Zig Zag Education

Food and Nutrition **GCSE (9–1) | AQA | 8585**

Starters and Plenaries

For AQA GCSE Food Preparation and Nutrition

S Watson

zigzageducation.co.uk **POD 7614**

Contents

Teacher's Introduction

This pack of Starter and Plenary worksheets has been designed to fit the new specification for GCSE Food Preparation and Nutrition, closely following the key learning objectives over five areas:

- Food Nutrition and Health
- Food Science
- Food Safety
- Food Choice
- Food Provenance.

Each starter worksheet aims to introduce the keywords for the topic, aiding in literacy and familiarity with the ideas and concepts. There are puzzle-based tasks, reasoning tasks, and creative opportunities to allow all types of learner to settle into the lesson and activate their thinking skills.

The plenary worksheets aim to recapitulate keywords and concepts, with a range of tasks to allow ranking and discussion of learning as well as quizzing on new knowledge.

Each worksheet is designed to be completed in a 10-minute section of the lesson and should be completed independently, in pairs or in groups depending on the personality of the learners. I hope your students enjoy them as much as mine do.

S Watson, June 2017

Specification Cross-referenc

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

Specification Reference	Activity		Ex Reso
		3.2 Food Nutrition and Health	
Eatwell Guide and Proteins	1	Lesson Objective Detective	
Proteins	2	Proteins: Mindful Keyword Puzzle	
Fats	3	Cat, Hat or Fat?	Scisso glue
Fats	4	Crack the Safe	Scisso glue
Carbohydrates	5	Secret Squirrel's Secret Sugar Stash	
Carbohydrates	6	Making Good Choices	
Vitamins ADEK	7	Alphabet Soup	Scisso glue o maga
Water-soluble Vitamins (B Group and C)	8	Twittermins	
Minerals	9	Minerals Quiz Cube	Scisso glue
Water	10	Water You Learned about Then?	Yel colo pe
Micronutrients	11	Deficiency Diagnosis	Fo maga for c and s
Nutritional Analysis	12	More Than Tasty	Suit snack pack
Varied and Balanced Diet	13	I Know What I Like and I Like What I Know	
Energy Needs	14	Apples and Avocados with the Anarchy Aardvark	Calcu
Food Nutrition and Health Summary	15	Pulling It All together: Diet Nutrition and Health	

Specification reference		Activity	Ex Reso
		3.3 Food Science	
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Cooking Methods	17	How Do I Cook Food?	Scisso glue s
Cooking Methods: Heat Transfer	18	It's the Taboo Turtle! – Cooking Methods	Scis
Cooking Methods: Ways of cooking	19	Matching Descriptions	
Functions of Proteins	20	What am I?	
Functions of Carbohydrates	21	Folding Time with Carbohydrates: Origami Fortune Teller	Scis
Functions of Carbohydrates	22	Cooking with Carbohydrates Keyword Puzzle	
Properties of Fats and Oils	23	Fats and Oils Quiz Cube	Scisso glue s
Properties of Fats and Oils	24	Crack the Safe: Properties of Fats and Oils	Scisso glue s
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Food Production	33	Designer Microbes	
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Food Storage	36	Food Storage Quiz Cube	Scisso glue s
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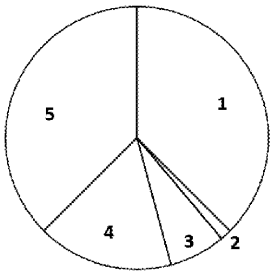
Activity 1 – Eatwell Guide and P

Teacher's Notes

Starter Activity: Lesson Objective Detectiv	
Aim of the activity	The aim is to encourage mindfulness of objectives and learning o to recap on what they have learnt about the Eatwell Guide. By u can discuss existing knowledge on a range of high-protein foods. *This activity could accompany Lesson 3a on the AQA Scheme of W*
Teacher's instructions	Students to work through the clues on the worksheet in order to They will need access to an Eatwell Guide from a prior lesson or Full English Breakfast can be discussed in groups to 'pool knowle class. At the end of the lesson students can reflect on how succes

Clue 1:



1. Potatoes, bread, rice, pas carbohydrates
2. Oils and spreads
3. Dairy alternatives
4. Beans, pulses, fish, eggs,
5. Fruit and vegetables

Clue 2*:* Example answers for the English Breakfast Table

Breakfast Item	Comes from…	Wha
Bacon	Cured meat from the back or sides of a Pig.	Not suitable for and Jews. 'Rich of Vitamins B1,
Quorn® Sausage	Mycoprotein that comes from a fungus called *Fusarium Venenatum*, made in a factory using a 40 m high fermenter for five weeks at a time!	Vegans – most and a few conta people with eg
Eggs	Chickens reared in a range of farms/smallholdings. Can be caged, barn-reared or free-range hens.	Not suitable for allergens identi egg not suitable young children.
Baked Beans	Found in a can or tin from the supermarket. Haricot beans in tomato sauce. Grown in North America – not a UK crop.	Can be high in s varieties availa fashionable to

Clue 3:

These foods are all found beans, pulses, fish, eggs, meat and other **proteins** (sect

In this lesson, I think we are going to learn about **Proteins**

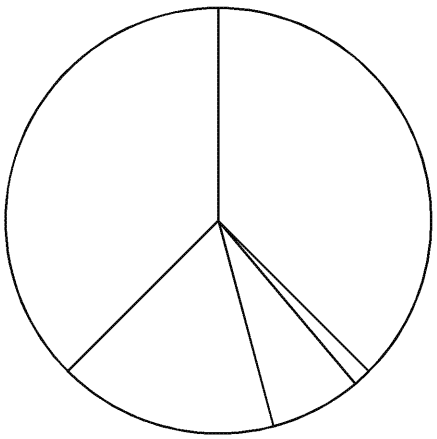
Example learning objectives:

- Why do we need protein?
- What foods contain protein?
- What are the different types of protein?
- What happens if we do not eat enough protein, or too much?
- What recipes contain protein?

Lesson Objective Detective

What are we learning in this lesson? ***You*** are going to write your own

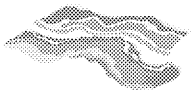
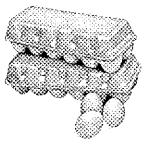
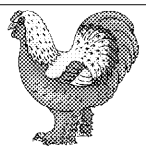
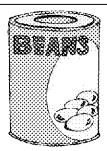
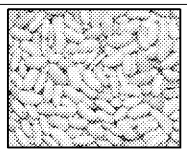
Clue 1: Let's start with what you know... Can you colour and label this diagram least one example of food from each segment on the chart.



The Eo

- ☐ Potatoes, bread, rice, past
- ☐ Oils and spreads
- ☐ Dairy and alternatives
- ☐ Beans, pulses, fish, eggs, n
- ☐ Fruit and vegetables

Clue 2: How much do you know about a 'Full English Breakfast'? Fill in the ta

Breakfast Item	Comes from...	W
	The back and sides of a pig. A supermarket shelf, a butcher's, a farm. The UK, Denmark.	Not sui Muslin B1, B3 +
Quorn® Sausage 		
		
		

Clue 3:

The foods from the table are all found in which section of the Eatwell Guide? ....

So, with that in mind... I think we are going to learn about .....

What do I need to know about this nutrient? Write down three ideas.

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

At the end of the lesson look back at your ideas. Did you learn what you had pre

.....

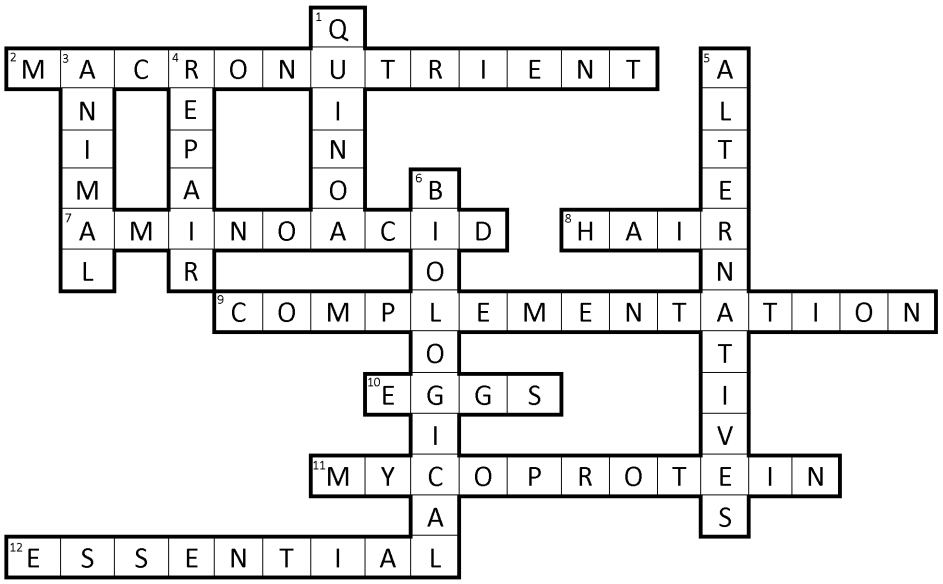
.....

Activity 2 – Proteins

Teacher's Notes

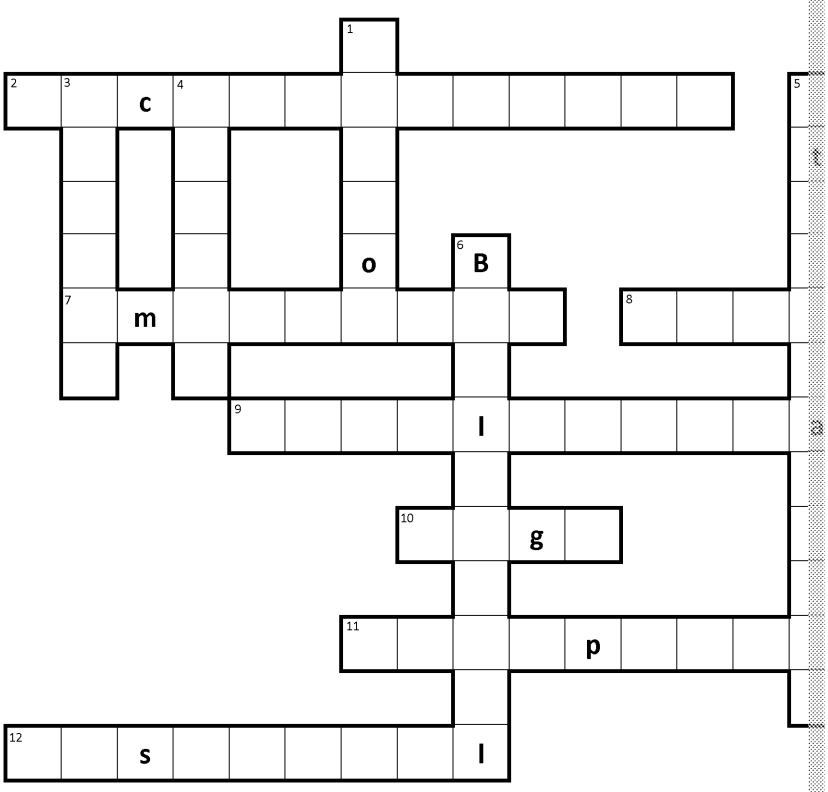
Plenary Activity: Mindful Keyword Puzzle	
Aim of the activity	The crossword clues provide an opportunity for students to c about proteins and focus on literacy with spelling of keyword prompt a mindfulness of the lesson's objectives and an aware individual student is comfortable to learn. *This activity could accompany Lesson 3a or 4b on the AQA Sch*
Teacher's instructions	Photocopy student worksheet as required. Allow 10 minutes for students to complete the worksheet. Th groups or as a class if less time is available. The activity will a misconceptions and gaps in learning from the lesson while pr their own strengths and weaknesses. Answers to the mindfu on the back of the sheet and/or discussed in pairs or groups.

Answers



Proteins: Mindful Keyword Puzzle

You have learnt lots of new keywords about proteins. Answering the
help you to remember them. If you cannot answer some of the que
good time to do something about it! What resources can you use fo



Clues Across

2. Protein is a _____. This is a type of food required in large amounts. (13)
7. Proteins are made from building blocks called _____ _____ s (5,4)
8. If you do not eat enough protein you might not grow properly and may lose some of your _____ (4)
9. Beans on toast and rice and bean salad are examples of protein _____ (15)
10. _____ are a good source of HBV protein for vegetarians (4)
11. _____ is a HBV protein from which Quorn® products are made
12. A type of amino acid that cannot be made by the body and needs to be eaten or drank (9)

Clues Down

1. Plant sources o
and _____ (6
3. Meat, fish, egg
of HBV protein
4. Proteins are ne
well as energy
5. Food products
used to replace
protein _____
6. LBV stands for
one or more o
missing (10)

Mindfulness Questions – Becoming a better learner…

1. Which answer was hardest to find, or which question didn't you understand?

   .....

2. How have you learnt any new information on this topic? Was that an easy m

   .....

3. What will you do now to remember the new keywords and ideas from the le

   .....

Activity 3 – Fats

Teacher's Notes

	Starter Activity: Cat, Hat or Fat?
Aim of the activity	The silliness of the concept should inspire discussion and crea settle students into the lesson. The activity introduces a num types of fats and oils and should help students think about wh in origin. The cut and stick element will help those reluctant *This activity could accompany Lesson 7a or 8a on the AQA Sch*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Students cut off the bottom strip of symbols and discuss in pa should be put on the cat/hat/fat grid before sticking the symb enough not to cover the words. The quicker workers can tackle task 2 using the back of the sh words in the boxes. Using the words from the grid will help w fats and oils.

Answers

Task 1:

Ghee = Fat	Fedora = Hat	Caracal = Cat	Suet = Fat	B
Sombrero = Hat	Garfield = Cat	Sunflower (Oil) = Fat	Panama = Hat	C
Triglyceride = Fat Molecule	Tricorn = Hat	Sun = Hat	Persian = Cat	B
Ginger = Cat	Crookshanks = Cat	Margarine = Fat	Lion = Cat	

Task 2:

Other names for fats…

Animal Fats:
Butter
Lard
Suet
Ghee
Meat fat
Cod liver oil
Dripping

Plant Fats:
Coconut oil/cream
Cocoa butter
Olive oil
Avocado oil
Almond oil
Corn oil
Sesame oil
Palm oil
Rapeseed oil
Sunflower oil
Groundnut oil

Oth
Fat
Trig
Monoun
Polyuns
Satu
Tra
Visi
Invi
Ma

Cat, Hat or Fat?

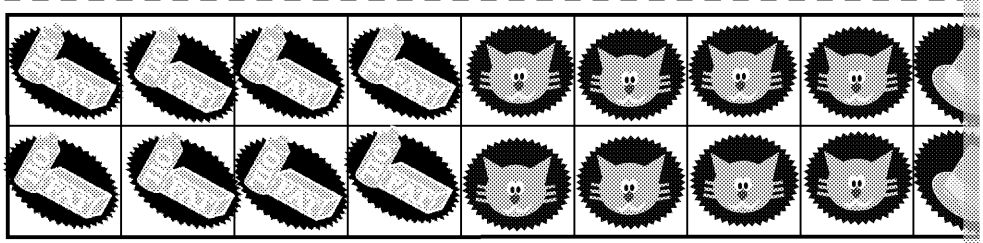
Sounds crazy? Sometimes you need a little 'silly' to get your brain w

Task 1:
The grid below is filled with lots of different types of cats, hats and fats (oils
out the symbols at the bottom of the sheet and place them over the grid.
are in the correct place you can stick them down.

Ghee	Fedora	CARACAL	Suet	
Sombrero	Garfield	SUNFLOWER	Panama	
Triglyceride	TRICORNE	Sun	PERSIAN	
Ginger	Crookshanks	Margarine	Lion	

Task 2:
The grid above shows only eight different fats… Write down as many name
fats that you can think of, sorting them into the boxes below. Can you bea

Animal fats:	Plant fats:	



Activity 4 – Fats

Teacher's Notes

	Plenary Activity: Crack the Safe
Aim of the activity	This activity will check learners' knowledge about fats and he their learning. Having to read the text in order to make sense opportunity to learn key concepts. *This activity could accompany Lesson 7a or 8 on the AQA Sche*
Teacher's instructions	Photocopy student worksheet (one per student) and also the cut into three sets of tiles) as required and allow 10 minutes f task. The work can be checked in a short time simply by checking t After assembling the text, encourage students to identify wea also methods of learning or extending their knowledge on fat

Answers

The text should read:

(B) Fat is one of three macronutrients, meaning you need a lot of it in your diet. (functions). These are: storing energy, insulating the body, protecting bones and accessing fat-soluble vitamins.

Sources of fat can be visible or invisible, solid or liquid. They can come from both such as olive oil and butter. If you eat too much fat in your diet then **(D)** you cou unhealthy.

Foods high in saturated fatty acids have been linked to **(R)** development of coron come from plant sources and are called **(V)** unsaturated fats.

Foods such as pies, cakes and biscuits are high in saturated fats. You should aim energy intake from this type of fat. Monounsaturated fats should make up no m intake and polyunsaturated fats 6.5%. Trans fatty acids can be found in lots of pl hydrogenated fat in the ingredients list. Aim to eat no more than 2% of your ene

DRV stands for **(%)** dietary reference value and it is recommended that no more should come from fats.

If you don't eat enough fat then **(F)** you can lose weight, not maintain your body become deficient in vitamins A, D, E or K.

Code for the safe: BNF-DRV<35%F

Bonus question: What does the code mean?

British nutritional foundation (BNF) dietary reference value (DRV) no more than 35

Crack the Safe

1. Cut and stick the tiles into the boxes overleaf in the correct orde
2. Write the letters in the circles below to reveal the code and crack the safe.

1	2	
4	5	
7	8	
10	11	

Bonus question:

What do you think the code could mean?

.....

.....

If you had trouble working out the code, then write down which are to improve and a plan to do this. If you did get the code, what cou improve your knowledge?

.....

.....

.....

.....

Crack the Safe Answer Tiles (three sets)

partially hydrogenated fat in the ingredients list. Aim to eat no more than 2% of your energy intake from trans fats. DRV stands for… (5)	11% of your energy intake of this type of fat. Monounsaturated fats should make up no more than… (<)	Fat me in y fat
development of coronary heart disease. Healthier fats come from plant sources and are called (R)	accessing fat-soluble vitamins. Sources of fat can be visible or invisible, solid or liquid. They can come from both… (F)	you boc bec A, D
dietary reference value and it is recommended that no more than 35% of your food energy should come from fats. If you don't eat enough fat then… (%)	unsaturated fats. Foods such as pies, cakes and biscuits are high in saturated fats. You should aim to eat no more than… (V)	fou sto pro dar
plant and animal sources such as olive oil and butter. If you eat too much fat in your diet then… (-)	you could gain weight and become unhealthy. Foods high in saturated fatty acids have been linked to… (D)	13% pol fatt pla

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plant and animal sources such as olive oil and butter. If you eat too much fat in your diet then… (-)	you could gain weight and become unhealthy. Foods high in saturated fatty acids have been linked to… (D)	13% pol fatt pla

Teacher's Notes

Starter Activity: Secret Squirrel's Secret Sugar	
Aim of the activity	Sugar is referred to as a number of different names and is so recognise. This starter introduces students to a range of ter them to think about why and how to find sugars by reading names. *This activity could accompany Lesson 5a or 5b on the AQA S*
Teacher's instructions	Photocopy student worksheet as required and allow 10 min

Answers

	S			N	S	P									D	
	U				E	R	B	I	F	Y	R	A	T	E	I	D
	C							E		G	L	U	C	O	S	E
	R						S					G			A	
	O					O						A			C	
	S	L			T							L			C	
D	E		Y	C		F						A			H	
E			A	S		R						C			A	
X		L			A	U						T			R	
T						C		M	A	L	T	O	S	E	I	
R						T	C					S			D	P
I						O		H				E			E	E
N						S			A							C
						E				R						T
M	O	N	O	S	A	C	C	H	A	R	I	D	E			I
												D				N
			H	C	R	A	T	S					E			

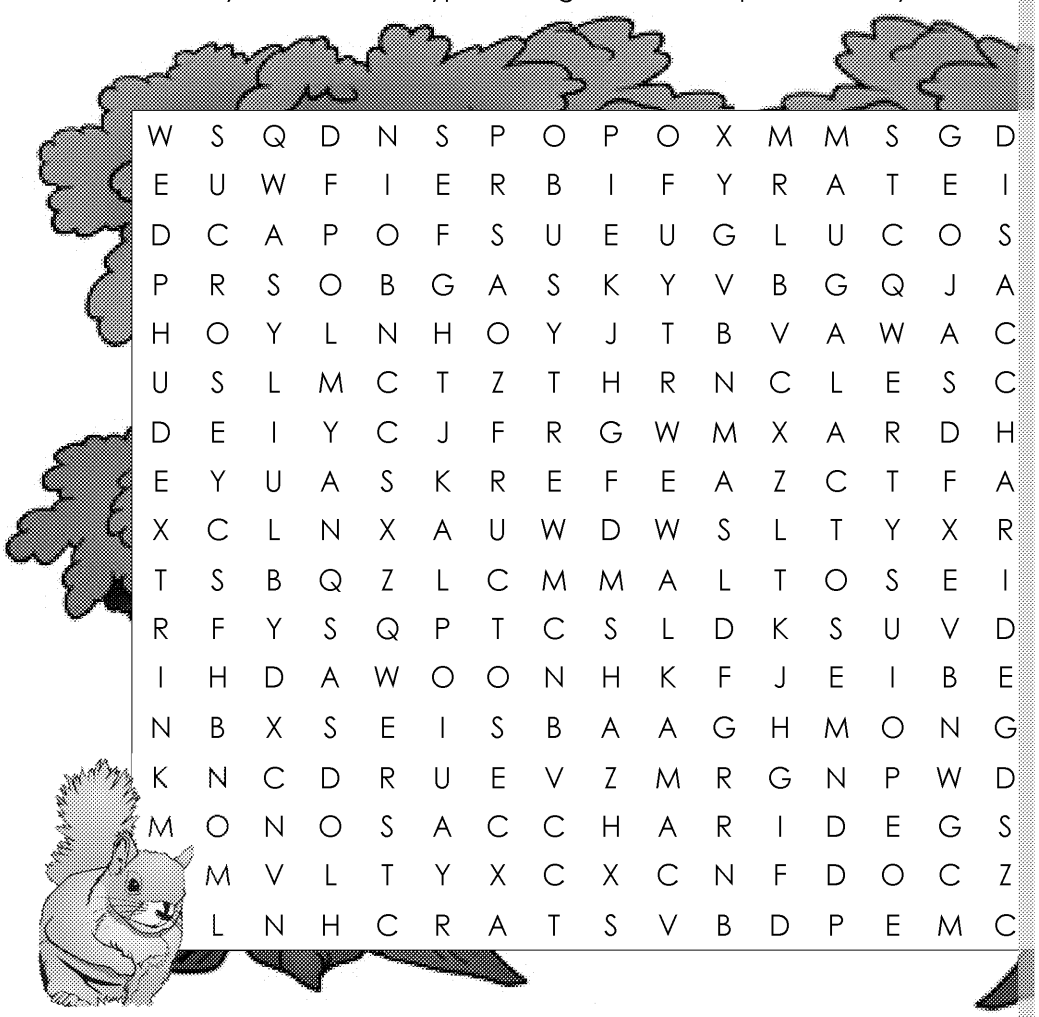
Anagrams: maple syrup, honey, treacle, demerara, icing, granulated

Thinking time suggestions:

- The different names for sugar show the different origins (e.g. plant type), p and physical form (e.g. powder or liquid) of the sugar.
- A cynic might suggest it is deliberately hidden to fool consumers. Is this re
- Some nutritionists argue that some sugars are better than others; for exam micronutrients (rice syrup contains magnesium, potassium and some B vit

Secret Squirrel's Secret Sugar Stash

Secret Squirrel has secreted away his sugar stash (and some other carbs fo
letters. Can you find all the types of sugars and complex carbohydrates th



W	S	Q	D	N	S	P	O	P	O	X	M	M	S	G	D
E	U	W	F	I	E	R	B	I	F	Y	R	A	T	E	I
D	C	A	P	O	F	S	U	E	U	G	L	U	C	O	S
P	R	S	O	B	G	A	S	K	Y	V	B	G	Q	J	A
H	O	Y	L	N	H	O	Y	J	T	B	V	A	W	A	C
U	S	L	M	C	T	Z	T	H	R	N	C	L	E	S	C
D	E	I	Y	C	J	F	R	G	W	M	X	A	R	D	H
E	Y	U	A	S	K	R	E	F	E	A	Z	C	T	F	A
X	C	L	N	X	A	U	W	D	W	S	L	T	Y	X	R
T	S	B	Q	Z	L	C	M	M	A	L	T	O	S	E	I
R	F	Y	S	Q	P	T	C	S	L	D	K	S	U	V	D
I	H	D	A	W	O	O	N	H	K	F	J	E	I	B	E
N	B	X	S	E	I	S	B	A	A	G	H	M	O	N	G
K	N	C	D	R	U	E	V	Z	M	R	G	N	P	W	D
M	O	N	O	S	A	C	C	H	A	R	I	D	E	G	S
M	V	L	T	Y	X	C	X	C	N	F	D	O	C	Z	
L	N	H	C	R	A	T	S	V	B	D	P	E	M	C	

What a naughty squirrel!

What's that you say Secret Squirrel? – There are more sugars hidden

No problem – my students can find them by solving these scrambled

_____ _____ _____ _____ _____

_____

Thinking Points:
Why does sugar have so many names? Why not just call it sugar? D
hidden? Are some sugars better than others? Discuss your ideas.

Teacher's Notes

	Plenary Activity: Making Good Choices
Aim of the activity	The aim of this activity is to check the students' knowledge of sources, deficiency, excess and dietary reference values by us situation. *This activity could accompany Lesson 5a or 5b on the AQA Sch*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu working in pairs or smaller groups for support. If time allows, group or class.

Answers

The students should discuss the functions, main sources, effects of deficiency and excess values of carbohydrates.

Example answers could be:
I've given up carbs for weight loss. What do you think mum?
I think you should have a balanced diet that doesn't exclude any food groups / Carbs are veg, it might not be a good idea to not eat them / Have you heard of Atkins or Dukan? / S eat more vegetables

Mum, why can't I eat sweets for breakfast, cake for lunch and ice cream with chocolate character on it. I'm only going to eat plain pasta then.
There's too much sugar in those foods / You need to eat more veg which contains fibre t about poo! / It'll rot your teeth and the tooth fairy won't come (and other parenting lies) not healthy / Plain pasta doesn't have many nutrients, you need to grow up strong and h

Wow, that exam question was tough. What on earth are the functions of carbohydrate us that…
But there were loads of answers to that one! They provide energy, regulate blood sugar ketosis, add bulk/fibre, add flavour including sweetness.

I hope that's a diet drink. I've quit sugar! I'm not sure where else I can get carbs from carbs? We're supposed to eat _____ % of our diet from complex carbohydrates.
Carbs are almost everywhere so choose wisely. Some healthy high-carb foods are whole vegetables, nuts and seeds. The BNF says that at least half (50%) of the energy we eat sh carbohydrates.

Making Good Choices…

Using your new knowledge of carbohydrates, can you help these p
informed decisions on their diets?

Activity 7 – Fat-soluble Vitamins (A

Teacher's Notes

	Starter Activity: Alphabet Soup
Aim of the activity	To introduce Vitamins A, D, E and K and associated keyword fat-soluble vitamins are found. *This activity could accompany Lesson 9a or 9b on the AQA Sc*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Students should cut the labels from the bottom of the sheet pot. Cut pictures of the appropriate food from magazines if draw pictures of suggested food in each pot. Extension: Label the pots with any other information they m

Answers

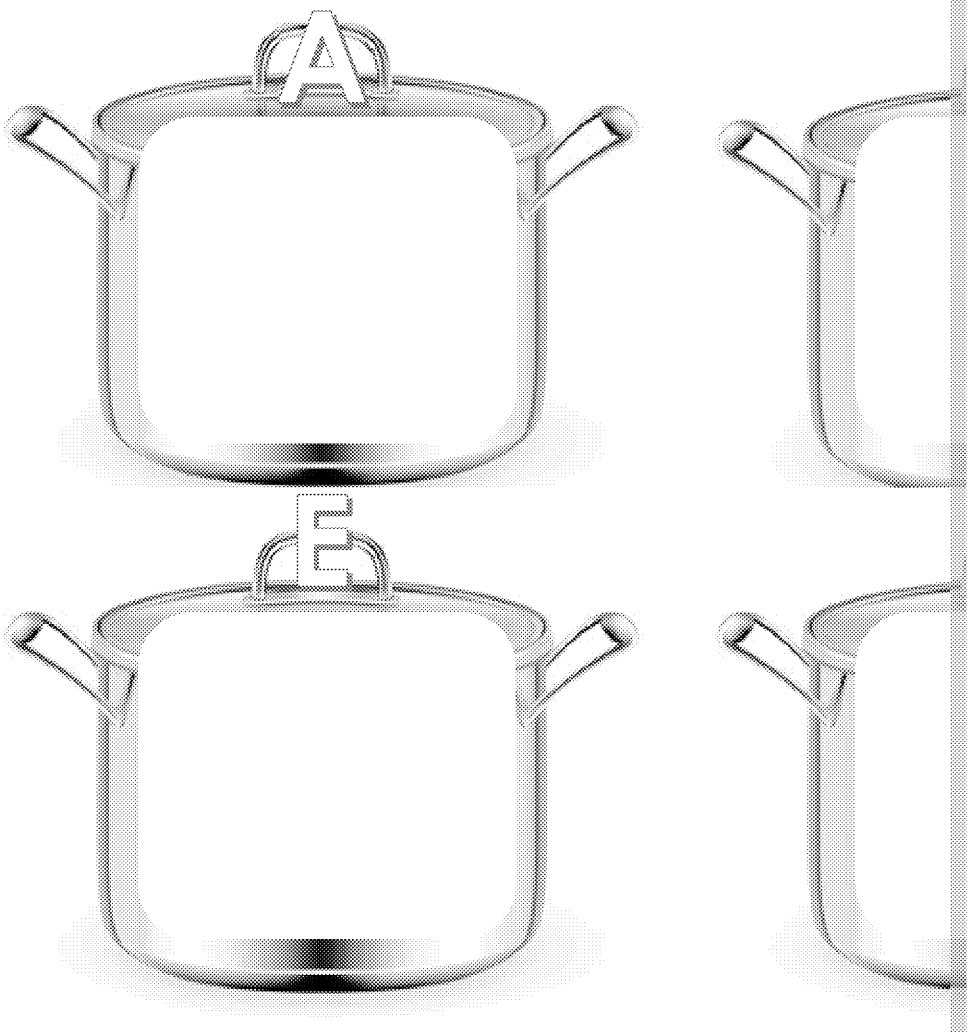
RNI = reference nutrient intake according to British Nutritional Foundation, 201
DRV for vitamin E and K from NHS website

Retinol	Cholecalciferol	Tocopherol
Beta carotene	Sunlight or eaten	Antioxidant
Healthy skin and eyesight	Rickets	Deficiency is rare
Mucus membranes	Osteomalacia	Excess is rare
Excess is toxic	Calcium absorption	DRV: 4 mg men / 3 µg women
Antioxidant	Bones and teeth	
RNI: 700 µg men / 600 µg women	Excess = organ damage	
Dairy, liver, kidney, oily fish, margarine, dark green leafy veg, lettuce, peas, orange, yellow and red veg	RNI: 10 µg for age 4+. oily fish, meat, eggs, butter, margarine, fortified breakfast cereals.	Soya, corn oil, olive nuts, seeds and margarines

Alphabet Soup

The four fat-soluble vitamins that we need to know are commonly known b
E and K. Did you know they also have a chemical name and lots of other

***TASK*:**
Cut and stick the correct keywords around each soup pot, then fill the pot
contain each vitamin. You can also label the pots with any other informat
about each vitamin.



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Beta carotene	Sunlight or eaten	Antioxidant
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Dairy, liver, kidney, oily fish, margarine, dark green leafy veg, lettuce, peas, orange, yellow and red veg	RNI: 10 µg for age 4+. Oily fish, meat, eggs, butter, margarine, fortified breakfast cereals.	Soya, corn oil, olive oi nuts, seeds and margarines

***BONUS QUESTION*:**
What is an ANTIOXIDANT? Can you find out a definition?

Activity 8 – Water-soluble Vitamins (B

Teacher's Notes

	Starter Activity: Twittermins
Aim of the activity	To introduce topic keywords on water-soluble vitamins and a vitamin. The activity should settle/focus students into a learn *This activity could accompany Lesson 9a or 9b on the AQA Sch*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers

There are no right or wrong answers here as long as at least one keyword for eac tweet. Reading and thinking about the keywords is the aim!

Some suggestions:

- **What on earth is thiamine? What foods are fortified?** #Studytime!
- **Thiamine is vitamin B1, needed for nerve cells to work.** #Ilove biology
- **Why do we need riboflavin? I'm sure I've seen that somewhere… LOL!** #Energyrelease #healthyskin
- **Do people really still get scurvy? Eat your oranges! Full of vitamin C.** #pirates!

Answers for BNF Adult Women age 19–50

Vitamin	Your Estimate RNI	Actual RNI	Vitamin	Your Esti
B1		0.8 mg/day	B9	
B2		1.1 mg/day	B12	
B3		13 mg/day	C	

Answers for BNF Adult Men age 19–50

Vitamin	Your Estimate RNI	Actual RNI	Vitamin	Your Esti
B1		1.0 mg/day	B9	
B2		1.3 mg/day	B12	
B3		17 mg/day	C	

Twittermins!

Use the keywords to write a tweet about each vitamin. You c
opinions, thoughts about what the lesson might entail, explana

Highlight or underline each keyword you use – 140 characters,
the hashtags!

#	#
#	#
#	#
#	#
#	#
#	#

Extension:
How can you find out the RNI (Reference Nutrient Intake) values for these v

Vitamin	Your Estimate RNI	Actual RNI	Vitamin	Your Esti
B1			B9	
B2			B12	
B3			C	

Activity 9 – Minerals

Teacher's Notes

	Starter Activity: Minerals Quiz Cube
Aim of the activity	To introduce a range of minerals (calcium, iron, sodium, fluor associated keywords. Focus students back into a learning env design-and-make task. *This activity could accompany Lesson 11a or 11b on the AQA S*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Learners should cut out the cube, and write a question on ea Then glue and play with their new toy!!!

Answers

Suggested questions:

Q. Why should we eat calcium?

A. For healthy teeth, bones, nerves and muscles

Q. What foods are high in sodium?

A. Salty foods, cheese, marmite, gravy

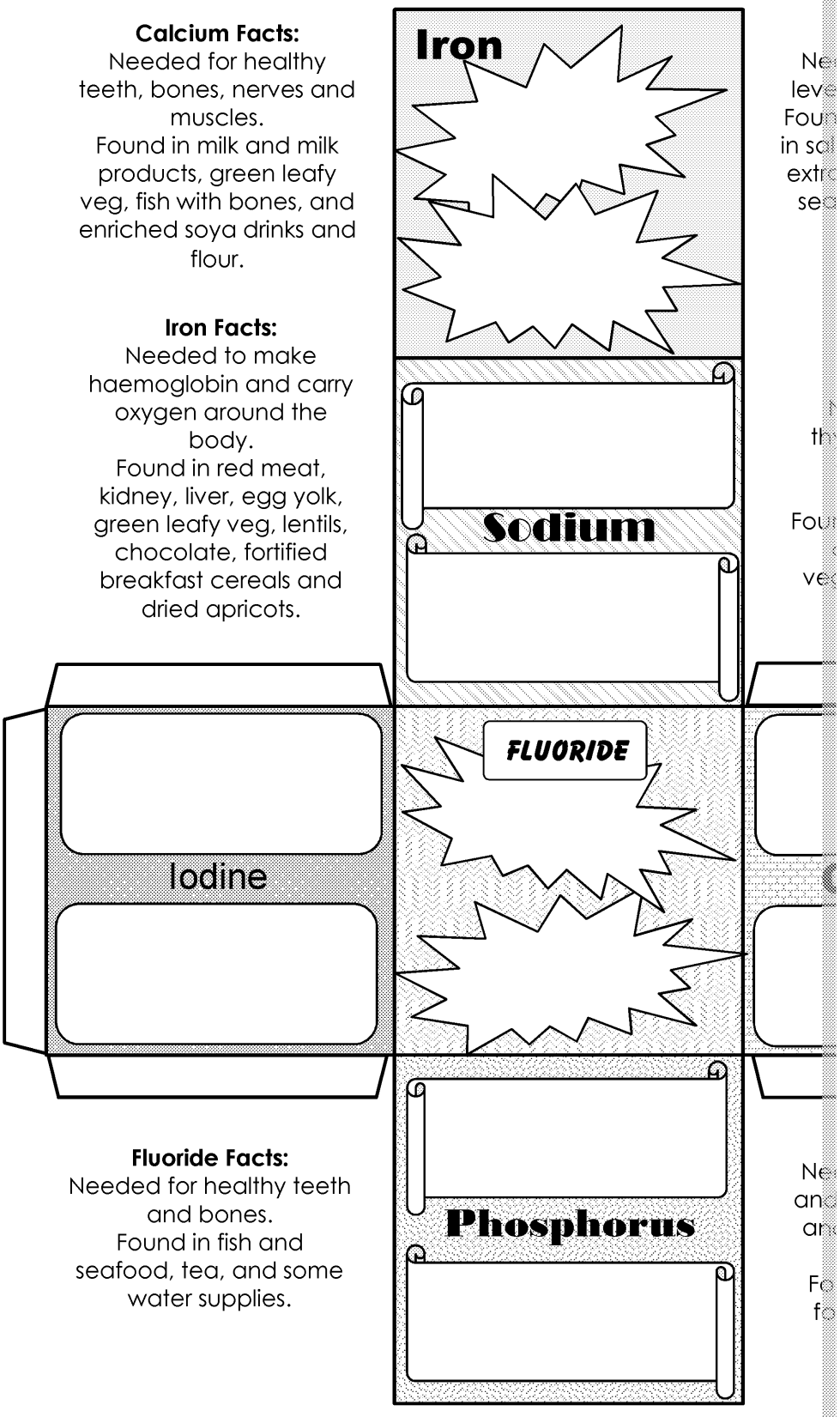
Minerals Quiz Cube

Task:
Use the facts on this sheet to write a question about each mineral (a
answer!). You can decorate each square with relevant images and

Cut out your net and make it into a cube. Roll it and quiz your classr

Calcium Facts:
Needed for healthy teeth, bones, nerves and muscles.
Found in milk and milk products, green leafy veg, fish with bones, and enriched soya drinks and flour.

Iron Facts:
Needed to make haemoglobin and carry oxygen around the body.
Found in red meat, kidney, liver, egg yolk, green leafy veg, lentils, chocolate, fortified breakfast cereals and dried apricots.



Fluoride Facts:
Needed for healthy teeth and bones.
Found in fish and seafood, tea, and some water supplies.

Teacher's Notes

Plenary Activity: Water You Learned about Th	
Aim of the activity	To consolidate the students' learning on the importance of hy water in the body.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minut Students should complete task 1 to identify the effects of deh functions of water in the diet.

Answers

Task 1:

Effects of water deficiency:

- Feeling thirsty
- Getting a headache
- Urine becomes dark
- Feeling weak and/or sick
- Body becomes overheated
- Wrinkly skin
- Feeling confused
- Changes in blood pressure and heart rate

Task 3:

Extra fluid could be required when…

- competing in physical activity and sport
- in high temperatures

Water You Learned about Then?

Sorry, that's a really awful teacher joke.

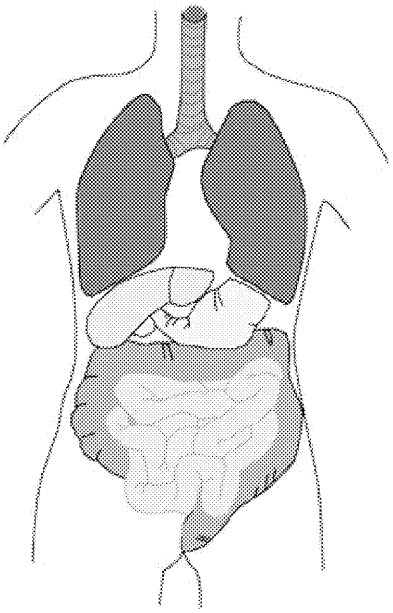
Task 1:
Use a yellow pencil crayon to colour in the bar below to show how the col
changes depending on how dehyrated a person is. Shade from very light
on the right – orange if you can. Then underneath write down at least eigh
dehydration.

1	2	3	4	5	
Good	Good	Fair	Dehydrated	Dehydrated	V

1.	**5.**
2.	**6.**
3.	**7.**
4.	**8.**

***Task 2*:**
Draw and annotate on these diagrams of human bodies to show where a
body. Here is a list to help you decide what to draw/annotate:

1. For cells and tissues
2. To make body fluids such as saliva, blood, urine and digestive juices
3. For chemical reactions in cells
4. Temperature control and sweating
5. Digestion of food and nutrient absorption
6. Removes was
7. Keeps linings
   lungs healthy
8. Controls the c
   bloodstream
9. Keeps skin he



Task 3:
With a partner, discuss one occasion when extra water is required.

Teacher's Notes

	Plenary Activity: Deficiency Diagnosis
Aim of the activity	To consolidate the students' learning on vitamins and minera associated with deficiency of various micronutrients.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Students should cut pictures of food from magazines if possib pictures of suggested food around each patient.

Answers

1. Vitamin A deficiency.
   Recommended foods include eggs, milk, cheese, butter, kidney, oily fish, da carrots, apricots, mango, papaya, peppers, tomatoes, sweet potatoes, buttern
2. Vitamin D deficiency (vitamin D is needed to enable calcium absorption).
   Recommended foods: oily fish, meat, eggs, butter, liver, vegetable fat sprea cereals.
3. Iodine deficiency can lead to a swelling in the neck called a goitre. Foods co milk and dairy. Vegetables, depending on the soil grown in.
4. Could be deficient in a range of B vitamins. Pellagra specifically is caused by contain B Vitamins, especially B3, include beef, pork, milk, cheese, eggs, and foods as per B3 plus fruits, both fresh and dried.
   B9 found in green leafy veg, yeast extract, peas, chickpeas and asparagus, whc

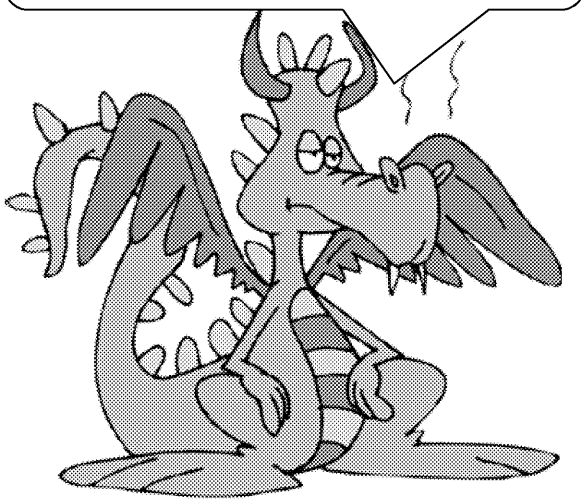
Deficiency Diagnosis

Dragons have a notoriously poor diet of stolen royalty and the occasional
advice to know how to eat better. Please help, there is nothing as dismal and

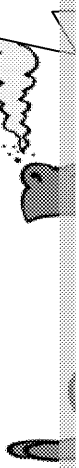
Did I mention dragons have trouble reading and need pictures…?

Task:
Determine which nutrient/s each dragon is missing, then draw (or cut and
dragon should eat next to him.

Oooh, my skin feels so dry and gets lots of infections. I can't even see at night any more to go and capture princesses.



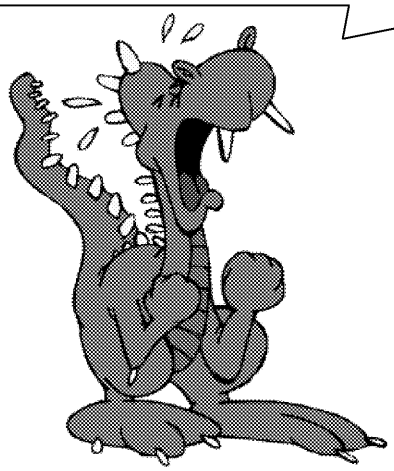
My bones are sooo
understand, I eat lots
crumbly. I couldn'



1. Diagnosis:

2. Diagnosis:

Nothing wrong with me…
Well, except this weird swelling in my neck. The last princess just laughed at me. So I ate her.



Where do I star
can't concentr
suggested I ha
earth is that? S

3. Diagnosis:

4. Diagnosis:

Activity 12 – Nutritional Anal

Teacher's Notes

	Starter Activity: More Than Tasty
Aim of the activity	This activity will revise current nutritional guidelines and insp about more than taste when choosing foods.
Teacher's instructions	If possible, provide your students with some real food to sam healthy option such as vegetable sticks alongside breadsticks comparisons of foods for the higher-ability students. If it is not possible to taste a food, then students can still use to discuss in the task. These could have been collected by the Photocopy student worksheet as required (groups, pairs or in for students to complete it.

Answers

Extension Questions:

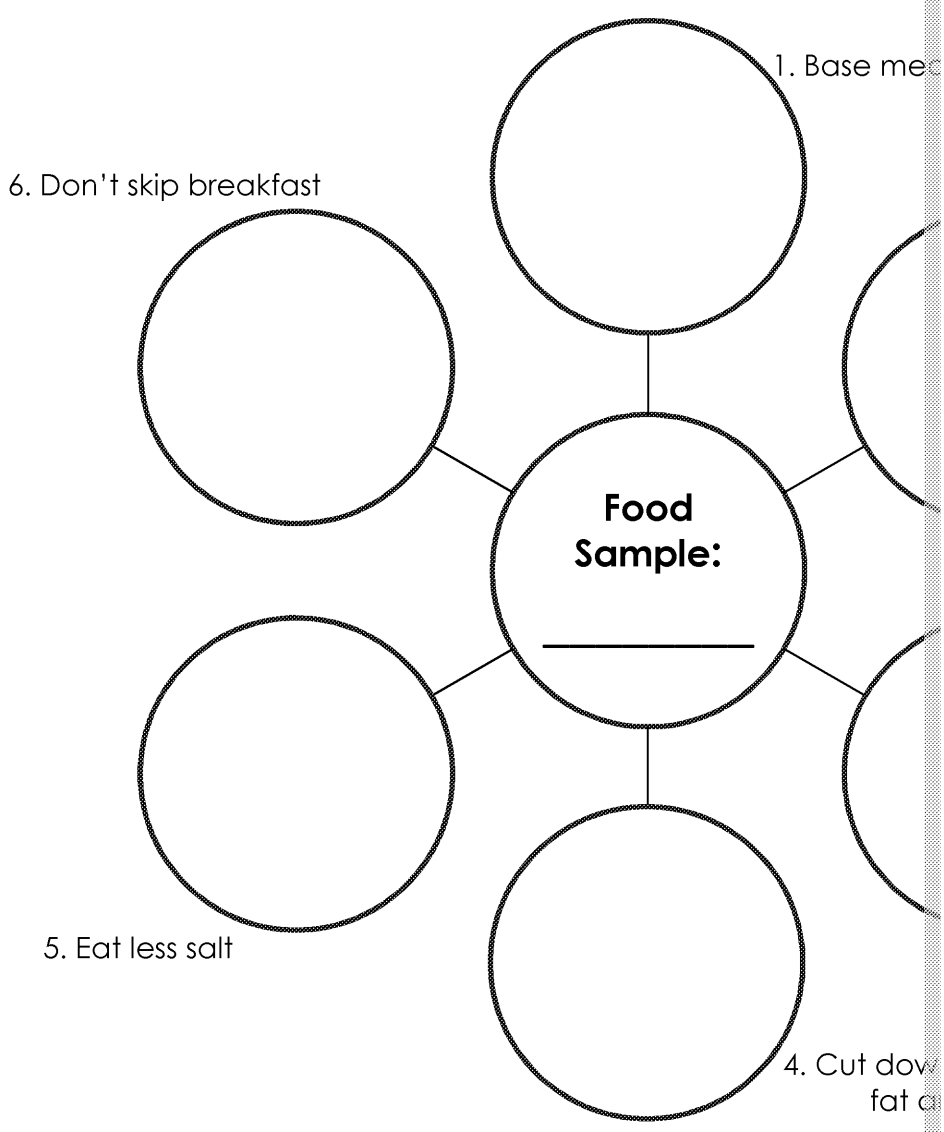
1. Nutritional information is on packaging and manufacturers' websites. Stude nutritional analysis software.
2. Reasons for modifying recipes could include for vegetarians and vegans swa egg replacements such as apple sauce, banana or flax seed; using gluten-fre gelatine instead of pork gelatine for religious reasons.
3. Traffic light system. A carrot would be red for eating more fish!

More Than Tasty

There's more to food than just taste, you know! Use the chart below
foods in terms of the government's dietary guidelines for making go

Task:

1. In each circle write down how the food does or doesn't meet th
2. Colour the circle red if it doesn't meet it at all, orange if it meets
   completely meets the guideline.



Questions to extend your learning…

1. How can you find out the nutritional information for the food?

   .....

   .....

2. For what reasons (other than to fit healthy eating guidelines) might you

   .....

   .....

3. What do we call this type of visual representation? Is this a good way

   .....

   .....

Activity 13 – Varied and Balanc

Teacher's Notes

Plenary Activity: I Know What I Like and I Like Wha	
Aim of the activity	To get students to apply their knowledge about nutrition guid to enable a more balanced and varied diet.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers

There are no real right answers. The student could suggest recipes, using differe presentation styles and preparation methods – courgetti spaghetti, anyone?

Here are a couple of suggestions:

Dear Aunty,
I know fruit and veg are good for me but I really hate the taste, texture a try to cook them at home the toddler just throws them on the floor and I l help, I'm willing to try new things now I'm a parent.

Don't Panic, Anonymous, here's what to do…

Look for recipes that contain hidden fruit and veg. Wh or courgette muffins? You can make noodles made from v in the supermarket, or what about grating vegetables in For your toddler, you can make faces and pictures out o Worth a try. Good luck.

Fish: Try cans of fish or pieces sold for fish pie. Yo 2–3 times a week, don't panic.

Water: You need water for every function in your body. energy, moves food through your digestive system, keeps healthy, and can help you lose or maintain a healthy we

Salt: Too much salt hardens your arteries and can lead using other spices and ingredients for flavour, such as chilli, garlic – the list is endless.

Sugar: Sugar has lots of calories and little nutrition. cause insulin resistance and lead to liver disease.

Fruit/veg: Use a cost per portion example that students unit. Suggest buying seasonal produce as it's often ch to reduce waste and save money. Try markets and/or gro the way at home and cook some of the recipes you've lea

I Know What I Like and I Like What I Know…

You forgot to do your English homework and now you have to write the 'a
school newspaper until half-term as a 'reward'. Good job you're a Food c
week's topic is perfect for you (remember to think about what type/age p

Creature of habit? Stubborn? Scared of change? Don't
Let Agony A.U.N.T. help you out!

Dear A.U.N.T.
Ive heard you are supposed to eat more fish? We don't have much money and fish is really expensive. How can we change our diet?

A stressed-out parent

Dear Stressed-Out,

Dear Aunty,
I know fruit and veg are good for me but I really hate the taste, texture and flavour. Plus, whenever I try to cook them at home the toddler just throws them on the floor and I lose all motivation. Please help, I'm willing to try new things now I'm a parent.

Don't Panic, Anonymous, here's what to do…

Dear Aunt,
All my friends are telling me to cut down on sugar and fat. I'm not overweight or on any medication, so why should I bother? I love sweets and don't have a single filling, so there.

In Denial from Westminster.

Dear In Denial

Dear Aunt, love your column!
I've always eaten lots of salt and now my daughter and grandson are telling me it's bad for me. How can I eat in a better way?

Concerned Grandparent.

Dear Grandparent,

Activity 14 – Energy Nee

Teacher's Notes

Starter Activity: Apples and Avocados with the Anarc	
Aim of the activity	Some maths and numbers from the Anarchy Aardvark to warm u get students thinking about energy needs for different people as different foods. Plus a little numeracy practice for good measur
Teacher's instructions	Anarchy Aardvark is a character I use with students to ask strang typical thinking exercise as who would eat that many apples? Al think about recommended calorie intake and how everybody is d Photocopy student worksheet as required and allow 10 minutes f encouraging discussion of the purpose of the task.

Answers

How many should I eat if I don't eat anything else?

Human	Energy needs	Maths bit
	**Baby Human:** A typical two-year-old needs about 1,400 calories a day	1400 ÷ 35 = **40 apples**
		1400 ÷ 220 = **6.4 avocados**
	**Young Child Human**: A typical six-year-old needs about 1,600 calories a day	1600 ÷ 35 = **46 apples**
		1600 ÷ 220 = **7.3 avocados**
	**Exciting Human (teenager):** A typical 15-year-old needs about 2,200 calories a day	2200 ÷ 35 = **63 apples**
		2200 ÷ 220 = **10 avocados**
	**Boring Human (adult):** A typical 40-year-old needs about 2,400 calories a day	2400 ÷ 35 = **69 apples**
		2400 ÷ 220 = **11 avocados**
	**Wrinkly Human (pensioner):** A typical 70-year-old needs about 1,800 calories a day	1800 ÷ 35 = **51 apples**
		1800 ÷ 220 = **8 avocados**

Extension Questions: Ideas For Discussion

Looking at problems in a new way can help us to solve problems and create new idea requirements here are from **www.webmd.com**, but even using this resource they ar available. Energy requirements depend on BMR (Basal Metabolic Rate) and this vari PAL (physical activity level). Everyone is different.

As well as people being different, food is different and has different energy density. C calories, such as peanuts; if you were trying to lose weight but wanted to eat a lot th avocados. (Don't forget there's more to food than just calories.)

If you were trying to carry less weight (like climbers or hikers) what foods could you t space? Has anyone in the class ever tried a military ration pack or space food pouch

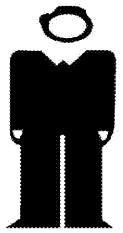
Don't forget it's not just calories, health is important too.

Apples and Avocados with the Anarchy Aardv

The Anarchy Aardvark likes looking at problems in different ways. Humans
need different amounts of energy, and the Aardvark wants to know what
this would look like in apples and avocados...

100 grams of apples (1 medium apple) contains 35 KC
100 grams of avocados (1 small avocado) contain

Can you complete the table by doing some maths and drawing to show t
or avocados that each type of human should eat?

Human	Energy needs	Maths bit
	**Baby Human**: A typical two-year-old needs about 1,400 calories a day	1400 ÷ 35 = *40 apple*
		1400 ÷ 220 = *6.4 avocados*
	**Young Child Human:** A typical six-year-old needs about 1,600 calories a day	1600 ÷ 35 =
		1600 ÷ 220 =
	**Exciting Human (teenager):** A typical 15-year-old needs about 2,200 calories a day	2200 ÷ 35 =
		2200 ÷ 220 =
	**Boring Human (adult):** A typical 40-year-old needs about 2,400 calories a day	2400 ÷ 35 =
		2400 ÷ 220 =
	**Wrinkly Human (pensioner):** A typical 70-year-old needs about 1,800 calories a day	1800 ÷ 35 =
		1800 ÷ 220 =

Extension Question 1:
What can we learn from looking at these problems in a new way? Who w
you need far fewer avocados than apples to supply the same calories?

Extension Question 2:
The energy needs in this table are 'typical' amounts. Why will some peopl
others?

Activity 15 – Diet Nutrition and

Teacher's Notes

	Plenary: Pulling It All Together
Aim of the activity	To get students thinking about all the elements in the Food N whole. In order to rank the food groups, students will have to food and what benefits we get from them. The task can be u groups of people and their different energy needs and how di
Teacher's instructions	Photocopy student worksheet as required and allow 10 minut stressing the use of keywords as good technique for higher-le be extended easily into a class debate and/or presentations.

Answers

No right or wrong answers here – just healthy debate. You could divide the class i to have a different focus, such as health, availability or difficulty of making a cha

Health issues

Encourage students to reflect on the importance of the different foods and nutri reducing chances of the following health issues:

- Obesity
- Weight management
- Heart disease
- High blood pressure
- Bone health, rickets and osteoporosis
- Muscle formation and density
- Dental health
- Iron deficiency anaemia
- Type 2 diabetes
- Mental well-being

Putting It All Together: Diet, Nutrition and Health

Use your new knowledge of micro and macronutrients and energy require
group from the Eatwell Guide you think is the most important (rank them fr
least important). Discuss your opinions in the class and come up with a gro
group believe is the most important food group to eat and why?

Follow the three steps below to make sure you organise your thoughts clea

Step 1: Decide on what makes a food group important. Is affordability o
a difference between survival and health? Do different ages or ty
needs? Write this in the judging criteria space.

Step 2: Use the fill in the table and word bank below to help organise you
used a keyword then cross it off the list to help you use a good ran
arguments.

Step 3: Write a summary of your thoughts. Do you agree or disagree with

Judging criteria:

Food Group	Your rank	Reasons	Group rank	
Starchy carbohydrates				
Oils and spreads				
Dairy and alternatives				
Beans, pulses, fish, eggs, meat and other proteins				
Fruit and vegetables				
Summary				

Word bank:
protein, fat, carbohydrate, calories, energy, nutrients, vitamins, minerals, a
nerve functions, availability, fibre, health, amino acids, biological value, p
macronutrient, micronutrient, excess, growth, repair, immune system, diet
functions, weight gain, fat-soluble vitamins, coronary heart disease, energ
pectin, dextrin, dietary fibre (NSP), fatigue (tiredness), weakness, daily en
grow, healthy skin, bones, nails, night-blindness, eyesight, fat-soluble vitam
minerals, calcium, rickets, antioxidant, blood clots, birth defects, aids abs
absorption, dermatitis, dementia, red blood cells, spina bifida, pellagra, e
deficiency disease, osteomalacia, digestion, haemoglobin, high blood p
cramps, tooth decay, thyroxin, metabolic rate

Activity 16 – Why Food is Coo

Teacher's Notes

Plenary Activity: Menu for a Venue – The Raw Res	
Aim of the activity	To think about why and how food is cooked, consolidating kn and cooking methods.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minut

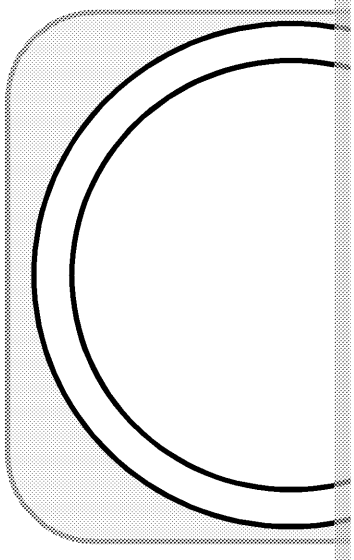
Answers

1. Beans
2. Eggs/potatoes
3. Eggs – transparent 'white' as the proteins have not denatured
4. Salad
5. Chicken
6. Rice
7. Reasons why food is cooked:
   - Safe to eat – kill bacteria, destroy toxins
   - Develop flavours/taste – caramelise, browning, soften and release juice
   - Improve appearance/texture – thicken a sauce, soften a food, brown, c
   - Improve texture – tenderise to make digestion easier, less bulky, bread
   - Improve shelf life – destroys microorganisms to help with preserving
   - Add variety – different methods of cooking the same thing

Menu for a Venue: The Raw Restaurant

There are different reasons why food is cooked. Tackling these tasks
we cook food and use your new knowledge to suggest an alternati

On this plate, draw what egg, beans and chips would look like if it w



1. Which item looks the same but might taste better warm?

   .....

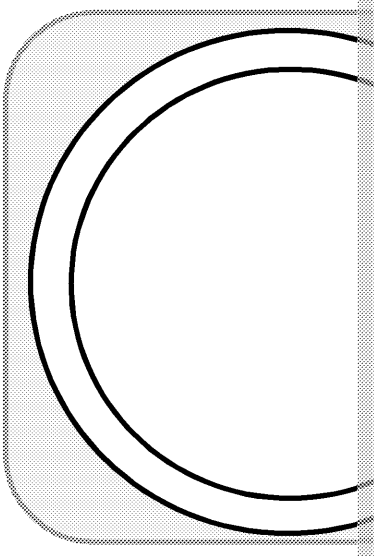
2. Which items are not safe to eat?

   .....

3. Which item would look peculiar?

   .....

On this plate, draw what chicken, rice and salad would look like if it



4. Which item would you eat?

   .....

5. Which item is not safe to eat?

   .....

6. Which item would be too crunchy?

   .....

7. Now recommend some changes to the chef. Use details and don't be vague! Think about reasons why we cook food, how that might work and why it is needed.

Activity 17 – Cooking Metho

Teacher's Notes

Starter Activity: How Do I Cook Food?	
Aim of the activity	To introduce and define the keywords radiation, convection a names for a large range of cooking methods.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Support may be needed with definitions of the cooking metho

Answers

Q1: You might have eaten toast (toasted using radiation) or had sausages or sim hot weather someone may have had a BBQ.

Q2. Boiling water in a saucepan, an oven with a fan is sometimes called a convec

Q3. Electrical energy (electricity) moves by conduction. You should have met thi similar.

Stir fry	Conduction	**Simmer**	Conc
Toasting	Radiation	**Boiling**	Conc
Roasting	Convection and conduction (some radiation)	**Braising**	Conc
Baking	Convection and conduction (some radiation)	**Microwave**	Radi
Grilling	Radiation	**Induction**	Conc
Deep fat fry	Conduction and convection	**Poaching**	Conc
Stewing	Conduction and convection	**Bake blind**	Conv radia
Sauté	Conduction	**Reduce**	Conc
Steaming	Conduction and convection	**Par boil**	Conc
Shallow fry	Conduction	**Blanche**	Conc
Sandwich toaster	Conduction	**BBQ**	Radi
Dry fry	Conduction	**Flambé**	Radi

How Do I Cook Food? – Start by making the fo

Radiation is the transfer of energy by waves from one place to anot
aren't touching.

Q1. What food have you eaten this week that has been cooked in

.....

Convection happens in fluids (liquids) and gases where molecules c
around and spread out the heat energy.

Q2. What kitchen appliances do you know that heat food using co

.....

Conduction is where heat energy is transferred through a material fr
direct contact.

Q3. Where have you met this word before? Is the meaning similar?

.....

Task 1:
The grid below is filled with the many cooking methods you will com
labels (R, Cv or Cd) to show if they work using convection, conducti
combination of ways of moving heat energy.

Stir Fry	Toasting	ROASTING	Bake	
Stewing	Sauté	STEAMING	Shallow Frying	
Simmer	BOILING	Braise	MICROWAVE	
Bake Blind	Reduce	Par Boil	Blanche	

R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv	Cv
Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd	Cd

Activity 18 – Cooking Methods: Hea

Teacher's Notes

Plenary Activity: It's the Taboo Turtle! Cooking M	
Aim of the activity	Students can use information and examples from the lesson t Writing their own cards supports literacy.
Teacher's instructions	Photocopy student worksheet as required – you may want m Students should write a keyword from the lesson and then a li said when asking someone to guess the keyword. Students c groups and take turns to guess the keyword, as many as possi Someone should score. This can be done as a whole-class acti have mature learners. Allow 10 minutes for students to mak

Answers

Example:

You could say: cooking with a liquid at 100 degrees C...

Keyword: Boiling	
You must not say…	
Saucepan	Eggs
Hob	Kettle
Water	Hot

It's the Taboo Turtle! His Next Challenge… Coo

This activity will make you think about what you have learnt in the lesson. The aim of the game is to get your teammate to guess the keyword from the clues you give… but you mustn't say any of the words underneath – they are taboo!

See how many you can guess in 30 seconds, then it's someone els

What to do:
Cut out the cards and fill them in; you can use our suggestions or yo cards together with whoever else is playing in your group. Form tea out a card and get your team to guess the keyword.

Cooking method keywords:
conduction, convection, radiation, heat transfer, boiling, roa wooden spoon, saucepan, grill, hob, microwave, cooking, ai

Your keywords:

Keyword: You must not say: ________ ________ ________ ________ ________ ________	Keyword: You must not say: ________ ________ ________ ________ ________ ________	Ke Yo
Keyword: You must not say: ________ ________ ________ ________ ________ ________	Keyword: You must not say: ________ ________ ________ ________ ________ ________	Ke Yo
Keyword: You must not say: ________ ________ ________ ________ ________ ________	Keyword: You must not say: ________ ________ ________ ________ ________ ________	Ke Yo

Activity 19 – Cooking Methods: Ways

Teacher's Notes

Starter Activity: Matching Descriptions	
Aim of the activity	To introduce a full range of cooking methods and the idea tha transfer of heat.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers

Method	Description
Steaming	Cooking food in the steam from a pan of water
Stewing	Cooking food by simmering gently in a covered pot
Stir frying	Frying food for a short time with a little oil, often in a wo
Roasting	Cooking in some oil or fat in a hot oven
Baking	Cooking food in a hot oven
Toasting	Cooking starchy food with a dry heat
Boiling	Cooking food in water at 100 °C
Grilling	Cooking food by radiation from an element above or charcoal below
Sautéing	Frying gently in a little oil to soften the food
Deep fat frying	Frying food by completely immersing it in hot oil
Braising	Sealing meat in fat then cooking slowly in a covered dish
Dry frying	Using a frying pan and no added oil
Simmering	Cooking food in liquid at a heat that bubbles gently
Shallow frying	Cooking food in a little oil
Microwaving	Cooking food using electromagnetic waves
Induction cooking	Using a special hob that transfers energy using a magneti coil
Poaching	Cooking food in water or wine at just under boiling point

Examples: Deep fat frying is not very fashionable for health reasons, induction te

Matching Descriptions

Complete the table by matching each cooking method with it
guess if it uses water, fat/oil or dry heat?

Cooking Methods

baking, boiling, braising, deep fat frying, dry frying, grilling, indu
microwaving, poaching, roasting, sautéing, shallow frying, simm
stewing, stir frying, toasting

Method	Description
	Cooking food in the steam from a pan of wa
	Cooking food by simmering gently in a cove
	Frying food for a short time with a little oil, ofte wok
	Cooking in some oil or fat in a hot oven
	Cooking food in a hot oven
	Cooking starchy food with a dry heat
	Cooking food in water at 100 °C
	Cooking food by radiation from an element or charcoal below
	Frying gently in a little oil to soften the food
	Frying food by completely immersing it in ho
	Sealing meat in fat then cooking slowly in a dish
	Using a frying pan and no added oil
	Cooking food in liquid at a heat that bubble
	Cooking food in a little oil
	Cooking food using electromagnetic waves
	Using a special hob that transfers energy usi magnetic coil
	Cooking food in water or wine at just under point

Q: What methods have you tried?

Highlight (by colouring, circling or underlining) the cooking metho

Highlight the ones you have tried at school in another colour.

How many have you not tried? Why do you think this is?

Activity 20 – Functional and Chemical Prop

Teacher's Notes

	Starter (and Plenary) Activity: What am I?
Aim of the activity	Starter task: Introduce keywords needed to understand the fu together prior knowledge. Encourage mindfulness in learning Plenary task: Identify knowledge still missing or consolidate n by demonstrating the learner's journey and how far they hav
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Students should fill in the START column at the beginning of t comfortable. At the end of the lesson they should write a ful example in the END column. It's more important to get it rig beginning.

Some Suggested Answers

Protein is a large molecule made up of amino acids. Protein makes up a large par

Amino acids are simple, organic molecules made from oxygen, carbon, hydrogen

Denaturation is where the protein changes in appearance because chemical bon
molecule allowing it to 'unfold' and change shape.

Coagulation is the joining together of lots of denatured protein molecules. This c

Gluten is a protein found in flour. When chains of gluten are formed then a brea

A foam is gas trapped in a liquid. This can happen when you whisk egg whites.

Keywords for Functions of Proteins: What am I?

Some great new keywords for the lesson, but what on earth do they

Have a guess now – you can write sentences or notes, draw and ske
examples – don't be scared to get it wrong! Come back at the end
and see what new information you have learned by writing the corr

If you still don't know then it's time to study harder!!!

I am…	(Start) What do you think I am?	(End) Wha
Protein		
Amino Acid		
Denaturation		
Coagulation		
Curdling		
Gluten		
Foam		
Marinating		

Activity 21 – Functional and Chemical
Carbohydrates

Teacher's Notes

	Starter Activity: Origami Fortune Teller
Aim of the activity	Activate the learning brain with a short make-and-play task – c help settle an excitable group. The fortune teller introduces ca keywords for properties of carbohydrates. For some students can choose the different processes and have control of their fo
Teacher's instructions	Photocopy student worksheet as required and allow 10 minut Each cuts out and folds the fortune teller – it does help if the t remember playing with these when they were little! Otherwis 'origami fortune teller' will show a range of instructions and vi

Answers

How to make your fortune teller…

1. Cut out the square.
2. Fold it in half and open again in all directions.
3. Now fold the corners into the middle (on the side so that you can sti
4. Turn it over and fold the corners into the middle again.
5. Fold the whole thing in half.

This is the hardest bit!

You should now be able to put your fingers into the four pockets and op

Ask your classmates to pick from a choice of bread, pasta, rice or potato words.

Folding Time with Carbohydrates….The Origam

Predict your future! What are you going to eat for dinner? Use the f
with carbohydrate foods.

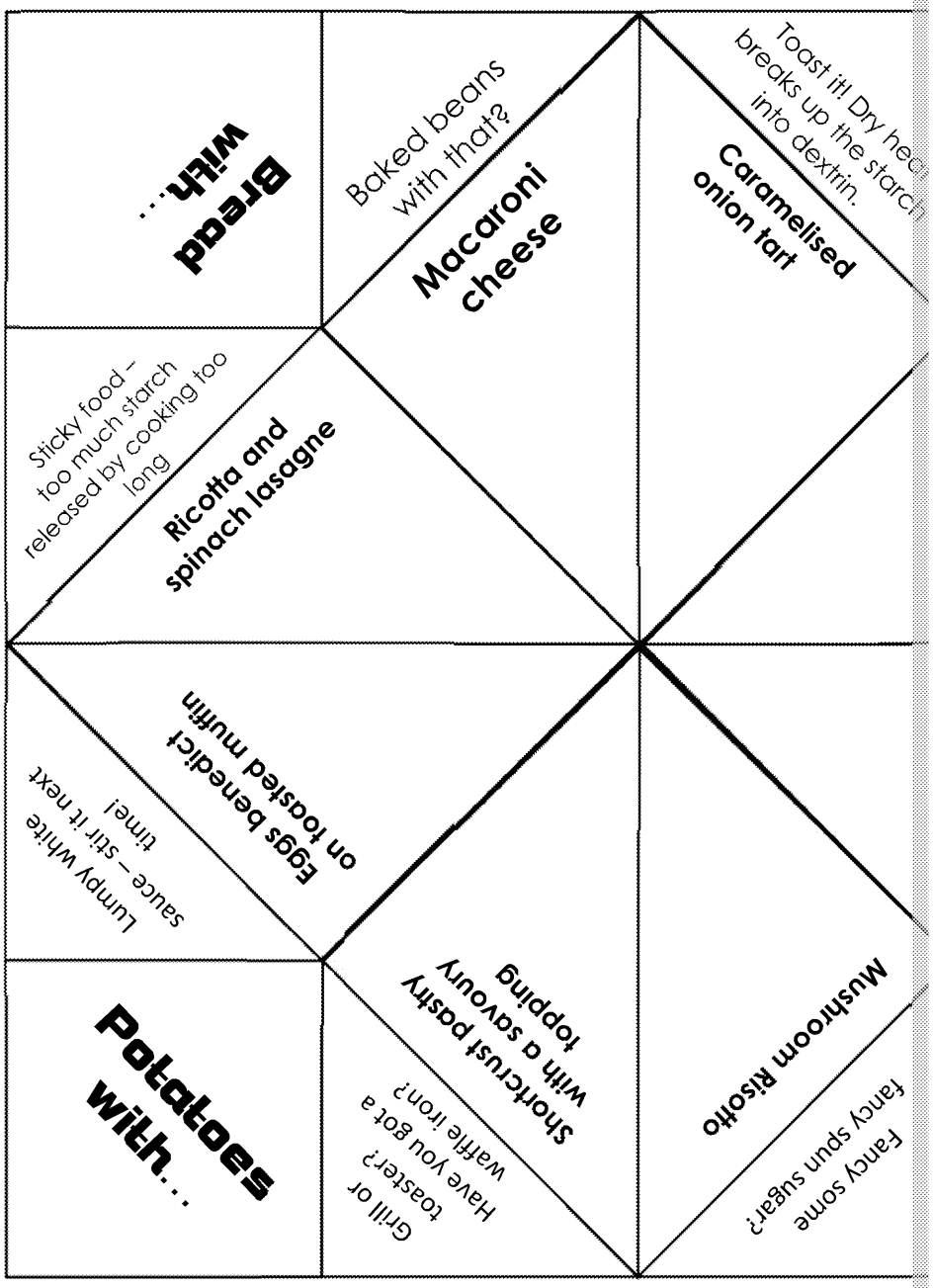
Q: Did your fortune make sense? Would you toast pasta? Would y
was cooked and covered in cheese/breadcrumbs?

Q: What carbohydrate cooking choices would you make?

Activities

While you are waiting for others to finish you could…

1. highlight the keywords
2. decorate the fortune teller with pictures of the foods
3. explain what a gel is…
4. make a list of sauces that are thickened with flour…

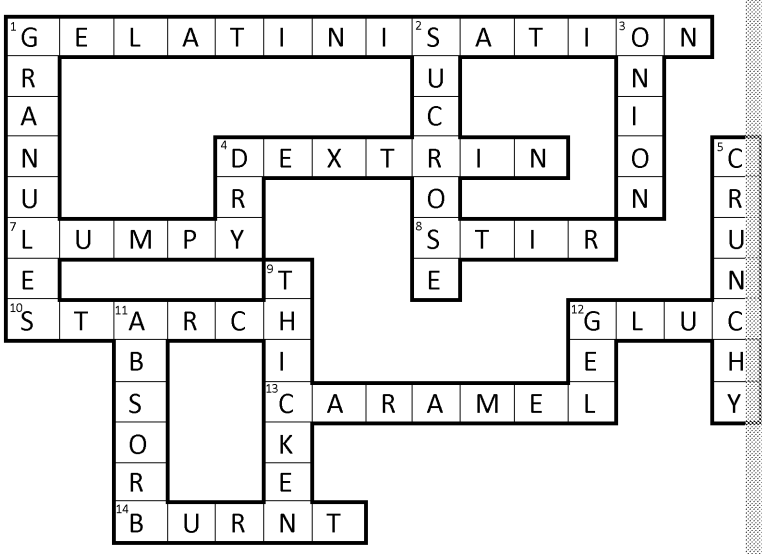


Activity 22 – Functions of Carbol

Teacher's Notes

Plenary Activity: Cooking with Carbohydrates Keyw	
Aim of the activity	Test knowledge of the chemical properties of carbohydrates a the learners' new knowledge links across the curriculum.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers



Cooking with Carbohydrates: Keyword Puzzle

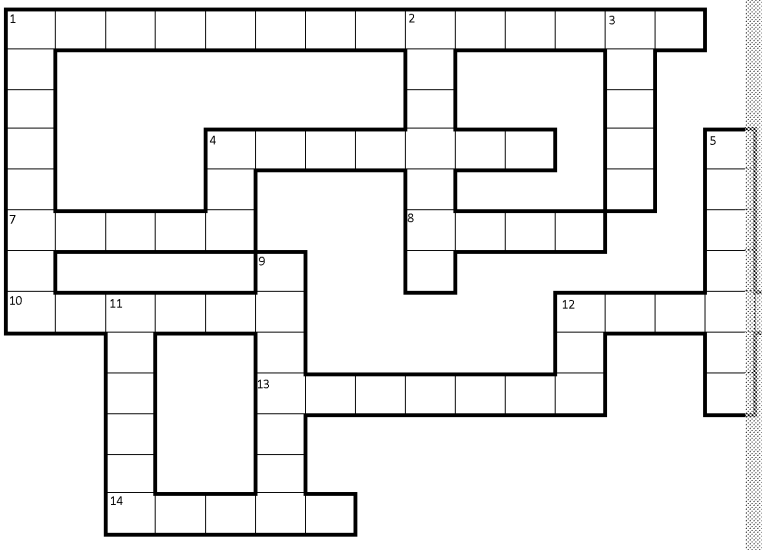
Use the blanks from the text below to fill in the crossword.

Three important reactions of carbohydrates when you cook them are g
and caramelisation.

(1 ACROSS) is a process where liquids are thickened by using starch to t
happens when ingredients with lots of packets of starch molecules calle
flour, are cooked in a liquid such as milk or water. At 60 °C the starch g
(11 DOWN) water and swell up, causing it to **(9 DOWN)**. At 80 °C the gra
molecules from the granules. At 100 °C the mixture will be completely c
Because starch molecules sink in liquid you must **(8 ACROSS)** the mixture
going **(7 ACROSS)**. As the mixture cools the starch forms chains trappin
the liquid into a **(12 DOWN)**.

Dextrinisation causes food to look nice and brown and **(5 DOWN)**. This p
(10 ACROSS) molecules are broken down using **(4 DOWN)** heat such as
molecules are broken into smaller groups of glucose molecules called **(4**
much heat then your food will blacken and be **(14 ACROSS)**. A good e
happens when you make toast or bake bread and the outside of the b

Caramelisation is the breaking up of **(2 DOWN)** molecules in sugar into s
fructose molecules. This forms a caramel. You can do this with sugar in
caramel or by cooking food slowly like **(3 DOWN)** to make caramelised
crème **(13 ACROSS)**.



Mindfulness Questions – Becoming a better learner ac

Science:
Which keywords do you recognise from your Science lessons? Do y
gel or an emulsion?

English/Media/Drama:
Next time you cook, could you explain what you are doing to the a
answer questions from a TV show host while cooking?

Geography:
Where do these recipes come from? What cultures would be likely t
Why?

Activity 23 – Functional and Chemical Pr
and Oils

Teacher's Notes

	Starter Activity: Fats and Oils Quiz Cube
Aim of the activity	Students use keywords such as plasticity, emulsification, shor questions and think about the objectives of a lesson on the Pr will start to ask questions about the keywords, supported by have found an answer yet. By rolling the dice during the lesson and considering if they ha yet the students can reflect on their learning and be more mi progressing.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu During the lesson encourage students to roll their cubes and s answers yet. What can they do if they haven't? What should

Answers

Example questions to write on the cube net:

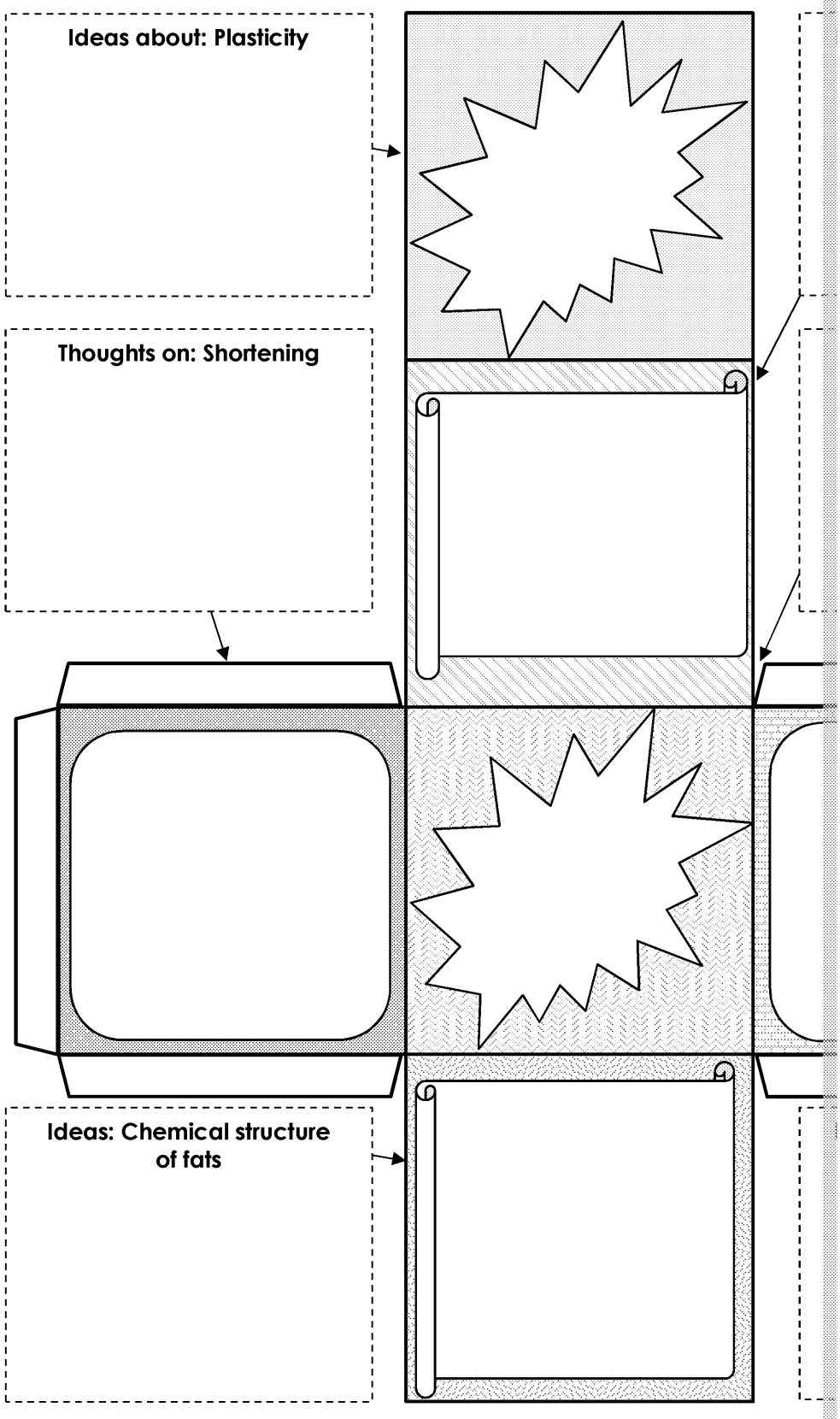
- What is plasticity and how does it apply to fats?
- What does aeration mean? What cooking methods do this?
- I know this is what the structure of a fat is, but how does that work? Are all
- What is an unsaturated fat?
- I have seen shortening written in recipes, is this the same thing?
- Why is shortbread called shortbread?
- Is emulsion like paint? Why ask this in a Food lesson?
- We've learnt about emulsions in science. How does this work with food?
- What temperature does oil catch fire at?
- When and why do fats melt?
- What happens if you reheat fat lots of times?

Fats and Oils Quiz Cube – Take Your Learning 3

Apart from tastiness and nutrition, there are other reasons why we use fats
think you will need to learn?

TASK:

1. Use the thoughts and ideas boxes below to write down any knowledg
about each topic. Keywords or bullet points work well here. If you are
your classmates to write some of their ideas for questions in these spac
2. Then, use these thoughts to write at least one really good question on
3. Finally, cut out your net, fold and stick it to make a cube. Roll and reac



Activity 24 – Properties of Fats a

Teacher's Notes

	Plenary Activity: Crack the Safe – Properties of Fats
Aim of the activity	This activity will check learners' knowledge about fats and he their learning. Having to read the text in order to make sense opportunity to reinforce learning of key concepts and literacy the text.
Teacher's instructions	Photocopy student worksheet (one per student) and also the cut into three sets of tiles) as required and allow 10 minutes f task. The work can be checked in a short time simply by checking t After assembling the text, encourage students to identify the or each other on spelling for a little added literacy.

Answers

Text should read

(T) The basic chemical structure of a fat or oil is one unit of glycerol and three un called a **(R)** triglyceride. Fats that contain lots of saturated fatty acids are mostly oils contain **(I)** more unsaturated fatty acids and are liquid.

Fats are able to be spread and shaped with slight pressure, this is called **(G)** plast of unsaturated fatty acids it will spread well and have good plasticity.

When fat is **(L)** mixed with flour it stops the gluten from forming long chains of m texture for pastry and biscuits. **(Y)** This is why fat is sometimes called shortening shortbread.

Fats are able to **(C)** trap air bubbles when beaten together with sugar for a cake. and makes a **(E)** light fluffy sponge.

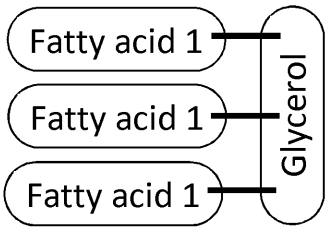
Oil and water are two liquids that do not mix together permanently – they will **(R)** container. You can add a chemical called an emulsifier to keep them mixed; this emulsion. Mayonnaise, milk, butter and hollandaise sauce are examples of **(D)** e

When you heat fat it will melt and become oil and as you heat it further the oil w 160 and 250 °C, smoke will rise from the oil and if heated further the oil will burs flash point.

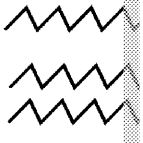
Code word: Triglyceride

Drawing of a triglyceride molecule should look something like either of these:

Simple diagram



More c



Crack the Safe: Properties of Fats and Oils

1. Cut and stick the tiles into the boxes overleaf in the correct orde
2. Write the letters in the circles below to reveal the code and crack the safe.

Bonus question:
Can you draw a diagram of the code word?

Can you pick out five keywords and spell them? Test yourself or a c

.....

.....

Cooking with Fats: Unlock The Safe Answer Tiles (three sets)

The basic chemical structure of a fat or oil is one unit of glycerol and three units of fatty acids. This molecule is called a… **T**	light fluffy sponge. Oil and water are two liquids that do not mix together permanently – they will… **E**	mixed with flour it stops the gluten from forming long chains of molecules. This makes a crumblier texture for pastry and biscuits **L**
substance is called an emulsion. Mayonnaise, milk, butter and hollandaise sauce are examples of… **I**	emulsions. When you heat fat it will melt and become oil and as you heat it further the oil will become runnier. Between… **D**	separate out if left alone in a container. You can add a chemical called an emulsifier to keep them mixed; this new… **R**
trap air bubbles when beaten together with sugar for a cake. This process is called creaming and makes a … **C**	triglyceride. Fats that contain lots of saturated fatty acids are mostly solid at room temp and oils contain… **R**	This is why fat is sometimes called shortening and we eat shortcrust pastry and shortbread. Fats are able to… **Y**
160 and 250 °C smoke will rise from the oil and if heated further the oil will burst into flames. This is called the flash point. **E**	plasticity. If a fat has a high amount of unsaturated fatty acids it will spread well and have good plasticity. When fat is… **G**	more unsaturated fatty acids and are liquid. Fats are able to be spread and shaped with slight pressure, this is called… **I**

The basic chemical structure of a fat or oil is one unit of glycerol and three units of fatty acids. This molecule is called a… **T**	light fluffy sponge. Oil and water are two liquids that do not mix together permanently – they will… **E**	mixed with flour it stops the gluten from forming long chains of molecules. This makes a crumblier texture for pastry and biscuits **L**
substance is called an emulsion. Mayonnaise, milk, butter and hollandaise sauce are examples of… **I**	emulsions. When you heat fat it will melt and become oil and as you heat it further the oil will become runnier. Between… **D**	separate out if left alone in a container. You can add a chemical called an emulsifier to keep them mixed; this new… **R**
trap air bubbles when beaten together with sugar for a cake. This process is called creaming and makes a … **C**	triglyceride. Fats that contain lots of saturated fatty acids are mostly solid at room temp and oils contain… **R**	This is why fat is sometimes called shortening and we eat shortcrust pastry and shortbread. Fats are able to… **Y**
160 and 250 °C smoke will rise from the oil and if heated further the oil will burst into flames. This is called the flash point. **E**	plasticity. If a fat has a high amount of unsaturated fatty acids it will spread well and have good plasticity. When fat is… **G**	more unsaturated fatty acids and are liquid. Fats are able to be spread and shaped with slight pressure, this is called… **I**

The basic chemical structure of a fat or oil is one unit of glycerol and three units of fatty acids. This molecule is called a… **T**	light fluffy sponge. Oil and water are two liquids that do not mix together permanently – they will… **E**	mixed with flour it stops the gluten from forming long chains of molecules. This makes a crumblier texture for pastry and biscuits **L**
substance is called an emulsion. Mayonnaise, milk, butter and hollandaise sauce are examples of… **I**	emulsions. When you heat fat it will melt and become oil and as you heat it further the oil will become runnier. Between… **D**	separate out if left alone in a container. You can add a chemical called an emulsifier to keep them mixed; this new… **R**
trap air bubbles when beaten together with sugar for a cake. This process is called creaming and makes a … **C**	triglyceride. Fats that contain lots of saturated fatty acids are mostly solid at room temp and oils contain… **R**	This is why fat is sometimes called shortening and we eat shortcrust pastry and shortbread. Fats are able to… **Y**
160 and 250 °C smoke will rise from the oil and if heated further the oil will burst into flames. This is called the flash point. **E**	plasticity. If a fat has a high amount of unsaturated fatty acids it will spread well and have good plasticity. When fat is… **G**	more unsaturated fatty acids and are liquid. Fats are able to be spread and shaped with slight pressure, this is called… **I**

Activity 25 – Fruits and Vegeta

Teacher's Notes

Plenary Activity: Ripening and Browning	
Aim of the activity	The banana question will help students relate the topic to wha experienced. Joining up the definitions will introduce and cor keywords and ideas for the topic.
Teacher's instructions	Photocopy worksheet, one per student. Allow 5–10 minutes t

Answers

Cover in cold water	This prevents oxygen from the air reaching the enzym chopped vegetables
Cook food	Heat is used to denature the enzymes that would othe
Enzymic browning	Unwanted change in colour of fruit and vegetables be from the plant with oxygen in the air and natural subs
Blanching	Plunging cut vegetables into boiling water for a short t
Oxidation	When a substance joins chemically with oxygen
Discolouration	A change in colour that is often to a less attractive one
Adding lemon juice	Adding an acid like this will denature the enzymes and
Enzymes	A molecule that starts or increases the speed of a reac

Ripening and Browning

Foods such as fruits ripen because they contain enzymes. Ripen me
texture flavour and aroma.

In the space below, draw, colour and describe your perfectly ripe b
that of the person next to you?

Certain fruits and vegetables turn an unappealing brown, black or g
bite, crush, grate or peel them. This is called enzymic browning.

TASK
Match up the keywords/ideas for this topic with their descriptions be

Blanching Cook food	Oxidation Enzymes	Adding lemon juic Discolouration

	This prevents oxygen from the air reachi surface of the chopped vegetables
	Heat is used to denature the enzymes th browning
	Unwanted change in colour of fruit and reactions of enzymes from the plant with natural substances from the plant's cells
	Plunging cut vegetables into boiling wa then cold water
	When a substance joins chemically with
	A change in colour that is often to a less
	Adding an acid like this will denature the unwanted browning
	A molecule that starts or increases the sp biological catalyst

Activity 26 – Raising Agen

Teacher's Notes

	Starter Activity: (Secret Squirrel's) Raising Agents Top
Aim of the activity	This activity will aid students' thinking and reasoning skills as keywords and justify their choices. Some of the words should groups of students as to how it applies to the topic.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers

Suggestions ONLY – some of these are arguable – that's the po

Direct keywords: Air, baking powder, bicarbonate of soda, biological, budding, ca creaming, expanding, fermentation, folding, gas bubbles, mechanical, microorga raising flour, steam, warmth, yeast

Linked keywords: baking, carbohydrate, Chelsea buns, choux pastry, conduction meringue, micronutrients, moisture, protein, radiation, raw, Swiss roll

Hard to link keywords: cheese, decoration, deficiency, demerara, dextrinisation, gelatinisation, herbs, minerals, mixed spice, mouldy, overfishing, poaching, susta simmering, vitamin A

Example clues
Baking powder: What raising agent is a white powder added to cakes?
Swiss roll: What sponge cake is made by whisking eggs and sugar together before

Secret Squirrel's Raising Agents Topic Challeng

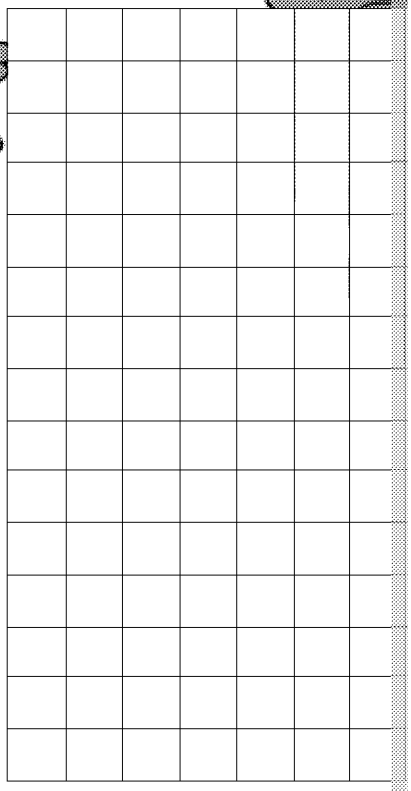
'What can be hid amid my super word grid? Can't do as wel squid! (This is official and applies for ever.)'

Hold it! Let me explain what the garrulous rodent means…

Below is a list of Food and Nutrition keywords. Some of them c Agents Topic, some could be argued to be relevant to Raising unrelated.

Cross out the 'red herrings'. Then choose five words that are clearly from t can argue to be related. Use the words to make a word-search or crossw write your clues.

air, baking, baking powder, bicarbonate of soda, biological, budding, carbohydrate, carbon dioxide, cheese, Chelsea buns, chemical, choux pastry, conduction, convection, creaming, decoration, deficiency, demerara, dextrinisation, enzymic browning, expanding, fermentation, folding, gas bubbles, gelatinisation, herbs, macronutrients, mechanical, meringue, micronutrients, microorganism, minerals, mixed spice, moisture, mouldy, overfishing, poaching, protein, radiation, raw, rolling and folding, self-raising flour, simmering, steam, sustainable food production, Swiss roll, syrup, vitamin A, warmth, yeast



Clues/Definitions and Explanations

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....
9. .....
10. .....

What's that you say Secret Squirrel? – Check your friends' puzzles to see if (mistake). Super-cool-forever points™ if you find a keyword that doesn't b

Are super-cool-forever points a real thing Secret Squirrel?

Teacher's Notes

Plenary Activity: Raising Agents Keyword Bin	
Aim of the activity	To test and consolidate learning from the raising agents lesso questions within a bingo game frame.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu The bingo game is best run as a class activity or in small group could take the bingo card home and try the questions on thei individuals! You could award bonus points for the best questions or quest the lesson.

Answers

Example keyword ideas:

air, baking powder, bicarbonate of soda, biological, budding, carbon dioxide, che fermentation, folding, gas bubbles, mechanical, micro-organism, rolling and foldi warmth, yeast

Example:

Aim: To get someone to answer 'Yeast'

Ask: What is added to bread to make it rise?

Raising Agents Keyword Bingo

AIM:
Ask your classmates questions about your lesson. If anyone says you
on your bingo card. Can you be the first to complete your card, rai
Bingo!?

What to do…
1. Think of as many keywords as you can from your lesson and writ
   are some already in there to start you off…
2. Pick 10 of your favourite words and write them in the spaces on
3. While you are waiting for others in the class to finish, then write d
   you could ask – remember, you want the answer to use your ke

TOPIC KEYWORDS: *expanding, steam, yeast…*

Bingo Card

Questions to ask your classmates…

1. .....

2. .....

3. .....

4. .....

Activity 28 – Food Science Sum

Teacher's Notes

	Plenary Activity: Traffic Light Test
Aim of the activity	For the students to make a visual summary of their learning o identify which topics need strengthening or revisiting.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Students colour the traffic lights and can highlight topics as n

Answers

Example plans

All/most lights are red

1.	Ask your teacher for advice
2.	Get copies of / photocopy / write up all missing work
3.	Repeat recipes at home

Green with some amber

1.	Check for missing work and catch up
2.	Read around the unsure topics using books and the Internet
3.	Produce revision cards on areas you are unsure of

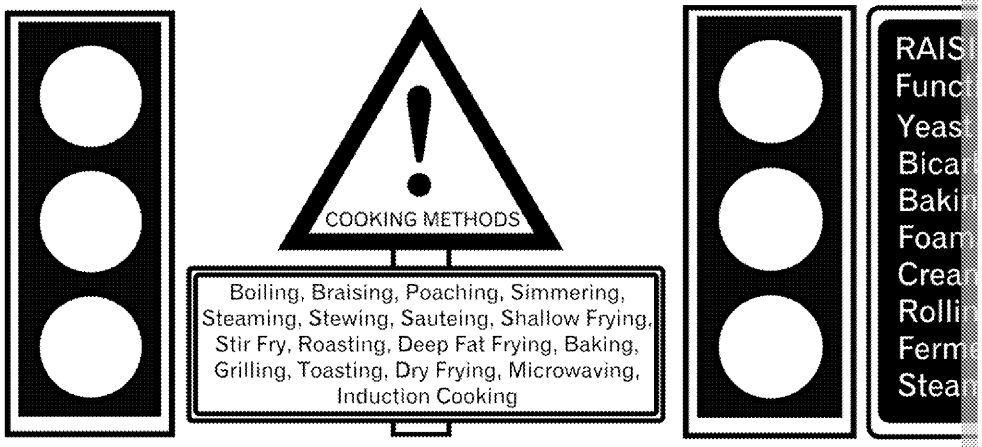
All green

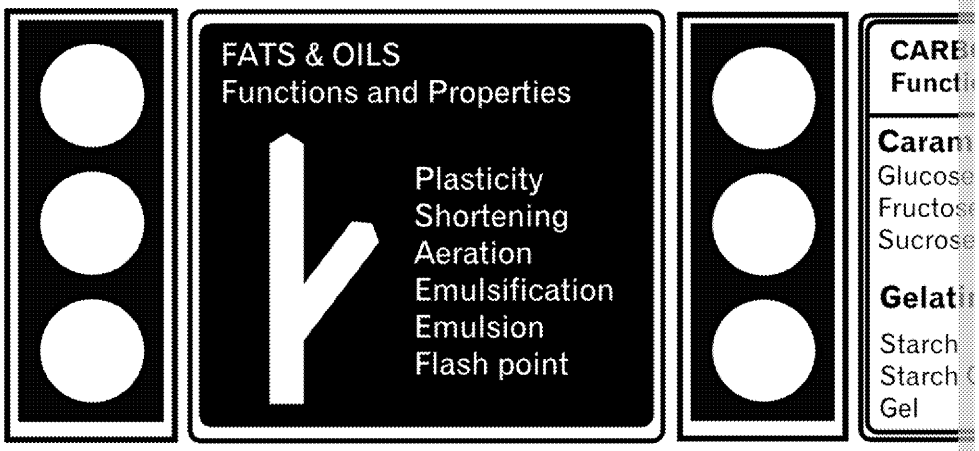
1.	Try new recipes especially from cultures other than your own
2.	Watch cooking programmes and documentaries, and read magazine
3.	Download practice papers from the exam board website

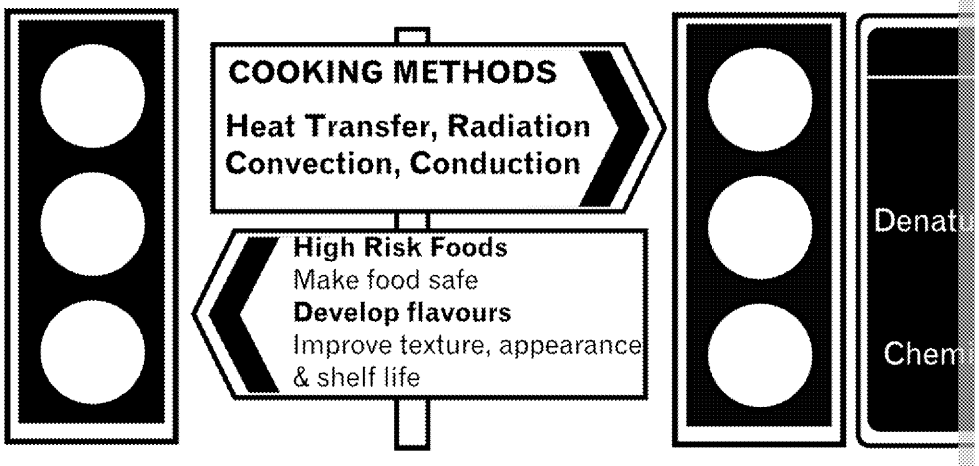
Traffic Light Test: Let's Check for Delays

How's your Food and Nutrition journey going? Is your voyage steady or have

For each of the six **Food Science** topics below, colour the traffic light **GREE** from the topic on the road sign. If you know ***most*** of the topic then colour **RED** if you don't understand or recognise most of the key terms or ideas.







Now make a three-step plan in order to become a better learner. Why are you have chosen? Red lights require urgent action. If all your lights are gre can extend your knowledge further, including outside of the classroom.

1.	
2.	
3.	

Activity 29 – Microorganisr

Teacher's Notes

Starter Activity: Microorganisms Riddles	
Aim of the activity	Lateral thinking puzzles to warm up brains. The task introduc encourage students to study them in order to find answers to
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu If your class finds these too tough they can work in groups or

Answers

My first is in bat but not in a cave You can do this in theatre, film and stage Don't hesitate to answer, just have a go, Remove the v from the path to go with the flow My whole is too small to be seen with the eye I struggle to grow where it is dry **What am I?**
I have four paws and a tail But you won't hear me bark The first in apple, aphid and ark It sounds like the ingredients all in a row Combine me together and the reaction will go **What am I?**
Step off this at your peril With a wheel that goes round Sounds like your denim, in the front it is found Frozen water will complete me Minus its last If I'm this type of lifeform I'll take you down fast **What am I?**

Microorganisms Riddles

Secret squirrel has been working out riddles with his ancient a
– all just so you can warm up your brains with some lateral thi

Just to help you out a little, you will find the answers in th

microorganism, spoilage, contamination, enzyme, food
high-risk food, catalyst, bacteria, moulds, yeast, microbe
moisture, ripening, browning, perishable.

… And I made Sphinx give you an example. Yes I'm jus

Example…

My first part is torn
My middle the end minus the end (end take away the last lett
Not out but the opposite
The letters will blend
Put it together with the seventh in line
The whole will be ready to eat at this time….

What am I? **RIPENING**

MY first is in bat but
You can do this in th
Don't hesitate to an
Remove the v from
My whole is too sm
I struggle to grow w

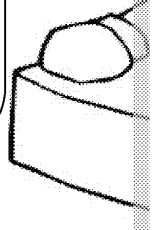
What am I?

I have four paws and a tail,
but you won't hear me bark (3)
The first in apple, aphid and ark (1)
It sounds like the ingredients all in a row (4)
Combine me together and the reaction will go...

What am I? _ _ _ _ _ _ _ _

Step off this at your peril (4)
With a wheel that goes round (1)
Sounds like your denim, in the front it is found
Frozen water will complete me (3)
Minus its last (-1)
If I'm this type of lifeform I'll take you down fast.

What am I? _ _ _ _ _ _ _ _ _ _ _



Activity 30 – Microorganisr

Teacher's Notes

Plenary Activity: Microorganisms Worth Tweetin	
Aim of the activity	To test and consolidate learning by answering questions abou *This activity could accompany Lesson 9a or 9b on the AQA Sch*
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Some Suggested Answers

1. Microorganisms are teeny tiny little lifeforms, so small you need a microsco
   #we'resurrounded #didnttheykillthemartians

2. Microorganisms need food, water, warmth and the right pH just like we do.
   #loveisnotallyouneed

   It takes time for microorganisms to grow but it doesn't take two!
   #notjustmoneymakestheworldgoround

3. There are good and bad bacteria out there. Some help make food and some
   changin my habits after this.
   #washyourhands

4. Yeast is all around us and is the raising agent with the taste we all love. Give
   #bakedgoodsrule! #breadisastaple

5. Mould is not all bad, sometimes it makes food awesome not just spoiling it.
   that today…
   #passthestilton #maybedonteatthat

6. High risk ready to go moist foods, with high protein content. Best keep that
   #highrisk #donttaketherisk

Microorganisms Worth Tweeting About

Tweet us your new knowledge. Answer each question with an interesting t
keywords and your 140 characters. Make it fun and help others to learn. W
about the lesson? What are your explanations and ideas? 140 characters

#	#
#	#
#	#
#	#
#	#
#	#

Activity 31 – Food Safety

Teacher's Notes

	Starter Activity: Folding Time with the Four Cs (Origami
Aim of the activity	Activate the learning brain with a short make-and-play task. C settle a class into activities. The options on the fortune teller l of the consequences of poor food safety. This activity can be to write (on whiteboard, notebooks, etc.) what the four Cs ar anyone has ever experienced the outcomes of poor food safe
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Each cuts out and folds the fortune teller – it does help if the remember playing with these when they were little! Otherwi 'origami fortune teller' will show a range of instructions and v Draw the activity to a close by summarising the four Cs and d

Answers

How to make your fortune teller…

1. Cut out the square.
2. Fold it in half and open again in all directions.
3. Now fold the corners into the middle (on the side so that you can st
4. Turn it over and fold the corners into the middle again.
5. Fold the whole thing in half.

This is the hardest bit!

You should now be able to put your fingers into the four pockets and op

Ask your classmates to pick from a choice of bread, pasta, rice or potato words. Your classmate chooses again and you lift the flap and predict the

Folding time with the Four Cs… The Origami For

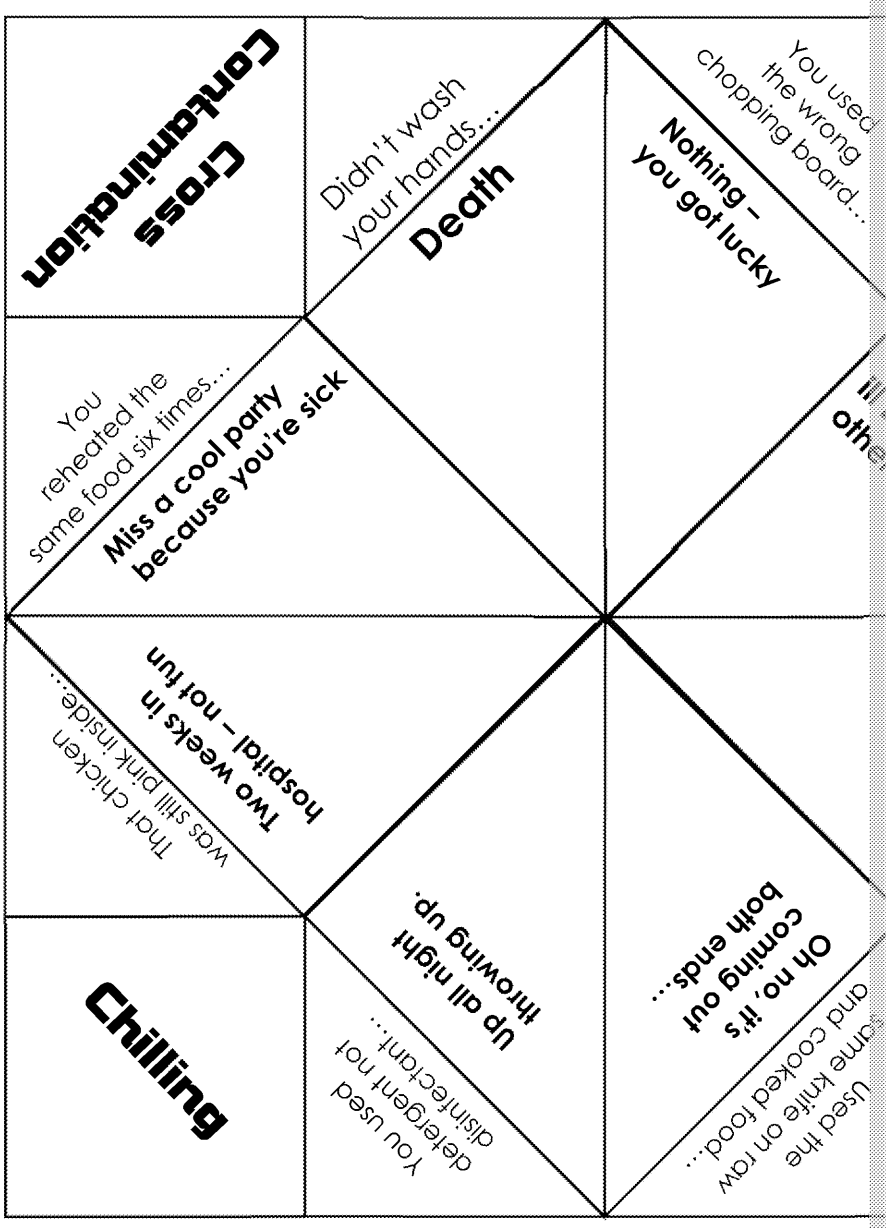
We follow good food safety rules by thinking about the 4Cs. This activity will introduce what these are and help you to think about why they are important.

Make the fortune teller and play it with a friend. Can you predict your future if you don't follow good food hygiene practices? Discuss how you think you could avoid the outcome you get.

Activities

While you are waiting for others to finish you could…

1. highlight the keywords
2. decorate the fortune teller with pictures of bacteria
3. check what coloured chopping boards are for…
4. make up a rhyme to remember the four Cs…



Teacher's Notes

Plenary Activity: This is the Answer, What is the Q	
Aim of the activity	To consolidate students' learning on food spoilage concepts b The openness of the one-word answers allows for differentia depth of the subject. This activity allows for discussion about responses and encourages use of examples for good exam te
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu

Answers

Some suggested questions and examples

Q: What is the name of the substance that breaks down proteins into amino ac

A: Enzyme. Example: A food additive called bromelain is an enzyme.

Or

Q: Bromelain and amylase are types of what molecule?

A: Enzyme. For example, bromelain is found in pineapple.

Q. What do you call the process where fruits such as apples, bananas or avoca

A. Enzymic browning.

This is the Answer, What is the Question?

Anarchy Aardvark likes to do things a little differently…

Can you ask a question about Food Spoilage that leads to the answer gi
Once you have done this swap your worksheet with a neighbour. They w
if you have written a good question and if you deserve a bonus point for
good range of keywords and for giving an example!

Anarchy Aardvark would be proud of you for bucking the system!

Questions and Answers
Q. A. Enzyme. For example…
Q. A. Enzymic browning. For example…
Q. A. Oxidation. For example…
Q. A. Blanching. For example…
Q. A. Germination. For example…
Q. A. Yeast. For example…
Q. A. Spoilage. For example…
Q. A. Fermentation. For example…
Q. A. Mould. For example…
Q. A. Ripening. For example…
Q. A. Spores. For example…

What is the best question that one of your classmates has written?

Why is it such a good question?

Activity 33 – Food Producti

Teacher's Notes

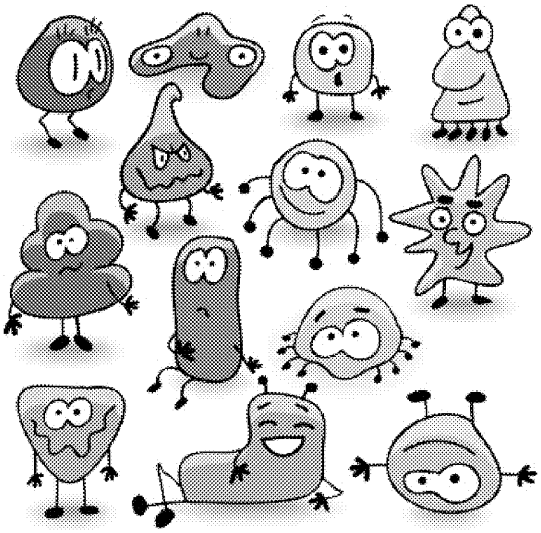
Starter or Plenary Activity: Designer Microb	
Aim of the activity	I find my students automatically think of bacteria as bad (patho activity is to encourage students to think about a range of mic and see that bacteria can be beneficial and absolutely necessa
Teacher's instructions	This activity can be used as a starter or plenary, depending on would like them to add to their designs. Encourage students t could wear a superhero cape or a doctor's outfit. In the 'serious space' they could name the organisms, list food microorganism or situations in which they are helpful. This co session at the end of the main lesson. Allow 10 minutes to complete the activity.

Ideas for characters:

Organisms could be superheroes or workers, be decorated in the colours and/or t smell, have a catchphrase…

Example: Cheese Bacteria Boy

Draw a simple shape and add a face, arms and legs like the ones below. Perhaps badge to its chest and a cape…



My name is Mesophilic Bacteria Boy! I eat lactose for breakfast! I am a starter ba such as Cheddar. I grow best at temperatures between 25 °C and 40 °C.

Designer Microbes

Not all microorganisms are pathogenic (harmful). Some are non-pathoge
indispensable in food production.

TASK
Draw what you think these microorganisms would look like as cartoon cha
serious information in the space underneath your fun design.

Cheese bacteria:	**Yoghurt bacteria:**
Cheese mould:	**Yeast:**

Teacher's Notes

Plenary Activity: It's the Taboo Turtle! – Food Pro	
Aim of the activity	Students can use information and examples from the lesson t Writing their own cards supports literacy.
Teacher's instructions	Photocopy student worksheet as required – you may want m Students should write a keyword from the lesson and then a li said when asking someone to guess the keyword. Students c groups and take turns to guess the keyword, as many as poss Someone should score. This can be done as a whole-class act have mature learners. Allow 10 minutes for students to mak

Answers

Example:

You could say: A process where bacteria break down a substance like flour in bre

Keyword: Fermentation	
You must not say…	
Alcohol	Warmth
Yeast	Moisture
Sugar	CO_2

It's the Taboo Turtle! His New Challenge… Food

This activity will make you think about what you have learnt in the lesson. The aim of the game is to get your teammate to guess the keyword from the clues you give… but you mustn't say any of the words underneath – they are taboo!

See how many you can guess in 30 seconds, then it's someone else turn.

What to do:
Cut out the cards and fill them in, you can use our suggestions and add yo together with whoever else is playing in your group. Form teams and take i get your team to guess the keyword.

Food production keywords:
pH, lactic acid, microorganism, pathogenic, non-pathogenic, pas homogenisation, bacteria, mould, yeast, spores, cultivation, ferme denatured protein, coagulation

Your keywords:

Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo
Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo
Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo

Activity 35 – Bacterial Contami

Teacher's Notes

Plenary Activity: Wearing the Correct Hat	
Aim of the activity	This activity should bring together the learning from the f combining it with new knowledge on bacterial contamin consolidate the learning by applying knowledge to a rea approach to get students to put together longer-style an hopefully it encourages thinking about the problem in di an answer to include facts, opinions and evaluation.
Teacher's instructions	Allow students time to read the worksheet and think abo approach to the problem. 1. Guide students on the red-hat box. 2. Read out facts for the white hat. Students should r They can add other facts that they may have learnt; for e 4Cs, etc. 3. Allow up to 10 minutes for pupils to discuss respon in the boxes. You can give guidance on the ideas b appropriate. 4. Each student should then write a paragraph-style re recommend setting a word limit for this. If time al back to the group.

Facts for the White Hat:

Figures below are taken from **www.food.gov.uk/news-updates/news/2014/609** (published 26 June 2014)

- 'There are more than 500,000 cases of food poisoning a year from known pa than double if it included food poisoning cases from unknown pathogens.
- Campylobacter was the most common foodborne pathogen, with about 280
- The next most common pathogen was Clostridium perfringens with 80,000 c with an estimated 74,000 cases.
- Salmonella is the pathogen that causes the most hospital admissions – abou
- Poultry meat was the food linked to the most cases of food poisoning, with a year.
- After poultry, produce including vegetables, fruit, nuts and seeds, caused the cases of illness (an estimated 48,000 cases), while beef and lamb were third

Each year, food poisoning results in 20,000 people being hospitalised and 500 de

Other facts to note (optional to read this)

- Other raw foods at risk of contamination include meat, poultry, eggs, seafoo
- Bacteria can be found on work surfaces and equipment, the people cooking cockroaches and flies
- Waste food and rubbish can encourage pests and be an environment for pa
- Bacteria of importance are called campylobacter, *E. coli*, salmonella, listeria a

Help with the Hats:

The Emotional (Red) Hat is for emotions and is useful to recognise if some feeling good judgements. Ideas for this box are: angry, excited, scared, worried, ambiva inspired.

The Factual (White) Hat is where you write all the facts that you know. For exam hospital admissions, proper food handling reduces risks, etc. Could these facts ir salmonella problem first'?

The Optimistic/Benefits (Yellow) Hat is where you write anything good about the number of cases might inspire action or that there were a relatively small numbe inspire ideas leading to an awareness campaign?

The Cautionary/Risk-averse (Black) Hat can be too dominant in traditional proble thoughts such as 'you can't change it' or 'it's not true' can help recognise them a

The Creative (Green) Hat is where you write down ideas to solve the problem. S advertising and awareness, education, and legal changes.

The Organising (Blue) Hat is where you might suggest group leaders, report form ways to tackle the problem. For this task it might include suggesting organisatio to run awareness programmes or campaigns.

Wearing the Correct Hat…

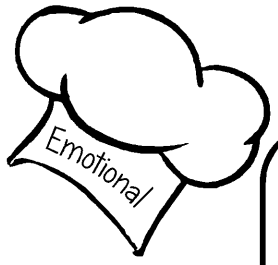
In 1985 the psychologist Edward de Bono came up with a strategy to help s
thinking that he called the 'Six Thinking Hats'. With his method, you look at
and organise your ideas. In the world of Food and Nutrition there are many
solved, some small and some big.

Problem: There were more than 500,000 reported cases of food poisoning i
approximately 500 deaths. How could you reduce this number?

TASK

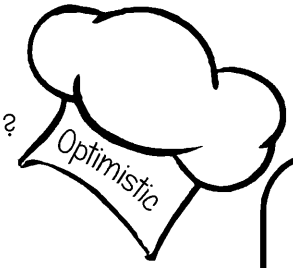
Use your knowledge from the Food Safety unit and write on the thinking ha
looking at the question. Use these notes to discuss the problem in small gro

Red Hat: How do you ***feel*** about this problem?



White Hat: Wh
you know abo

Yellow Hat: What ***good*** things could come from the problem?



Black Hat: W
thoughts do

Green Hat: What ***ideas*** do you have to solve the problem?

Blue Hat: H
organise y

Activity 36 – Food Storage

Teacher's Notes

Starter Activity: Food Storage Keyword Hun	
Aim of the activity	The puzzle element of this activity will encourage problem-so Writing the sentences will relate the keywords to the learning
Teacher's instructions	Photocopy as needed, suggest one copy per student, and allo the task. It can be tricky to find some of the words, so you ca after two or three minutes if students are struggling.

Answers

SHELFLIFE
USEBYDATE
MATERIALS
BACTERIAL
ORGANISMS
SEPARATED
PATHOGENS
FOODPROBE
GERMINATE

Food Storage Keyword Puzzle

Hi, I'm the puzzle penguin and I like to store my f

It's important to store food correctly so, to start y
a task!

Nine nine-letter words have been broken into c
These chunks have been mixed up and you nee

Just so you know, no chunk is used twice and a

Determine what the nine words are and then w
word.

AC	LFL	SEP	IFE	ATE	TER	M
USE	IAL	ANI	ORG	BYD	MIN	A
~~ALS~~	DPR	TED	SHE	HOG	OBE	A

To start you off, here's the first one…

1. You can combine MAT + ERI + ALS to make 'materials'. It is impo
materials when storing food.

2. .....

3. .....

4. .....

5. .....

6. .....

7. .....

8. .....

9. .....

Teacher's Notes

Plenary Activity: Food Storage Quiz Cube	
Aim of the activity	This activity will consolidate learning about food storage, pull the lesson into a quick and fun design-and-make task.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minu Learners should cut out the cube, and write a question on ea Then glue and play with their new toy!!!

Example suggestions for cube:

Food should be thawed in the fridge. Place meat lower down and not above oth Cupboards should be kept clean and organised and be cool, dry and dark. Put ne that the older ones are used first. This is called stock rotation.

Check use-by dates, do not eat something after its use-by date. Best-before date food such as baked beans can be eaten after its best-before date but may be low

Label food to be frozen (if it's something you made yourself) with the date it was

Make sure all food is cold before you put it in the fridge or freezer. You can use a to speed up this process. Also, make sure foods are covered.

Temperatures:

Fridge temperatures should be between 0 and 5 °C. This temperature will slow t kill any.

Freezer temperatures should be -18 °C or less. You can use a thermometer to ch

Food should be cooked and reheated to above 75 °C.

In commercial situations, chilled food should be kept below 5 °C and hot food ab

The danger zone is the range of temperature at which bacteria grows fastest. Fo range for very long. This is between 5 °C and 63 °C. A temperature of 38 °C, sim is ideal for bacteria.

Food Storage Quiz cube

Task:

What foods would you store where? Thinking about what you have learnt s
boxes below using as many keywords as you can. On the net of the cube c
thoughts in each space to show people where and how to store food corr

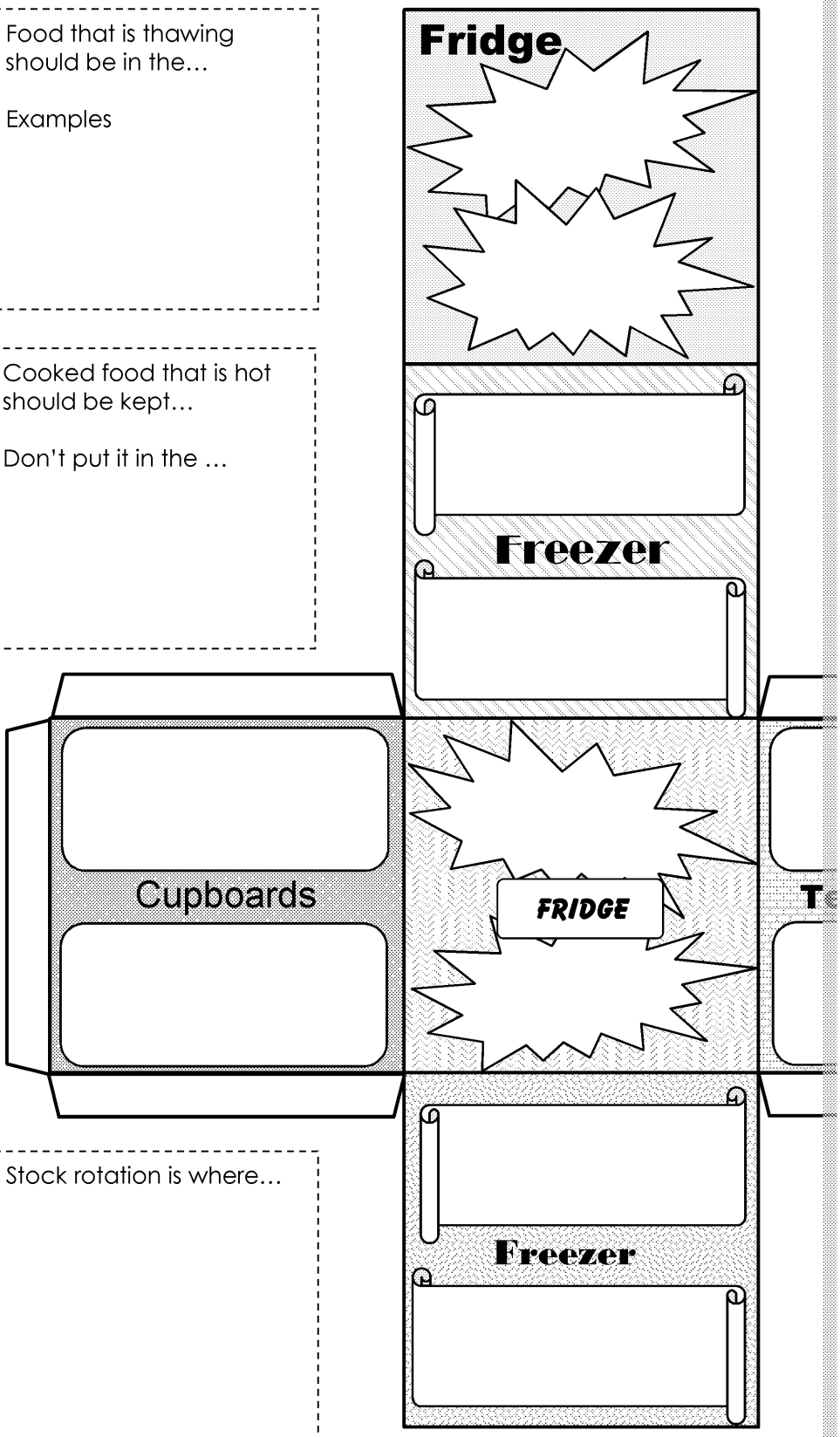
Cut out the net of a cube, fold it carefully and stick the tabs with glue to fi
to play with your cube and a classmate. How could you make this kind of
campaign?

Food that is thawing should be in the…

Examples

Cooked food that is hot should be kept…

Don't put it in the …



Stock rotation is where…

Activity 38 – Food Choices

Teacher's Notes

Starter Activity: Food Choice Second Thoughts	
Aim of the activity	This activity introduces the many reasons for food choice, encouraging students to think about what guides their own and their family's decisions.
Teacher's instructions	Photocopy one worksheet per student and allow 10 minutes for completion.

No answers provided as answers will vary for individual students.

Food Choice Second Thoughts

Don't snooze, time to choose, don't worry you can't lose! This activity will
think about all the different factors that influence food choice.

What to do:

1. Choose A or B from the list below. Don't take too long to decide!
2. Write the reason for your choice. No avoiding making a decision! If y
   personally wouldn't eat either for any reason, then answer what you w
   serve for friends and family.

It's…	A	B
Time to buy vegetables	Muddy, organic carrots	Clean, straight carrots
Lunchtime	French apples	New Zealand apples
December	Strawberries	Satsumas
Breakfast	Cows' milk	Soy milk
Baking time	Eggs	Apple sauce
Break time	Diet fizzy drink	Water
Sandwiches	Bacon or chicken	Neither
Time to buy tea bags	Bargain brand	Luxury brand
Time to buy meat	Bargain brand	Luxury brand
Christmas dinner	Turkey and stuffing	Fish and chips

Now rank in order of importance for choosing food. Do you agree with o
so you can change your mind after your lesson if you like.

The Reason for Food Choice	Your ranking (1 to 19)	
	Before	After
Seasonality		
Health		
Physical activity level		
Nutrition		
Availability		
Culture		
Tradition		
Ethics		
Animal welfare		
Religious beliefs		
Habits		
Cost		
Medical conditions		
Celebration or special occasion		
Time needed to cook it		
Weekend or weekday		
Lifestyle		
Food miles		
Enjoyment		

Did you make any changes in your ranking because of what you have le

Teacher's Notes

Plenary Activity: Food Choices Bingo	
Aim of the activity	To test and consolidate learning about food choices by writing a bingo game frame.
Teacher's instructions	Photocopy student worksheet as required and allow 10 minutes. The bingo game is best run as a class activity or in small groups could take the bingo card home and try the questions on their individuals! You could award bonus points for the best questions or questi today's lesson.

Answers

Suggested keywords:

religion, culture, ethics, morals, celebrations, kosher, halal, zibah, vegetari welfare, fair trade, food miles, genetically modified, allergies, food intoler

Example:

Aim: to get someone to answer 'Tradition'

Ask: Why do people eat turkey for Christmas dinner?

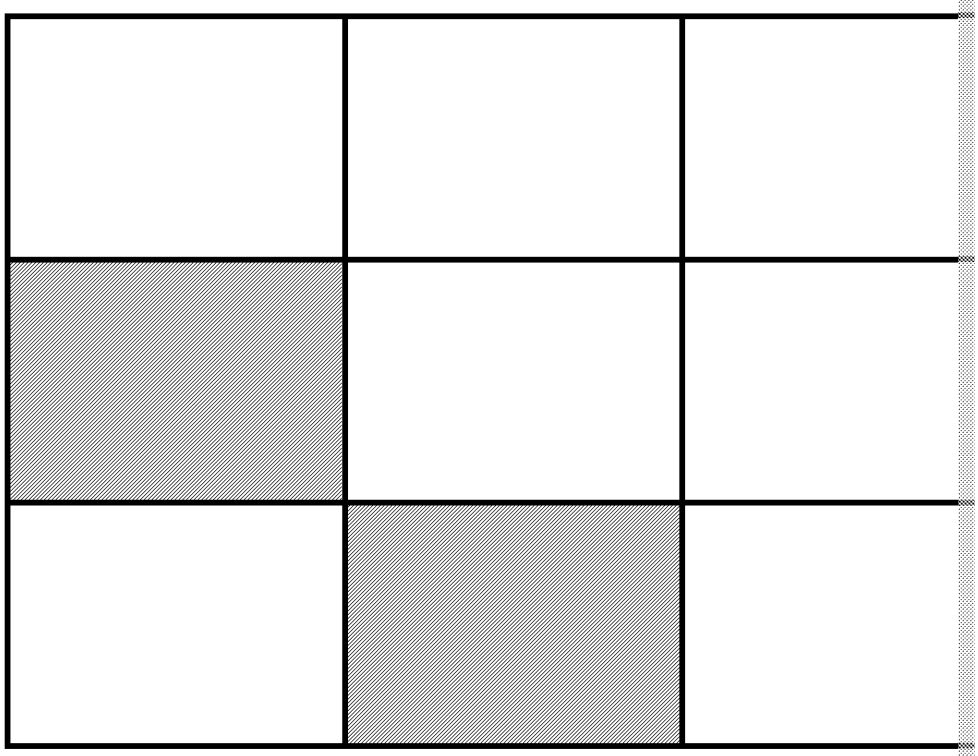
Food Choices Bingo

AIM:
Ask your classmates questions about your learning on Food Choices. If any
cross it off on your bingo card. Can you be the first to complete your card
Bingo!?

What to do…
1. Think of as many factors as you can that influence food choices and w
2. Ask a classmate to pick nine of your favourite words and write them in the
3. While you are waiting for others in the class to finish, write some questio
   ask – remember, you want the answer to use your keywords!

FACTORS THAT INFLUENCE FOOD CHOICES:

Bingo Card



Questions to ask your classmates…

1. .....

2. .....

3. .....

4. .....

Activity 40 – Food Choices: Re

Teacher's Notes

	Starter Activity: If I was a...
Aim of the activity	Introduces the idea of different religions and cultures having d Helps the students assess their own knowledge and think abo knowledge and making a plan to fill them.
Teacher's instructions	Students may be using the main lesson to fill in the blanks bu some independent learning and provide access to resources f answers themselves.

Answers

If I was a...	How we think of food	I wouldn't eat or drink...	My
Buddhist	Living beings are sacred and not food	Meat, dairy, alcohol	Monks f
Christian	Food is part of God's creation	No restrictions (see if your students know this).	Some C a Friday food for Tuesday Friday. S Christm
Hindu	Contains 'energies'	Beef. Some Hindus are vegetarian.	The fest special f
Muslim	Food laws are written in the Qur'an and food that can be eaten is called Halal	Pork and alcohol, meat not slaughtered with the correct ritual	Fasting dusk. S Fitr.
Jew	Food laws are called Kashrut and food that can be eaten is called Kosher	Pork and shellfish	Dairy ar prepare Sabbath Fasting Passove
Sikh	Many Sikhs are vegetarian.	Some Sikhs do not drink alcohol, tea or coffee	Gurpurb special f
Rastafarian	The food laws are called 'I-tal'	Pork, fish longer than 30 cm. Some do not drink alcohol, milk or coffee.	Large fe that is c

If I was a…

Sometimes it's good to set out what you know in an organised way so that you have missing or are a bit unsure of.

Q1: Fill in as much of the table as you can and highlight any empty boxes. missing information so you have a better idea of how other people live

If I was a…	How we think of food	I wouldn't eat or drink…	My s
Buddhist			
Christian			
Hindu			
Muslim			
Jew			
Sikh			
Rastafarian			

Q2. Were there any 'grey' areas? Do all people from each culture follow t think there are differences?

Answer .....

Q3: Which culture did you know least about? How can you change this?

Answer .....

Q4: Did you make any mistakes? Why do you think your ideas were not rig

Answer .....

Activity 41 – Food Choices: Re

Teacher's Notes

Plenary Activity: Religions and Food Menu	
Aim of the activity	This activity will consolidate learning about the role religion p help students to think about recipes and how they might be u
Teacher's instructions	Photocopy worksheets and allow 10 minutes to complete the in pairs or groups if they need more support to design menus experience of religion.

Example answers

Menu for a Christian could contain anything. For special occasions could be pan Christmas dinner.

Menu for a Muslim: No pork / pork products or alcohol. All meat must be slaugh making it lawful (halal). What about baklava for pudding?

Menu for a Hindu: No beef or alcohol, unlikely to have onions or garlic. What ab

Menu for a Jew: Allowed food is called kosher. This includes fish with scales and pork products such as porcine gelatine. No dairy foods eaten with meat product products.

Menu for a Sikh should be vegetarian with no alcohol or caffeine (tea or coffee).

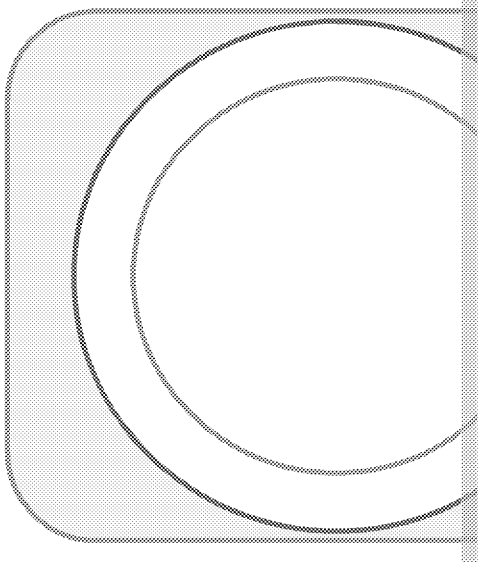
Religions and Food Menu

TASK

Use your knowledge to design some meals for people with different r
design a three-course meal for one person or three main meals for t

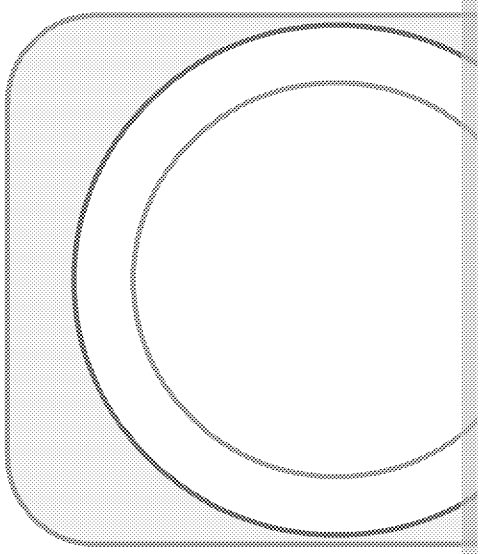
Religion

Explanation of your choices



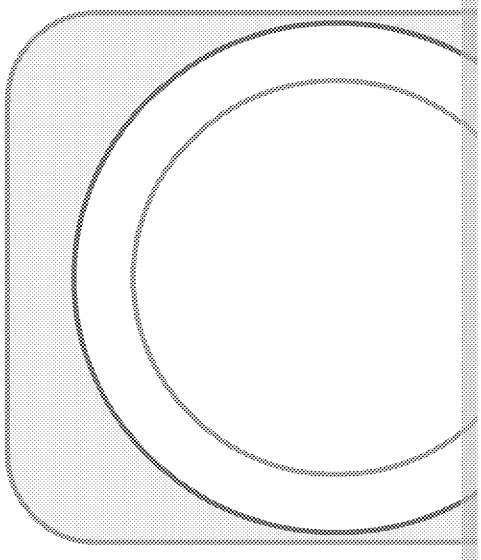
Religion

Explanation of your choices



Religion

Explanation of your choices



Activity 42 – Food Choices: Ethics a

Teacher's Notes

	Starter Activity: My Diet, My Choice?
Aim of the activity	To get students thinking about ethical choices and what the a making these choices, such as availability, conflicts with mark
Teacher's instructions	Photocopy worksheet and read through the filled-in speech b what they think of this conversation. Do they think it's realist similar conversations themselves? Ask students for ideas abo characters could be having. Students should fill in the speech

Suggested Prompts and Ideas for Answers

The characters' conversations should be about:

- Animal welfare
- Organic farming and produce
- Genetically modified produce
- Fair trade
- Shopping locally and food miles
- Ethical companies
- Global multinational companies
- Availability of ethical products in shops and cafes
- Labelling of food to show allergens
- Cost of ethically produced groceries

Prompt questions to help students complete the work:

- At what age do you think parents should talk to their children about ethics i
- Does a vegan or vegetarian have a certain appearance?
- Is it easy to eat out if you want to make ethical choices?
- Who should care about the environment in food production?
- Does it matter if a company has poor/unethical practices? Should you buy t
- Should you shop locally in small shops or use supermarkets?
- Does it matter where your food comes from or if it's organic?
- How much change can you make?

My Diet, My Choice?

What conversations could these people be having about ethical food cho
in shops and cafes?

Think about people you know who might be vegan or vegetarian, want to
allergies and intolerances to food groups. When might their lives be a little

Activity 43 – Food Choices: Ethics an

Teacher's Notes

Plenary Activity: Ethics and Allergies Traffic Ligh	
Aim of the activity	This activity will encourage students to make a judgement on how ethics apply across a range of factors in food products.
Teacher's instructions	Allow 10 minutes for this activity. Students need to choose e product and then decide how well their product fits. To extend the task, students should think about how a traffic work for allergies – and try to add further symbols.

Suggested categories:

- Animal welfare
- Food miles
- Pesticides
- GM crops
- Fair trade
- Local crops

Talking points:

- Does a traffic light system work for allergies?
- Does just one of the 14 allergens equal an instant red?

Ethics and Allergies Traffic Light Test

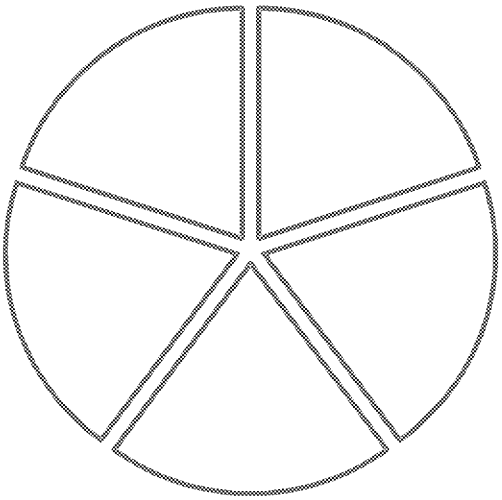
You should have noticed traffic light labelling about nutrition on various foo

TASK

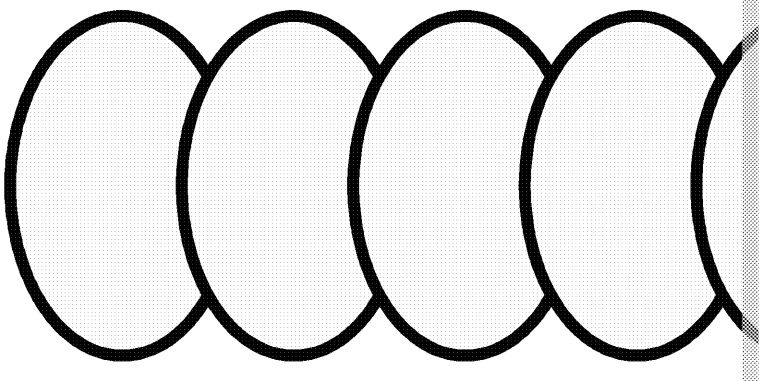
Could you use what you have learned about Ethics and Allergies to create ethics for the three foods below?

What categories would you include?

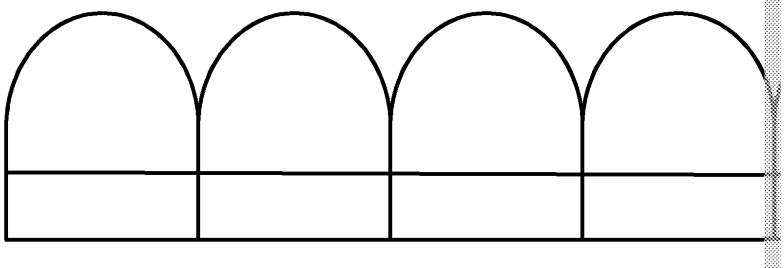
A can of baked beans



A block of cheddar cheese



A loaf of organic bread



Hopefully you will have different answers to your classmates'. Discuss this in some of these issues are very emotive… calm, educated debate is a wond

Finally, can you add an extra symbol to advise people with certain allergies good idea?

Activity 44 – Food Labellin

Teacher's Notes

Starter Activity: Lesson Objective Detectiv	
Aim of the activity	The aim is to encourage mindfulness of objectives and learnin about what students already know and what gaps in knowled also introduces keywords for the topic.
Teacher's instructions	Photocopy sheet as required and allow 10 minutes to comple discussion as needed.

Answers

Learning about food labelling

Mandatory information:
Name and description of the food, a list of ingredients in descending order of we business name and address of the manufacturer, place of origin, shelf life, storag allergies and additives.

Allergens
Fourteen allergens including eggs, milk, fish, crustaceans, molluscs, peanuts, tree containing gluten, soya, celery and celeriac, mustard, lupin, sulfites.

Storage instructions
Use by, best before, refrigeration, freezing, cool place, dry place, etc.

Non-mandatory information
Pictures, branding, logos, health claims, serving suggestions.

Lesson Objective Detective

What are we learning next? ***You*** are going to write your own objec

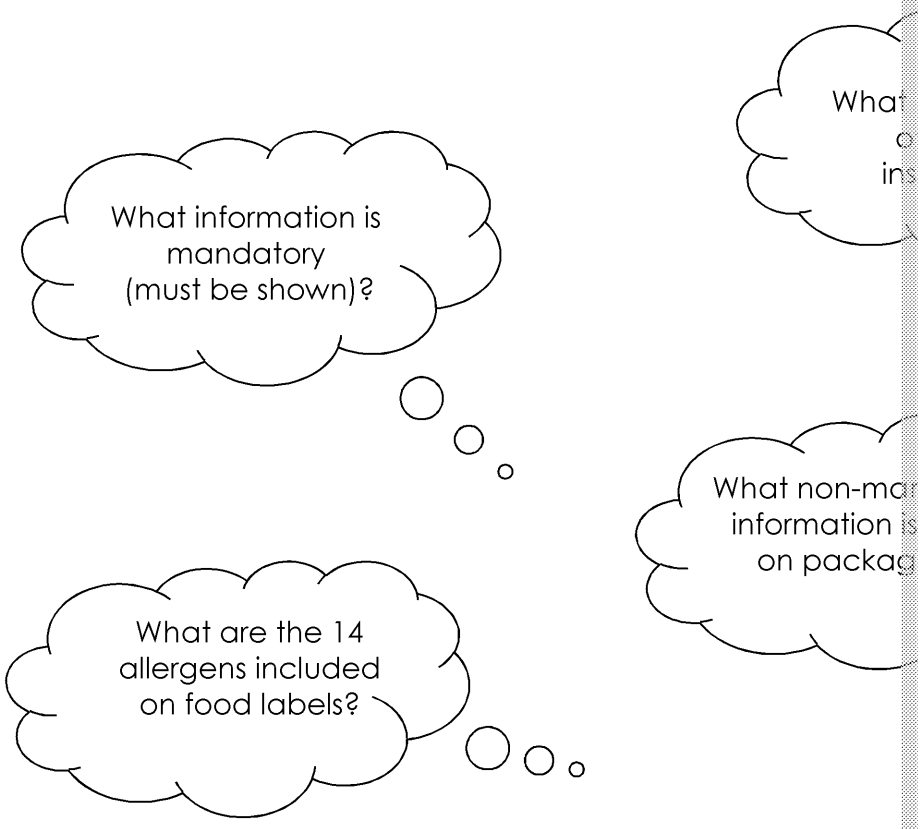
Clue 1: Here are some keywords from the topic…
target group, nutritional profile, marketing, ingredients, nam

Clue 2: Here are three legal and regulating bodies
European Union, Food Standards Agency, Department of He

Clue 3: What we are learning about needs to be…
clear and easy to read, permanent, visible, not misleading a

So, with that in mind… I think we are going to learn about

TASK
Use these thought shower starter bubbles to collect your existing kno
This activity will help you to identify what you need to learn next.



What do I need to know about this topic? Write down three ideas. Sh
objectives?

1. .....

2. .....

3. .....

Activity 45 – Food Labellin

Teacher's Notes

Plenary Activity: Food Labelling – Crack the S	
Aim of the activity	This activity will check learners' knowledge about fats and hei their learning. Having to read the text in order to make sense opportunity to reinforce learning of key concepts.
Teacher's instructions	Photocopy student worksheet (one per student) and also the a cut into three sets of tiles) as required and allow 10 minutes fo task. After assembling the text, encourage students to identify wea also methods of learning or extending their knowledge on labe

The text should read:

(I) Food labels are used to inform consumers clearly about the food products. So mandatory, meaning, **(N)** it must be included by law, and some of the information target group of customers.

Information that must be included is the name and description of the food, **(O)** a order of weight, a net quantity of food, the business name and address of the ma shelf life, storage conditions, warnings for food allergies and additives.

An example of a food warning **(M)** is 'may have an adverse effect on activity and a

There are 14 **(A)** allergens including eggs, milk, fish, crustaceans, molluscs, peanut cereals containing gluten, soya, celery and celeriac, mustard, lupin and **(I)** sulfites.

The e symbol means an average amount.

Packaging is designed to **(O)** appeal to people by using eye-catching colours, imag you to buy it.

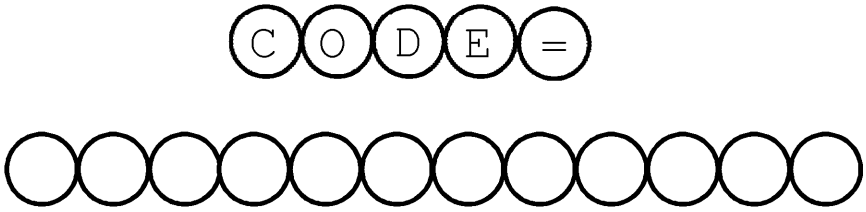
One **(N)** problem with labels is the limited space on smaller items. Because of thi all the mandatory information or the writing may be too small to be clearly read.

Code for the safe: *INFORMATION!*

Bonus question: 'Information is power' or 'Information is key' can have a sinister meaning: with information you can have more control over your life! Information make healthy and safe choices.

Food Labelling: Crack the Safe

1. Cut and stick the tiles into the boxes overleaf in the correct orde
2. Write the letters in the circles below to reveal the code and crack the safe.



Bonus question:
Many people describe the code word from the safe as 'powe
mean by this?

.....

.....

If you had trouble working out the code, then write down which are
to improve and a plan to do this. If you did get the code, what cou
improve your knowledge?

.....

.....

.....

Crack the Safe Answer Tiles (three sets)

Food labels are used to inform consumers clearly about the food products. Some of the information is mandatory, meaning… (I)	a list of ingredients in descending order of weight, a net quantity of food, the business name and address of the manufacturer, (O)	sulfites. The e symbol means an average amount. Packaging is designed to (I)
is 'may have an adverse effect on activity and attention in children'. There are 14… (M)	it must be included by law, and some of the information is chosen to attract the… (N)	appeal to people by using eye-catching colours, images, text and slogans to influence you to buy it. One… (O)
allergens including eggs, milk, fish, crustaceans, molluscs, peanuts, tree nuts, sesame seeds,… (A)	place of origin, shelf life, storage conditions, warnings for food allergies and additives. An example of a food warning… (R)	problem with labels is the limited space on smaller items. Because of this it might (N)
be hard to include all the mandatory information or the writing may be too small to be clearly read. (!)	cereals containing gluten, soya, celery and celeriac, mustard, lupin and… (T)	target group of customers. Information that must be included is the name and description of the food,… (F)

Food labels are used to inform consumers clearly about the food products. Some of the information is mandatory, meaning… (I)	a list of ingredients in descending order of weight, a net quantity of food, the business name and address of the manufacturer, (O)	sulfites. The e symbol means an average amount. Packaging is designed to (I)
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allergens including eggs, milk, fish, crustaceans, molluscs, peanuts, tree nuts, sesame seeds,… (A)	place of origin, shelf life, storage conditions, warnings for food allergies and additives. An example of a food warning… (R)	problem with labels is the limited space on smaller items. Because of this it might (N)
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allergens including eggs, milk, fish, crustaceans, molluscs, peanuts, tree nuts, sesame seeds,… (A)	place of origin, shelf life, storage conditions, warnings for food allergies and additives. An example of a food warning… (R)	problem with labels is the limited space on smaller items. Because of this it might (N)
be hard to include all the mandatory information or the writing may be too small to be clearly read. (!)	cereals containing gluten, soya, celery and celeriac, mustard, lupin and… (T)	target group of customers. Information that must be included is the name and description of the food,… (F)

Activity 46 – Food Choices: Mar

Teacher's Notes

Plenary Activity: It's the Taboo Turtle! – Marke	
Aim of the activity	Students can use information and examples from the lesson t Writing their own cards supports literacy.
Teacher's instructions	Photocopy student worksheet as required – you may want m Students should write a keyword from the lesson and then a li said when asking someone to guess the keyword. Students c groups and take turns to guess the keyword, as many as poss Someone should score. This can be done as a whole-class act have mature learners. Allow 10 minutes for students to make

Answers

Example: special offers

You could say: purchase something with a significant reduction in price...

Keyword: Special Offers	
You must not say…	
BOGOF	Point of sale
Discount	3 for 2
Coupon	Limited time only

It's the Taboo Turtle! His Latest Challenge… Ma

This activity will make you think about what you have learnt in the lesson. The aim of the game is to get your teammate to guess the keyword from the clues you give… but you mustn't say any of the words underneath – they are taboo!

See how many you can guess in 30 seconds, then it's someone else's turn.

What to do:
Cut out the cards and fill them in, you can use our suggestions and add yo together with whoever else is playing in your group. Form teams and take i get your team to guess the keyword.

Marketing keywords:
advertisement, pester power, celebrity endorsement, TV, Internet, c product placement, free samples, promotional campaign, free gif price deals, special offers, packaging, branding, logos,

Your keywords:

Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo
Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo
Keyword: You must not say: ______ ______ ______ ______ ______ ______	Keyword: You must not say: ______ ______ ______ ______ ______ ______	Ke Yo

Activity 47 – Traditional Cuis

Teacher's Notes

Starter Activity: Where in the World?	
Aim of the activity	This activity introduces the topic of world cuisines, asking stu experience of world foods, with a little geography.
Teacher's instructions	Photocopy worksheet and allow 10 minutes to complete it. S and/or countries as extension.

Answers

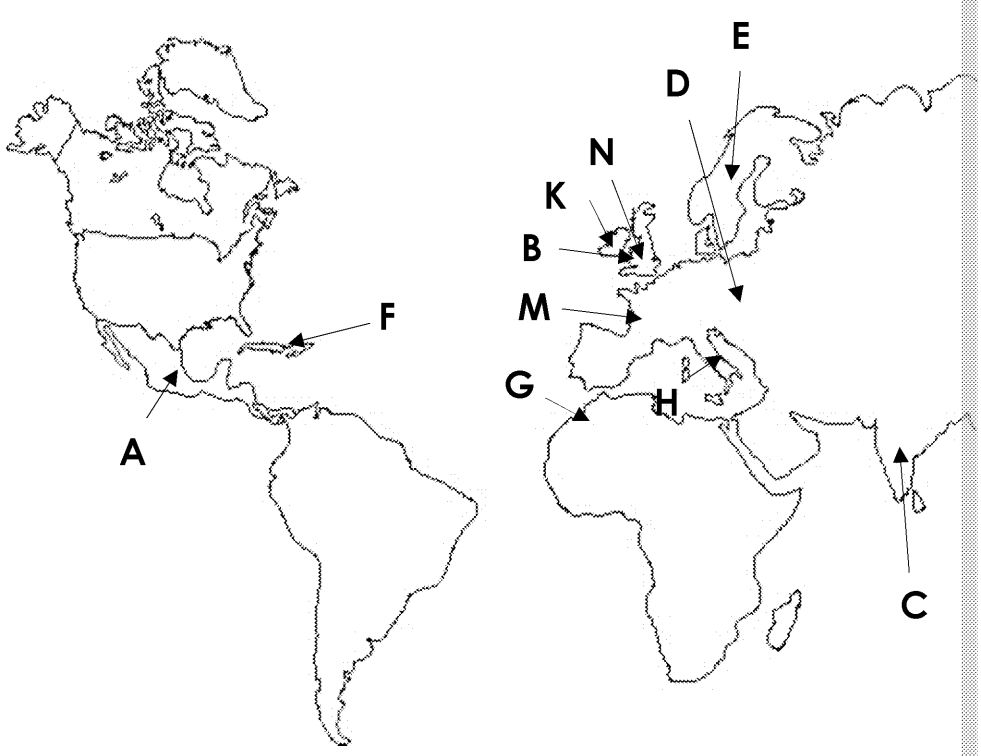
Country	Map	Food	Country	Ma
England	N	Cheddar	Sweden	E
Japan	J	Sushi	Poland	D
China	L	Rice noodles	Mexico	A
Thailand	I	Pad Thai	Italy	H
Morocco	G	Tagine	France	M
India	C	Paneer	Ireland	K
Jamaica	F	Jerk chicken	Wales	B

Where in the world?

Q1: Match up the countries with their letter on the map as well as or from the box below:

Foods:
Cheddar Cheese, Cawl, Golabki, Tagine, Sushi, Jerk Chicken, Paneer, Brie, Rice Noodles, Bruschetta, Tacos, Lingonberry Jar

Country	Map	Food	Country	Ma
England			Sweden	
Japan			Poland	
China			Mexico	
Thailand			Italy	
Morocco			France	
India			Ireland	
Jamaica			Wales	



Q2. Ok, how easy did you find that task? .....

Q3. How many of the foods have you tried? .....

Q4. Imagine a schoolgirl or boy 100 hundred years ago. Would they have harder? Would they have tried as many foods as you have?

.....

.....

Activity 48 – Traditional Cuis

Teacher's Notes

	Plenary Activity: Fusion or Confusion!
Aim of the activity	This activity should bring together the learning from a traditio with a light-hearted design task.
Teacher's instructions	Photocopy worksheet and allow 10 minutes for students to co final challenge might be to recreate the meal at home…

Answers:

All answers will vary, who's to say what the next big thing will be?

Q1: **Cuisine includes** style, distinctive ingredients, preparation methods, cooking techniques belonging to a country or area within a country. For example, Ch cuisines, as does the UK.

Q2: An **example**:
UK/USA fusion of… Barbequed Yorkshire pudding: A large Yorkshire pudding and fried onions, served with skewered vegetable kebab and all covered in B

- Cooking methods: Oven baked pudding, grilled sausage and vegetables a pan.
- Traditional is the sausage in batter, modern is the grilling and adding of
- Distinctive features are using the large Yorkshire as an edible bowl to co smoky BBQ sauce.
- Presentation style is simple, no fancy techniques on this one!

Fusion or Confusion?

Q1: What is a cuisine?

.....

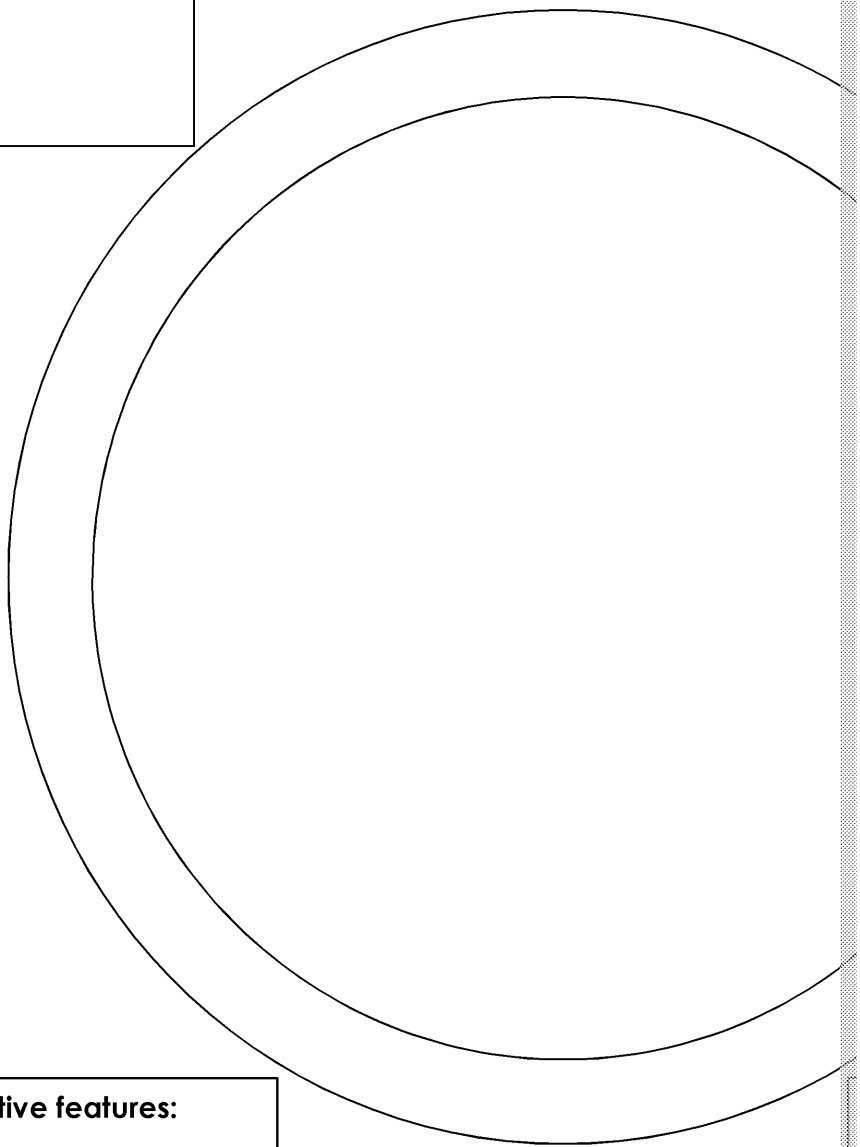
.....

Q2: Some restaurants like to serve a 'fusion' of two cuisines. In the space b
cuisines that you wouldn't expect to go together. Clearly label how th
on your plate and explain with sketches and notes the different parts o
provided to make sure you talk about all the important factors.

Perhaps not Barbequed Yorkshire Pudding…

Equipment and cooking methods:

Modern parts:



Distinctive features:

Activity 49 – Sensory Evalua

Teacher's Notes

Starter Activity: Superlative Adjective Hun	
Aim of the activity	This activity will start students using adjectives ready for writ evaluations. Using non-food items will make this a bit differe a little fun – the creativity will flow!!!
Teacher's instructions	Photocopy one worksheet per student. Allow 10 minutes to c

Ideas for troll words: green, firm, smooth, clawed, surprising, patient, salt squelchy, glistening, shining, pungent

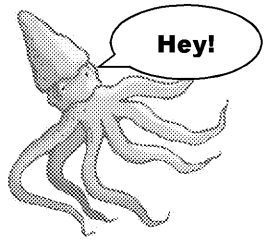
Ideas for monster/robot: oily, creaking, squeaking, frightening, loud, scar

Ideas for chemistry set: bubbling, fizzy, effervescent, coloured, translucer sulfurous, smoking, wet

Ideas for drummer/drums: rhythmical, fun, loud, musical, energetic, harm

Superlative Adjective Hunt

This is not just a starter worksheet. This is a crisp, clean, (hopefully) ur
adorned with a display of the most carefully chosen syntax, printed
ink that was hand-squeezed from the ink sacs of the rarest giant squ

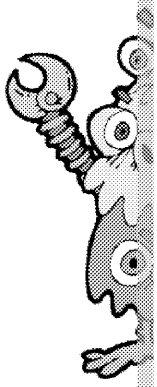


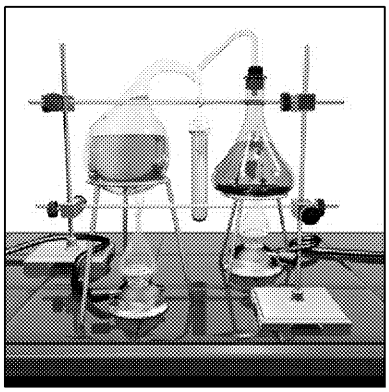
Well, you get the picture. If you are going to do
evaluation we need to get some creativity flow

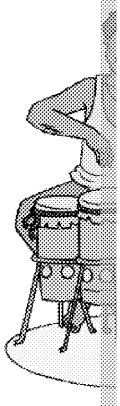
Write as many descriptive words as you can arc

Use all of your senses, imagining what the sounc
each might be like.

NO OPINIONS! 'Nice or Horrible' just won't cut it right now. 'Wrinkle
other hand would be fine (just don't use those words to describe yo







Now pick your favourite 6–8 describing words from your work above
Your mission is to use these words when next describing food that yo
tested.

1. _____ 2. _____ 3. _____

5. _____ 6. _____ 7. _____

Activity 50 – Sensory Evalua

Teacher's Notes

Plenary Activity: Menu for a Venue Sensory Ove	
Aim of the activity	To make students apply their knowledge of sensory testing ar Most students think about how it looks and then how it taste element of a meal students should start to consider smells an
Teacher's instructions	Photocopy worksheet, one per pupil. Discuss ideas as a class annotation below and then allow students to design a sensor

In class, discuss:

The design of the meal does not have to be complicated, think soft bread vs toas raw carrots, the shape of the carrot.

Think about the freshness of ingredients, crispness, crunch and a range of textur

Will they use specific herbs and spices? Does your class have any experience of s of cultures that you can discuss?

The feel of food in the mouth as well as when you pick it up.

Would there be finger foods for younger diners? Fun shapes to guess?

Menu for a Venue: Sensory Overload!

You have been asked by a local restaurant to design a three-course
You decide their age… What would you choose to make and **why**?

To drink:

.....

.....

.....

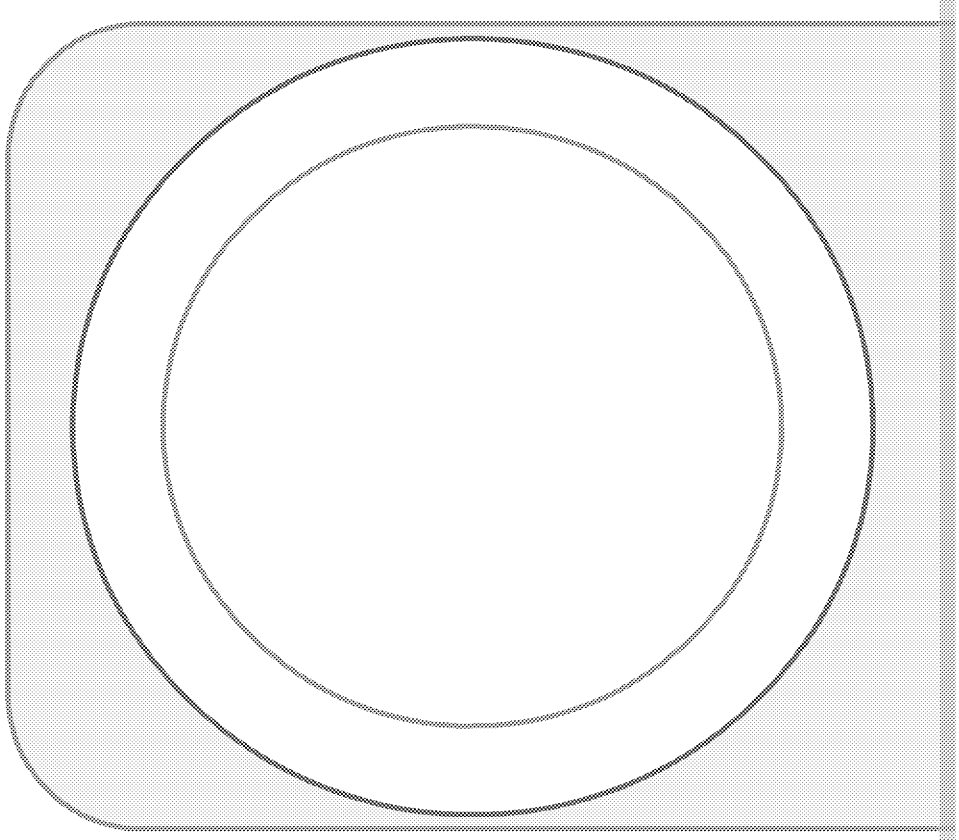
Starter:

.....

.....

.....

The 'main' event:



To finish:

.....

.....

.....

Activity 51 – Food Provenan

Teacher's Notes

	Starter Activity: Feeding the Future
Aim of the activity	Using the thinking hat exercise at the start of a topic helps ide and ideas the class already has. It encourages students to en demonstrating real-world problems. Hopefully this will encou about how food is grown or sourced, and help to share and co know and what they need to find out.
Teacher's instructions	Allow 10 minutes for the activity and encourage quick respon discussion, filling in the answers to the problem – some will h not so much! The exercise should help students to identify ar extend their own knowledge within the topic. This activity will be easier to run if the class has already comp Hats task and is familiar with the concepts of red, blue, yellow

Help with the Hats

The Emotional (Red) Hat is for emotions and is useful to recognise if some feelin good judgements. Ideas for this box are: angry, excited, scared, worried, ambiva inspired.

The Factual (White) Hat is where you write all the facts that you know. Does the experience with these problems?

The Optimistic/Benefits (Yellow) Hat is where you write anything good about the

The Cautionary/Risk-averse (Black) Hat can be too dominant in traditional proble thoughts such as 'you can't change it' or 'it's not true' can help recognise them a

The Creative (Green) Hat is where you write down ideas to solve the problem. S advertising and awareness, education, legal changes, or changes in farming and w

The Organising (Blue) Hat is where you might suggest group leaders, report form governments and other practical ways to tackle the problem.

Using this thinking task, students should identify some learning

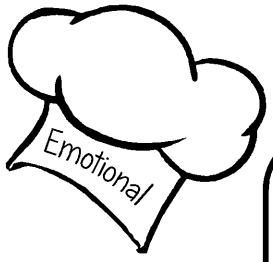
- HOW is food grown, reared, caught, farmed?
- WHAT is ORGANIC farming and why is it different to normal farming?
- WHAT is SUSTAINABLE FISHING?
- WHAT are GM foods, WHY do we need them?
- WHAT does free-range involve? WHY aren't all meats free-range?
- What is the DIFFERENCE between local and seasonal produce? WHY should

Feeding the Future

There are some big problems facing the human population with the
of food. Use the 'Six Thinking Hats' to organise your thoughts about

Problem: The United Nations estimates that the global population wi
2100 (it's approx. 7.4 billion now). How do we ensure everyone has

Red Hat: How do you ***feel*** about this problem?



White Hat: Wh
you know abo

Yellow Hat: What ***good*** things could come from the problem?

Black Hat: Wh
thoughts do y

Green Hat: What ***ideas*** do you have to solve the problem?

Blue Hat: How
organise availa

Q: After thinking about this problem, what areas of Food Provenan
more about?

.....

Q: Write your learning goal for this topic.

.....

Activity 52 – Food Producti

Teacher's Notes

Plenary Activity: In Our Defence, Your Honou	
Aim of the activity	This is a serious and rather sad activity to bring together know production techniques, applying the students' knowledge to r about why the situation is as it is may be the initiator for char
Teacher's instructions	Photocopy the worksheet and allow 10 minutes for students t topics generate huge debates in classes. One of my classes co daughter of a slaughterman, and the three of them really did v together… Discuss and write about as many as can be done in the time a

Answers

Defences commonly used include:

- Cost of production
- Availability of land
- Low incomes of consumers
- Lower food miles
- Keeping fishermen in jobs
- Feeding the hungry at low financial cost
- Traditionally, male calves are a by-product of the dairy industry. 90,000+ cal than two days old – these can't be reared for meat as it is not cost effective getting cows to lactate by giving birth. Rennet for cheese has traditionally c there is a demand for artificial/vegetarian rennet.

In Our Defence, Your Honour…

There are many common practices in food production that may we
as 'medieval' or even worse by future generations. Alternatively, th
be seen as good ideas that saved a lot of lives or things we had to d
through lack of choice…

Can you write a case to explain our actions to people many years f
reason, even if it's not one you personally would choose.

This is why we…	
use pesticides that kill bees but save crops	throw away carro straight
make rennet for cheese from the stomachs of slaughtered baby cows	develop genetic
produce and buy battery-farmed eggs	eat fish from an e

Q: How do these topics make you feel?

.....

.....

.....

Activity 53 – Carbon Footprint c

Teacher's Notes

	Plenary Activity: Tweet a Difference
Aim of the activity	This activity covers the main points of learning for a lesson or Use this as a starter to think about what the words mean, intr questions. Use as a plenary to teach others, pass on favourite bits of new believe to be the most important facts.
Teacher's instructions	Photocopy worksheet and allow 10 minutes to complete the t

Some example tweets include:

- Local food is miles better for the environment!
  #Make a change now
- Know your farmer, know your food. Outstanding in their fields!
  #buy local #reduce food miles
- Good for nature, good for everyone
  #Ban pesticides #Buy organic
- Too good to waste
  #reduce food packaging

If this exercise is used as a plenary then the depth of information in the tweet sh
figures learnt during the lesson.

Tweet a difference

These days, lots of political activity uses social media to drive c

Write some tweets to get the public thinking about the carbon

Use your 140 characters to start a meme, rally a nation to your differences. Don't forget the hashtags!

#

#

#

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#

Activity 54 – Food Waste

Teacher's Notes

Starter Activity: Beauty is in the Eye of the Beh	
Aim of the activity	The first task will encourage learners to think about waste str producers, not just households. The second part of the activi engage students with the lesson while relating Food Choice a one of the issues in food waste.
Teacher's instructions	Photocopy one worksheet per student and allow 10 minutes

Ideas:

Farmers: use waste for compost, sell for animal feed, change in variety of plant,
Food manufacturers: storage, better timing of deliveries, etc., improved process
Retailers: stock rotation, pricing, ordering, etc.
Catering: management of food orders, storage, menu planning
Households: menu planning, not overbuying, use of freezer

Beauty is in the Eye of the Beholder

Research has shown that up to 40% of edible fruit and veg is thrown
meet rigid criteria for shape, colour and size. What ideas can you th
amount for each of the different stakeholders?

Farmers:

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Food Manufacturers:

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Retailers:

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Catering:

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Households:

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'Ugly Veg' is now being sold cheaply in British supermarkets. In the sp
Ugly Veg cartoon characters that could be used in a campaign to e
take home these still-nutritious misshapes. Don't forget to use your k
the Food Marketing topic.

Activity 55 – Sustainability of

Teacher's Notes

Plenary Activity: Sustainable Food with Anarchy A	
Aim of the activity	Introduce and consolidate learning on the issues surrounding
Teacher's instructions	Photocopy one worksheet per student and allow 10 minutes starter activity, students can add information to their worksh sharing their findings with each other or the class at the end o

Suggested Answers:

Food security risks and factors preventing everyone from having eno

land, overpopulation, fewer resources (water, energy, farmland), climate change, politics, civil unrest, extreme weather events, extreme natural events, crop failur overfishing, bad land management

Ideas to improve food security:

education programmes, fair trade, pollution control, reduced waste and packagi subsidies, laws to protect land and ecology, planting schemes for diversity, crop r

Sustainable Food with Anarchy Aardvark

Silly Secret Squirrel has eaten too many chestnuts and is sleeping it o
winter. So it's me, Anarchy Aardvark setting you some crazy questio

The system is broken – we need to fix it! Having food security means
able to buy nutritious and affordable food in enough quantity when

TASK

Use the spaces below to write down what you think are the biggest
the world right now and what we can change.

For each thought shower, circle the most important factor. Now

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Activity 56 – Primary and Secondary Fo

Teacher's Notes

	Starter: Pass the Parcel
Aim of the activity	To Introduce the topics of primary and secondary processing.
Teacher's instructions	**Preparation:** Photocopy the question sheet and cut into question st in the box. Photocopy headings for group activity poster (this saves headings and helps to focus on the question). Either read out or discuss with the class a definition of primary and s written on the whiteboard or in notebooks. Then play the pass the parcel, getting the students to pass the box a primary or secondary. When the music stops then the student take their answer is secondary or primary. The question can be read out Use the answers each student selected to divide the class into two g Secondary Processing. Give each group a large sheet (suggest A2) o (quick) poster to answer their questions. They should stick their qu and answer around it. If the class is large then divide groups furthe questions as needed.

Suggested Answers:

Definition of Primary Processing:

Processing of food straight from harvest or slaughter so that it can be sold, eaten or mad

Definition of Secondary Processing:

Turning primary processed food into other products by mixing and processing with other

Teacher's Notes Continued

Pass the Parcel Answers

What word means earliest in time or order?
Slaughtering animals is a primary or secondary process?
Is milling wheat a primary or secondary process?
Sorting or grading into sizes is which process?
Discarding misshapen or damaged vegetables is…
This processing is preparing food for consumption
What type of processing is packaging apples?
Filleting fish is ----------
Pasteurising milk is what type of process?
Hanging meat to develop flavour is ---------- processing
This processing for poultry includes draining blood, and removing head, feet and feathers as
Sterilising milk is a ---------- process
Harvesting, cleaning and milling are ---------- processes for wheat
Washing vegetables removes soil, twigs and pesticides and is ----------
Adding identification stickers for shops and retail is ----------
Squid ink, carrots and spinach are added to make coloured pasta in…
This processing turns primary processed foods into other foods
What word refers to a stage after primary?
Making bread from flour is a ---------- process
Is cheese made by primary or secondary processing?
Boiling is a primary or secondary process?
Which process usually adds more financial value to food products?
Jam is made by what type of process?
Bread is made by what type of process?
Pasteurising yoghurt is what type of process?
Beetroot makes pasta purple in ---------- processing
A die can be used to make food shapes in ---------- processing
This type of processing is where ingredients come together
---------- processes include mixing, baking and combining
Adding bacteria to milk is what type of processing?

Types of primary processing methods:

sorting/grading, trimming, discarding, washing, wrapping/packaging, adding ID labels, sto
separation of skin/offal/blood from main carcass, filleting fish, skimming milk, pasteurisi
(milk), sterilising and filtering

How wheat is processed into flour:

harvest, thresh, mill (crush, sieve, reduce, sieve)

How milk is processed for sale:

skimming, heat treatment (homogenisation, pasteurisation), bottling

Secondary processing – How… is made:

Describe the processes used to make multicoloured pasta, jam or yoghurt:

Jam	Pasta	
Collect fruit, sort and grade for quality, ripeness, etc.	Mill durum wheat into semolina and wheat flour	M
Stew fruit with water to extract pectin	Add water (and sometimes egg) to make a dough	Mi
Add sugar, boil until mixture reaches 105 °C	Add other ingredients for colour	Mix
Pour jam into sterile containers, seal to prevent contamination	Roll dough for flat sheets or force through a die and press into shapes	
Allow to cool	Store and sell fresh or dry in special driers	Fl

Pass the Parcel – Questions

All answers are 'Primary' or 'Secondary'

What word means earliest in time or order?
Slaughtering animals is a primary or secondary process?
Is milling wheat a primary or secondary process?
Sorting or grading into sizes is which process?
Discarding misshapen or damaged vegetables is…
This processing is preparing food for consumption
What type of processing is packaging apples?
Filleting fish is ----------
Pasteurising milk is what type of process?
Hanging meat to develop flavour is ---------- processing
This processing for poultry includes draining blood, and removi feathers as well as internal organs
Sterilising milk is a ---------- process
Harvesting, cleaning and milling are ---------- processes for
Washing vegetables removes soil, twigs and pesticides and is
Adding identification stickers for shops and retail is ----------
Squid ink, carrots and spinach are added to make coloured p
This processing turns primary processed foods into other food
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Pass the Parcel – Stick-on Questions/Labels for

The Definition of Primary Pro
Types of Primary Processing M
How Wheat is Processed in
How Milk is Processed fo
The Definition of Secondary P
How Jam is Made..
How Yogurt is Made
How Pasta is Made.

Activity 57 – Technological Developm
Production

Teacher's Notes

	Starter Activity: What would you create?
Aim of the activity	A blue-sky thinking, fun exercise to introduce the concept of n
Teacher's instructions	Photocopy worksheet and allow 10 minutes of drawing, sketc other valid means of expression on the worksheet. Any ideas annotation using technical terms and food keywords. The ou differentiated by ability.

Ideas:

Food that…

- doesn't go off
- contains all vitamins and tastes great
- makes you taller
- cures illnesses
- can be grown anywhere
- can be stored anywhere
- makes you braver
- makes you smarter
- makes you healthier

Support students to discuss:

- **Fortification** – act of deliberately increasing micronutrients in food producti
- **The positive and negative effects of GM food products**

What would you create?

If you could create calorie-free chocolate you'd be a millionaire!

What other foods would you make in a magical world? Be creative this page in as many ideas as you can think of.

QUESTION
How do you think these new foods would be designed and made about commercial food production?

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