ Poachir
❑ Roasting	❑ Fri
❑ Steaming	❑ Dry-frying

2. i) Dr ng es the amount of fat in food.

TR LSE

ii) Blanching causes vitamin loss in vegetables.

TRUE/FALSE

iii) Boiling and draining lead to vitamin loss in foods.

TRUE/FALSE

iv) Shredding, when preparing vegetables, leads to vitamin loss.

TRUE/FALSE

3. Which of the statements is untrue about blanching?
   A. It helps preserve the nutritional value of food.
   B. It is used to prevent browning of vege ables.
   C. Vegetables are put into ice-co r, and then into boiling water.
   D. Vegetables are put i nc ater, and then into ice-cold water.

4. Name y i ient of a marinade which is used to tenderise meat.

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5. List **three** dry methods of cooking.

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6. Describe how cooking will affect:

i) The colour of red cabbage

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ii) The appearance o

.....

iii) The texture of pasta

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7. Describe how the following cooking and preparation methods affect foods' colour, flavour, texture, smell or nutritional value.

   i) Shredding an apple

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   ii) Boiling an egg

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   iii) Marinating a steak

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   iv) Braising a pork shoulder

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8. Assess how deep-frying may affect the nutritional value of foods.

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9. Discuss three cooking methods which are beneficial for health.

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TT10 Functional and chemical properties of

1. i) Define protein denaturation.

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ii) Identify **three** factors which can cause protein denaturation and provide

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2. .....

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3. .....

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2. Suggest **three** reasons why protein-rich foods are used in cooking. Give an ex

1. .....

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2. .....

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3. .....

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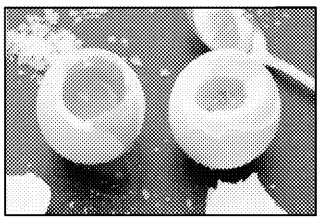

3. i) Define protein coagulation.

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ii) Name one factor that may cause coagulation of protein.

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4. Define syneresis and state when it takes place.

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5. i) Describe the process of gluten formation.

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ii) Identify **three** gluten-containing cereals.

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iii) Name one type of pastry which is made in a way that prevents gluten f

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6. Describe how foams are formed.

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7. Explain why corn starch cannot be used instead of strong flour in bread prod

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8. Discuss why acids are used in meat marinades.

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1. What temperature is needed to make a caramel?

   A. Below 100°C ❑
   B. Around 100°C ❑
   C. At least 160°C ❑
   D. No less than 210°C ❑

2. Dextrinisation is used when cooking... (multiple answers needed)

   ❑ cr... ❑ pasta
   ❑ ...olls ❑ rice
   ❑ tomato sauce ❑ béchamel sauce

3. What kind of carbohydrate undergoes gelatinisation?

   .....

4. What is the difference between gelatinisation and dextrinisation?

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5. Explain why starch-based sauces ... be constantly stirred during cookin...

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6. Describe what happens at the following stages of gelatinisation.

i) At 60°C

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ii) At 80°C

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iii) At 100°C

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7. Describe how dextrinisation affects the flavour of food.

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8. Give four functions of sugar in cooking and provide an example for each.

1. .....

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2. .....

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3. .....

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4. .....

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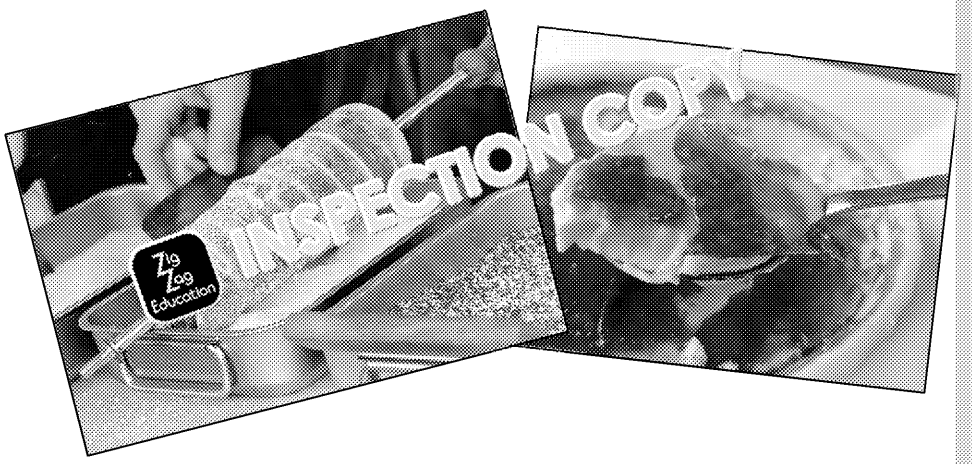

TT12 Functional and chemical properties of fo

1. i) Saturated fats are liquid at room temperature.

   TRUE/FALSE

   ii) All animal-derived fats are solid at room temperat e.

   TRUE/FAL

   iii) Plasticity of fats mea nat ats become oils at the same temperatu

   TRUE/FAL

   iv) Th y acids in fats are hydrophobic.

   TRUE/FALSE

2. Fill in the gaps in the text below, using the keywords below. Note that each k may be used once, more than once or not at all.

oil	*vinegar*	*water*	*e*
separating	*curdling*	*emulsifier*	*sta*
thawing	*lecithin*	*salt*	*th*
oil-in-water	*mayonnaise*	*milk*	*ke*

   i) Emulsification is a process of mixing _____ and _____

   ii) To _____ the mixture ev it from _____ , a

   iii) One of them is _____ , which naturally occurs in egg yolk.

   iv) Fo eason, egg yolk is added to _____ , which is an exam

   v) An example of _____ emulsion is _____.

3. What does it mean that fat is immiscible?

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4. Suggest **two** reasons for which fat is creamed with sugar (aerated) when ma

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5. Explain how the chemical structure of fats affects their physical state.

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6. i) Describe the process of shortening.

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ii) Name one kind of pastry which uses shortening.

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7. The cook prepared two kinds of pastry: one was made with plain flour and lard and the other was made with plain flour and butter. State which one of the pastries will be crumblier and explain why.

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TT13 Functional and chemical properties of food:

Raising agents

1. Which of the following factors enhance enzymatic browning in fruit (multipl

- ❑ Oxygen
- ❑ Low temperature
- ❑ Copper and iron tools
- ❑ Glass ar[illegible]t[illegible] tools
- ❑ Chopping them finely
- ❑ [illegible]ea[illegible]ing them whole and intact

2. List **three** gases which [illegible]ed as leavening agents in cooking.

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3. What type of flour already has baking powder added to it?

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4. Identify **three** vitamins which are considered antioxidants.

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5. Explain why bicarbonate of soda ha[illegible]to be used in combination with acid wh

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6. List **three** mechanical methods of leavening.

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7. Indicate **two** dishes in which steam is used as a le[illegible]agent.

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8. Explain why acids are effective in preventing enzymatic browning in food.

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9. Identify one raising method used when:

i) Making a meringue .....

ii) Baking Yorkshire pudding .....

iii) Baking puff pastry .....

iv) Preparing sponge cake .....

10. Describe the mechanism of enzymatic browning of fruit and vegetables.

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11. Explain how yeast acts as a raising agent and provide an example of where it is used in the food industry.

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TT14 Food spoilage and contamination: *Microorgani*
signs of food spoilage; Microorganisms in foo

1. Fill in the gaps using the keywords below. Note that each keyword may be u more than once or not at all.

catapult	*catalyst*	*cataract*	*slow*
protein	*carbohydrates*	*fresh*	*ri*
room	*low*	*high*	*f*

i) En... are biological _____ usually built from _____

ii) This means that they can _____ chemical reactions.

iii) Enzymes naturally occurring in plants help them to _____

iv) If fruits are left for too long at _____ temperature, they ca

2. Identify **two** methods of controlling enzymatic action in foods.

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3. i) Define high-risk foods.

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ii) Pr... **three** examples of high-risk foods.

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4. Identify **two** food products made with the use of moulds.

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5. Identify one sign of food spoilage caused by:

i) Enzymatic action .....

ii) Mould growth .....

iii) Y... ion .....

6. i) Explain how bacteria work in the production of yoghurt.

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ii) Identify **two** food products other than yoghurt which are made with the

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7. i) Explain why yeast is useful in the production of bread.

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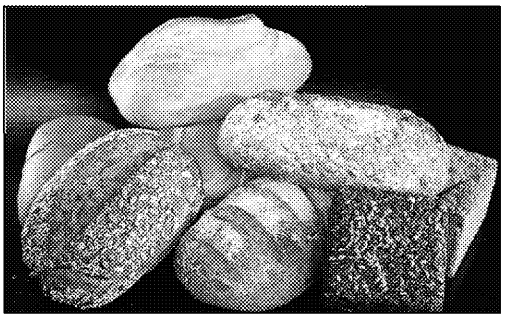

ii) Identify one product other than bread which is made with the use of ye

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8. Microorganisms need numerous conditions for growth. Explain how each of t
microorganisms' growth, and suggest a way of controlling them.

Factor	Effect	
Temperature		
Moistu		
Food		
Time		
pH		

TT15 Food spoilage and contamination: *Bacteri*

1. What type of bacterium is responsible for the most cases of food poisoning i

.....

2. What type of bacterium, commonly associated with [illegible]uming raw meat, p[illegible] and eggs, is responsible for the most hospita[illegible]sa[illegible]or[illegible]nked to food poisonin[illegible]

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3. What is th[illegible]ma[illegible]t of food poisoning caused by *E. coli*?

.....

4. i) *Listeria* is often found in soil and, therefore, eating raw vegetables migh[illegible] risk of food poisoning.

TRUE/FALSE

ii) *Staphylococcus aureus* is a bacterium commonly found in faeces.

TRUE/FALSE

iii) Cross-contamination can lead to anaphylactic shock.

TRUE/FALSE

iv) Old meat preserves can be contaminated with a[illegible]a[illegible]gerous toxin.

TRUE/FALSE

5. Define cross-contamin[illegible]

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6. Identify **two** foods commonly associated with salmonellosis (a disease cause[illegible]

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7. Indicate three different sources of cross-contamination and provide one me
prevention for each.

Source of contamination	Meth

8. List **three** signs or symptoms of food poisoning.

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9. Discuss how milk pasteurisation can help to prevent food poisoning.

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1. Ambient storage means that the food is kept:
   - A. in the fridge ❑
   - B. in the freezer ❑
   - C. at room temperature ❑
   - D. in a vacuum bag ❑

2. Define shelf life.

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   .....

3. The proper temperature for freezing food is:
   - A. -30°C ❑
   - B. -18°C ❑
   - C. 0°C ❑
   - D. 5°C ❑

4. Raw meat should be stored:
   - A. on the bottom shelf of the fridge, covered ❑
   - b. on the bottom shelf of the fridge, uncovered ❑
   - c. on the top shelf of the fridge, covered ❑
   - d. on the top shelf of the fridge, uncovered ❑

5. What is the correct cooking temperature when cooking and reheating foods?

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6. Explain why the following rules are important for correct fridge usage.

   i) Maintain stable temperature below 5°C.

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   ii) Maintain space between products.

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   iii) Keep food covered.

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7. Indicate correct storage conditions for the following products.

i) cheese and yoghurt .....

ii) potatoes .....

iii) fresh eggs .....

iv) egg salad .....

v) cereals .....

vi) raw steaks .....

vii) cooked steaks .....

viii) fresh vegetables .....

ix) vegetable soup .....

x) tinned beans .....

8. Explain the difference between 'use by' and 'best before' date marks.

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9. Describe the correct procedure for reheating foods.

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10. Explain why defrosted foods should not be frozen again.

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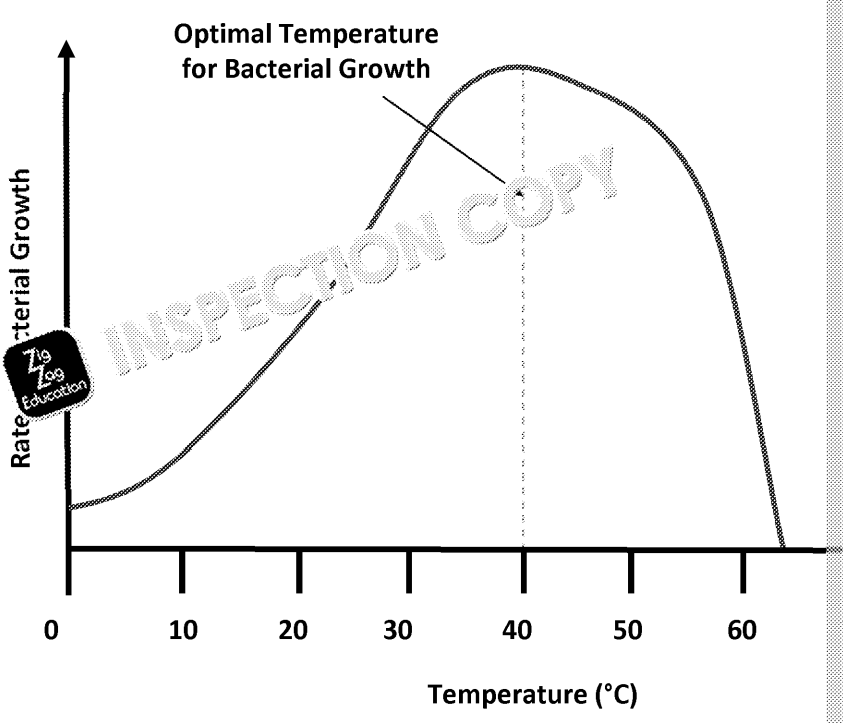
11. The graph below shows microorganisms' growth in relation to temperature.



i) What is the range of danger zone temperatures?

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ii) Explain why it is called a temperature danger zone.

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iii) Explain why bacterial growth stops at high temperatures.

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1. i) Defrosted food can be safely frozen again.

   TRUE/FALSE

   ii) Hands should be washed before and after dealing with high risk food.

   TRUE/FALSE

   iii) Maintaining clean work surfaces is important in preventing food poisoning.

   TRUE/FALSE

   iv) High risk foods such as raw fruit have to be handled separately from other foods.

   TRUE/FALSE

2. The correct core temperature of reheated foods is:

   A. 60°C ❑
   B. 65°C ❑
   C. 70°C ❑
   D. 75°C ❑

3. Name one substance which is commonly used in disinfectant sprays and gels.

   .....

4. Colour-coding is helpful in preventing cross-contamination. What colour is used for tools designed for use with fish?

   A. White ❑
   B. Red ❑
   C. Green ❑
   D. Blue ❑

5. i) List three high-risk foods.

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   ii) Provide three food safety principles which need to be applied when dealing with high-risk foods.

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6. Using an example, suggest why it is important that the correct cooking time is followed when cooking different foods.

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7. Suggest **three** personal hygiene rules which are helpful in maintaining food safety.

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8. Describe the correct procedure for using a food temperature probe.

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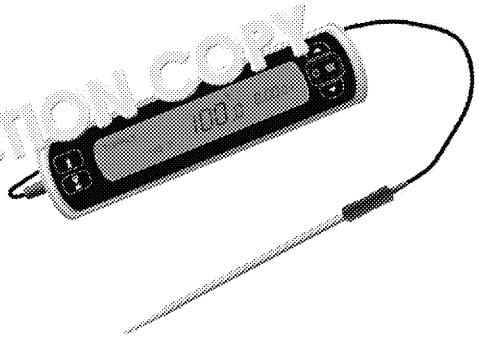

9. Discuss how applying food safety principles helps to prevent anaphylactic sh

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TT18 Factors affecting food choice: *Factors which*

1. Fill in the gaps using the keywords below. Note that each keyword may be u
more than ont or none at all.

adipose	*muscle*	*peer assisted learn*
phase alternating line	*[illegible]y*	*active*
calories	*carbohydrate*	*sugar*

i) P[illegible]ds [illegible] _____.

ii) PAL helps to assess how much _____ a person needs ev

iii) Low PAL means that a person leads a _____ lifestyle.

iv) If a person eats more than he or she needs, all the excess _____

body in the form of the _____ tissue.

2. i) What is meant by the term 'disposable income'?

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ii) Suggest **two** ways in which the disp[illegible]ab[illegible]e i[illegible]ne can influence one's f

1. .....

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2. .....

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3. Outline four factors which affect food availability in Great Britain.

1. .....

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2. .....

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3. .....

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4. .....

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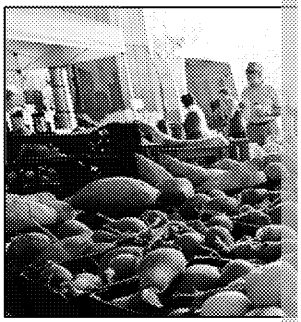

4. Suggest three ways in which celebrating an occasion influences food choices

1. .....

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2. .....

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3. .....

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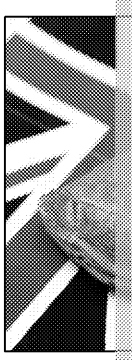
5. The information below shows some of the ingredients necessary to prepare

For the pastry:	**Prices:**
500g strong wheat flour	£0.90 / 1.5kg
125g lard	£0.40 / 250g
125g butter	£1.20 / 250g
200ml cold water	£0.20 / 2l
For the filling:	
500g beef	£18.00 / 1kg
500g potatoes	£1.50 / 1kg
250g swede	£4.00 / 1kg
200g onion	£0.80 / 1kg



Using the information above, answer the following questions.

i) How much will one pasty cost if the ingredients above are suitable to p

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ii) Suggest one modification that could make th suitable for a person wants to eat healthily. Justify your answer.

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6. Describe **two** ways in which personal preferences may affect food choices.

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7. Analyse the impact someone's [illegible] has on their food choices. Provide ex
in your answer.

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1. Which foods cannot be eaten by a Jew (multiple answers needed)?

❑ Pork chops	❑ Prawn cocktail
❑ Milkshake	❑ Cheeseburger
❑ Beef steak	❑ Lamb roast

2. i) Hindus cannot drink milk.

TRUE/FALSE

ii) Si[illegible] not eat beef or any beef products.

TRUE/FALSE

iii) Most Buddhists are vegetarian.

TRUE/FALSE

iv) Oranges are an example of local produce in Spain.

TRUE/FALSE

3. What is the fasting period before Easter called, in Christianity?

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4. Identify **three** dietary rules characteristic of Islam.

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5. Explain [illegible]al determines the food choices of Rastafarians.

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6. Describe the difference between food intolerance and food allergy. Provide

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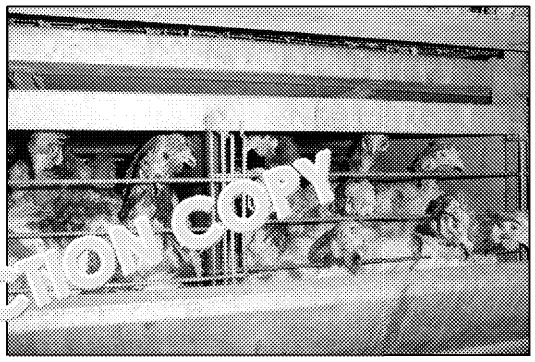
7. Explain how ethical and moral beliefs determine food choices of an individu



TT20 Factors affecting food choice: *Food labelli influences*

1. Which of the information is mandatory on a food label (multiple answers ne

- ❑ Use by date
- ❑ Allergens
- ❑ The net quantity
- ❑ Origin of food
- ❑ Serving [illegible]ons
- ❑ List of ingredients

2. Describe how the list of [illegible]dients is ordered.

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3. Which of the following allergens have to be listed on a food label by law (multiple answers needed)?

- ❑ Celery
- ❑ Lupin
- ❑ Strawberries
- ❑ Mustard
- ❑ Rice
- ❑ Nuts
- ❑ Milk
- ❑ Buckwheat

4. i) Complete the following sentences using the keywords below. Note tha can be used once, more than once or not at all.

mimicking	*television*	*[illegible]arketing*	*supe*
buy one get one free	*adv[illegible]ent*	*display*	*buy on*

BOGOF sta[illegible]_____. It is a popula

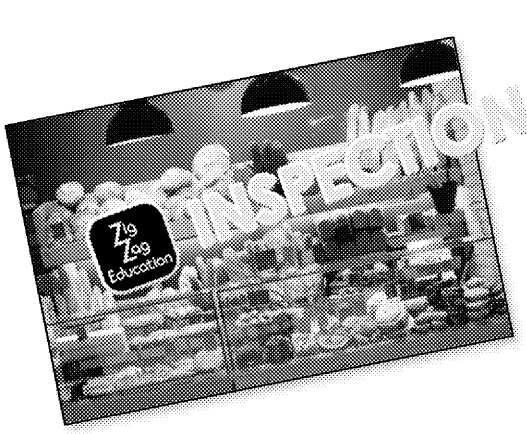
str[illegible]used by _____.

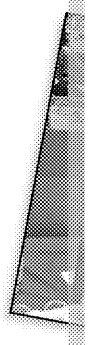
ii) Identify three strategies other than BOGOF:

1. .....

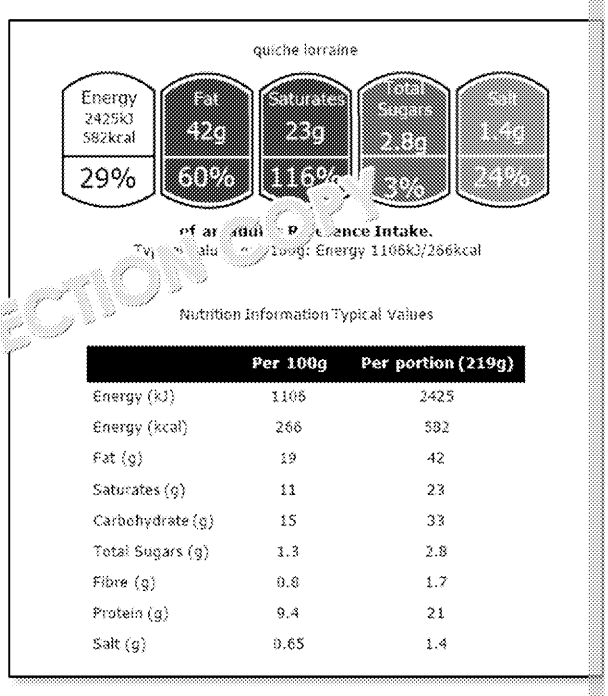
2. .....

3. .....





5. The picture below shows a traffic light label of a food product.



	Per 100g	Per portion (219g)
Energy (kJ)	1108	2425
Energy (kcal)	266	582
Fat (g)	19	42
Saturates (g)	11	23
Carbohydrate (g)	15	33
Total Sugars (g)	1.3	2.8
Fibre (g)	0.8	1.7
Protein (g)	9.4	21
Salt (g)	0.65	1.4

i) State what the three colours on the label mean.

Red .....

Amber .....

Green .....

ii) Explain how traffic light labels can affect food choices.

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6. i) Put a tick in the correct places to state whether the following statements are how many food products are health claims or nutritional claims.

Claim	
Sugar-free	
Copper contributes to normal hair pigmentation	
Low salt	
Essential fatty acids are needed for normal growth and development in children	
Calcium and vitamin D are needed for normal growth and development of bone in children	
Source of vitamin D	

ii) Explain the difference between nutritional and health claims.

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7. Discuss how pester power influences people's food choices and increases sales

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8. Explain how labelling helps to:

i) Protect the consumers

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ii) Educate the consumers

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9. The media play an important role in people's eating habits and food choices. Explain two ways in which the media affect the eating habits of school-age children.

1. .....

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2. .....

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1. Define cuisine.

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2. Cazuela is a cooking dish characteristic of

A. Italian cuisine ❑
B. Spanish cuisine ❑
C. [illegible] cuisine ❑
D. Chinese cuisine ❑

3. Food presentation styles characteristic of British cuisine include:

A. serving meats and puddings with thick sauces ❑
B. elaborate decoration of the dining room ❑
C. simple, rustic dishes served in wooden bowls ❑
D. serving many dishes in small bowls ❑

4. i) Tandoor is a clay oven characteristic of North African cuisines.

TRUE/FALSE

ii) Wok is a shallow frying pan from China.

TRUE/FALSE

iii) Tapas are small snacks characteristic of Italian cuisine.

TRUE/FALSE

iv) Antipasto is a French starter.

TRUE/FALSE

5. Indicate where the following foods come from.

Foods	Country of origin
Gazpacho	
Bruschetta	
Onion soup	
Spring rolls	
Tagine	
[illegible]	
Lentil dahl	
Baklava	

6. Name **three** British cheeses and **three** cheeses from another country/cuisine you have learnt about.

British cheeses include:

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Cheeses from _____ include:

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7. Describe how the eating patterns in the UK and in Spain differ.

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8. Describe the distinctive features of Mediterranean cuisine.

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9. Discuss how a traditional English breakfast may be modified to appeal to mo
tastes / healthy eating patterns.

1. List the **five** basic tastes.

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2. The olfactory system is used to recognise:

A. taste ❑

B. temperature ❑

C. aroma ❑

D. acidity ❑

3. Fill in the gaps using the keywords below. Note that each keyword may be u more than once or not at all.

strength	*odd one out*	*hedonic*	*star*	*discriminatio*
many	*two*	*one*	*three*	

i) Paired preference and _____ ar types of acceptance te whether a food is _____ for the consumer. In the pair give _____ samples and selects the preferred one. In the a t can be given _____ or more samples and ranks t

ii) The triangle test is an example of _____ tests. The test is _____ from _____ samples given.

iii) The grading tests include _____ , _____ help assess a food on a _____ diagram. _____ the _____ of a given feature of a food. The _____ _____ feature of many foo _____ f

4. Identify the type of tes to evaluate:

two sa of cheesecake made of full-fat and low-fat cheese .....

a sample of chocolate ice cream .....

five samples of vanilla puddings with various sugar content .....

three types of sausage .....

5. Describe how senses affect food choices.

6. Explain why it is impossible to taste flavours with a blocked nose.

7. Describe how to set up a panel for sensory evaluation.

TT23 Environmental impact and sustainability of

1. Which of the foods below are considered grown ingredients (multiple answe

- ❑ Oranges
- ❑ Lettuce
- ❑ Chicken
- ❑ Eggs
- ❑ Corn
- ❑ Stinging nettle

2. Which of the foods below are considered gathered ingredients (multiple ans

- ❑ Mushrooms
- ❑ Cheese
- ❑ Stinging nettle
- ❑ Seaweed
- ❑ Apples

3. List **three** foods that are commonly reared in Great Britain.

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4. List **three** foods that are commonly caught in Great Britain.

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5. Which statement is true about fish farms?

A. They help to obtain food sustainability. ❑
B. They help to protect natural habitats. ❑
C. They cause overfishing. ❑
D. They prevent overfishing. ❑

6. i) Venison is the meat of all wild animals.

TRUE/FALSE

ii) Free-range is the same as organic.

TRUE/FALSE

iii) Oranges are exported from the United Kingdom.

TRUE/FALSE

iv) The use of polytunnels decreases the need to use fertilisers.

TRUE/FALSE

7. Identify two substances which cannot be used in organic farming.

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8. List **two** food products of animal origin and **two** products of plant origin cha
of the winter season in the UK.

Animal food .....

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Plant food .....

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9. Describe **four** factor[illegible]ve to be taken into consideration when grow
fields a[illegible]ch[illegible]

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10. State **two** advantages and **two** disadvantage[illegible]of [illegible]nsive farming.
Provide examples of plants and a[illegible]ich may be farmed this way.

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11. Discuss advantages and disadvantages of genetically modified foods. Provid
of a GM food.

1. Which of the following foods are considered seasonal (multiple answers pos

❑ Oranges	❑ Strawberries
❑ Cheese	❑ Ham
❑ Eggs	❑ [illegible] oil
❑ Potatoes	

2. The So[illegible] a British foundation which:

A. S[illegible]s intensive farming	❑
B. Supports organic farming	❑
C. Provides antibiotics to farms	❑
D. Provides free high-crop GM seeds to farmers	❑

3. i) Define food security.

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ii) List **three** factors which negatively affect global food availability.

1. .....
2. .....
3. .....

4. List th[illegible] so[illegible] for buying locally produced food.

1. .....

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2. .....

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3. .....

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5. Identify **three** advantages of Fairtrade products.

1. .....

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2. .....

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3. .....

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6. Describe **three** ways in which GM foods help to maintain food security in th

1. .....

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2. .....

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3. .....

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7. Suggest ways of preventing food waste at home.

1. .....

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2. .....

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3. .....

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8. i) Identify **three** recyclable materials from which food packages are made

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ii) Ex ow food packaging affects the environment.

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9. Discuss how sustainable farming helps to provide food for the growing worl
Provide an example to back up your reasons.

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10. i) Define carbon footprint.

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ii) Define food miles.

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iii) Discuss the impact carbon footprint and transportation of foods have o

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1. Which of the following is an example of primary processing of foods (multip

- ❑ Washing
- ❑ Boiling
- ❑ Adding colouring agent
- ❑ Draining
- ❑ Milling
- ❑ G[illegible]
- ❑ Fermenting

2. Which one of the follow[illegible] a p[illegible]mary source of food?

- ❑ W[illegible]
- ❑ Flour
- ❑ [illegible]
- ❑ Strawberry jam

3. Which of the following is an example of secondary processing of foods (mul

- ❑ Fermentation
- ❑ Boiling
- ❑ Discarding inedible parts of food
- ❑ Adding colourants
- ❑ Packing in oxygen-free conditions
- ❑ Milling

4. Which one of the following is a secondary source of foods?

- ❑ Wheat
- ❑ Egg
- ❑ Milk
- ❑ Bread

5. i) Homogenisation makes fat particles smaller and improves foods' textur

TRUE/FALSE

ii) Bran is the inner part of a gr[illegible]

TRUE/FALSE

iii) Pr[illegible] bacteria are used in the production of yoghurt.

TRUE/FALSE

iv) Pectin is a natural gelling agent in fruit.

TRUE/FALSE

6. i) List **two** species of oily fish.

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.....

ii) Give **two** examples of secondary processing app[illegible]o fish products.

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7. Explain the differences between pasteurisation and sterilisation of milk.

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8. State **two** reasons for which meat has to be hung before being frozen or eat

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9. Describe step by step the process of cheese production. Use the keywords b

rennet	*curd*	*whey*	*pasteurisation*	

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10. Describe how the following processes affect the nutritional value of foods.

i) Milling

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ii) Drying

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iii) Fe ation

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11. Explain why sterilisation affects the colour and flavour of milk, but pasteuris

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TT26 Food processing and production: *Technolog associated with better health and food pr*

1. i) Breakfast cereals are fortified with iron by law.

   TRUE/FALSE

   ii) Skimmed milk has to be fortified with vitamin [illegible].

   TRUE/FALSE

   iii) Nia[illegible] a[illegible]our to prevent beriberi disease.

   TR[illegible]LSE

   iv) Salt is fortified in Great Britain by law.

   TRUE/FALSE

2. i) What is the name of the cholesterol-lowering substance added to marga cardiovascular health?

   ....

   ii) Name **two** conditions or diseases associated with high blood cholesterol

   1. ....

   2. ....

3. List **three** foods which are fortified in the United Kingdom by law and state w substances are added to them.

Fortified food	Substances a

4. Discuss **two** health benefits of food fortification and provide examples to su

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5. Describe **four** ways in which genetically modified foods can improve human health and well-being.

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6. Discuss advantages and disadvantages of three chosen food additives.

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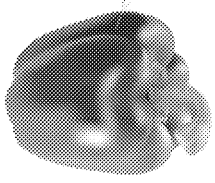


TT1 Macronutrients: *Proteins*

1. How much energy should be provided with protein in a balanced diet from t
   A. 15
   B. 30%
   C. 50%
   D. 5%

2. Are the fo wi false?
   i) E e is another name for dried soy beans.
   ii) Qu is suitable for vegans.
   iii) Kwashiorkor can develop very quickly.
   iv) There are 20 essential amino acids.

3. Fill in the gaps using the keywords below. Note that some of the keywords r

carbohydrates	*low biological value*	*primary*
alternative	*amino acids*	*secondary*
high biological value	*bean curd*	*tofu*

   i) Proteins are built from (1)_____. There are 20 types, a
   it is called a (2)_____ protein.
   ii) Proteins are a (1)_____ sourc ergy. One gram o
   same amount of energy as one gram of (2)_____.
   iii) Textured vegetable protein is a d (1)_____. It c
   (2)_____ t .

4. List **tw** tic proteins in a human body.

. i) Define protein complementation.
   ii) Identify **two** plant sources of high biological value protein.
   iii) Give **two** examples of foods which apply protein complementation.

6. Identify **one** effect of excessive protein consumption for health.

7. Explain why protein deficiency may put a stop to growth in children.

8. Explain why vegans are at a higher risk of developing protein deficiency and
   a way of preventing it.

1. Identify **three** sources of unsaturated fats from the options below:
   - Lard
   - Butter
   - Salmon
   - Beef
   - Rapeseed oil
   - Walnuts

2. Give **two** examples of visible and two examples of non-visible fats of animal

3. Describe the difference in chemical structure of saturated and unsaturated fa

4. Identify how much energy (as a percentage) should be provided from fats in

5. i) Describe **two** functions of fats in the human body.
   ii) Suggest **two** health effects of fat deficiency.

6. i) Define hydrogenation.
   ii) Name what kind of a harmful fat can be produced as a result of hydroge
   iii) Name one product which is produced by the process of hydrogenation.

7. Name **two** different types of cholesterol found in human blood and state ho them affects the risk of cardiovascular disease.

8. Consider how excessive intake of fats can affect the health of a population.

1. i) Define monosaccharides.
   ii) Give **three** examples of monosaccharides.

2. Identify sources of intrinsic sugars (multiple answers needed).

Natural yoghurt	Ch… …ar
Toffee sauce	Ur… …eetened orange juice
Ketchup	Fresh mango

3. List **two** dietary so… …isaccharides.

4. Fill in t… …s in the text below using the keywords below. Note that each o… may be used once, more than once or not at all.

primary	*50%*	*35%*	
45%	*fat*	*before*	
5%	*vitamin*	*after*	

   i) Carbohydrates are the _____ source of energy in the hum…
   ii) They act as a (1)_____ sparer, which means that they are … to provide energy, so that the (3)_____ can be used for gr…
   iii) Carbohydrates can be divided into three groups: (1)_____ … dietary fibre.
   iv) In a balanced diet, (1)_____ of energy should be provided … only (3)_____ of energy sho… …e from the (4)_____

5. Are the following true or false?
   i) Dietary fibre help… …blood cholesterol levels.
   ii) A bal…ced … …uld provide 50g of dietary fibre.
   iii) H… …e diet improves calcium absorption.
   iv) Die… …fibre can help to prevent diverticulitis.

6. What is the function of insoluble fibre?

7. i) Identify **three** sources of dietary fibre.
   ii) Name one condition caused by excessive fibre consumption.

8. Discuss how excessive consumption of sugars can affect the health **of an ind**… suggest two ways an individual can prevent these negative health effects.

1. Describe the difference between water-soluble and fat-soluble vitamins.

2. Identify the fat-soluble vitamins from the options below:
   - Thiamin (vitamin B1)
   - Retinol (vitamin A)
   - Folic acid (vitamin B9)
   - Cholecalciferol (vitamin D)
   - Phylloquinone (vitamin K)
   - Tocopherol (vitamin E)

3. For each of the vitamins below complete its reference nutrient intake (RNI) value for 15-year-old boys and girls.

	Vit. B1	Vit. B2	Vit. C	Vit. D
Boys				
Girls				

4. Are the following true or false?
   i) Vitamin A allows us to see in dim light.
   ii) Night blindness is a condition caused by vitamin D deficiency.
   iii) Vitamin D is found in oily fish and dairy products.
   iv) Riboflavin deficiency may lead to scurvy.

5. List **three** sources of vitamin E.

6. Deficiency of which vitamin causes the disease called spina bifida?

7. List the main symptoms of pellagra – a disease caused by niacin deficiency.

8. Where is vitamin K produced in the body?

9. Explain why it is difficult to experience the symptoms of an excess of water-s

10. i) Define antioxidants and explain their health benefits for the body.
    ii) Which vitamins are considered antioxidants?

11. i) List **three** factors that cause vitamin loss during cooking and preparatio
    ii) Name **two** vitamins which are especially sensitive to the factors listed i (are damaged most easily).

12. Fill in the gaps using the keywords below. Note that some of them may be i

thiamine	*carbohydrates*	*scurvy*	
iron	*collagen*	*B12*	
excess	*beriberi*	*bones*	

iv) Vitamin B1, also called (1)_____ is necessary for the prope
(2)_____. Severe d... may cause (3)_____
v) Vitamin (1)_____ ... called cobalamin, is necessary for b
nerve cells. It is f... in (2)_____-derived foods. For t
are ... oping a deficiency.
vi) Vita... _____ , known as ascorbic acid, is necessary for
(2)_____ from foods. This vitamin is necessary for the prod
which is an important protein in the skin. A lack of it can cause (4)_____

13. Describe **two** health problems caused by vitamin D deficiency and offer **two**
preventing them.

1. What is the RNI for sodium for adults?
   A. 100mg a day
   B. 1000mg a day
   C. 160mg a day
   D. 1600mg a day

2. What is the DRV for calcium for te[illegible]
   A. 800mg for girls, 100[illegible] for boys
   B. 800g for girls, [illegible] boys
   C. 80[illegible] for boys, 1000mg for girls
   D. 80[illegible] boys, 1000g for girls

3. Approximately how much water should be consumed each day by a healthy
   A. 1 litre
   B. 2 pints
   C. 2 litres
   D. 4 glasses

4. Deficiency of which mineral can cause goitre?

5. List **two** potential health effects of excessive sodium consumption.

6. Indicate **two** symptoms of iron deficiency anaemia.

7. List **two** minerals which can be provided with [illegible]

8. Fill in the gaps using the keyw[illegible] below. Note that some of them may be in

ski[illegible]	*teeth*	*osteoporosis*
[illegible]ency	*calcium*	*phosphorus*
rash	*depression*	*excess*

   iii) (1)_____ and vitamin D work together to help grow strong, [illegible]
   may cause (2)_____ in children and (3)_____ [illegible]
   iv) Phosphorus mineralises (1)_____ and is necessary in many [illegible]
   In (2)_____ , it can lead to their demineralisation.

9. Explain why teenage girls and women need more iron than boys and men.

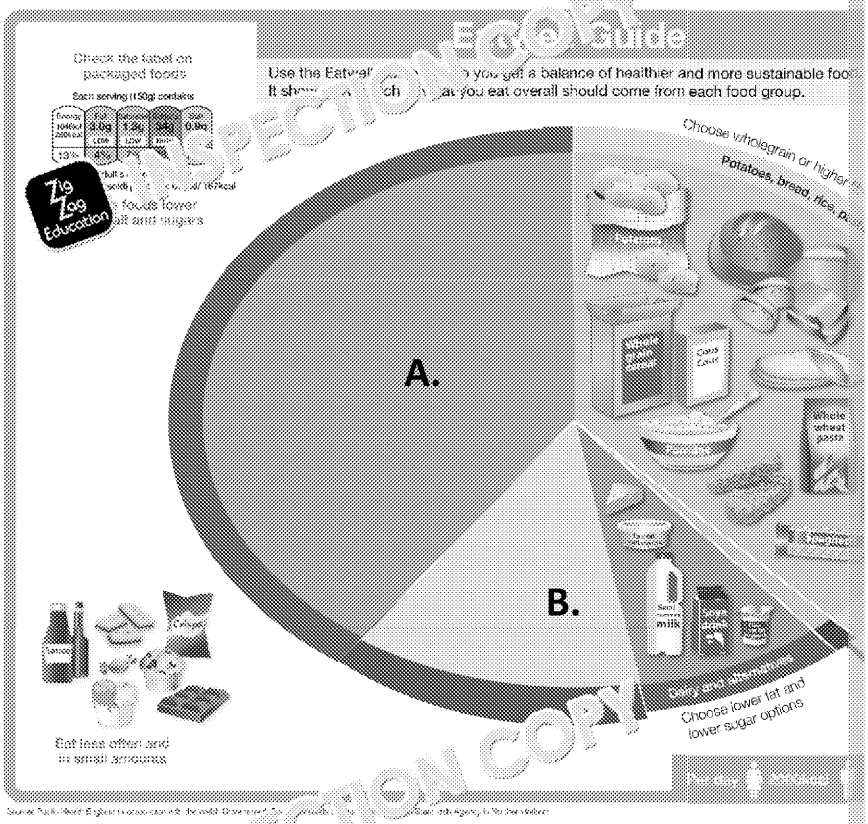
10. Copy and complete the table to indicate one source and one function of eac
has been given for you.

Mineral	Sour[illegible]	
Phosphorus	*Red meat, dairy p[illegible]cts, fish, poultry, bre[illegible]s, beans and lentils*	*Helps release **en** healthy **bones a***
Calc[illegible]		
Sodi[illegible]		
Fluoride		
Iodine		
Iron		

11. Explain how improper intake of fluoride affects dental health.

12. i) Describe **two** functions of water in the body.
    ii) Indicate **three** ways in which water is lost from the body.
    iii) Identify **three** situations when extra fluid might be needed and then ex
    of them in more detail.

1. Complete the Eatwell Guide (below) to name and describe the three missing
Then provide a food source you would expect to find in that group.



	Food group	Description
A.		
B.		
C.		

2. i) Define BMR and explain the importance of two factors that affect it.
ii) Define PAL.
iii) Explain how BMR and PAL affect the total energy expenditure of an ind

3. Explain **one** dietary requirement for each of the following life stages.
i) Small children
ii) Teenagers
iii) Adults
iv) The elderly

4. i) From the foods below identify which are suitable for vegetarians

fis	*cottage pie*	*ham sandwich*
en broth	*pizza margherita*	*tuna salad*
fruit smoothie	*milkshake*	*scrambled eggs*

ii) From the foods below identify those which are suitable for vegans.

fish pie	*cottage pie*	*ham sandwich*
chicken broth	*pizza margherita*	*tuna salad*
fruit smoothie	*milkshake*	*scrambled eggs*

5. Indicate how much energy (as a percentage) should be provided by differen in a balanced diet.

Proteins	
Fats	
Complex carbohydrates	
Free sugars	

6. Lisa wants to maintain a healthy body weight and stay fit.
   i) What foods should she avoid? Give **two** examples.
   ii) What foods should she eat in larger amounts? Give **two** examples.
   iii) What else can she do to keep her body fit? Give one example.

7. i) Define lactose intolerance.
   ii) State one symptom characteristic of lactose intolerance.
   iii) List **two** products or dishes not recommended for individuals with this c

8. List **two** situations / health conditions in which a high-fibre diet might be of b

9. Discuss dietary recommendations for coeliac disease

10. Read the recipe for a fish pie below. Suggest the modification that would ma
    - a vegan
    - a coeliac
    - a p[illegible] o[illegible]-fibre diet
    - a [illegible]ear-old child

    given that a typical portion is about 300g. Justify your answers.

Ingredients	In 100g	
Potato Carrot Cheddar Lemon Haddock Salmon Olive oil Salt, pepper	kcal	136
	Carbohydrates	8g
	Proteins	9g
	Fats	7.5g
	Sodium	3.5g
	NSP	1g

   i) A vegan
   ii) A coeliac
   iii) A person on a high fi[illegible] di[illegible]
   iv) A three-ye[illegible] [illegible]ld

TT7 Nutritional needs and health: *Diet, nutri*

1. Explain the relationship between diet, nutrition and health.

2. The major diet-related health conditions include (multiple answers needed f
   - measles
   - dental caries
   - coronary heart disease
   - mumps
   - flu
   - iron defi[illegible] aemia

3. Are the[illegible]wing true or false?
   i) Obesity is a risk factor of developing many other diseases.
   ii) The main symptom of diabetes is increased level of blood sugar.
   iii) Hypertension is a disease in which blood pressure is too low.
   iv) Iron deficiency anaemia increases the risk of heart failure.

4. What is the healthy BMI scope?
   A. Below 18.5kg/m^2
   B. From 18.5kg/m^2 to 24.9kg/m^2
   C. From 25kg/m^2 to 29.9kg/m^2
   D. Over 30kg/m^2

5. i) Define osteoporosis.
   ii) Suggest **two** dietary recommendations for peop[illegible]th osteoporosis.

6. i) What are the two main factors t[illegible]se rickets?
   ii) Explain how nutritional [illegible]ge for an individual with rickets.

7. i) Id[illegible] **tw**[illegible]ble causes of type 2 diabetes.
   ii) G[illegible]xample of a food which should be avoided by a person sufferi

8. Identify **two** possible risk factors of hypertension.

9. Describe how a high intake of fats may affect cardiovascular health.

10. Evaluate how improper intake of micronutrients may affect dental health.

11. Assess dietary needs of a teenage girl in order to prevent iron deficiency ana

TT8 Cooking of food and heat transfer: *Why food is is transferred to food*

1. Are the following true or false?
   i) Cooking helps to make food safe to eat by deactivating toxins.
   ii) Cooking makes the colour of green vegetables more vivid.
   iii) Cooking helps to make the smell of food less pronounced.
   iv) Cooking improves the texture of food by causing fats to set.

2. i) Define the term shelf life.
   ii) Explain how cooking affects the shelf life of food.

3. Cooking helps to increase the variety of the diet. Indicate three dishes that can be made from the following ingredients:
   i) Eggs
   ii) Beef

4. Describe how cooking helps to develop flavours of food and provide an example.

5. Identify one way in which cooking would affect the texture of:
   i) Meat
   ii) Tomato-based sauce
   iii) Sponge cake

6. Explain how convection currents work and suggest when or when are they used.

7. Describe how heat is transferred by conduction.

8. Explain how microwaves work to heat up food.

9. Describe the difference between convection and radiation and provide an example of their use in cooking.

TT9 Cooking of food and heat transfer: *Selecting c*
methods

1. Water-based cooking methods include (multiple answers needed from the c
   - Baking
   - Simmering
   - Roasting
   - Steaming
   - Stir-frying
   - Poaching
   - Grill[illegible]g
   - [illegible]ry-[illegible]ying

2. Are the following tr[illegible]
   i) Dr[illegible]ng [illegible]es the amount of fat in food.
   ii) Bl[illegible]g causes vitamin loss in vegetables.
   iii) Boi[illegible]g and draining lead to vitamin loss in foods.
   iv) Shredding, when preparing vegetables, leads to vitamin loss.

3. Which of the statements is untrue about blanching?
   A. It helps preserve the nutritional value of food.
   B. It is used to prevent browning of vegetables.
   C. Vegetables are put into ice-cold water, and then into boiling water.
   D. Vegetables are put into hot water, and then into ice-cold water.

4. Name the key ingredient of a marinade which is used to tenderise meat.

5. List **three** dry methods of cooking.

6. Describe how cooking will affect:
   i) The colour of red cabbage
   ii) The appearance of rice
   iii) The texture of pasta

7. Descri[illegible] t[illegible]llowing cooking and preparation methods affect foods' [illegible]
   colour, [illegible], texture, smell or nutritional value.
   i) Shredding an apple
   ii) Boiling an egg
   iii) Marinating a steak
   iv) Braising a pork shoulder

8. Assess how deep-frying may affect the nutritional value of foods.

9. Discuss three cooking methods which are beneficial for health.

TT10 Functional and chemical properties of

1. i) Define protein denaturation.
   ii) Identify **three** factors which can cause protein denaturation and provide

2. Suggest **three** reasons why protein-rich foods are used in cooking. Give an ex

3. i) Define protein coagulation.
   ii) Name one factor that may cause coagulation of protein.

4. Define syneresis and describe when it takes place.

5. i) Describe the process of gluten formation.
   ii) Identify **three** gluten-containing cereals.
   iii) Name one type of pastry which is made in a way that prevents gluten fo

6. Describe how foams are formed.

7. Explain why corn starch cannot be used instead of strong flour in bread prod

8. Discuss why acids are used in meat marinades.

TT11 Functional and chemical properties of fo

1. What temperature is needed to make a caramel?
   A. Below 100°C
   B. Around 100°C
   C. At least 160°C
   D. No less than 210°C

2. Dextrinisation is used when cooki[illegible] ...iple answers needed)

Croissants	Pasta
Bread rolls	Rice
Tomat[illegible]e	Béchamel sauce

3. What kind of carbohydrate undergoes gelatinisation?

4. What is the difference between gelatinisation and dextrinisation?

5. Explain why starch-based sauces have to be constantly stirred during cookin[illegible]

4. Describe what happens at the following stages of gelatinisation.
   i) At 60°C
   ii) At 80°C
   iii) At 100°C

5. Describe how dextrinisation affects the flavour of food.

6. Give four functions of sugar in cooking and pro[illegible] ex[illegible]mple for each.

TT12 Functional and chemical properties of fo

1. Are the following true or false?
   i) Saturated fats are liquid at room temperature.
   ii) All animal-derived fats are solid at room temperature.
   iii) Plasticity of fats means that all fats become oils at the same temperatu
   iv) The fatty acids in fats are hydrophobic.

2. Fill in the gaps in the text below using the keywords below. Note that each k may be used once, more than once or not at all.

	vinegar	*water*	e
separating	*curdling*	*emulsifier*	sta
thawing	*lecithin*	*salt*	thi
oil-in-water	*mayonnaise*	*milk*	ke

   i) Emulsification is a process of mixing (1)_____ and (2)_____
   ii) To (1)_____ the mixture and prevent it from (2)_____ used.
   iii) One of them is _____ , which naturally occurs in egg yolk.
   iv) For this reason, egg yolk is added to (1)_____ , which is an ex emulsion.
   v) An example of (1)_____ emulsion is (2)_____.

3. What does it mean that fat is immiscible?

4. Suggest **two** reasons for which fat is ed with sugar (aerated) when ma

5. Explain how the ch i structure of fats affects their physical state.

6. i) D the process of shortening.
   ii) Name one kind of pastry which uses shortening.

7. The cook prepared two kinds of pastry: one was made with plain flour and l and the other was made with plain flour and butter. State which one of the will be crumblier and explain why.

TT13 Functional and chemical properties of food:

Raising agents

1. Which of the following factors enhance enzymatic browning in fruit (multipl
the options below)?
   - Oxygen
   - Copper and iron tools
   - Chopping them finely
   - La[illegible]emperature
   - [illegible]lass and plastic tools
   - Leaving them whole an

2. List **three** gases whi[illegible]as leavening agents in cooking.

3. What t[illegible]flour already has baking powder added to it?

4. Identify **three** vitamins which are considered antioxidants.

5. Explain why bicarbonate of soda has to be used in combination with acid wh

6. List **three** mechanical methods of leavening.

7. Indicate **two** dishes in which steam is used as a leavening agent.

8. Explain why acids are effective in preventing enzymatic browning in food.

9. Identify one raising method used when:
   i) Making a meringue
   ii) Baking Yorkshire pudding
   iii) Baking puff pastry
   iv) Preparing sponge cake

10. Describe the mech[illegible]enzymatic browning of fruit and vegetables.

11. Explain[illegible]east works as a raising agent and provide an example of where used in the food industry.

TT14 Food spoilage and contamination: *Microorgani*
signs of food spoilage; Microorganisms in foo

1. Fill in the gaps using the keywords below. Note that each keyword may be u
more than once or not at all.

catapult	*catalyst*	*cataract*	*slow*
protein	*carbohydrates*	*fresh*	*r*
room	*low*	*high*	*f*

i) Enzymes are biological (1)_____ usually built from (2)_____
ii) This means that they can _____ chemical reactions.
iii) Enzymes naturally occurring in plants help them to _____
iv) If fruits are left for too long at _____ temperature, they ca

2. Identify **two** methods of controlling enzymatic action in foods.

3. i) Define high-risk foods.
ii) Provide **three** examples of high-risk foods.

4. Identify **two** food products made with the use of moulds.

5. Identify one sign of food spoilage caused by:
i) enzymatic action
ii) mould growth
iii) yeast action

6. i) Explain how bacteria work in the production of yoghurt.
ii) Identify **two** food products other than yoghurt which are made with the

7. i) Explain why yeast is useful in the production of bread.
ii) Identify one product other than bread which is made with the use of ye

8. Microorganisms need numerous conditions for growth. Explain how each of
affects microorganisms' growth, and suggest a way of controlling them.

Factor	Effect	
Temperature		
Moisture		
Food		
Time		
pH		

TT15 Food spoilage and contamination: *Bacteri*

1. What type of bacterium is responsible for the most cases of food poisoning i

2. What type of bacterium, commonly associated with consuming raw meat, p and eggs, is responsible for the most hospitalisations linked to food poisonin

3. What is the main source of food poisoning c*ause* by *E. coli*?

4. Are the following true or false?
   i) *Listeria* is oft*en* found in soil and, therefore, eating raw vegetables migh ri oc poisoning.
   ii) *Staphylococcus aureus* is a bacterium commonly found in faeces.
   iii) Cross-contamination can lead to anaphylactic shock.
   iv) Old meat preserves can be contaminated with a dangerous toxin.

5. Define cross-contamination.

6. Identify **two** foods commonly associated with salmonellosis (a disease cause

7. Copy and complete the table below. Indicate three different sources of cros and provide one method of prevention for each.

Source of contamination	Meth

8. List **three** signs or sy*mptoms* of food poisoning.

9. Discuss how milk pasteurisation can help to prevent food poisoning.

1. Ambient storage means that the food is kept:
   A. in the fridge
   B. in the freezer
   C. at room temperature
   D. in a vacuum bag

2. Define shelf life.

3. The proper temperature for freezing food is:
   A. -3
   B. -1
   C. 0°C
   D. 5°C

4. Raw meat should be stored:
   A. on the bottom shelf of the fridge, covered
   B. on the bottom shelf of the fridge, uncovered
   C. on the top shelf of the fridge, covered
   D. on the top shelf of the fridge, uncovered

5. What is the correct core temperature when cooking and reheating foods?

6. Explain why the following rules are important for correct fridge usage.

   i) Maintain stable temperature below 5°C.
   ii) Maintain space between products.
   iii) Keep food covered.

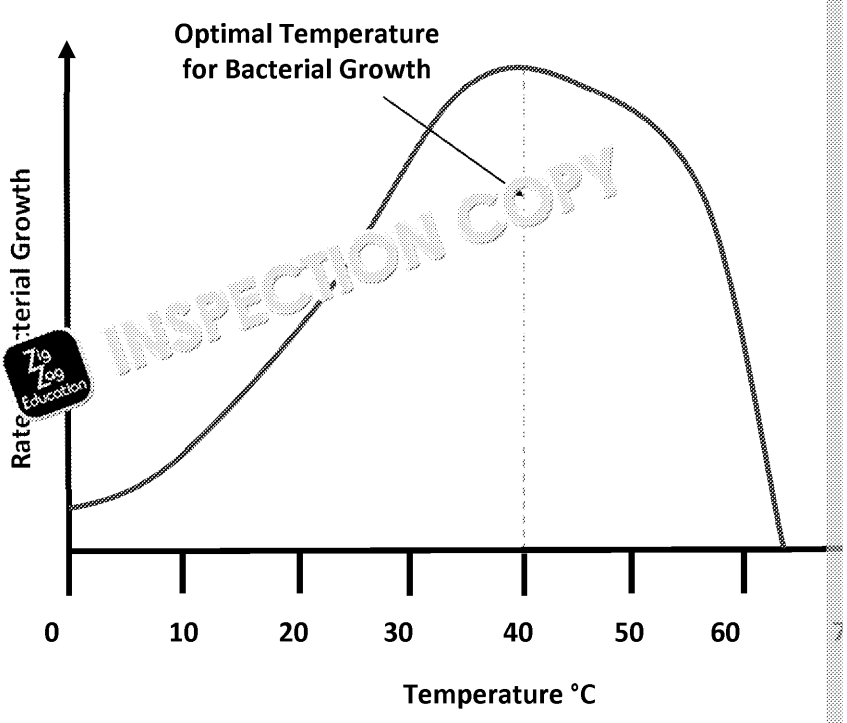
7. Indicate correct storage conditions for the following products.
   i) cl and yoghurt
   ii) po
   iii) fresh eggs
   iv) egg salad
   v) cereals
   vi) raw steaks
   vii) cooked steaks
   viii) fresh vegetables
   ix) vegetable soup
   x) tinned beans

8. Explain the difference between 'use by' and 'best before' date marks.

9. Describe the correct procedure for thawing food

10. Explain why defrosted foods sh frozen again.

11. The graph below shows microorganisms' growth in relation to temperature.



i) What is the range of danger zone temperatures?
ii) Explain why it is called a temperature danger zone.
iii) Explain why bacterial growth stops at high temperatures.

TT17 Principles of food safety: *Preparing, cookin*

1. Are the following true or false?
   i) Defrosted food can be safely frozen again.
   ii) Hands should be washed before and after dealing with high risk food.
   iii) Maintaining clean work surfaces is important in preventing food poison
   iv) High-risk foods such as raw fruit have to be handled separately from oth

2. The correct core temperature of reheated foods is:
   A. 60°C
   B. 65°C
   C. 70°C
   D. 75°C

3. Name one substance which is commonly used in disinfectant sprays and gels.

4. Colour-coding is helpful in preventing cross-contamination. What colour is us tools designed for use with fish?
   A. White
   B. Red
   C. Green
   D. Blue

5. i) List three high-risk foods.
   ii) Provide three food safety principles which need to be applied when deal high-risk foods.

6. Using an example, suggest why it is important that the correct cooking time i followed when cooking different foods.

7. Suggest **three** personal hygiene rules which are helpful in maintaining food sa

8. Describe the correct procedure for using a food temperature probe.

9. Discuss how applying food safety principles helps to prevent anaphylactic sh

TT18 Factors affecting food choice: *Factors which*

1. Fill in the gaps using the keywords below. Note that each keyword may be u
more than ont or none at all.

adipose	*muscle*	*peer assisted learn*
phase alternating line	*[illegible]y*	*active*
calories	*carbohydrate*	*sugar*

i) P[illegible]ds for _____.
ii) PA[illegible]s to assess how much _____ a person needs ev
iii) Low PAL means that a person leads a _____ lifestyle.
iv) If a person eats more than he or she needs, all the excess (1)_____
body in the form of the (2)_____ tissue.

2. i) What is meant by the term 'disposable income'?
ii) Suggest **two** ways in which the disposable income can influence one's f

3. Outline four factors which affect food availability in Great Britain.

4. Suggest three ways in which celebrating an occasion influences food choices

5. The information below shows some of the ingredients necessary to prepare

For the pastry:	**Price**
500g strong wheat flour	£0.90 / 1.5kg
125g lard	£0.40 / 250g
125g butter	£1.20 / 250g
200m[illegible]w[illegible]	£0.20 / 2l
For the filling:	
500g beef	£18.00 / 1kg
500g potatoes	£1.50 / 1kg
250g swede	£4.00 / 1kg
200g onion	£0.80 / 1kg

Using the information above, answer the following questions.

i) How much will one pasty cost if the ingredients above are suitable to p
ii) Suggest one modification that could make the dish suitable for a perso
wants to eat healthily. Justify your answer.

6. Describe **two** ways in which personal prefere[illegible] affect food choices.

7. Analyse the impact someone's [illegible] has on their food choices. Provide ex
in your answer.

1. Which foods cannot be eaten by a Jew (multiple answers needed from the o
   - Pork chops
   - Milkshake
   - Beef steak
   - Prawn cocktail
   - Cheeseburger
   - Lamb roast

2. Are the following true or false?
   i) Hindus cannot drink milk.
   ii) Sikhs do not eat beef or any beef products.
   iii) Most Buddhists are vegetarian.
   iv) Olives are an example of local produce in Spain.

3. What is the fasting period before Easter called, in Christianity?

4. Identify **three** dietary rules characteristic of Islam.

5. Explain how Ital determines the food choices of Rastafarians.

6. Describe the difference between food intolerance and food allergy. Provide a

7. Explain how ethical and moral beliefs determine food choices of an individu

TT20 Factors affecting food choice: *Food labelli… influences*

1. Which of the information is mandatory on a food label (multiple answers ne… options below)?
   - Use by date
   - Allergens
   - The net quantity
   - Origin of food
   - …ving suggestions
   - List of ingredients

2. Describe how the lis… …ients is ordered.

3. Which … following allergens have to be listed on a food label by law (mu…
   - Celery
   - Lupin
   - Strawberries
   - Mustard
   - Rice
   - Nuts
   - Milk
   - Buckwheat

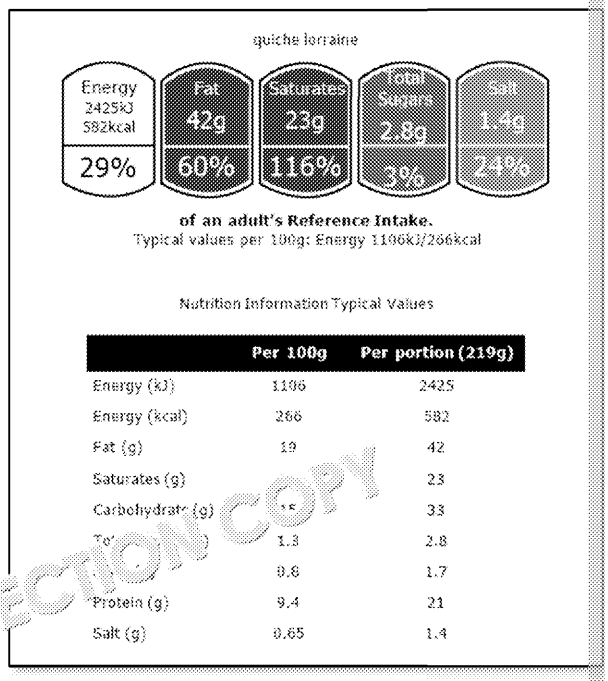
4. i) Complete the following sentences using the keywords below. Note tha… can be used once, more than once or not at all.

mimicking	*television*	*marketing*	*supe…*
buy one get one free	*advertisement*	*display*	*buy on…*

BOGOF stands for (1)_____. It is a pop…
(2)_____ strategy used …_____

ii) Identify three strategies other … BOGOF.

5. The picture below … traffic light label of a food product.



i) State what the three colours on the label mean.
   - Red
   - Amber
   - Green

ii) Explain how traffic light labels can affect food choices.

6. i) Copy and complete the table below by ticking the correct places to stat
following statements found on many food products are health claims o

Claim	
Sugar-free	
Copper contributes to norm[illegible]mentation	
Low salt	
E[illegible]l fatty acids are needed for normal growth and development i children	
Calcium and vitamin D are needed for normal growth and developmen of bone in children	
Source of vitamin D	

ii) Explain the difference between nutritional and health claims.

7. Discuss how pester power influences people's food choices and increases sa

8. Explain how labelling helps to:
   i) protect the consumers
   ii) educate the consumers

9. The media play an important rol[illegible]'s eating habits and food choices
ways in which the media [illegible]ct t[illegible]eating habits of school-age children.

1. Define cuisine.

2. Cazuela is a cooking dish characteristic of:
   A. Italian cuisine
   B. Spanish cuisine
   C. Russian cuisine
   D. Chinese cuisine

3. Food presentation [illegible] characteristic of British cuisine include:
   A. Se[illegible] and puddings with thick sauces
   B. Ela[illegible] decoration of the dining room
   C. Simple, rustic dishes served in wooden bowls
   D. Serving many dishes in small bowls

4. Are the following true or false?
   i) Tandoor is a clay oven characteristic of North African cuisines.
   ii) Wok is a shallow frying pan from China.
   iii) Tapas are small snacks characteristic of Italian cuisine.
   iv) Antipasto is a French starter.

5. Copy and complete the table below. Indicate where the following foods con

Foods	Country of origin
Gazpacho	
Bruschetta	
Onion soup	
Sprin[illegible]	
[illegible]	
Halva	
Lentil dahl	
Baklava	

6. Name **three** British cheeses and **three** cheeses from another country/cuisine have learnt about.

7. Describe how the eating patterns in the UK and in Spain differ.

8. Describe the distinctive features of Mediterranean cuisine.

9. Discuss how a traditional English breakfast may be m[illegible]ed to appeal to mo tastes / healthy eating patterns.

TT22 Sensory evaluation

1. List the **five** basic tastes.

2. The olfactory system is used to recognise:
   A. taste
   B. temperature
   C. aroma
   D. acidity

3. Fill in the gaps using the keywords below. Note that each keyword may be used more than once or not at all.

strength	*odd one out*	*hedonic*	*star*	*discrimination*
many	*two*	*one*	*three*	

   i) Paired preference and (1)_____ are types of acceptance test which find out whether a food is (2)_____ for the consumer. In the (3)_____ test, a tester is given (3)_____ samples and selects the preferred one. In the (4)_____ test, a tester can be given (5)_____ samples and ranks them on a (6)_____.
   ii) The triangle test is an example of (7)_____ tests. The tester identifies (8)_____ from (9)_____ samples given.
   iii) The grading tests include (10)_____ , (11)_____ and (12)_____. These tests help assess a food on a (13)_____ diagram. (14)_____ is used to measure the (15)_____ of a given feature of a food. The (16)_____ test helps indicate the (17)_____ of a feature in one food.

4. Identify the type of test used to evaluate:
   - two samples of cheesecake made of full-fat and low-fat cheese
   - a sample of chocolate ice cream
   - five samples of vanilla puddings with various sugar content
   - three types of sausage

5. Describe how senses affect food choices.

6. Explain why it is impossible to taste flavours with a blocked nose.

7. Describe how to set up a panel for sensory evaluation.

TT23 Environmental impact and sustainability of

1. Which of the foods below are considered grown ingredients (multiple answe
   - Oranges
   - Chicken
   - Corn
   - Lettuce
   - Eggs
   - Stinging nettle

2. Which of the foods below are considered gathered ingredients (multiple ans
   - Mushrooms
   - Cheese
   - Seaweed

3. List **three** foods that are commonly reared in Great Britain.

4. List **three** foods that are commonly caught in Great Britain.

5. Which statement is untrue about fish farms?
   A. They help to obtain food sustainability.
   B. They help to protect natural habitats.
   C. They cause overfishing.
   D. They prevent overfishing.

6. Are the following true or false?
   i) Venison is the meat of all wild animals.
   ii) Free-range is the same as organic.
   iii) Oranges are exported from the United Kingdom.
   iv) The use of polytunnels decreases the need to use fertilisers.

7. Identify **three** substances which cannot be used in organic farming.

8. List **two** products of animal origin and **two** products of plant origin cha
   of the winter season in the UK.

9. Describe **four** factors which have to be taken into consideration when growi
   fields and orchards.

10. State **two** advantages and **two** disadvantages of intensive farming.
    Provide examples of plants and animals which may be farmed this way.

11. Discuss advantages and disadvantages of genetically modified foods. Provide
    of a GM food.

TT24 Environmental impact and sustainability of

environment; Sustainability of foo

1. Which of the following foods are considered seasonal (multiple answers pos
   - Oranges
   - Cheese
   - Eggs
   - Potatoes
   - Strawberries
   - Ham
   - Coc[illegible]o

2. The Soil Association [illegible] foundation which:
   A. su[illegible] farming
   B. su[illegible] organic farming
   C. provides antibiotics to farms
   D. provides free high-crop GM seeds to farmers

3. i) Define food security.
   ii) List **three** factors which negatively affect global food availability.

4. List **three** reasons for buying locally produced food.

5. Identify **three** advantages of Fairtrade products.

6. Describe **three** ways in which GM foods help to maintain food security in th

7. Suggest **three** ways of preventing food waste at home.

8. i) Identify **three** recyclable materials fr[illegible] od packages are made
   ii) Explain how food packaging [illegible] environment.

9. Discuss how sust[illegible] farming helps to provide food for the growing worl
   Provid[illegible] to back up your reasons.

10. i) Define carbon footprint.
    ii) Define food miles.
    iii) Discuss the impact carbon footprint and transportation of foods have o

TT25 Food processing and production: *Foo*

1. Which of the following is an example of primary processing of foods (multip
   - Washing
   - Adding colouring agent
   - Milling
   - Fermenting
   - Boiling
   - Draining
   - Gutting

2. Which one of the following is a p[illegible]ar[illegible]ource of food from the options belo
   - Wheat
   - Yoghurt
   - Flour
   - Strawberry jam

3. Which [illegible]following is an example of secondary processing of foods (mul
   - Fermentation
   - Discarding inedible parts of food
   - Packing in oxygen-free conditions
   - Boiling
   - Adding colourant
   - Milling

4. Which one of the following is a secondary source of foods from the options b
   - Wheat
   - Milk
   - Egg
   - Bread

5. Are the following true or false?
   i) Homogenisation makes fat particles smaller and improves foods' textur
   ii) Bran is the inner part of a grain.
   iii) Probiotic bacteria are used in the production of yoghurt.
   iv) Pectin is a natural gelling agent in fruit.

6. i) List **two** species of oily fish.
   ii) Give **two** examples of [illegible]cur[illegible]y processing applied to fish products.

7. Explain [illegible]iff[illegible]es between pasteurisation and sterilisation of milk.

8. State **two** reasons for which meat has to be hung before being frozen or eat

9. Describe step by step the process of cheese production. Use the keywords b

rennet	*curd*	*whey*	*pasteurisation*	

10. Describe how the following processes affect the nutritional value of foods.
    i) Milling
    ii) Drying
    iii) Fermentation

11. Explain why sterilisation affects the colour and fla[illegible]o[illegible] milk, but pasteuris

TT26 Food processing and production: *Technolo*
associated with better health and food pr

1. Are the following true or false?
   i) Breakfast cereals are fortified with iron by law.
   ii) Skimmed milk has to be fortified with vitamin D
   iii) Niacin is added to flour to prevent beriberi [illegible].
   iv) Salt is fortified in Great Britain by [illegible].

2. i) What is the name [illegible] cholesterol-lowering substance added to marg[illegible] cardi[illegible]?
   ii) N[illegible] conditions or diseases associated with high blood cholesterol

3. Copy and complete the table below by listing **three** foods which are fortified Kingdom by law and state what substances are added to them.

Fortified food	Substances a

4. Discuss **two** health benefits of food fortification and provide examples to su

5. Describe **four** ways in which genetically modified foods can improve human and well-being.

6. Discuss advantages and disadvantages of three chosen food additives.

Answers

3.2 Food Nutrition and Health

TT1 Macronutrients: *Proteins*

1. A) 15%

2. i) False – edamame is another name for fresh soy bea
   ii) False – it can contain egg white or oth animal-derived ingredients.
   iii) False – kwashiorkor is an eff ch onic (long-term) protein deficiency, so w
   iv) False – there are ni tial amino acids and 11 non-essential amino acids.

3. i) Pr are m **amino acids**. There are 20 types, and if a protein conta it a **high biological value** protein.
   ii) Pro ins are a **secondary** source of energy. One gram of protein provides near energy as one gram of **carbohydrates.**
   iii) Textured vegetable protein is also called **bean curd**. It can be used as an **alter**

4. Any two from:
   - source of energy
   - building cell membranes
   - building hormones
   - building antibodies
   - building enzymes
   - maintaining oncotic blood pressure
   - maintaining and repairing tissues

5. i) Protein complementation is a process of combining two or more sources of lo proteins in order to obtain a high biological value protei
   ii) Soy beans and quinoa
   iii) Any two from:
      - beans on toast
      - chickpeas and se (hu nus)
      - peas and o a
      - ils ce or bread
      - ther suitable answer

6. Any one from:
   - weight gain (this is because excess protein is converted in the body to fat, whi the form of adipose tissue)
   - kidney failure
   - fatty liver disease
   - any other suitable answer

7. Any two reasons with a possible mechanism behind it; for example:
   1 mark for ea
   - Lack of protein means that there is no building material to build new cells, so t new tissues.
   - Lack of protein means that there is no material to repair old tissues, so the bo rebuild damaged cells, at the cost of growth and dev nent of new ones.
   - Lack of protein means that growth hormone can t built, so growth will be
   - Lack of protein means that the en annot be built, so the food will not b will be no energy or buildi n to build new tissues.
   - Accept any other wer.

8. The an lu a reference to: *(1 mark for e*
   - Ve not eat meat, milk or eggs, or any animal-derived foods.
   - Animal-derived foods are a source of high biological value protein.
   - Vegans only eat plant-derived proteins, which are sources of low biological va certain essential amino acids.
   - If a vegan diet is imbalanced / protein complementation is not applied, the ve as a result.

TT2 Macronutrients: *Fats*

1. Salmon, rapeseed oil, walnuts

2. Any two from each category: *(1*
   - Visible fats: lard, suet, butter, cream, bacon, fish oil
   - Non-visible fats: beef, pork, lamb, chicken, goose, duck, fish, eggs, milk, chees
     biscuits, cakes, sweets, toffee, fudge
   - Accept any other suitable answer. Do NOT accep terms such as 'dairy
     plant-derived sources of fats.

3. The answer includes a reference t *(1 mark for e*
   - Saturated fats have only in the fatty acid chains.
   - Unsatur one or more double bonds in the fatty acid chains.

4. Up to 3

5. i) Any two from: *(1 mark for a function and 1*
      - Source of energy – fats are a very good source of energy because 1g prov
        from 1g of carbohydrates or proteins
      - Keeping the body warm – fat makes the adipose tissue, which is stored ir
      - Provides vitamins – fat is a solvent for fat-soluble vitamins (A, D, E and K)
      - Provides essential fatty acids – polyunsaturated fats are a source of ome
        for the proper functioning of the brain and nerves and cannot be built by
      - Builds body cells – fat molecules are a part of cell membranes.
      - Builds hormones – fat is necessary to build certain hormones, such as ste

   ii) Any two from: *(1*
      - weight loss
      - vitamin deficiency
      - dry, flaky, itchy skin
      - night blindness and other eyesight issues
      - susceptibility to infections
      - cognitive problems, dementia
      - any other correct answ

6. i) Hydrogenation is the process of adding **hydrogen** to **unsaturated** fats to change t
      lio so room temperature.

   ii) Tr

   iii) Ma e / vegetable fat spreads

7. - LDL – or 'bad cholesterol' – increases the risk of cardiovascular disease.
   - HDL – or 'good cholesterol' – lowers the risk of cardiovascular disease.

     (1 mark for identifying each kind of cholesterol, and 1 mark for its role in c

8. The answer includes a reference to:
   - Eating too much saturated fats / trans fats / total fat, and too little polyunsatu
     increases the risk of many conditions and diseases, such as (one from):
     – obesity
     – type 2 diabetes
     – atherosclerosis
     – coronary heart disease
     – heart attack
     – stroke
     – cancer
   - Eating adequate amounts of unsaturated fats / fats rich in omega-3 fatty a
     / trans fats / total f to reduce the risk of (one from):
     – disease
     – t attack
     – ke
     – cancer

     and support proper functioning of the brain and nervous system.

     (1 mark for identifying types of fat and their e
     disease or condition the risk of whic

1. i) Monosaccharides are the type of carbohydrates which are built of a single mo
   ii) Glucose, fructose, galactose or any other suitable answer *(1*

2. Natural yoghurt, unsweetened orange juice, fresh mango

3. Any two from: milk, table sugar, malt sugar or any other suitable answer *(1*

4. i) Carbohydrates are the **primary** source of energy in the human body.
   ii) They act as a **protein** sparer, which means that they are used **before** them to p
   can be used for growth and repair of the cells.
   iii) Carbohydrates are divided into three groups: **sugars**, **starches** and dietary fi
   iv) In a balanced diet, **45%** of energy should be provided by **starch**, and only **5%** o
   th *(1 mark for e*

5. i) True – fibre lowers not only blood cholesterol levels, but also blood sugar leve
   ii) False – a balanced diet should provide around 30g of fibre.
   iii) False – large amounts of fibre bind with calcium, which then cannot be absorb
   iv) True – dietary fibre helps to prevent many bowel diseases, such as diverticulit
   (1

6. Any one from:
   - bulk up the stool in the bowel
   - regulate bowel movements
   - help to pass the undigested food and push it out of the body
   - any other suitable answer

7. i) Any three from: wholegrain products (bread, pasta, cereals), brown rice, fruit, v
   legumes, dried fruit or any other suitable answer *(1*
   ii) Any one from: constipation, calcium deficiency and osteoporosis, iron deficien
   any other suitable answer.

8. The answer identifies at least two health effects of excessive sugar co
   two ways to prevent them *(2 marks)*.
   Health effects from:
   - Obesity – excessive sugar consumption will lead to obesity as unused sugar wil
   and stored in the body.
   - Type 2 diabetes – excessive sugar consumption will raise blood sugar levels, w
   As the pancreas cannot produce enough insulin to lower the blood sugar level
   the tissues around the body.
   - Tooth decay – sugars feed mouth bacteria, which thrive on them and cause to

   Ways of preventing them:
   - Avoid eating free sugars from sweets, sweetened beverages, etc.
   - Choose foods rich in polysaccharides as they are absorbed more slowly into th
   - Choose foods rich in fibre as they lower blood sugar levels
   - Increase physical activity to burn more calories.
   - Physical activity is also helpful in preventing (or even reversing!) type 2 diabet
   extra glucose and lower its amount in the blood.

   Accept any other suitable answer. Do NOT accept answers which refer to systemati
   accept answers that refer to indivi

TT4 Micronutrients: *Vitamins*

1. Water-soluble vitamins dissolve in water and do not dissolve in fat, cannot be stored regularly.
   Fat-soluble vitamins dissolve in fat and do not dissolve in water, can be stored in the amounts only as the body can use the stored vitamins.

2. Retinol (vit. A), cholecalciferol (vit. D), phylloquinone (vit. K), tocopherol (vit. E)

3. *(1 mark for three co*

	Vit. B1	Vit. B2	Vit. C	Vit. D	Vit. A
Boys	1.1mg	1.3mg	40mg	10mcg	700mcg
Girls	0.8mg	1.1mg	40mg	10mcg	600mcg

4. i) True
   ii) False – it is caused by vitamin A deficiency.
   iii) True
   iv) False – scurvy is caused by vitamin C deficiency; vitamin B2 deficiency may lead redness and swelling of the mouth and tongue or skin inflammation.

5. Any three from:
   - vegetable oils
   - wheat germs
   - egg yolk
   - seeds
   - nuts
   - fortified products, e.g. cereals
   - any other suitable answer.

6. Folate / folic acid deficiency may lead to spina bifida in newborns.

7. The symptoms of pellagra are referred to as 3D syndrome and include:
   - diarrhoea
   - dermatitis (skin inflammation)
   - dementia (confusion, memory loss) *(1*

8. Vitamin K is produced in the gut by probiotic bacteria.

9. Water-soluble vitamins dissolve in water and therefore their excess is easily excrete

10. i) Antioxidants are vitamins and other chemical compounds which protect cells a oxidation caused by free radicals.
    They prevent free radicals from 'stealing' electrons from other molecules and, cancer and slow down ageing.
    ii) Vitamins A, C and E.

11. i) Any three from:
    - oxygen
    - light
    - high temperature
    - high pressure
    - fragmentation / agitation

    ar any suitable answer *(1*
    ii) An om: *(1*
    - vitamin C (ascorbic acid)
    - thiamine (vitamin B1)
    - vitamin A
    - vitamin D
    - vitamin E

12. i) Vitamin B1, also called **thiamine** is necessary for the proper metabolism of **car**
cause **beriberi** disease.

ii) Vitamin **B12** also called cobalamin, is necessary for building a protective coat a
animal-derived foods. For this reason, **vegans** are at risk of developing a defici

iii) Vitamin **C**, known as ascorbic acid, is necessary for the proper absorption of **ir**
necessary for the production of **collagen**, which is an important protein in the

13. The answer includes a reference to tw *(1*

- Rickets – because vitamin D is necessary for absorbing calcium, a lack of it will
malformed, lead
- Osteoporosis – because vitamin D is necessary to absorb calcium, a lack of it in
as will be derived from bones to perform more important life function
ma ming blood pressure); as a result, the bones will become porous, brittle
- Tooth decay – as vitamin D helps to absorb calcium, which is used to strengthe
having weak teeth which will be prone to tooth decay.
- Depression – there are multiple receptors for vitamin D in the brain cells; lack
attached to them is linked to a higher risk of developing depression.
- Increased risk of cancer – the mechanism is not known yet, but low levels of v
risk of developing bowel cancer.

Ways to prevent vitamin D deficiency – two from: *(1*

- moderate increase of exposure to sunlight
- increase consumption of sea fish and shellfish
- increase consumption of fish oil
- choose whole milk and dairy products
- choose fortified margarines

TT5 Micronutrients: *Minerals; Water*

1. D) 1600mg a day

2. A) 800mg for girls, 1000mg for boys

3. C) 2 litres – this is the average amount of water which should be consumed by he
may need more or less, depending on their physical act y or health conditio

4. Iodine

5. Any two from: *(1*
   - high blood p hypertension
   - he eart failure
   - str
   - kidney failure
   - swelling of the body / oedema
   - weakening of the bones and higher risk of osteoporosis (people urinate more
bones)

6. Any two from: *(1*
   - pale skin
   - tiredness, lack of energy
   - weak nails and hair
   - short breath
   - heart palpitations
   - any other correct answer

7. Any two from: *(1*
   - sodium
   - calcium
   - potassium
   - fluoride
   - any other su swer

   Accept minerals which are not required by the specification, such as magne

8. i) **Calcium** and vitamin D work together to help grow strong, healthy bones. The
children and **osteoporosis** in adults.
   ii) Phosphorus mineralises **bones** and is necessary in many chemical reactions in
their demineralisation.

9. The answer includes a reference to: *(1 mark for e*
   - Teenage girls and women undergo **menstruation**.
   - They lose some blood every month so they need more iron to **avoid anaemia**.

10. The answer includes at least one function and one source of each mineral. *(1 mar*

Mineral	Source	
Calcium	Milk and dairy, bony fish such as s , fortified flour and cereals, nuts and eeds,	Necessary and teeth
Sodium	Kitchen salt, m d cuts, cheese, snacks, bread	Maintains conduct ne
Fl	and shellfish, black tea, toothpaste and mouthwash	Helps toot strengthen
Iodine	Kitchen salt, may be inhaled with air at the seaside or in a salt cave	Necessary gland
Iron	Red meat, liver, egg yolk, leafy green vegetables such as kale and spinach, fortified flour and cereals	Builds red

Accept other suitable answers.

11. The answer includes a reference to: *(1 mark for e*
    - Fluoride helps build strong enamel – the protective layer on teeth.
    - Too little fluoride (deficiency) may result in enamel not being formed at all, wh
      to damage.
    - The excess of fluoride can cause fluorosis, in which the enamel develops white
      making it easy to damage (this also increases the risk of tooth decay).
    - The effect is tooth decay and tooth loss.

12. i) The answer includes a reference to any two fro *(1*
    - Keeps a stable temperatu sw n the skin evaporates and cools the
      temperature.
    - Eliminate s n the body – water dissolves toxins and other substa
      n t y, e.g. urea, excess sodium.
    - digestion – water is the main compound of saliva, which aids swallow
      gastric juice where it helps break down the food; it also helps bowel mov

    ii) Any three from: *(1*
    - Body waste – water is lost through excretion.
    - Sweat – as the body overheats, it produces sweat in the sweat glands as
    - Bleeding – water makes up to 92% of the blood and is lost during excessi
    - Tears – a small amount of water can be lost through tears when a person

    iii) Any three from: *(1 mark for each correct plus 1*
    - During hot weather – the body perspires faster and more water is lost wi
      it is important to drink water or isotonic drinks to restore the amount of
      and heatstroke.
    - During physical activity – a lot of energy is released and minerals are used
      is increased; sportspeople need to drink more to avoid overheating, dehy
      deficiency, which may cause painful muscle cramps.
    - During fever – in fever body temperature is higher than usual so lukewar
      body temperature and avoid side effects, su h p erheating.
    - When trying to lose weight – water fill the st mach and decreases the fe
      person eats less, which helps a ight loss.
    - When on a high-fibr die – water will help the fibre to swell or increase
      intestines r e n s constipation.

TT6 Nutritional needs and health: *Making informed choices; Energy*

carry out nutritional analysis

1.

	Food group	Description	
A.	fruit and vegetables	Five portions of fruit and vegetables to be consumed a day	Any suitable carrots, appl strawberrie
B.	meats, beans, fish, eggs and other proteins	Eat less red meat, and [illegible] portions of fish (one portion should be oily)	Any suitable minced mea
C.	oils and [illegible]	Choose unsaturated oils in small quantities	Any suitable olive oil, sun

(1 mark for ea

2. i) Basal metabolic rate is the amount of energy needed to perform the most bas breathing and keeping a stable body warmth.

The answer includes a description of any two factors that affect the BMR from:

- Age – usually the older the person is, the higher the energy needs.
- Sex/gender – usually men require more energy than women.
- Weight – heavier people require more energy than people with a lower b
- Height – taller people require more energy than shorter people.

(1

ii) Physical activity level indicates how active a person is during the day / how mu performance; it includes all everyday actions such as walking, dressing, washin

iii) *BMR multiplied by PAL equals Total Energy Expenditure* – the higher the BMR/ a person.

3. The answer explains any **one** dietary requirement for a life stage from:

i) Small children: *(1 mark for an correct example and 1 mark fo*

- Drink a lot of milk and eat dairy products – to provide enough calcium an
- Eat a varied diet – regularly try new foods – to develop the taste buds.
- Avoid [illegible] and sugary drinks – to prevent tooth decay and weight gain
- [illegible] fish – to provide fluoride, necessary for the proper developmen
- [illegible] ve a day (vegetables and fruit) – choose fruit and vegetables instead to provide vitamins, minerals and dietary fibre.

ii) Teenagers: *(1 mark for any correct example and 1 mark fo*

- Eat milk, dairy and other sources of calcium and vitamin D – to help build
- Eat less sugar and avoid sugary drinks – to avoid tooth decay and obesity
- Eat iron-rich products such as liver or egg yolk – necessary to prevent ana girls.
- Eat regular meals – to help avoid hunger, control satiety and blood sugar
- Eat five a day (fruit and vegetables) – to develop healthy eating habits an
- Choose sources of whole (HBV) protein – to provide enough protein to bu

iii) Adults: *(1 mark for any correct example and 1 mark fo*

- Eat dairy and fish – to provide calcium and vitamin D, keep the bones and osteoporosis.
- Eat less fat and sugar – to prevent obesity and [illegible]es, and maintain he
- Eat less salt – to prevent hypertension
- Eat fibre and drink water – to [illegible]e the motility of the intestines and p
- Provide adequate [illegible]on and vitamin C – especially for women, related hea[illegible]

iv) The elderly: *(1 mark for any correct example and 1 mark f*

- Limit calorie consumption – the elderly do not need as many calories as y activity is usually limited, and the amount of muscle tissue in the body is and related health issues, such as back and joint pains.
- Avoid energy-dense foods such as sweets and deep-fried foods – to help cardiovascular diseases.
- Eat adequate amounts of dietary fibre and drink plenty of water – to help and bowel cancer.
- Provide adequate amounts of calcium and vitamin d – to maintain bone h
- Choose fresh fruit and vegetables – to provide antioxidant vitamins, which cardiovascular disease.
- Eat oily fish and other foods rich in omega-3 fatty acids – as they can help
- Provide adequate amounts of iron and vitamin c – to help prevent anaem
- Provide adequate amounts of vitamin b12 (cobalamin) – to help prevent disorders such as dementia.
- Lower sodium/salt consumption – to maintain a healthy blood pressure.

Accept other suitable answers.

4. i) Cheese sandwich, scrambled eggs, pizza margherita, fruit smoothie, milkshake
   ii) Fruit smoothie

5. Proteins 15%, fats 35%, complex carbohydrates 45%, free sugars 5%

6. i) Any two from:
   - sugary and savoury snacks
   - fast foods
   - sweets
   - sweetened beverages
   - highly processed foods
   - deep-fried foods

   ii) Any two from:
   - fresh fruit and vegetables
   - wholegrain bread
   - brown rice
   - wholegrain pasta
   - legumes

   iii) Any one from:
   - Be physically active (to increase the amount of energy used, and limit the body).
   - Drink sufficient amounts of water (to increase the feeling of satiety, enab work properly, and prevent dehydration).

7. i) Lactose intolerance is a condition in which **lactose** (milk sugar) is **not broken d** **lack of the enzyme** lactase.
   ii) Any one from: painful gases, bloating, diarrhoea.
   iii) Any two from:
   - milk and dairy, milkshakes, ice creams, pancakes, toasted bread, milk cho any other source of milk or lactose *(1*
   - Do NOT accept fermented dairy products such as hard cheeses (e.g. Chec virtually no lactose.

8. Any two from:
   - weight
   - to prevent or cure constipation and diarrhoea
   - to decrease the symptoms of irritable bowel syndrome
   - to prevent certain types of cancer (e.g. bowel, breast) *(1*

9. The answer may include a reference to: *(1 mark for e*
   - Coeliac disease is an inborn disease in which gluten cannot be broken down in t
     bloating, diarrhoea and even bleeding.
   - People suffering from coeliac disease should avoid all sources of gluten for a li
   - The gluten-free diet may contain rice, potatoes, quinoa, buckwheat, fruit and v
   - On a gluten-free diet, wheat, rye and barley are forbidden – as well as any foo
     ham or fish).
   - Certified oats can be consumed.
   - Uncertified oats should be avoided or eaten in moderation as they could be co
     types of cereal processed in a similar way.

   Accept other suitable answers.

10. The answer provides any one modification from: *(1*
    i) Exchange haddock and salmon (fish) for a vegan source of protein, e.g. tofu, T
       Exchange Cheddar (cheese) for a vegan alternative, e.g. tofu.
    ii) The dish doesn't contain any sources of gluten. The dish doesn't have to be m
    iii) The dish is quite low in fibre, as the only sources of it are potatoes and carrots
       increase the amount of vegetables in the dish (e.g. add onion green peas, cour
       breadcrumbs or oats on top; add powdered fibre to the mashed potato or sau
    iv) The portion is quite large (300g) and might be too big for a three-year-old. The
       other changes are required as the dish contains large amounts of calcium, pro
       for children's health.

    Accept other suitable answers.

TT7 Nutritional needs and health: *Diet, nutrition and health*

1. The answer may include a reference to: *(1*
   - A diet includes all foods eaten by a given person / the eating habits of a give
   - Nutrition refers to the amount of macronutrients and micronutrients consu
   - A balanced diet provides an adequate amount of all nutrients required by a g and enable growth and development.
   - A balanced diet ensures energy balance and helps t… maintain a healthy bod
   - A balanced diet provides a sufficient amou… n… ents to maintain health a as type 2 diabetes, coronary heart d… se, etc.

   To gain 2 marks, the answer sho… t… all three keywords (diet, nutrition, heal

2. Dental caries, co… y … rt disease, iron deficiency anaemia
   Note: r… m… ps and flu are not diet-related diseases – they are caused by m

3. i) True – obesity increases the risk of atherosclerosis, CHD, diabetes and cancer.
   ii) True
   iii) False – hypertension is a disease in which blood pressure is too high.
   iv) True

4. B) From 18.5kg/m^2 to 24.9kg/m^2

5. i) Osteoporosis is a **bone condition** caused by **lack of calcium and vitamin D**, an… and become **brittle and easy to break**.
   ii) Any two from: *(1*
   - Increase consumption of calcium
   - Increase physical activity
   - Eat more milk and dairy products
   - Eat bony fish
   - Provide more vitamin D
   - Eat oily fish and fish oil
   - Include moderate expos… … s… ne to stimulate vitamin D productio
   - Accept other sui… … ans… …

6. i) Ar… fro… *(1*
   - …um deficiency
   - vitamin D deficiency
   - excessive consumption of phosphorus
   - kidney disease

   ii) Any two from: *(1*
   - increased need for calcium in children
   - increased need for vitamin D in children
   - less need for phosphorus in children
   - eat more milk and dairy
   - eat more fish and fish oil
   - include moderate exposure to sunshine to stimulate vitamin D productio

   Do NOT accept answers that relate to nutrition during … gnancy that could he

7. i) Any two from: *(1*
   - high-fat diet
   - obesity
   - high-s… …
   - …ul… meals
   - …oper insulin production (not enough of the hormone is produced)
   - improper insulin performance (the hormone molecules are faulty or inac
   - high blood pressure
   - sedentary lifestyle

ii) Any one from:
- foods high in sugar such as sweets, chocolate, sweetened beverages
- white bread
- high-fat products
- fast foods
- any other suitable answer

8. Any two from: *(1*
- obesity
- high-sugar diet
- high-fat diet / diet rich in saturated fats
- high-sodium/salt diet
- lo… ca… activity
- se… lifestyle
- high cholesterol intake
- high cl…
- smoki…
- drinkin…
- stress
- kidney …
- any ot…

9. The answer may include a reference to: *(1 mark for e…*
- High intake of saturated fats increases the risk of cardiovascular diseases.
- Increasing intake of unsaturated fats may help decrease the risk of cardiovascu…
- Eating too much saturated fats may cause such diseases / health conditions as atherosclerosis, heart attacks, stroke, hypertension (high blood pressure).
- Accept other suitable answers.

10. The answer may include a reference to: *(1 mark for e…*
- **Fluoride deficiency** can cause improper growth and development of the teeth …
- Fluoride deficiency may lead to **increased risk of tooth decay** and tooth loss.
- **Fluoride excess** may cause **fluorosis** and cause the tooth enamel to become b…
- **Deficiency of calcium** may lead to tooth decay and tooth loss as the teeth can…
- **Deficiency of vitamin D** may lead to tooth decay and … loss as it is necessa… build strong teeth.
- Accept other suitable answers.

11. The answer includes a ref… to: *(1 mark for e…*
- Teenage **girl**… **or**… iron than teenage boys.
- T… gir… re at more risk of developing anaemia due to **menstruation.**
- Iro… essary to build **haemoglobin** in the **red blood cells** and transport ox…
- To provide the proper amount of iron, girls should eat:
  - → red meat and offal (e.g. liver)
  - → leafy green vegetables such as spinach or kale
  - → broccoli
  - → fortifie…
  - → eggs
  - → whole…
- Folate (folic acid, vitamin B9) and vitamin B12 (cobalamin) are also necessary i… cells, and help to prevent anaemia.
- Sources of folate include:
  - → leafy green vegetables such as spinach, broccoli
  - → wholemeal cereal products, e.g. wholegrain bread, brown rice
  - → fortified foods, such as orange juice, bread
- Sources of vitamin B12 include:
  - → meat
  - → poultry
  - → fortified foods, such as bread, brea… fa… ce… s
  - → egg yo…
  - → milk a…
  - → fish an…
- Vitamin C increases iron absor… (1… intestines, helping to prevent anaem…
- Vitamin-C-rich foods i… e:
  - → potatoes
  - → … and sauerkraut
  - → …epper, broccoli, tomatoes
  - → strawb…
  - → orange…

Accept other suitable answers.

TT8 Cooking of food and heat transfer: *Why food is cooked and ho to food*

1. i) True *(1*
   ii) False – the colour becomes dull as the chlorophyll in the food is destroyed / br
   iii) False – it causes water and aromatic compounds to e rate, so the air is fille noses more easily; the smell of hot food is th no pronounced than the sm
   iv) False – the fats in the food melt durin ok and are responsible for the mo

2. i) Shelf life is the **amount** of time a food product can be **safely stored and eaten** **risk of food poi** / spoilage.
   ii) Co e increase/lengthen the shelf life because it kills microorganism fo age.

3. Any three from:
   i) omelette, scrambled eggs, soufflé, soft-boiled eggs, hard-boiled eggs, stuffed/ any other suitable answer
   ii) burgers, steaks, meatballs, carpaccio, bolognese sauce, chilli con carne, cottag suitable answer

4. The answer may include a reference to any from: *(1 mark for explanation an*
   - During cooking water evaporates and makes the flavours more pronounced. Examples might include stew or goulash.
   - During cooking chemical reactions take place and new flavour compounds ar Examples might include caramel, crème brûlée, coffee, cocoa, etc.

5. i) Meat will soften and become more tender, and easier to bite, cut and chew.
   ii) Tomato-based sauce will become thicker / will have higher viscosity.
   iii) Sponge cake will rise and set, creating a sponge-like ex exture.
   Accept other suitable answers.

6. The answer may include a reference to: *(1 mark for descri*
   - Convection cur s are the movements of **air**, **water** or vapour. **Hot** molecule th **co** then **fall down** again.
   - Co n currents are used in: steamers, ovens, when steaming, boiling, sim
   - Acc pt other suitable answers.

7. The answer may include a reference to: *(1*
   - Conduction is a process in which heat is transferred **directly** from the pan / co
   - In conduction the heat causes the material the dish is made of to vibrate.
   - The **vibrating molecules** then transfer the heat directly to molecules of food th
   - The molecules of food at the bottom then transfer the heat directly to other m them, etc.

8. The answer may include a reference to: *(1 mark for e*
   - In microwave ovens the oven sends waves of heat through radiation.
   - The microwaves heat up water molecules in food.
   - The water molecules begin to vibrate.
   - The vibrating water molecules transfer the heat to th surrounding molecules i
   - Microwaves are not effective in heating/cooking dr oods / foods with low wa
   - Accept other suitable answers.

9. The answer may include a reference to: *(1 mark for each correct descri for each correct example, s*
   - Co n is an **indirect** way of transferring heat.
   - In ion, **water or oil** is needed as a medium to transfer the heat from he
   - Examples of foods which use convection include steamed vegetables, baked ca
   - Radiation is an **indirect** way of transferring heat through heat waves.
   - Radiation requires **no medium** to transfer the heat from heat source to food.
   - Radiation is used to make grilled steak and vegetables, baked cakes and to mic
   - Accept other suitable answers.

TT9 Cooking of food and heat transfer: *Selecting appropriate cook*

1. Simmering, poaching, steaming
   Baking, roasting, grilling and dry-frying are examples of dry cooking methods.
   Stir-frying is an example of a fat-based cooking method.

2. i) False – there is no added fat, and the fat from food can leak out so dry-frying d fat in food.
   ii) False – blanching prevents vitamin loss because s idation and enzyma
   iii) True – vitamins dissolve in water so wi e st e water is drained from foo
   iv) True – diminution (cutting int all ces) and contact with air/oxygen acc unfavourable changes od

3. C) Vege ar into ice-cold water, and then into boiling water.

4. Acid. Acc other suitable examples, such as vinegar, lemon juice, etc.

5. Any three from:
   - baking
   - roasting
   - grilling
   - dry-frying

   Accept other suitable answers, e.g. broiling.

6. The answer may include a reference to: *(1 mark for e*
   i) At first red cabbage will change colour from purple to red, but then it will lose blue if cooked for too long.
   ii) The rice will absorb water so will increase in volume/size; if cooked for too lon particles will degrade.
   iii) The pasta will soften to become al dente, then w or e even softer, and if a sticky mash (because the starch with w te w duce a thick, sticky mixtu

7. i) Shredding changes the t ure o apple from hard to soft or even liquid. The oxidation and/or n th browning, which will decrease the nutritional valu

   ii) Bo egg will cause protein denaturation and coagulation and the egg wil wil nge from liquid to solid. The smell might be more pronounced than tha

   iii) Marinating a steak will denature proteins and cause the meat to soften. It will shorter to cook. The flavour of the steak will change depending on the ingredi fat will rise because marinades usually contain oil.
   iv) Braising a pork shoulder will help seal the surface and close the jus inside of th Braising will denature proteins and soften the meat. The amount of vitamins v temperatures applied to the meat.

8. The answer may include a reference to: *(1 mark for e*
   - Deep-frying increases the amount of fat in food as the fat is absorbed by foods
   - Deep-frying causes vitamin loss due to high temperatures used (most vitamins
   - During deep-frying, harmful substances may be produced (e.g. trans fats, acro food react to heat.

9. The answer may include a reference to: *(1 mark for each cooking method and 1 health, max. 6 marks)*

Method	Reason
Boiling	calories, may help to retain micronutrients (especially if
Steam	Low in calories, prevents vitamin loss as the vitamins do not dis
Dry-fryi	Low in calories, helps to maintain energy balance
Grilling	Helps to decrease the amount of fat in food as the fat from foo
Stir-frying	Low in calories, prevents vitamin loss due to short cooking time

   Accept other suitable answers.

TT10 Functional and chemical properties of food: *Proteins*

1. i) Protein denaturation is a process of damaging the chemical structure of prote
secondary).
ii) Any three from: *(1 mark for each factor w*
- acids – e.g. lemon juice in meringue; malt vinegar or spirit vinegar in poa
- high temperature – e.g. when boiling eggs; baking a quiche; roasting chic
- mechanical action – e.g. when whisking eggs; maki a meringue or any o
- enzymes – e.g. when making cheese with t or rennet

2. Any three from: *(1 mark for each reason w*
- to bind ingredients together (e.g. eggs whites, milk)
- to increase nutrition (e.g. eggs, egg yolk, cheese, milk, dairy, meat, fish…)
- to set the mixture (eggs or gelatine)
- to add flavour and colour (egg yolk, cheese, yoghurt)
- to change the texture (e.g. cheese on pizza, cream in soup)
- to thicken the mixture (e.g. Greek yoghurt, cream)
- to make the mixture lighter (e.g. whipped cream or whisked egg white)
- as a glaze (egg wash, milk)
- to emulsify the mixture (e.g. egg yolk in mayonnaise or hollandaise sauce)

Accept other suitable answers.

3. i) Protein coagulation is a process in which protein molecules aggregate (form a
protein into a solid one.
ii) Any one from:
- heat
- high salt concentration

4. The answer includes a reference to: (1 mark for a correct definition and 1 mark for i
max. 2 marks)
- Syneresis is the process of pushing out / leaking water from protein-rich mixtu
- It takes place when a protein is overcoagulated/over ed (that is because th
to heat and push out water).

5. i) The answer may include a referen *(1*
- Flour contains two t s of protein – glutenin and gliadin.
- When the fl with water, the two proteins bind together.
- tw form a net-like structure known as gluten.
- pt other suitable answers.

ii) An from: wheat, spelt, rye, barley, uncertified oats, triticale.
Accept other suitable answers. Accept 'non-certified oats'.
Do NOT accept 'oats' or 'certified oats' as oat is naturally gluten-free.
iii) Shortcrust, puff pastry, rough puff, or any other suitable answer.

6. The answer may include a reference to: *(1 mark for e*
- Foams are made when a **protein-rich mixture** such as egg white is **whisked or**
- During whisking the **proteins stretch out**.
- As the protein fibres stretch out, they make a net structure in which **air bubbl**
- This causes the mixture to increase in volume and create a foam.

7. The answer may include a reference to: *(1 mark for e*
- Corn starch contains no gluten.
- Bread made with it would be crumbly and easy to break instead of soft and sp
- (Corn starch cannot substitute all the flour, but can be d in part of the recip
colour, texture and flavour of the bread.)

8. Any four from: *(1*
- Acids denature the protei
- Acids make the m
- Acid ke more tender.
- A ro the flavour of the meat.
- Ac ble the flavour to penetrate the meat, so not only the surface is flavo
- Acids help to keep the meat moist and juicy.
- Acids make the meat tastier.
- Acids make the meat easier to chew.
- Acids make the meat easier to digest.

Accept any other suitable answer.

1. C) At least 160°C

2. Croissants, bread rolls
   Pasta, rice and béchamel sauce use gelatinisation.
   Tomato sauce uses reduction method and/or gelatinisation if starch is used as a thi

3. Starch

4. The answer may include a referen *(1*
   - Gelatinisation is cook starch in presence of **water**.
   - Dextrinisati ing of starch in **dry conditions**.

5. The ans y include a reference to: *(1 mark for ea*
   - Starch does not dissolve in water.
   - The starch falls to the bottom of the saucepan.
   - If not stirred, the starch at the bottom could burn or/and make the sauce lum

6. i) The starch granules begin to soak up water and swell.
   ii) The starch granules swell even more and begin to break open.
   iii) The starch is released from the starch granules and the sauce is thickened / ge

7. The answer may include a reference to: *(1*
   - Dextrinisation helps to make the food **sweeter**.
   - That's because starch breaks down into smaller chains of dextrin, and finally in
   - The taste can become **bitter** if the food is overcooked.
   - That's because as water evaporates, only the bitter carbon molecules are left i

8. Any four from: *(1 mark fo correct function and 1 r*
   - Gives a sweet flavour (e.g. in cakes or be er ge
   - Adds bulk to the mixture / add ul g. cakes, muffins).
   - Gives texture by maki rati possible (e.g. ice creams).
   - Improves the fl e. tomato sauce).
   - Sp f mentation (e.g. in bread or wine).
   - Ex e shelf life (e.g. in jam).
   - Preserves the food by disabling microorganisms' growth (e.g. in jam).
   - Changes the colour of the food (e.g. by caramelisation in crème brûlée or toffe

   Accept any other suitable answer.

TT12 Functional and chemical properties of food: *Fats and oils*

1. *(1*
   i) False – saturated fats will be solid at room temperature.
   ii) False – for example, fish oil and cream are liquid.
   iii) False – it means that each fat has its own melting temperature, at which it will
   iv) True – the fatty acids are hydrophobic, while the glycerol is hydrophilic.

2. *(1 mark for e*
   i) Emulsification is a process of mixing **water** and **oil** together.
   ii) To **stabilise** the mixture and prevent it from **separating**, an **emulsifier** can be u
   iii) One of them is **lecithin** which naturally occurs in egg yolk.
   iv) For this reason egg is added to **mayonnaise**, which is an example of **wate**
   v) An example of **oil-in-water** emulsion is **milk**.

3. It means that it does not dissolve in water and instead forms a suspension/emulsio

4. Any two from: *(1*
   - to make the cake lighter
   - to improve the texture of the cake
   - to incorporate air into the mixture
   - to make the mixture smooth
   - to make the cake springy
   - to allow the cake to rise
   - any other suitable answer

5. The answer may include a reference to: *(1*
   - Fats are built from a glycerol head and three chains of fatty acids.
   - If all the chemical bonds in the fatty acid chains are single (saturated fats), the temperature.
   - If a fat has one double chemical bond in the fatty acid chain (monounsaturated temperature, but will solidify in a fridge.
   - If a fat has more than one double bond in the fatty acid chain (polyunsaturated fridge and at room temperature.
   - The more double chemical bonds, the more liquid the fat will be (it will be the
   - Accept other valid answers.

6. i) The answer may include a reference to: *(1 mark for e*
      - Shortening happens when we add **fat to flour**.
      - Fat molecules coat starch granules.
      - Fat molecules are hydrophobic, which means that they will prevent the s
      - As the flour has no contact with water, gluten cannot be formed.
      - Because of that, the pastry is crumbly instead of soft and elastic.

   ii) Any one from: shortcrust, flaky pastry, puff pastry, rough puff, or any other co max. 1 mark)

7. The answer may include a reference to: *(1 mark for stating which of the two pas explanation why, max. 2 marks)*
   - Plain flour and lard will be crumblier.
   - Butter contains around 15% of water, so some (little) amount of gluten will be
   - As a result, the buttery pastry will be less crumbly (and more elastic) than the
   - Lard is almost 100% of fat so the flour will have no contact with water at all.

TT13 Functional and chemical properties of food: *Fruit and veget*

1. Oxygen, copper and iron tools, chopping them finely

2. Air, steam (vapour), carbon dioxide *(1*

3. Self-raising

4. Vitamins A, C and E

5. The answer may include a reference to: *(1*
   - Bicarbonate of soda is alkaline so it has a soapy taste.
   - Acid is needed to neutralise the soapy taste.
   - In reaction with acid, baking soda will produce substances that are neutra
   - Thanks to this reaction baking soda with acid can be used as an effective leave

6. Any three from: *(1*
   - whisking
   - beating
   - folding
   - sieving
   - creaming
   - rubbing-in
   - any other suitable answer

7. Any two from: *(1*
   - Yorkshire pudding
   - choux
   - puff pastry
   - flaky pastry
   - any other suitable example

8. The answer may include a reference to: *(1*
   - Enzymes are biologically active molecules built of **proteins**.
   - Acid **denatures** proteins, and so prevents the enzymes from acting.
   - Thanks to the acids, enzymes are inactive and cannot transform the white/yel into melanine.

9. Only one raising method is required for each point: *(1*
   i) Mechanical – whisking
   ii) Mechanical – beating and steam
   iii) Mechanical – folding and steam
   iv) Mechanical – beating and sieving, chemical – baking powder might be used (d

10. The answer may include a reference to: *(1*
    - The cells in plants (fruit, vegetables) are being damaged.
    - The enzymes in cells come in contact with oxygen and become active.
    - The active enzyme turns white/yellow pigment in cells into brown melanine.

11. The answer may include a reference to: *(1 mark for e and 1 mark*
    - Yeast uses sugar present in food (ingredient) for energy.
    - As a result **carbon dioxide** and alcohol are produced.
    - Carbon dioxide expands within the mixture (e.g. cake batter) and causes it to i
    - Examples could include: bread, wine, beer, panettone, or any other suitable a

TT14 Food spoilage and contamination: *Microorganisms and enzy spoilage; Microorganisms in food production*

1. *(1 mark for e*
   i) Enzymes are biological **catalysts** usually built from **protein**.
   ii) This means that they can **speed up** chemical reactio
   iii) Enzymes naturally occurring in plants help th o **en** and develop flavour.
   iv) If fruits are left for too long at **room** e, they can become brown.

2. Any two from: *(1*
   - use of acid (e.g. lemon juice)
   - us h temperature (cooking, blanching)
   - use temperature (freezing, refrigerating)

3. i) High-risk foods are foods that are ready to eat, high in moisture and protein, a treatment, which makes them more susceptible to microorganisms' growth.
   ii) Any three from: *(1*
   - poultry
   - meat and offal
   - fish and seafood
   - milk and dairy
   - cheese
   - vegetables
   - ready-to-eat foods (e.g. pizza, sushi)
   - reheated foods
   - any other suitable example

4. Any two from: *(1*
   - blue cheese (e.g. Stilton, Gorgonzol ue
   - soy sauce
   - Quorn™
   - onc r t h aracteristic of Japanese cuisine)
   - s e ch as Brie or Camembert
   - an suitable answer

5. The answer indicates at least one for each point from: *(1*
   i) Ripening of bananas, browning of fruits such as apples, pears or avocados.
   ii) A green, black or white furry mould coat is growing on bread, cheese or fruits.
   iii) Yeast ferments sugar in fruit and juices and turns them sour, fizzy and foamy, e
   Accept other suitable answers.

6. i) The answer includes a reference to: *(1*
   - Bacteria **ferment** sugar (**lactose**) into **lactic acid**.
   - The lactic acid makes the yoghurt sour in flavour.
   - Lactic acid also changes the **pH** of milk to become more acidic.
   - The low pH causes thee **proteins** in yoghurt to **denature and coagulate**.
   - Coagulation and denaturation cause yoghur ic en (change in textur
   ii) Any two from: *(1*
   - cheese (e.g. Cheddar, Gouda an)
   - sauerkraut
   - gherkins
   - sag g. salami, pepperoni, chorizo)
   - ar
   - fermented milk beverages (e.g. buttermilk, kefir)
   - any other suitable answer

7. i) The answer may include a reference to: *(1 mark for e*
   - Yeast ferments sugar in dough/flour.
   - Yeast produces carbon dioxide as an effect of fermentation.
   - The more sugar, the more gas can be produced.
   - Carbon dioxide causes the dough to rise and become soft and sponge-like

   ii) Any one from:
   - wine
   - beer
   - cider
   - Marmite
   - stock cubes
   - any other suitable answer

8. Only on / control method is needed for each factor, from: *(1 mark for ea*

Factor	Effect	
Temperature	• Microorganisms usually grow faster at room/body temperature (between 20°C and 37°C). • Microorganisms become dormant at low temperatures. • Microorganisms are killed at high temperatures.	• Heat 5°C) micr
Moisture	• Microorganisms grow faster in moist conditions. • Microorganisms grow more slowly (or cannot grow at all) in dry conditions.	• Stori dryi spoil
Food	• Microorganisms such as bacteria grow faster in protein rich environments. • Yeast and mould may grow faster in sugar-rich environments.	• Pack • Prev • Appl • Use food • Chec high
Time	• Bacteria can duplicate their number as often as every 20 minutes. • The longer the time, the higher the risk that food becomes spoilt.	• Cook • Chec • Do n • Do n • Allow
pH	• Most microorganisms grow the fastest in neutral pH. • Most microorganisms will die or become inactive in acidic or alkaline pH.	• Add • Pres • Mari

Accept other suitable answers.

TT15 Food spoilage and contamination: *Bacterial contamination*

1. *Campylobacter*

2. *Salmonella*

3. Dirty/unwashed hands

4. i) True
   ii) False – *Staphylococcus aureus* is a common bacterium living on the skin, in the
   in the gut lining.
   iii) True
   iv) True – the toxin produced by the *Clostridium botulinum* bacterium, and can
   is
   death.

5. Cross-contamination is a process in which **pathogenic or poisonous microorganisms**
   food, either from a different food product, or from equipment or the hands of the c

6. Any two from: *(1*
   - raw eggs
   - poultry/chicken
   - milk and cream
   - any other suitable example

7. Any three from: *(1 mark for each source and 1 mark for e*

Source of contamination	Method of preven
Other contaminated foods	Keeping foods separately, using different tools and answer
Work surfaces and equipment	Using only dedicated equipment, cleaning equipm reasonable answer
The people cooking	Personal hygiene, changing of clothes and use of a another reasonable answer
Pests	Covering food, storing it in closed containers or ro
Waste and rubbish	Keeping personal hygiene, washing hands after de reasonable answer

8. Any three from: *(1*
   - vomiting
   - diarrhoea
   - stomach cramps
   - nausea
   - headache
   - fever
   - any other suitable answer

9. The answer may include a reference to: *(1 mark for e*
   - Milk pasteurisation is a process in which milk is heat
   over 70°C.
   - The high temperature helps to kill most bac
   k.
   - *Listeria* is an example of a bacteri
   aw milk.
   - As a result, there are no li
   s in the milk, so people can drink it safel
   - Accept other suit

TT16 Principles of food safety: *Buying and storing food*

1. C) Room temperature

2. Shelf life is the **amount of time** the food can be **stored or eaten** for before becomin

3. B) -18°C

4. A) on the bottom shelf of the fridge, covered

5. 75°C

6. i) It is important to keep food below danger zone temperatures, prevent microo pr[illegible]oilage.
   ii) It is important to keep air circulating and cool foods properly, without leaving
   iii) Covering food helps prevent tainting of food, prevents other foods from any p prevents contact with other foods and cross-contamination, and protects fron

7. *(1 m*
   i) In a fridge, on the top shelf, covered or in an airtight container
   ii) In a dark, cool, dry room or cupboard, not covered or in a container which lets
   iii) In a fridge, in the door
   iv) In a fridge, on the middle shelf, covered or in an airtight container
   v) In a dark, cool, dry room or cupboard, in an airtight container
   vi) In a fridge, on the bottom shelf, covered or possibly sealed
   vii) In a fridge, on the middle shelf, covered or in an airtight container
   viii) In a fridge or in a dark, cool, dry room or cupboard, usually uncovered or in con
   ix) In a fridge, on the middle shelf, covered or in an airtight container
   x) In a dark, cool room or cupboard

8. • 'Use by' date applies to **fresh or chille[illegible]** and it applies to **food safety**. Th **eaten after** that date.
   • 'Best before' date a[illegible] **rocessed or dry foods** and it applies to food **qua can be eat[illegible]** date but its features might be affected.

9. The ans[illegible]y include a reference to: *(1*
   • Foods should be placed on a tray or in a box to catch all the leaking water/juic other foods.
   • Defrosting should ideally take place in a fridge to let the food defrost evenly.
   • Defrosting should be conducted thoroughly to avoid cold spots which will ther risk of food poisoning.

10. The answer may include a reference to: *(1 mark for e*
    • Defrosted foods come into the range of danger zone temperatures.
    • Microorganisms can replicate faster in these temperatures.
    • Freezing the food again will not kill the microorganisms, and so they will be ab second defrosting.

11. i) From 5°C to 63°C
    ii) The answer may include a reference to: *(1*
    • At danger zone temperatu[illegible], b[illegible]ia and other microorganisms **multip**
    • Therefore, the **ris**[illegible] fo[illegible]oilage/food poisoning is **increased**.
    iii) At temperatur[illegible]e [illegible]C, enzymes become inactive and bacteria cannot m

TT17 Principles of food safety: *Preparing, cooking and serving food*

1. i) False – it increases the risk of food poisoning.
   ii) True – it helps prevent cross-contamination.
   iii) True
   iv) False – raw fruits aren't considered high-risk foods.

2. D) 75°C

3. Any one from:
   - alcohol/ethanol
   - chloramine
   - phenols
   - io[illegible] ...ne of iodine

   Accept [illegible] suitable answers

4. D) Blue

5. i) Any three from: *(1*
   - poultry/chicken
   - raw meat
   - raw eggs
   - unpasteurised milk
   - any other suitable answer

   ii) Any three from: *(1*
   - Wash hands before and after preparing/cooking high-risk foods.
   - Use dedicated, colour-coded tools and utensils.
   - Clean the tools and utensils thoroughly with hot, soapy water.
   - Disinfect tools if necessary/possible.
   - Store the foods separately, in closed/se[illegible] co[illegible]ain[illegible]rs.
   - Accept any other suitable answe[illegible]

6. The answer may include [illegible] *(1 mark*
   - C[illegible] [illegible] me is the time needed to obtain the **desired texture, flavour** ex[illegible] when cooking scrambled eggs it is important to control the cooking t (flu[illegible] and moist) and appearance.
   - Correct cooking time helps to ensure that the food **is safe to eat** (bacteria and enzymes are deactivated), e.g. when cooking meat it is necessary to ensure it
   - Correct cooking time helps to ensure that the food is **not overcooked or raw**, short a time they will be still hard, while overcooking them will make them mu liquid.
   - Accept other suitable answers.

7. Any three from: *(1*
   - Tie back or cover hair.
   - Use a hairnet.
   - Wash hands before working.
   - Use disposable gloves when dealing with high-risk fo[illegible]s.
   - Don't sneeze or cough near food.
   - Don't touch head, hair or face wh[illegible] [illegible]ring or cooking food.
   - Use a clean apron.
   - Change clothes b[illegible] [illegible]ing work.
   - Do[illegible] [illegible]sh [illegible] the kitchen.
   - C[illegible] [illegible]uts and scratches with a waterproof plaster.
   - Do[illegible] prepare food if feeling unwell.
   - Accept any other suitable answer.

8. The answer may include a reference to: *(1*
   - **Reset** the food probe.
   - Sterilise before use.
   - Insert the probe into the **thickest part** of the food measured, **without touchin**
   - Leaving the probe in place until it reaches **75°C or more**.
   - Sterilise the probe after use.
   - The answer indicates that the test should be **repeated** if the required **temperat**
   - The answer indicates that the probe should **not** be used with **different foods** w tests.

9. The answer may include a reference to: *(1 mark for e*
   - Anaphylactic shock is a life-threatening reaction of the immune system to an a
   - Major allergens include: eggs, milk, peanuts, tree nuts, soy beans, wheat and c crustaceans, molluscs, lupin, mustard, sulphur dioxide.
   - Applying food safety principles can help to avoid cross-contamination of foods
   - Cross-contamination means that a food has been contaminated with / spoilt b microorganisms.
   - If a food is contaminated with particles of an allergen, it can cause allergy sym
   - Examples of food safety principles which help to avoid that are: dealing with foo containers, washing hands and utensils before and after dealing with high-risk fo
   - Accept other suitable answers.

TT18 Factors affecting food choice: *Factors which influence food ch*

1. *(1 mark for e*
   i) PAL stands for **physical activity level**.
   ii) PAL helps to assess how much **energy** a person needs every day.
   iii) Low PAL means that a person leads a **sedentary** lifestyle.
   iv) If a person eats more than he or she needs, all the extra **calories** will be store **adipose** tissue.

2. i) Disposable income is the amount of money left after all taxes are deducted fro income can be spent on food, goods (such as food or clothing), as well as Accept other suitable answers.
   ii) Ar fro *(1*
   - arger the income, the more food a person/family can buy (the consu
   - he larger the income, the more healthy food a person/family can buy (the
   - The lower the income, the larger the possibility that a person/family will
   - Healthy food, like fresh fruit and vegetables, is usually more expensive so incomes can afford to buy it.
   - Cheap food is usually high in fats and sugars, so people with lower incom products to satisfy their most basic needs (hunger).
   - The lower the income, the less food people can afford to buy (which poses
   - Accept any other suitable answer.

3. Any four from: *(1*
   - The amount of locally produced food – the more food can be produced, the m also the prices are likely to be lower, increasing affordability for the customers
   - The amount of imported foods – the more food can be imported, the more of wider choice the consumers will have.
   - Seasonality – foods in season are usually available in abundance and at lower unavailable at all or available at very high prices, which makes them unaffordab
   - Price of food – the lower the price, the more affordable the food will be for cu
   - Disposable income (or the amount of money a family wants to spend on food) the more money people m on food, increasing its availability for then
   - Highly developed transport links help to ensure th arou the and not only where it is produced; it also helps to ensure t qu without losing its freshness or quality.
   - Ne hnologies which allow food to be stored for longer without losing nutri be stored for a long time and increases their availability throughout the year, e autumn but can be safely stored and made available throughout the year.
   - Accept any other suitable answer.

4. Any three from: *(1*
   - During celebrations people eat more food, e.g. there is a starter, main meal an
   - People eat more sugar-rich foods, such as cakes.
   - People eat more fatty foods, such as cakes, cheese or roasted vegetables.
   - People choose special festive meals, e.g. roasted turkey, mince pies.
   - People drink more alcohol, e.g. wine or champagne.
   - Calorie intake is larger than on an average day.
   - Accept any other suitable answer.

5. i) To calculate the cost of one pasty: *(1 mark for th culation and 1 mark f*
   a) calculate the cost of a whole batch
   To do this, calculate how much e in redient will cost, and then add th
   - 500g flour will cost £1.00* kg/1.5kg = £0.30
   - 125g lard will cost £0.40*0.125kg/0.250kg = £0.20
   - 125 of will cost £1.20*0.125kg/0.250kg = £0.60
   - 2 of water will cost £0.20*0.2l/2l = £0.04
   - 500g beef will cost £18.00*0.5kg/1kg = £9.00
   - 500g potatoes will cost £1.50*0.5kg/1kg = £0.75
   - 250g swede will cost £4.00*0.25kg/1kg = £1.00
   - 200g onion will cost £0.80*0.2kg/1kg = £0.16

   The sum of these equals the cost of one batch (excluding the cost of work, e
   b) divide the cost of the batch by the number of pasties made from one b
   £12.03/6 = £2.00

ii) Any one from: (1 mark for identifying an ingredient to change and 1 mark for a
- Replace some or all of the flour with wholemeal flour – wholemeal flour c
- Replace lard and butter with a vegetable oil – for example, a margarine o polyunsaturated fatty acids and are cholesterol-free.
- Replace beef with a meat-free alternative, e.g. lentils, tofu or Quorn™ – r risk of bowel cancer so it is best to lower its consumption.
- Use more vegetables – to include a wider variety / t make the diet more vitamins, minerals and fibre.
- Sprinkle with seeds or nuts – to inc'ud' poly saturated fatty acids and v

Accept any other suitable answer.

6. Any two from: *(1 m*
- Th ere y be affected by genetic factors – e.g. people will naturally so ple will prefer less salty items, and others will prefer saltier foods du sal s.
- The preferences may be based on comfort and safety – e.g. people will prefer f and will be reluctant to try new, strange things.
- Preferences may be affected by personal experiences – e.g. people may avoid f past and didn't like.
- Preferences may be affected by the texture of food – e.g. some people will pre prefer softer items which may be easier for them to chew or bite.
- Preferences may be affected by the people we spend time with – e.g. people w associate with home or childhood (such as foods typical of their family home).
- Preferences may be affected by ethical views and beliefs – e.g. some people m eggs as they want to support animal welfare.

Accept any other suitable answer.

7. The answer may include a reference to: *(1 mark for e*
- Physical activity – people with low levels of physical ac y should eat less in g physically active can afford to eat more with t gai g weight; low levels of p calorie consumption may lead to weig t ai a obesity.
- Type of job performed – peo o k in an office usually need less energy eat fewer calories: th of j b performed will also decide all the other com eat (some p e o ly have a 20-minute break, while others can have an h al oc healthier food instead of ready-to-eat, fast food).
- W ours – usually decide what a person chooses to eat for a meal; start that a person will be more likely to choose something quick and easy to make afternoon or night shift will mean that a person will be more likely to choose s (depending on the time of day).
- Whether a person walks or drives to work – walking requires more energy tha eat more without gaining weight.
- How much time a person has to cook/shop/eat – usually, the more time availa a person can spend more time choosing food in the shop (planning the shoppi (so fast foods are avoided) and eating (it is healthier to properly chew the food because the lunch break is too short).
- If a person eats out a lot – eating out means that a person doesn't have a real is eating; even choosing 'healthy' foods such as salads can be unhealthy as the fat, high-salt dressings.
- Enjoyment as an important part of a lifestyle – peop v o often eat out, go t foods and snacks more frequently as often a y he are available at public ve
- Enjoyment – taking part in parties e cial activities may also cause pe rich foods more often; per h o more often reach for alcohol.
- Accept other suit a .

TT19 Factors affecting food choice: *Food choices*

1. Pork chops, prawn cocktail, cheeseburger*
   *Jews do not eat pork or shellfish, and do not mix meat with dairy, so couldn't eat a

2. i) False – in Hinduism beef cannot be eaten, but milk can be drunk because no a
   ii) True – Sikhs believe that cows are sacred, just like Hindus.
   iii) True – they avoid killing animals on purpose.
   iv) True – but they won't be considered local in the UK

3. Lent

4. Any three from: *(1*
   - N[illegible] pork or any pork product (such as gelatine).
   - No[illegible]ng alcohol.
   - Halal meat only.
   - Blood cannot be eaten (meat has to be drained properly, blood pudding would
   - Accept any other suitable response.

5. Any two from: *(1*
   - Ital means natural, clean, pure, from the earth.
   - The answer indicates that Rastafarians eat large amounts of vegetables, fruit a come from the earth.
   - Rastafarians do not eat meat or drink milk because they do not come from the
   - No chemically modified foods can be eaten.
   - Artificial food additives are avoided.
   - They do not eat pork.
   - They do not eat fish which are longer than 12 inches.
   - Coconut oil is used for cooking.
   - They do not drink alcohol.
   - They can drink herbal tea.
   - Accept any other suitable ans[illegible]

6. - Food intole[illegible] **response of the digestive tract** against a given food ingre
   - A[illegible]le [illegible] gluten intolerance or lactose intolerance.
     mo
   - Food allergy involves the reaction of the immune system in response to a given
   - Examples are nut allergy, milk protein allergy, egg allergy, wheat allergy, shellfi
     correct, max. 1 mark)

7. The answer may include a reference to: *(1 mark fo*
   for
   - Animal welfare – people will buy only foods which have proper quality marks, a make sure the animals didn't suffer / were treated humanely.
   - Fairtrade – people will choose foods labelled as Fairtrade, e.g. bananas with a F their food choices do not negatively affect other people.
   - Local produce – people will choose local, seasonal products, e.g. pumpkins in a only, to support the local community and farmers, decrease food miles and ca impact on climate change.
   - Organic – people will choose foods labelled as organic, e.g. organic eggs, to av or other potentially harmful factors.
   - Genetically modified food (GM foods) – people will look for foods labelled as G free feed only, to avoid potential health hazards connected with GM foods.
   - Acc[illegible]ny [illegible]icable answer.

TT20 Factors affecting food choice: *Food labelling and marketing i*

1. Use by date, origin of food, allergens, the net quantity, list of ingredients

2. The ingredients are put in a descending order – from the ones used in the largest q
the smallest quantity.

3. Celery, lupin, mustard, nuts, milk

4. i) BOGOF stands for **buy one get one fr** it is a popular **marketing** strategy use
(1 mark for eac

ii) Any three from: (1 m for each correct answer, max. 3 marks)
- price re
- ia ers
- samples
- free gifts
- product placement
- displays
- points of sale
- any other suitable answer

5. i)

Red – high level of a given nutrient (fat, saturates, sugar, salt) per 100g or 100
Amber – medium level of a given nutrient (fat, saturates, sugar, salt) per 100g o
Green – low level of a given nutrient (fat, saturates, sugar, salt) per 100g or 10

ii) The answer may refer to: *(1*
- The colours green and amber may persuade a person to choose healthier
levels of fats, saturates, sugars and salt.
- Foods and snacks which are labelled as red should be avoided due to high
sugar or salt.
- Accept other suitable answers.

6. i) *(1 mar*

	Nu
S e	
Co contributes to normal hair pigmentation	
Low salt	
Essential fatty acids are needed for normal growth and development in children	
Calcium and vitamin D are needed for normal growth and development of bone in children	
Source of vitamin D	

ii) The answer may refer to: *(1*
- Nutritional claim states that there is a nutrient content in a food.
- Health claim shows the link between a given nutrient in food and its bene

7. The answer may include a reference to: *(1*
- Pester power is the ability of children to pre se ir parents into buying th
- Pester power is used by marketing isu make people buy products fo
chosen items.
- Examples could incl ing items at the eye level of children, making pack
catchi fo placing children's heroes on the packaging.
- A he suitable answers.

8. i) The labelling helps to protect the consumers by: *(1*
1 m

- **providing date marks ('use by' and 'best before')** – this helps people to e
therefore helps to prevent food poisoning
- **providing a list of allergens** – this helps people to avoid foods which may
allergic reactions and/or anaphylactic shock
- **providing storage instructions** – this helps people to identify how a given
they can store it properly and prevent bact[illegible]plication (and food p

ii) The labelling helps to educate consumer[illegible] *(1*
1 m

- **providing them w[illegible]ne[illegible]ormation about food provenance** – this help
they eat c[illegible]; this is also useful in making informed choices as so
[illegible]country only, e.g. Brie cheese made in France only
- **[illegible]ding health and nutritional claims** – this helps people to learn what
they eat and plan their meals and diets accordingly; this also helps to ma
able to identify products which may be suitable or unsuitable for them, e
foods with low sugar content

Accept other suitable answers.

9. Any two from: *(1*

- Showing advertisements of sugary snacks and beverages may cause children t
therefore, consume more of them.
- Showing the specific habits of actors / TV series characters / movie characters
favourite character chooses salad for lunch, they may be keener to try salads t
- Showing programmes related to food and healthy eating – e.g. this may encou
eagerly; it may also help to encourage them to cook food themselves rather th
- Displaying healthy eating campaigns – e.g. if children watch TV often, they ma
songs, and then choose foods which the slogans/songs are about.
- Accept other suitable answers.

TT21 British and international cuisines

1. Cuisine is a style of cooking in a given country or region that has distinctive ingredie methods, presentation styles and/or serving techniques.

2. B) Spanish cuisine

3. A) Serving meats and puddings with thick sauces, e.g. stew casseroles or Sunda

4. i) False – tandoor is a clay oven characteristic of Indian cuisine.
   ii) False – wok is a deep frying pan from China.
   iii) False – tapas are eaten in Spain.
   iv) False – antipasti comes from Italy.

5. *(1*

Foods	Country of origin
Gazpacho	Spain
Bruschetta	Italy
Onion soup	France
Spring rolls	China
Tagine	Morocco
Helva	Turkey
Lentil dahl	India
Baklava	Greece

Other suitable answers may be accepted (e.g. baklava may be seen as both a Greek

6. a) Any three British cheeses, from: Cheddar, Stilton, Red Leicester, Wensleydale, *mark for all correct, max. 1 mark)*
   b) Any three non-British cheeses and their country of origin, e.g. Brie, Camembert halloumi and anthotyros for Greece, or any other suitable answer.

7. The answer may include reference to: *(1*
   - A traditional breakfast in the UK is very filling.
   - In the UK lunch is eaten around noon / early afternoon and usually consists of light dishes.
   - In the UK the dinner is eaten in the late afternoon / late evening, and usually co or pie).
   - In Spain breakfast is usually quite light and sweet, and eaten later in the morn
   - In Spain after lunch people enjoy a siesta (resting period).
   - In Spain dinner is often eaten late in the evening, and may include a selection o

   Accept other suitable answers.

8. The answer may include a reference to: *(1*
   - The word Mediterranean refers to the countries in the Mediterranean Sea reg Spain, etc.
   - The ingredients characteristic of the region include: olive oil and olives, wine a as tomatoes, aubergine, bell pepper, specific herbs such as rosemary or thyme
   - The meals are often enjoyed in a larger group, e.g. family or friends, and share
   - There are various eating patterns e.g. in Italy a traditional meal consists of sev another, while in Morocco all dishes may be served together.
   - There may be specific types of equipment used, e.g. special stone ovens to ba stews in Morocco, paellera to make paellas in Spain, etc.
   - There may be specific ways of presenting and serving the food, e.g. in Italy pas in Spain paella is usually served in the pan (paellera), in France a selection of ch wooden boards, etc.

   Accept other suitable answers.

9. The answer may include a reference to: *(1*

- Traditional English breakfast contains fried bacon, sausages, eggs, baked bean, grilled tomatoes and/or mushrooms.

To make the breakfast more modern or healthier:

- Bacon can be grilled instead of fried to let some of the fat leak out OR a low-fa
- Sausages should be chosen so that they contain more meat than other ingredi about 60% of meat), also low-salt sausages may be c instead of tradition
- Free-range eggs may be chosen to follow m e cal beliefs about animal
- Beans can be exchanged for a low -sugar or low-salt alternative produc
- For vegetarians, bacon an may be exchanged for an alternative, e.g product.
- But anged for unsalted butter or a cholesterol-lowering mar
- To can be served raw instead of grilled to preserve their nutritional val
- Acc y other suitable example.

TT22 Sensory evaluation

1. Sweet, salty, sour and bitter
   Additional mark for umami

2. C) Aroma

3. *(1 mark f*
   i) Paired preference and **hedonic** are types of acceptance tests. They are designe
   acceptable for the consumer. In the paired preference test, the tester is given t
   preferred one. In the **hedonic** test a tester can be given **two** or more samples
   ii) The triangle test is an example of **discrimination** tests. The test is designed to i
   samples give
   iii) Th ng tests include **ranking, rating** and profiling. Profiling tests help asse
   te used to measure the **strength** of a given feature of a food. The **rating**
   many foods or **many** features of one food.

4. Only one type of test is required for each point, from: *(1*
   i) paired preference test
   ii) hedonic rating test, rating test or profiling test
   iii) hedonic rating test, ranking test or rating test
   iv) triangle test, hedonic rating test, ranking test or rating test

5. The answer may include a reference to: *(1*
   - Any one the four senses: sight, taste, touch and smell.
   - The answer indicates that the look of the food makes it more or less **appetising**
   - The answer indicates that touch helps assess the **texture and consistency** – w
     soft, spongy, etc.
   - The answer indicates that taste helps decide whether a person likes the food o
     salty, too sweet, too bitter or too sour for them (e.g. s lty/sweet/bitter/sou
   - The answer indicates that smell helps to de de wh ther we like the food or no
     will be more likely to try a new fo d if he likes the smell of it.
   - Accept other suitable answers.

6. The ans ay in a reference to: *(1 mark for e*
   - Ta s only recognise basic flavours: umami, sweet, sour, bitter and salt.
   - The oma of the food is recognised by the receptors in the nose.
   - The palatability of food depends on both the taste and the aroma.
   - When the nose is blocked, the olfactory receptors cannot receive the chemical
     message cannot be sent to the brain to recognise the aroma.
   - Smelling no aroma will decrease/worsen the overall flavour of food, or make t
   - Accept other suitable answers.

7. The answer may include a reference to: *(1*
   - To obtain reliable results a test should be conducted in **controlled conditions**.
   - In a testing room all **distractions** should be removed, e.g. smells, noises.
   - The **lighting** should be controlled to hide visual discrepancies between sample
   - Testers should be **isolated** from each other.
   - All the **samples** should be of the same size, shape, tem ature, etc.
   - If a **carrier** is used, it has to be neutral in tast
   - The **samples** must be served at the co t t perature, e.g. ice creams shoul
     hot, etc.
   - The dishes used sh neutral in appearance and identical to all testers.
   - **Clean ate** provided to all testers.
   - A s should be provided with a **score sheet** and/or instructions on how t
   - Ac er suitable answers.

TT23 Environmental impact and sustainability of food: *Food sour*

1. Oranges, lettuce and corn
   Chicken and eggs may be considered reared ingredients. Stinging nettles are a gath

2. Mushrooms, stinging nettle, seaweed
   Cheese is a product of secondary processing, not a pr
   Apples are usually a grown ingredient. (How er wil species which could be gathe

3. Any three from: cows, she gs, ickens, turkeys, geese, ducks or any other suit
   max. 1 mark)

4. Any thr : boar, deer, rabbit, pheasant, grouse, salmon, trout, oyster or any o
   correct, max. 1 mark)

5. C) 'They cause overfishing' is untrue.

6. i) False – venison is the meat of the deer.
   ii) False – organic means that the hen must have been fed organic feed; free-ran
   fed organic feed but have to be let outside for part of the day.
   iii) False – oranges are grown in Spain and other countries and are imported to th
   iv) True

7. Any three from: *(1*
   - artificial fertilisers
   - pesticides
   - herbicides
   - antibiotics (can be used for treatment only, not f ve tion of diseases)
   - GM feed for animals
   - GM seeds used to plant veget a fruit

   Accept any other suitable e ple

8. Any tw ea ise: *(1 mark for each cor*

Animal produce	
Duck	Potatoes
Turkey	Carrots
Goose	Parsnips
Rabbit	Beetroots
Venison	Kale
Cod	Cabbage
Dover sole	Brussel sprouts
Queen scallops	Onions
Haddock	Oranges
Halibut	Artichoke
Lobster	Butternut squash
Oysters	Celeriac
Hare	ohlrabi
Partridge	Leeks
Lemon sole	Cranberries
Turbot	Any other suitable ans
Any other suitable a	

9. Any four different factors with an explanation from: *(1 mark for each correct facto*
   - Weather conditions – the temperature and rainfall help to determine what kin area to ensure success.
   - Soil quality – well-nourished soil is better for growing food plants, while poore pastures.
   - Soil pH – some plants will grow in acidic conditions only, while others will pref
   - Pests – are usually specific to a given region and a given plant, e.g. Colorado b other plants.
   - Vermin – if the field is in close proximity to woods, there is a possibility that v harm livestock, so it is best to fence the field or protect it from them in other w a sheepdog from foxes in the woods).
   - Climate in the region – whether there are four seasons of the year or only two m with rain possible.
   - Ar f sunlight available during the day – some plants prefer to be grown very sunny conditions.
   - Landform – as usually fields cannot be planted on mountain slopes (but these e.g. for goats).

   The answer must provide a short description/explanation of why a given factor has Accept other suitable answers.

10. The answer may include a reference to: *(1*
    Advantages may include:
    - Intensive farming helps obtain larger crops / amounts of meat or milk for peop
    - In intensive farming less land is used; it is less costly to rear hundreds of anima
    - Proportionally fewer people are needed to run a large farm.
    - Intensive farming lowers food prices.

    Disadvantages may include:
    - Keeping many animals in one place increases the risk of a disease spreading.
    - Increased risks of fights and injuries between a
    - Animal welfare standards are often not be
    - Antibiotics are often used in large ats, which increases the risk of deve bacteria
    - Accept any other suitable answer.
    - ple of an intensively farmed animal is hens (especially in cage egg p m
    - An example of an intensively farmed plant is maize as it is grown for food, fe therefore, high-yield crops are of benefit.

    Accept other suitable answers. *(1*

11. The answer may include a reference to: *(1 mark for e*
    - *Genetically modified* means that some genes in the plants' or animals' DNA ha order to obtain the desired feature.
    - Advantages of GM may include:
      → decreasing the need for herbicides
      → increasing nutritional value of food
      → increasing crops
      → any other suitable answer
    - The disadvantages of GM may include:
      → unknown health effect
      → extinction of naturall species
      → contaminati farms/fields
    - Exam s o include golden rice, soybean, beef (cattle), etc.
    - Ac he suitable answers.

1. Oranges, strawberries, potatoes

2. B) Supports organic farming

3. i) The answer includes a reference to at least three fro *(1*
   - Food is provided to all people.
   - The food is available in sufficient quantity for each person.
   - The food is healthy (not poisonous, spoilt).
   - The food is [illegible] micro- and macronutrients are provided in the
   - [illegible] available all the time.
   - Food is affordable (the price is low enough for people to buy it).
   - [illegible] food provides enough energy to ensure an active, healthy life).
   - No people are starving, whether it is in a family, community or globally.
   - Accept any other suitable answer.

   ii) Any three from: *(1*
   - Less land for growing/rearing food
   - Climate change impact on abilities to grow food
   - Droughts which make growing food impossible
   - Floods which destroy crops
   - More people to feed, requiring more and more resources
   - Limited resources of water and fossil fuels may cause disruption in produ
   - Intensive farming decreases the quality of soil and makes farming in futu
   - Environmental damage caused by pollution diminishes the area of land u
   - Damage to the crops caused by pests, rodents and animals (e.g. wild boa
   - Any other suitable answer

4. Any three from: *(1*
   - lowering the carbon footprint
   - lowering the need for tran[illegible]
   - local foods are fre[illegible]
   - local [illegible]ds [illegible] in nutrients
   - lo[illegible]s are often cheaper
   - loc[illegible]ds are sold unpackaged so there is no need for recycling
   - local foods may be tastier as they are usually riper
   - any other suitable answer

5. Any three from: *(1*
   - fair wages for farmers and workers
   - improving working conditions of farmers and workers
   - empowering farmers and their families
   - making education possible in developing countries
   - any other suitable answer

6. Any three from: *(1*
   - GM plants usually grow faster and larger so more food can be produced and h
   - GM plants are often resistant to pests so no pesti[illegible] used and the food i
   - GM animals have more muscle tissue so mo[illegible] can be produced for cons
     carnivorous animals).
   - GM cows can produce mo[illegible] milk so more food can be produced.
   - GM plants can [illegible] nutrients, e.g. vitamins, so help to prevent malnutri
   - Ac[illegible] suitable answer.

7. Any three from: *(1*
   - using leftovers to cook other meals
   - buying only as much as needed
   - storing properly to prevent food spoilage
   - only putting on a plate as much as is needed
   - any other suitable answer

8. i) Any three from: paper, glass, plastic, cardboard, aluminium, metal or any othe
correct, max. 1 mark)
Do not credit foil as it is usually not recycled.

ii) The answer may include a reference to: *(1*

- Some food packaging takes a **very long time to decompose** and, therefor
environment.
- Pollution may lead to **mass death of animals**, e.g. fish or birds, which ate
- Pollution ruins the **balance** in the **ecosyster**
- **Recycling** most of the food packagi g helps protect the environment
- **When making packaging** [illegible] ural resources, such as water and fo
greenhouse gase[illegible]em[illegible], so it contributes to global warming.
- Accept ot[illegible]a answers.

9. The ans[illegible]udes a reference to: *(1 mark for e*

- Sustainability means the ability to produce foods without damaging the enviro
- It is necessary to fulfil the demands of a growing population while less land is a
- Sustainable farming helps to avoid waste of resources, such as land, water and
- Sustainable farming protects plant and animal species from extinction.
- Sustainable farming may prove more costly than factory farming as the use of
antibiotics) may be restricted, therefore the harvest may be lower.
- Sustainable farming has to be regularly adjusted to the changing climate condi
- Examples of sustainable farming could include fish farms, sustainable fishing i
orchards, free-range and organic egg farms, or any other suitable answer.
- Accept other suitable answers.

10. i) Carbon footprint is the amount of greenhouse gases released into the atmosp
transportation.

ii) Food miles is the distance the food has to travel from the farm to the consume

iii) The answer may include a reference to: *(1 mark for e*

- **Transportation** uses **fossil fuels** to run ind[illegible]refore, create more **green**
carbon footprint.
- The increased am[illegible]of carbon dioxide **enhances** global warming.
- Explain th[illegible]a[illegible]n behind global warming: that carbon dioxide creat
wa[illegible]side instead of releasing it to space.
- [illegible]al warming is an example of **human-driven** climate change.
- Various aspects of climate change, such as glaciers melting, fierce hurrica
other **direct effect** of global warming.
- Climate change is dangerous and can lead to mass extinction of species, f
other **indirect effect** of global warming.
- Accept other suitable answers.

TT25 Food processing and production: *Food production*

1. Washing, draining, milling, gutting

2. Wheat

3. Fermentation, boiling, adding colourants

4. Bread

5. i) True
   ii) False – bran is the outer part of the grain.
   iii) True
   iv) True

6. i) Any two from: *(1*
   - tuna
   - salmon
   - herring
   - sardines
   - anchovies
   - trout
   - mackerel
   - eel
   - any other suitable e

   ii) Any two from: *(1*
   - salting
   - smoking
   - cooking (grilling, frying, stir-frying, poaching, baking, roasting, deep-fryin
   - canning
   - pickling (e.g. pickled herring is popular in Eastern European countries)
   - fermenting (popular in Sweden)
   - any other suitable example

7. The answer may include a reference to: *(1 mark for e*
   - Pasteurisation takes place at **[illegible] minutes** and kills **most** microorgan nutritional value of fo[illegible] its features.
   - Sterilisation takes place at **over 130°C**, **lasts 30 minutes** and **kills all of the mic** af[illegible] nutritional value or features of food.

8. Any two from: *(1*
   - to tenderise the meat (by denaturation of proteins in muscle fibres conducted
   - to make the meat softer
   - to improve the aroma (production of ammonia)
   - to improve the taste of the meat
   - to improve the mouthfeel
   - to improve the flavour
   - to mature the meat
   - to overcome natural changes which take place in muscles after death*
   - any other suitable answer

   *rigor mortis – students do not have to know the term or the chemistry behind it

9. The answer includes at least four steps (in correct ord[illegible]n *(1*
   - pasteurisation of milk
   - adding starter cultures
   - fermentation of the mi[illegible] turn[illegible] lactose into lactic acid
   - adding rennet
   - co[illegible]on [illegible]k
   - cu[illegible]e curd
   - draining the whey
   - Cheddaring the curd / putting in piles and flipping to allow further fermentatio
   - adding salt
   - forming cheese in hoops
   - ageing the cheese

10. *(1 mark for a basic description, 2 marks for*

i) Milling – turns wheat into flour; during the process bran is thrown away / sepa internal part of the grains), and vitamins (e.g. thiamine) and minerals (e.g. foli dietary fibre.

ii) Drying – evaporates water from foods, so can lead to vitamin loss if water-solu Also the high temperature of the process may affect the amount of vitamins a

iii) Fermentation – turns sugar (e.g. lactose) into acid and therefore makes the fo dietary requirements, e.g. in lactose intolerance lowers the amount of sugar acidic pH may damage the proteins and certain vitamins.

11. The answer includes a reference to at least four from: *(1 mark for e*

- Sterilisation is carried out at high temperatures over 110°C for a long time.
- Pasteurisation is carried out at lower temperatures (around 72°C) for a short t
- High temperature causes the lactose to react with proteins in milk.
- Products of these chemical reactions change the colour and flavour of milk.
- The temperature of pasteurisation is too low for these reactions to take place affected.
- High temperature in sterilisation may also cause the proteins to coagulate and
- At high temperatures (sterilisation) lactose can begin to caramelise, also chang
- The temperature of pasteurisation is too low for lactose to caramelise.
- The time of pasteurisation is too short for proteins to denature.
- Accept other suitable answers.

TT26 Food processing and production: *Technological developments, health and food production*

1. i) False – fortification is optional.
   ii) False – it has to be fortified with vitamin A.
   iii) False – niacin doesn't prevent beriberi; thiamine does.
   iv) False – it may be fortified by law in other countries.

2. i) Plant sterol / phytosterol or plant stanols / phytostanols.
   ii) Any two from: *(1 m*
   - atherosclerosis
   - coronary heart disease
   - cancer
   - heart attack
   - stroke
   - heart failure
   - vascular dementia
   - aortic aneurism*

   *not required by the specification

3. *(1 mar*

Fortified food	Su
plain wheat flour	thiamine (vit. B1), niac
skimmed and semi-skimmed milk	vitamin A (retinol)
margarine / vegetable fat spreads	vitamin A (retinol) and

4. Any two from: *(1*
   - Fortification increases the intake of important micronutrients.
   - Fortification prevents nutrient deficiencies.
   - Fortification prevents diseases caused by nutrient deficiencies.
   - Fortification helps to balance the diet.
   - Fortification improves health.
   - Fortification reduces the risk of food-borne diseases.

   Accept any other correct answer.

   The answer includes relevant examples, such as: *(1*
   - Iron added to bread helps to prevent anaemia.
   - Thiamine added to bread helps to prevent beriberi.
   - Niacin added to bread improves energy release from food.
   - Calcium added to bread prevents osteoporosis and rickets, improves muscle co pressure.
   - Vitamin A added to milk and margarine supports proper eyesight, healthy skin antioxidant.
   - Vitamin D added to margarines supports bone health, prevents osteoporosis, cancer.

   Accept any other suitable explanation.

5. Any four from: *(1*
   - Provide more protein – prevent malnutrition and hunger
   - Provide more fat – prevent malnutrition and hunger
   - Provide more omega fatty acids – prevent malnutrition and deficiency (food
   - Provide more minerals – prevent malnutrition and deficiency (food-borne dise
   - Provide vitamins – cure effects of deficiencies
   - High in antioxidants – help to prevent cancer and cardiovascular diseases
   - Produced in large amounts – helps to prevent or alleviate hunger

   Accept any other suitable answer.

6. The answer may include a reference to: *(1 mark for e*

- Three food additives from: colourants, preservatives, emulsifiers, flavourings, other suitable answer
- Advantages of using food additives from:
  - → Colourants are used to improve/enhance/change the colour of a food an to consumers, increase sales and consumption.
  - → Preservatives extend the shelf life of food, and prev nt spoilage caused b
  - → Emulsifiers and stabilisers prevent the food se, arating, improve its and prevent crystallisation of sugar
  - → Thickeners improve the te re mprove the mouthfeel of food.
  - → Flavourings impr stre hen or change the aroma and taste of food p appetisin al g to consumers.
  - → ep other suitable answer.
- Di ages of using food additives from:
  - → Colourants can be used to hide poor quality of a food, and can cause alle tumours.
  - → Preservatives such as sulphur can cause allergies and increase the risk of inflammation).
  - → Emulsifiers can be used to hide poor quality or consistency of ingredients flatulence, and can damage the lining of the intestine and cause leaky gu
  - → Flavourings and sweeteners can be used to trick consumers into buying t can contribute to obesity if too much food is consumed, can cause allerg and itching, and can be harmful to people suffering from certain diseases phenylketonuria).

Accept other suitable answers.