Zig Zag Education

Food

GCSE (9–1) | Eduqas | C560

2016 specification
first exams in 2018

Starters and Plenaries

for GCSE Eduqas
Food Preparation and Nutrition

Where Food Comes From

zigzageducation.co.uk

POD 10066

Contents

Teacher's Introduction

This pack of Starters and Plenaries is designed to help you deliver the content of the GCSE Eduqas Food Preparation and Nutrition specification.

The starter worksheets aim to either introduce new terms or recapitulate the information gained during previous lessons. The plenaries are to summarise the basic concept of the lesson and help to take the main message home.

A range of activities has been created in this resource which incorporates independent, paired and group work and which will be engaging for the students. The varied nature of the activities provides an opportunity for a range of learning styles to be developed, including visual, verbal, auditory and kinaesthetic.

A cross-reference table has been provided which links each activity to the specification points it covers and also identifies which activities are considered to be starters and which plenaries. However, the identification of each activity as a starter or plenary is only a suggestion and you might find that some of the activities are interchangeable.

Each activity should take from 5 to 15 minutes, which makes it easy to incorporate into a lesson.

December 2019

Specification Cross-referenc

This table will enable you to pick and choose starters or plenaries relevant to the s
teaching. While each activity has been selected as either a starter or a plenary yo
starter and plenary tasks may be interchangeable dependent on how you teach th
Some may not work so well as a starter or as a plenary. It is a[illegible] the teacher's discr

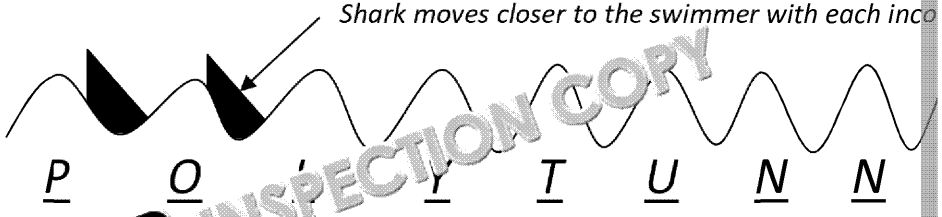
No.	Activity	Extra resources	Su
	Where food comes from		
1	Food [illegible]ark attack	Board, chalk or markers	Star
2	Food [illegible] – World discovery	Scissors, glue	Star
3	Sustainability of food – Classify it	Scissors	Star
4	Sustainability and security of food – Postcards	-	Pler
5	Food poverty – Brief the prime minister	Internet access	Pler
6	British and international cuisines – Mindful keyword puzzle	-	Star
7	British and international cuisines – Pass the hat	Hat (or another prop)	Pler
8	Food processing – Is food production your cup of tea?	-	Pler
9	Food processing – Do you know your onions?	-	Star
10	Food processing – Snapshot	[illegible]yons or colourful pens	Pler
11	Food processing – The gra[illegible]	-	Pler
12	Tech de[illegible] – Food for thought	-	Star
13	Foo[illegible]facturing – Be the teacher	-	Pler

Activity 1 – Food provenance – Sha

Teacher's Notes

	Starter activity: Shark attack
Aim of the activity	To introduce or recall information about where and how food
Teacher's instructions	Copy the student worksheet to allow one per person (so that For the first secret word, draw a blank line for each letter on th waves that represent each word with a swimmer at the end (s Read aloud one question and if students answer correctly, the the alphabet to reveal. If the letter is in the secret word, revea position above the blank line (if the letter occurs more than on Similarly to hangman, if the letter is not present in the secret w But beware – students only have as many chances as there are The person who guesses the secret word first (and before the l After the game allow students up to 5 minutes to complete the

For the shark attack, draw an image similar to the following (e.g. 10 waves in poly



Answers

Secret word: POLYTUNNEL (10)

1. What is venison? Mea
2. What do you call a substance that prevents worms from damaging a crop? Pest
3. What do you call foods that are brought to UK from other countries? Imp
4. What is the most popular cereal crop in the UK? Whe
5. What is necessary for plants to carry out photosynthesis? Sun
6. Is mackerel a lean fish or an oily fish? Oily
7. Are apples stone fruits? No,
8. Is quail grown, reared or caught? Usu

Secret word: ORGANIC (7)

1. Meat of what animal is commonly eaten at Christ Tur
2. What do you call a substance that is used to provide nutrients to plants? Fert
3. What do you call the building hens are kept in? Chic
4. Can fruit trees be grown in polytunnels? No,
5. Is tuna a lean fish or an oily fish? Oily
6. Is quin grown, reared or caught? Gro
7. Are pra crustaceans or molluscs? Crus

Secret word: SEASONAL (8)

1. What do you call the animal droppings used to fertilise soil?
   Manure
2. Are bananas grown in the UK?
   No. They are imported.
3. Can artificial fertilisers be used in organic farming?
   No
4. Is herring a saltwater fish or a freshwater fish?
   Saltwater
5. What does 'crop rotation' mean?
   This means that a field can be used for growing plants one year, and for grazing animals the next. Crop rotation is used to improve the quality of the soil
6. Is salmon caught or reared?
   Both

Secret word: HIGH YIELD (9)

1. What do you call the building pigs are kept in?
   Pigsty
2. What do you call animals which are allowed to roam outside?
   Free range and/or organic
3. Are plums stone fruits?
   Yes
4. Can antibiotics be used in organically reared animals?
   Yes, but only when necessary, under controlled conditions and in amounts needed to prevent it!)
5. Is dredging considered a sustainable fishing method?
   No, because it can damage the habitat of the fish and other living things near it
6. Can animal derived foods be considered seasonal?
   Yes, e.g. turkey is in season in winter and lamb is in season in the spring
7. Are vegetables grown in polytunnels considered seasonal?
   No, they are available all year round

Food provenance: Shark atta

In this game you not only get to guess a secret word by revealing a l
can check your knowledge about how and where foods are grown,

Your teacher will read aloud some questions. If you answer a question correctly, you can choose one lette[illegible] he alphabet to be revealed in the password. If it is the e[illegible]r teacher will reveal it, and if it's not, they will [illegible]wing the shark, wave by wave, closer to the swim[illegible] Can you guess the password before the shark catches [illegible]

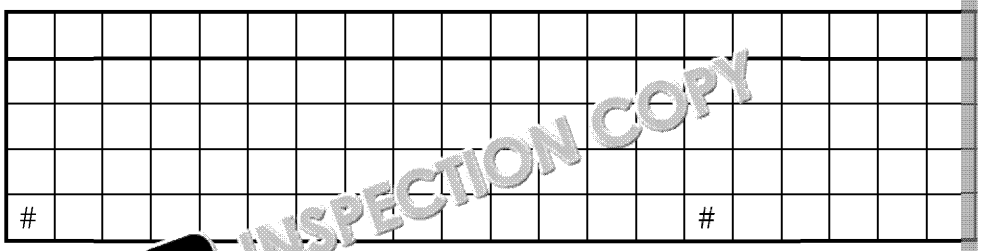
Secret wo[illegible]

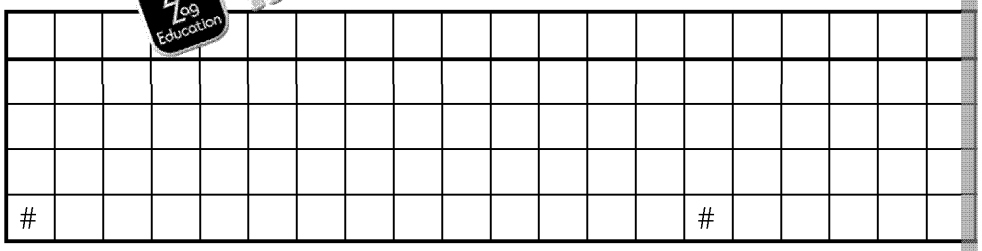
Secret word 2: .....

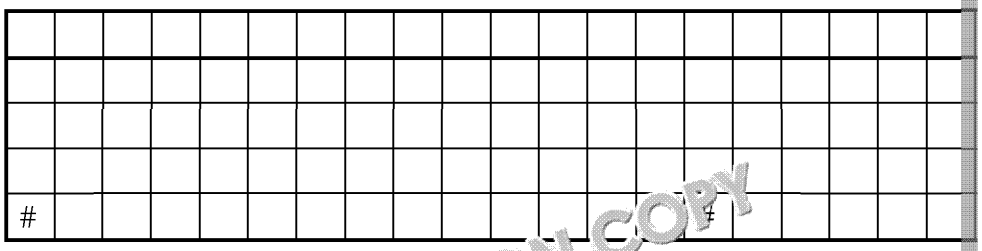
Secret word 3: .....

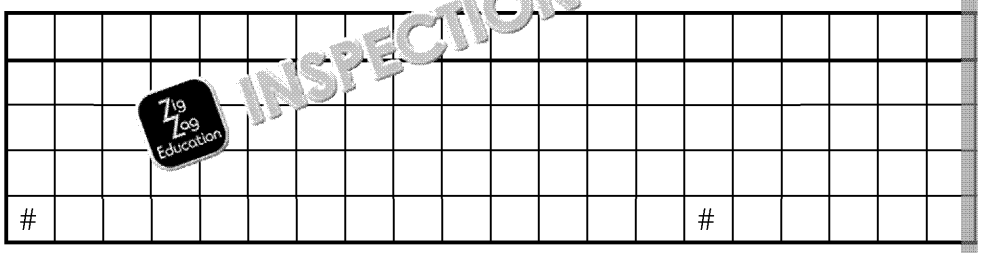
Secret word 4: .....

Do you know what each of these words means? Tweet it and prove
#HASHtags! Remember that a tweet cannot have more than 140 c









Activity 2 – Food miles – World di

Teacher's Notes

	Starter activity: World discovery
Aim of the activity	To explain how the food industry affe[illegible]e environment in te greenhouse gases emission
Teacher instructions	Split the class into [illegible]rs. [illegible]py the student's worksheet to allo decide to [illegible] the map outline in A3 format to make it easier In each pair, students should use the labels to design one meal one which has high food miles. They may add other ingredien aim to indicate where the ingredients are likely to have come f use their mobiles or maps (if available) to help locate countrie Continue the lesson to explain why the distance and origin of f greenhouse gases emission.

Answers

Ingredients with low food miles include:

- potatoes
- green peas
- apples
- strawberries
- Brussel sprouts
- cauliflower
- cod
- pork
- lamb
- chicke[illegible]

Ingredients with high food miles include (miles are approx. and will vary, food or

- oranges, e.g. from Spain (787 miles)
- bananas, e.g. from Ecuador (5,733 miles)
- cocoa, e.g. from Brazil (5,464 miles)
- coffee, e.g. from Kenya (4,237 miles)
- parmesan – from Italy (890 miles)
- sweet potatoes, e.g. from the USA (3,666 miles)
- wine, e.g. from France (213 miles), from Australia (10,554 miles) (note: we al is usually from imported grapes, so cannot be treated as a local product)
- sweetcorn, e.g. from Mexico (5,551 miles)
- rice, e.g. from Thailand (5,922 miles)

Food with highest food miles is wine fr[illegible]ralia (10,554 miles)

Food miles taken fro

Food miles: World discover

The great world discoveries in the sixteenth century c
invade and conquer the new lands, but also to disc
ingredients. Today we have easy access to foods fr
but this is often at the cost of the environment, as the
processing and transportation require large amounts
greenhouse gases are emitted in the meantime.

To limit the damage to the environment, we can choose to buy fewe
our diets on locally grown and seasonal ingredients, etc. This in turn h
miles – the number of miles the food has to travel from the farm to your plate

Using the labels below, design two meals, one of which will have low
which will have high food miles.

Then try to attach the labels to (or write them on) the map (next pag
came from. Which one do you think has the highest food miles?

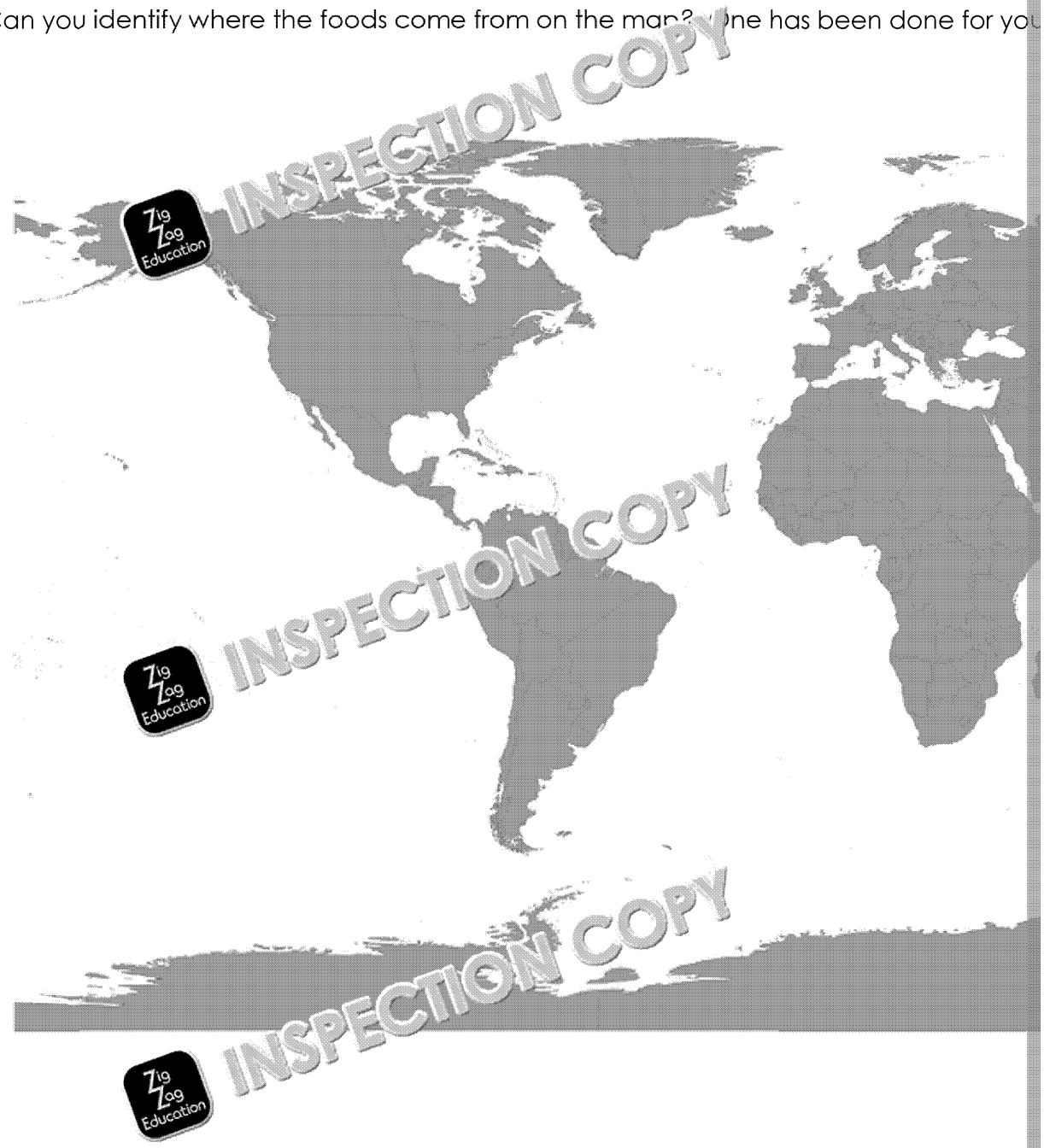
potatoes	oranges	green peas	banan
cocoa	strawberries	coffee	Brussel sp
cauliflower	sweet potatoes	cod	wine
sweetcorn	lamb	rice	chicke

High food miles:

Low food miles:

Food with the highest food miles: .....

Can you identify where the foods come from on the map? One has been done for you



Activity 3 – Sustainability of food –

Teacher's Notes

	Starter activity: Classify it
Aim of the activity	To introduce the idea of sustainable food production.
Teacher instructions	Copy the cards on to one page and cut them out. Give one c some empty cards so that you could add your own ideas). Ask students to stand in the middle of the class. Then ask thos resources cards to move to the left side of the classroom, and resources cards to move to the right. Encourage students to d other if they are not sure. After completing the activity, continue the lesson to explain wh both renewable and unrenewable, and how sustainable food p

Answers

Renewable resources:

- orange trees
- wind
- sunlight
- bananas* *(as bananas are monocultures, they are very prone to infections, and may, therefore, be easily damaged)*
- salmon* *(depending on the fishing method used)*
- air
- saltwater* *(as long as the energy source used for desalination is renewable/sustainable as well)*
- cotton
- chicken
- cow
- mushrooms
- carrot
- wheat
- salt* *(salt fro unrenewable, sea may be c*
- biofuel

Unrenewable resources:

- coal
- oil
- natural gas
- wood* *(most trees grow too slowly to replenish the used resources within a li growing tree species planted especially for this purpose)*
- uranium
- charcoal
- freshwater
- sturgeon* *(this type of fish is very rare in the wild and may soon become extin methods and its use in the production of caviar)*
- tin
- lead
- copper
- vanilla* *(as vanilla pods are pollinated by humans, they cannot be considered able to regrow by themselves)*
- whales* *(populations of whales are endangered by unsustainable fishing met*
- soil* *(as intensive farming methods may lead to significant drop in quality, le won't be suitable for growing plants any more)*
- bees* *(as the common use of pesticides is limiting the bee populations and en number of bees out there is considered insufficient for plant pollination)*

*depending on the method of production/farming

Sustainability of food – Classify it – Re

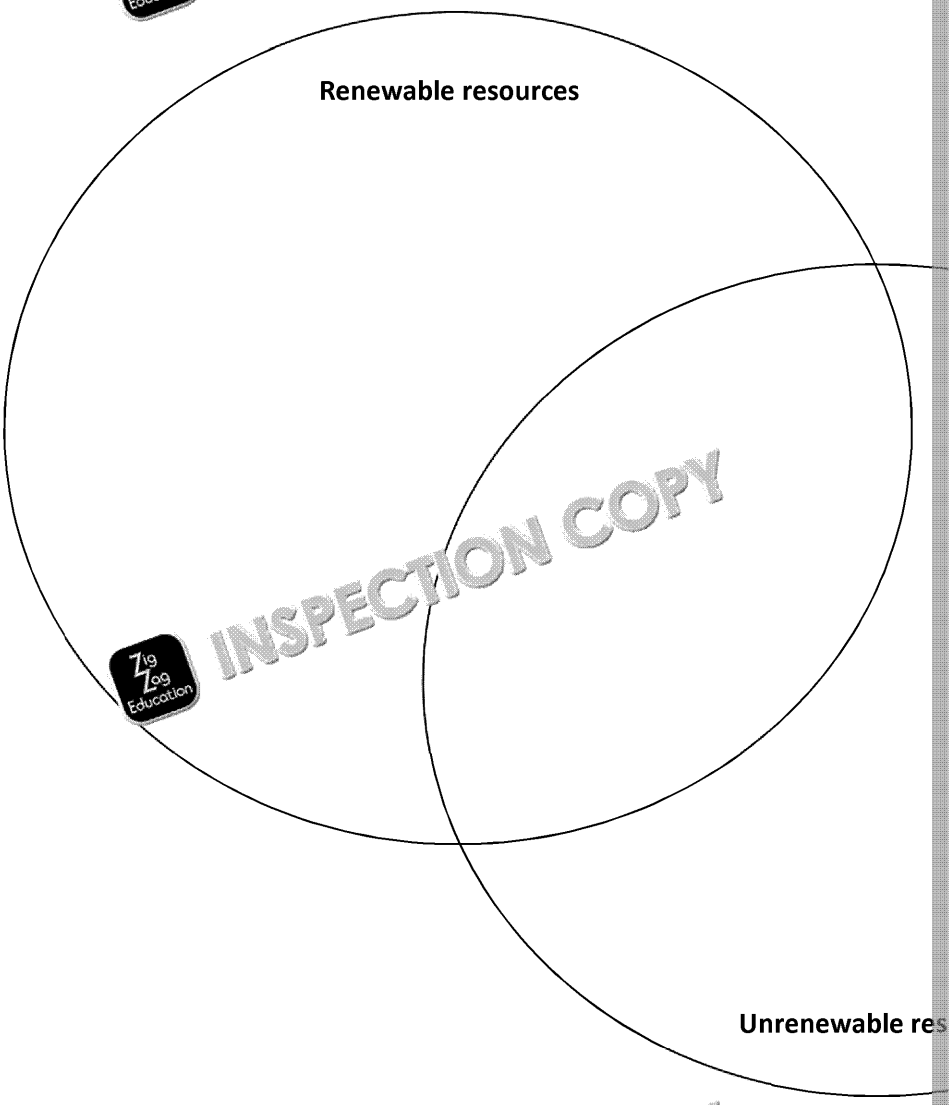
Coal	Oil
Natural Gas	Wood
Charcoal	Freshwater
Sunlight	Bananas
Salmon	Air
Tin	Lead
Vanilla	Whales
Cotton	Chicken
Mushrooms	Carrot
Salt	Biofuel

Sustainability of food: Classif

There are two types of resources which can be used in food product
- **Renewable** resources include those which can be easily rebuilt o
- **Unrenewable** resources are those which would take too much ti their previous levels, and are destroyed by use.

Let's see if you get the idea!

Your teacher will hand yo[illegible] re[illegible]urce card. Your task is to decide w resource or an unre[illegible]ewable resource – feel free to discuss with a pa the lesson [illegible] of the various renewable and unrenewable resc



Is there anything that can be done to [illegible] (at least some of) the u renewable?

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Activity 4 – Sustainability and security of

Teacher's Notes

	Plenary activity: Postcards
Aim of the activity	To recap knowledge about the impact of food production on th
Teacher's instructions	Copy the student's worksheet to allow one per person. Allow (approx. 3–4 minutes per card) to write their postcards. Collec answers for the next lesson.

Answers

Exemplary answers could include a reference to:

1	• use of packaging • recycling issues • waste dumps • the need to limit the use of packaging • the need to reuse and recycle packaging • the need to sustainably get rid of used packaging materials • new methods of packaging disposal (e.g. the use of new plastic-eati
2	• the need to use packaging which is easily recycled / compostable • the need to limit the use of recyclables • the need to maintain the natural environment
3	• climate change / global warming • carbon footprint and food miles • buying foods locally/seaso • choosing organic methods rather than intensive methods of farmin • the need to sustainably source water

Sustainability and security of food

Imagine you travelled to the future and took some photos.

Write postcards to your family describe what you have seen (as indicated on each p
be done to prevent it.

Activity 5 – Food poverty – Brief the p

Teacher's Notes

Plenary activity: Brief the prime minister	
Aim of the activity	To recap information about fo[illegible]y and its impact on he
Teache[illegible] instructio[illegible]	Split the stude[illegible] groups of four. Copy [illegible]s worksheet accordingly. [illegible] group, students should write a short brief concerning f[illegible] effects on health, and potential solutions. Students may only [illegible] each section and you may wish to extend this activity into the [illegible] Allow 10 minutes for students to complete the activity and the[illegible] them the results.

Answers

Exemplary answers could include:

- **definition of food poverty**: where an individual is unable to buy a suitable a[illegible]
- **the number of people living in food poverty** (students may need access to t[illegible] alternatively, you can research sources prior to the lesson and print them ou[illegible]
- **causes of food poverty**; such as low salaries, increasing food prices, lack of t[illegible] shopping / bring shopping home, lack of cooking skills, cuts in benefits, untim[illegible]
- **effects of food poverty on health**; e.g. hunger, malnu[illegible]on, poor bone and [illegible] depression, iron deficiency anaemia, deficiency of minerals and vitamins, soc[illegible] and learn
- **ways to improve the situation**, e.g. increase in salaries, establishing stable fo[illegible] transportation for [illegible]e, providing cooking lessons so people know how to [illegible] wastag[illegible]ro[illegible]g the benefit system

Food poverty: Brief the prime mi

Dear *(Student Name)*.....,

You have been commissioned to write a briefing paper for the prime minister (P causes and impacts of food poverty on the health of the nation. This will help th upcoming political meetings.

A briefing paper is essentially a summary document, providing the PM with any need to know when discussing the topic. Political leaders often use briefing pap they do not have time to read and research all the issues.

Content of the briefing paper is to include:

- Brief background information
  - Key facts: what food poverty is, number of people living in food poverty
- The causes of food poverty
- The impact of food poverty on health
- Solutions already undertaken
- Other potential solutions to the problem

As this is a political briefing, you must try to be as succinct as possible in your w

Please include any facts, graphs or images that might be useful.

Yours sincerely,

M. McDonald

M McDonald,
Research Officer,

Department for Food and Nutrition Affairs (DFNA)*

Department for Food and Nutrition Affairs

Overview

- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....
- .....

Causes

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Optional: draw a si

Effects on health

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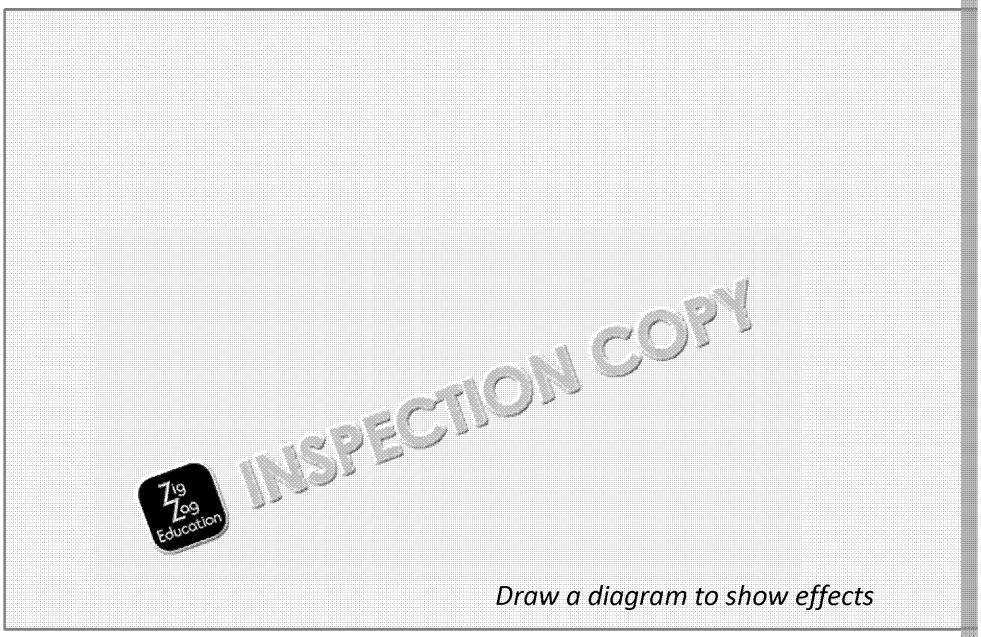

What is being done already?

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What else can be

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Activity 6 – British and international
Mindful keyword puzzle

Teacher's Notes

Starter activity: Mi[illegible] keyword puzzle	
Aim of the activity	To introduce vari[illegible] related to British and international
Teache[illegible] instructi[illegible]	Cop[illegible] student's worksheet to allow one per person. A[illegible] students up to 10 minutes to create their own crosswor Let students swap the worksheets and allow them another 5 m created by their classmates.

Answers

Exemplary clues could include:

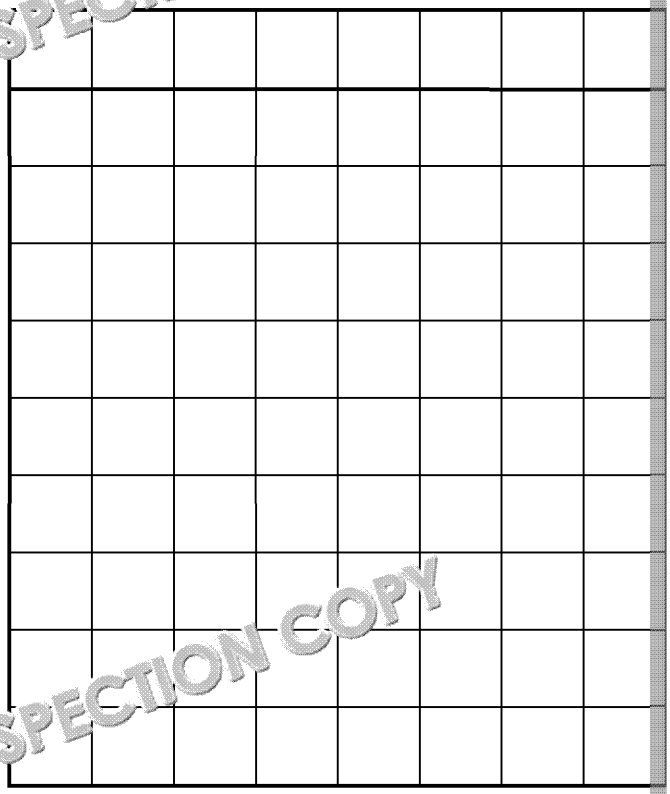
1. **Brunch** – a meal eaten in the late morning / early afternoon, usually during b
2. **Cheddar** – hard cheese produced in the West Country.
3. **Cuisine** – style of cooking characteristic of a region or country.
4. **Elevenses** – small snack eaten before noon, characteristic of British cuisine.
5. **Entrée** – the main dish of a meal.
6. **France** – country famous for its wide selection of cheese and wine; where qu
7. **Lamb** – type of meat traditionally eaten in the UK during Easter.
8. **Leek** – national Welsh vegetable.
9. **Pizza** – flatbread with tomato sauce and toppings, ty[illegible] of Italian cuisine.
10. **Rice** – staple cereal from China.
11. **Sushi** – seaweed and fish rolls from [illegible]
12. **Wok** – deep, round cookin[illegible] ish [illegible] to prepare stir-fries and noodles.

British and international cuisines: Mindful

Below you can see various keywords related to British and internatio
But do you know what these words mean? And can you explain the
classmate? Use the keywords below to create a crossword – remem
the clues! You can also use your own words.

Then, if time allows, swap with a classmate to see whether they can
your puzzle!

BRUNCH
CHEDDAR
CUISINE
ELEVENSES
ENTRÉE
FRANCE
LAMB
LEEK
PIZZA
RICE
SUSHI
WOK



Clues:

Down:

1.

2.

3.

4.

5.

6.

Across:

1.

2.

3.

4.

5.

6.

Activity 7 – British and international
Pass the hat

Teacher's Notes

	Plenary activity: Pass the hat
Aim of the activity	To summarise ideas about foods and dishes from various coun
Teacher's instructions	To be completed as a whole class or small groups (More inclus Get the students to stand in a circle. One student is given a hat. They begin by naming a food/dish f passing the hat on to another student. The next student has to tell what country that food/dish come If they are right, they can name another food and pass the hat If they are wrong, they need to leave the circle. The last person in the circle wins.

Answers

Examples could include:

- **Beef steak** – Argentina
- **Waffles** – Belgium
- **Spring rolls** – China
- **Butter cookies** – Denmark
- **Ceviche** – Ecuador
- **Quiche** – France
- **Moussaka** – Greece
- **Goulash** – Hung
- **Samos** dia
- **Sushi** –

British and international cuisines: Pa

There are hundreds of countries in the world, and each of them has something delicious on offer! So let's check how many foods from th foreign cuisines you can name!

Stand in a circle. One student will be given a hat. They will begin the by saying the name of a food from a foreign country and passing the to another student. The student needs to name the country the food comes from.

If they are correct they can name another food and pass the hat on. are wrong they need to leave the circle. Who will be the last one sta

After the lesson, make a note of various dishes from different countrie cuisine which you would like to explore more?

Cuisine:	**Cuisine:**
Cuisine:	**Cuisine:**
Cuisine:	**Cuisine:**
Cuisine:	**Cuisine:**

Activity 8 – Food Processing – Is food your cup of tea?

Teacher's Notes

	Plenary activity: Chain essay
Aim of the activity	To recap information about the various primary and secondary
Teacher instructions	Split the class into four groups (or more if you have a large class, you will need to allow one per group. Assign each group with one food product (below). The first person in the group has to start writing an essay about processing their given food. After 2 minutes, they pass the work to the group, and so on until each person has added something to the journey has been described.

Answers

The exemplary answers could refer to:

Food 1: oranges to orange marmalade

- growing oranges in the orchards, e.g. in Spain, south of France
- loading the oranges into cases or crates and transporting (importing) them in
- cleaning and sorting the oranges (e.g. removing leaves, rotten pieces)
- boiling/simmering the oranges
- cutting the oranges and the peel, removing the pips, pressing the pulp
- adding sugar
- pouring the mixture into the jars
- sealing the jars and pasteurisation (or sterilisation) of the closed jars, cooling
- sticking labels to the jars
- loading the jars into cartons and sending off to storage or shops

Students could also cover fruits to jams/juices as an alternative.

Food 2: wheat to spaghetti

- growing wheat in the field
- harvesting the crops and transporting to a mill
- sorting the grains and sieving to remove stones, etc.
- washing the grains in warm water and drying
- grinding the wheat and sieving to separate the flour from bran (if necessary)
- bleaching and fortifying the flour (only soft wheat flour is fortified)
- packing the flour into bags and transporting to a factory where it can be proc
- mixing flour with water and other ingredients
- kneading until smooth dough is formed, stretching and rolling the dough flat
- cutting the required shapes of pasta (in this case, spaghetti, long thin stripes)
- pasteurising and drying the pasta
- packaging the pasta and sending off to shops
- boiling the pasta in water
- serving with a sauce

Students could also cover wheat to bread as an alternative.

Food 3: milk to yoghurt

- milking the cows, collecting the milk and mixing with milk from previous milk
- transporting the milk to a factory
- pasteurising and homogenising the milk
- heating the milk up and adding starter cultures
- fermentation
- cooling down the fermented yoghurt
- adding sugar, fruit or other ingredients
- packaging the yoghurt into pots, sealing and adding labels
- loading the yoghurt pots into crates or boxes and sending off to a storage (co

Students co[illegible] other milk to cheese as an alternative.

Food 4: cow (beef) to burgers

- transporting the animal to a slaughterhouse, killing and cutting into parts
- hanging the meat to mature
- sending the meat off to factories (or butchers)
- grinding the meat
- adding spices, diced onions and other ingredients
- shaping the burgers
- packaging the burgers, sealing and freezing or refrigerating the packages
- transporting to shops
- frying or grilling the burgers

Food processing: Is food production yo

Before they land on our plates, foods undergo a long and (more or le
complicated journey. Let's see how much you know about what the
have to go through!

Get into four groups. Your teacher will assign you a single food product.
The first person in the group will have 2 minutes to start describing
the primary and secondary stages that food has to go through.
Then they have to pass the worksheet on to the second person, and
described the whole journey from the field to the plate.

Food ingredient: _____

Production of _____ begins with

Activity 9 – Food Processing – Do you kn

Teacher's Notes

Starter activity: Advantages and disadvantag	
Aim of the activity	To introduce or recall information abo w processing affec and nutritional value of variou od products.
Teacher's instructions	Copy the student' t to allow one per person. Allow stud up 5 minutes to complete the activity. Then themselves and allow another 5 minutes so they can

Answers

Exemplary answers could refer to:

	Advantages	
Curing meat	Gives the food a pleasant red colour Gives an appetising aroma Makes the texture more tender and makes the meat easier to chew and digest Gives desired flavour Helps to prevent spoilage as salt and smoke work as preservatives	Increases the May introduce (e.g. from smo
Skimming milk	Reduces the calorific value of food Reduces the amount of saturated fats in the milk Prevents the milk from splitti g (am will not form)	Reduces the a in milk Affects the tas watery) The colour of
Milling ce	Mak easier to digest act can be obtained which can be used in production of other various foods (e.g. pasta, bread)	May reduce th folate, B1) an the flour (if se May trigger sp the cereals
Simmering jam	Provides variety in the diet Helps to preserve seasonal fruits for later use Makes fruits softer and easier to digest Creates appetising colour and aroma	Limits the am damaged by h Increases the

Other methods that decrease the nutritional value of food could include:

- sterilisation (by applying very high temperatures for a long time)
- deep-frying (as it increases the amount of fat in the food)
- boiling and draining (as some vitamins and minerals dissolve in water and are
- pickling (by introducing large amounts of salt into food)
- caramelising (by increasing the amount of su d)

Bonus question: Ways of improvi tritional value of food could include:

- cooking in lidded pa shorten the cooking time)
- using a w possible (so that vitamins and minerals do not dissolve
- changi ing method (e.g. boiling into steaming, deep-frying into roastin
- pasteurisation instead of sterilisation (as the process is shorter and uses lowe
- fortification of food (e.g. flour is fortified with thiamine, niacin, calcium and i

Food Processing: Do you know you

Various processing methods can affect the food in a different way – change the way the food looks, smells and tastes, and in many case affect its nutritional value.

Let's see how much you know about it!
You have 5 minutes to list as many advantages and disadvantages processing method as possible.

Then, swap with a partner and spend another 5 minutes to see if you their work!

1. Curing meat

Advantages	Disa

2. Skimming milk

Advantages	Disa

3. Milling cereal

Advantages	Disa

4. Simmering jam

Advantages	Disa

Can you think of other methods that decrease the nutritional value

.....

.....

Bonus question:
The methods above often decrease the nutritional value of food. Can yo

Activity 10 – Food processing – S

Teacher's Notes

	Plenary activity: Snapshot
Aim of the activity	To recap information about prima[illegible] secondary food proce
Teacher's instructions	Split students into [illegible] copy the student's worksheet acc Allow 10 [illegible] students to complete the activity.

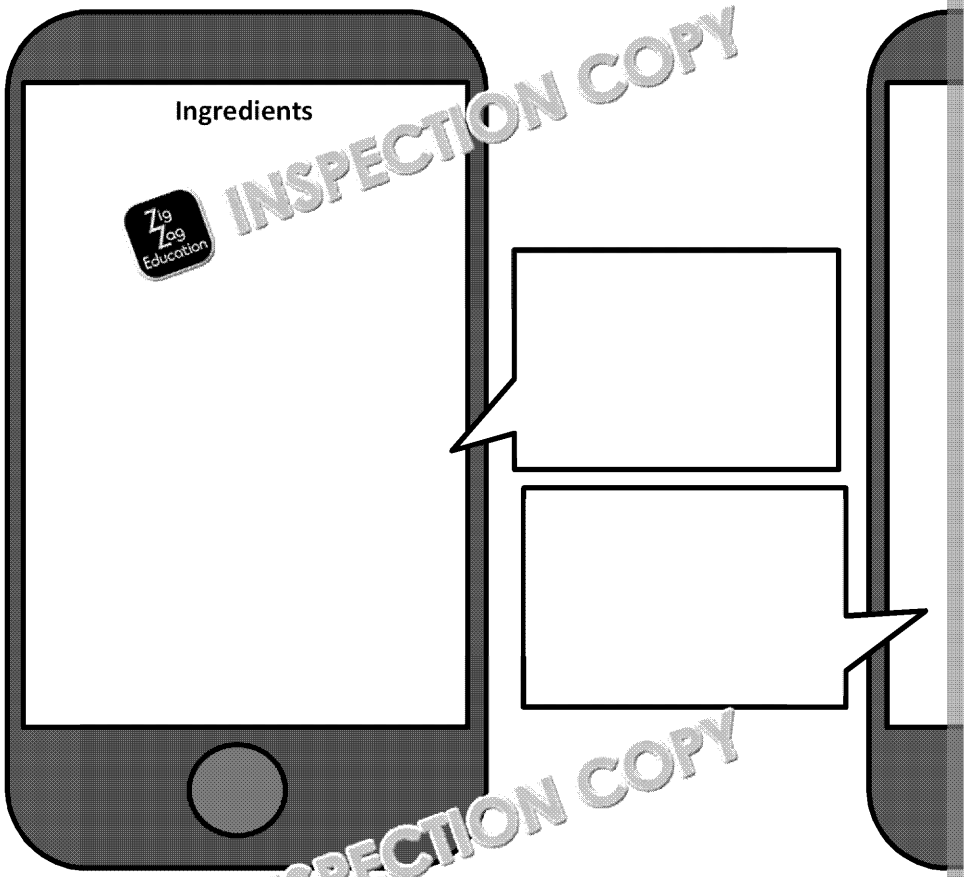
Answers

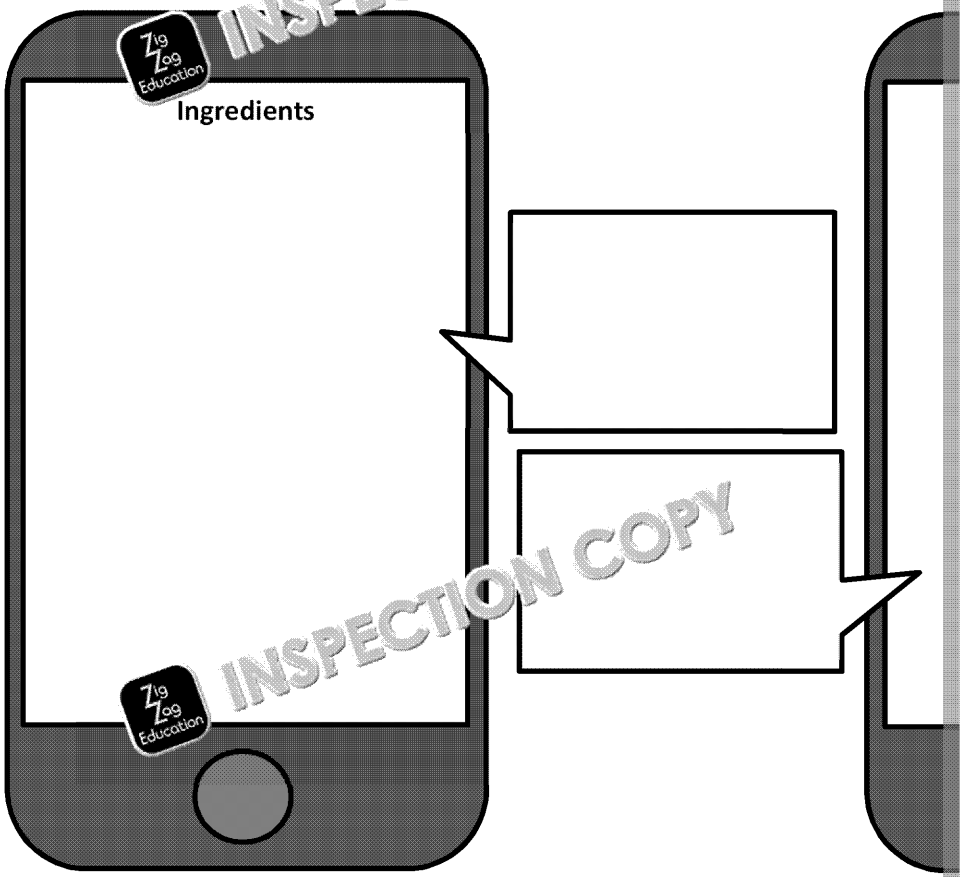
The answers (images and/or captions) could include a reference to:

- **Ingredients:** flour, water, salt, yeast, seeds, herbs, sugar, egg, oil; milling, mix knocking-out, carbon dioxide, baking, dextrinisation, denaturation, gluten for
- **Bread:** well-risen, crispy surface, soft inside, open texture, equal-sized holes i
- **Ingredients:** fruit, sugar, pectin/gelatin, water, stewing, simmering, crushing,
- **Jam:** thick, not mouldy, with pieces of fruit, spreadable, shiny surface

Food Processing: Snapshot

Draw a snapshot (i.e. representative image) and add a caption for e
highlight how ingredients are processed to make food.





Activity 11 – Food processing – The g

Teacher's Notes

	Plenary activity: Applied questions
Aim of the activity	To recap information about produ[illegible] of milk and dairy produ
Teacher's instructions	Copy the student's [illegible]et to allow one per person. Each stude[illegible] should show you their answer so that you can as[illegible] gi[illegible] one letter from the password. The first student to a[illegible] g[illegible]ss the password wins.

Answers

No.	Answer
1	Lactose
2	Buffalo
3	Homogenisation
4	Lactic acid
5	Whey
6	Butter
7	Sterilisation
8	Coagulation and denaturation (by acid)
9	Greece/Cyprus
10	Rennet
11	Whole milk
12	[illegible] flavour and to prevent harmful bacteria from develo
13	[illegible]use rennet is obtained from calves which have to be killed in th

The password is FORTIFICATION. Here's how to allocate the letters for the studen

6	3	10	4	12	1	7	2	13	
F	O	R	T	I	F	I	C	A	T

Food Processing: The grate esc

By mistake you have been locked up in a cheese factory. In order t escape, you need to tell a secret password to the security guard, bu what is the password?! Answer the questions below to find out! For e correct answer your teacher will give one letter from the password – you have all the letters, reorder them to see w[illegible] the password is!

Q1. What do you call the sugar naturally occurring in milk?

.....

Q2. Milk fr[illegible] which animal is used to make mozzarella cheese?

.....

Q3. What process helps to prevent milk from splitting?

.....

Q4. What substance is produced by probiotic bacteria when added

.....

Q5. What do you call the liquid by-product of cheese production?

.....

Q6. What product is made by churning?

.....

Q7. What process may cause milk to become b[illegible]n in colour?

.....

Q8. What process causes yoghurt to thicken?

.....

Q9. Where does halloumi cheese originally come from?

.....

Q10. What is the name of the enzyme added to milk to encourage

.....

Q11. What type of milk has a blue cap?

.....

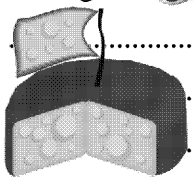
Q12. Why is salt added to cheese?

.....

Q13. Why is parmesan cheese considered non-vegetarian?

.....

Congratu[illegible]s, you have all the letters! Now get the password by r a stage of processing. Write the password below.



.....

.....

.....

Activity 12 – Tech. developments – Foo

Teacher's Notes

	Starter activity: Fact sheet
Aim of the activity	To recap information about the tech[illegible]cal developments th[illegible] health and food production.
Teacher's instruct[illegible]	Split the class into [illegible] groups. Copy the student's worksheet t[illegible] Assign each group with one from the main topics (below). Allow students up to 10 minutes to prepare their fact sheets, t[illegible] discuss the various technological developments that claim to s[illegible] production so that students can add more information to their[illegible] the fact sheets to the wall as a reminder.

Answers

Exemplary answers could include:

1. FORTIFICATION OF FOOD

What is it?

- Adding vitamins and minerals to food during manufacturing in order to impro[illegible] nutritional value.

When is it used?

- Mandatorily in production of white wheat flour, vegetable fat spreads and sk[illegible]
- Voluntarily in production of various foods such as [illegible]es and beverages, cerea[illegible]

Why is it used?

- To restore the nutritio[illegible]s of the food lost during production.
- To improv[illegible] the [illegible]al value of the food and prevent conditions linked to[illegible]
- To ma[illegible]s more suitable for certain groups of people, e.g. children, the e[illegible]

Are there any downsides?

- The amount of nutrients added must be strictly controlled as too much of nu[illegible] bioavailability (ability to digest and absorb) of nutrient B, etc.
- Fortified foods may be perceived as healthy; however, in many instances the[illegible] cereals) and fats, making them unsuitable for many groups of people.

Other information and trivia

- Various countries may add various substances to foods as the nutritional stat[illegible]
- Flour is fortified with thiamine, niacin, iron and calcium.
- There are plans to fortify flour mandatorily with folic acid to prevent congeni[illegible] bifida) in babies.

2. GENETICALLY MODIFIED FOOD

What is it?

- Food from plants and [illegible] whose genetic material (DNA) has been altered[illegible] desirable [illegible]ra[illegible]

When is it u[illegible]

- All around the world in all types of foods, such as rice, soy and wheat; cattle [illegible] develop more muscle tissue / produce more milk).

Why is it used?

- To increase the amount of food produced.
- To improve the nutritional value of food and meet the needs of specific grou
- To prevent crop failure and diseases in livestock.

Are there any downsides?

- Not enough data to prove good or bad effect on hea
- May be linked to increased risk of developing all
- May lead to development of antibi tance and development of new re to pandemics.

Other infor n a trivia

- Golden as developed to provide the Asian population with vitamin A (b
- Over 80% of the world's soy cultivation area is planted with GM soy.

3. COMPUTER AIDED DESIGN (CAD) / COMPUTER AIDED MANUFACTURING (CA

What is it?

- Computer software used to support the design and manufacturing of produc

When is it used?

- It is used in instances where human work can be easily substituted by a mac
- Usually used in repeatable processes.

Why is it used?

- To speed up the manufacturing process.
- To control the manufacturing conditions, e.g. moistu emperature, time of
- To help design labels, calculate the nutritiona ue f food, etc.

Are there any downsides?

- May be expensive t and use as requires specific machines / produ
- Not sui fo poses, e.g. difficult to design machines to detect glass.
- Not sui r producing custom items (unless ordered in large quantities).

Other information and trivia

- May be applied at almost every stage of food production.

4. MARGARINES WITH ADDED PLANT EXTRACTS

What is it?

- Vegetable fat spreads which have specific plant extracts added.

When is it used?

- Usually recommended for people who suffer from coronary heart disease / a cholesterol levels.

Why is it used?

- Helps to lower the LDL cholesterol l blood and increase the HDL chole
- Helps to reduce the risk of h art / stroke or other complications.

Are there a vn

- Some v le fat spreads may contain *trans* fats, which increase the risk of
- May be more expensive than butter or other types of vegetable fat spread.

Other information and trivia

- The chemicals in the plant extract are called phytosterols or phytostanols.
- They are built similarly to cholesterol.

5. PROBIOTICS AND PREBIOTICS

What is it?

- Live bacteria which are 'friendly' for the human body (probiotics) and substa
  of these bacteria (prebiotics).

When is it used?

- May be naturally present in foods such as sauerkrau hurt, buttermilk (p
  fruits (dietary fibre) (prebiotics).
- May be added to foods to improve tritional value (e.g. fibre may be a
- May be consumed in the f n of s ples.

Why is it u

- To imp e health and working of the digestive tract.
- To support vitamin absorption and production (some of the bacteria produc
- To support digestion (e.g. some bacteria break down dietary fibre, providing

Are there any downsides?

- May cause bloating, especially at the beginning (as the 'bad' bacteria in the g
  killed by the new, good ones).

Other information and trivia

- Due to the probiotic bacteria, people may obtain energy from fibre (approxi

Tech. Developments: Food for th

The rapid development of technology allowed us to not only produc
improve the way it affects our bodies.

Split into five groups. Your teacher will assign you with one topic that
developments in food production. Your task is to complete the fact
much information about your topic as possible.

You are likely to learn more during the lesson – remember to add all t

____

What is it?

When is it used?

Why is it used?

Are there any downsides?

Illustrative gr

Other information and trivia

Activity 13 – Food manufacturing – Be

Teacher's Notes

	Plenary activity: Correct the mistakes
Aim of the activity	To recap and reinforce information ab[illegible]ood additives and t[illegible] food production.
Teacher's instructions	Copy the student's [illegible]t to allow one per person. Allow stud[illegible] up [illegible]10 minutes to read the text and correct t[illegible]

Answers

Tartrazine is a co[illegible] it is not used to p[illegible]

Food additives are added to foods for a number of reasons. tartrazine (a popular preservative) is used to prevent food However, it can be a cause of some side effects for health su[illegible] lack of concentration and hyperactivity.

Another groups of additives is flavour intensifiers. These include monosodium glutamate, among others. They are used to enha[illegible] products such as bread. Their negative effects could include [illegible] and numbness.

Among emulsifiers, lecithin is one of the best known. It is found [illegible] such as vegetable oils, nuts and seeds. It helps to prevent foo[illegible] that's why it is added t[illegible]s such as vinaigre[illegible]

Colourings include both n[illegible] and chemically obtained subst[illegible] most commonly used [illegible]ourings is curcumin, which is used to g[illegible] to yoghurts and sweets.

Lecithin is [illegible] naturally in[illegible] yolks.

Vinaigrette sauce doesn't contain any emulsifiers. A correct example could be mayonnaise.

Curcumin provi[illegible] colour, no[illegible]

Food manufacturing: Be the tea

Being a teacher may be really difficult. Especially when you need to
those exams! Give us a helping hand and help us spot the mistakes i
student's essay below. Don't forget to provide the correct answer by

Food additives are added to foods for a number of r
example, tartrazine (a popular preservative) is used
food from spoiling. However, it can be a cause of s
effects for health such as rash, hives, lack of conce
and hyperactivity.

Another groups of additives is flavour intensifiers. The
maize starch and monosodium glutamate, among o
are used to enhance the flavour of products such as
negative effects could include itching, sweating and

An example emulsifiers, lecithin is one of the best known.
naturally in foods such as vegetable oils, nuts and see
to prevent foods from splitting – that's why it is adde
such as vinaigrette.

Colourings include both natural and chemically c
substances. One of the most commonly used col
curcumin, which is used to give the red colour to
and sweets.