Topic Exploration Pack

Pastry

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ABC - This activity offers an
opportunity for English skills**123** - This activity offers an
opportunity for maths skills
developmentWhen distributing the Student Activity section to students either as a printed copy or as a Word file
you will need to remove the teacher instructions section.**123** - This activity offers an
opportunity for maths skills
development

Pastry explained

Definition

Pastry has many different uses, from savoury starters to delicious desserts. The ingredients and proportion of fat to flour affects the pastry and what it can be used for.

A wide variety of different pastries can be used to produce dishes using a vast range of skills, to develop differing flavours and textures.

Function and working characteristics of the main ingredients

Scientific explanation

The main ingredients used in pastry making are, flour, fat, water and a little salt.

Flour

Generally a soft flour with a low gluten content is used. The exceptions are choux pastry and flaky pastry. For these pastries, a high gluten content flour is used.

There are many important types of protein in flour.

There are two insoluble proteins called **gliadine** and **glutamine** which are important in baking. When they are mixed with a liquid a substance called **gluten** is formed. The amount of gluten in flour depends on its use.

Gluten is vital in baking because it is elastic enough to hold pockets of air in the mixture and strong enough to support the structure and stop the air escaping.

Fat

- Shortening: This term is used when rubbing in fat and flour. It gives a waterproof coating to the grains of flour, which prevent gluten in the flour from developing and forming long molecules and produces a short, crumbly texture.
- Plasticity: This term is used to describe the fact fats do not melt at fixed temperatures, but over a range. This property is called plasticity. It gives all fats unique character.

The plasticity is due to the mixture of triglycerides, each with its own melting point. Some products are formulated with fats with lower melting points so they can spread from the fridge, e.g. margarine.

Other fats have a higher melting point and are used for cooking, for example pastry.

- Flakiness: This term is used for flaky and puff pastry which use the fat to help separate layers of gluten and starch formed in the dough. This is called lamination. The fat melts during cooking, leaving minute layers. The liquid present produces steam which evaporates and causes the layers to rise. The fat prevents the layers sticking together.
- Water: Helps to bind flour and fat together to make a dough. In choux pastry water is converted to steam or water vapour, which acts as the raising agent. Salt: provides some flavouring.

The most common types of pastry are:

- Shortcrust
- Flaky/rough puff
- Choux

Different types of pastry use similar ingredients but are combined in different ratios using varied methods to produce a variety of textures and finishes.

Type of Pastry	Basic Recipe	Ratio of fat to flour	How fat is mixed	Texture quality
Shortcrust	200g plain flour	1:2	Fat is rubbed into	Light texture which
	100g hard fat mixture of margarine and white fat		flour	is crisp and short
	water			
Flaky/rough puff	200g strong flour	3:4	A ¼ of the fat is	Layers of crisp
	150g fat mixture of margarine and white fat		rubbed into the flour, water is added.	pastry
	2tsp lemon juice		Pastry rolled and	
	water		folded adding ¼ of the fat each time	
Choux	75g strong plain flour	1:3	Fat is melted in the water	Hollow inside, well risen with a crisp
	50g butter			texture
	2 eggs			
	125ml water			

Information about the main types of pastry

Useful links

http://www.bbcgoodfood.com/howto/guide/pieminister-top-10-pastry-making-tips

http://www.britishfood.com/

https://www.jusrol.co.uk/pastry-tips

Dough

In this section you will need to cover:

- The use of technical skills of shortening.
- How to roll out pastry.
- Create layers for example, palmiers.
- Ways of glazing dishes.
- Piping for example choux pastry.
- A range of finishing techniques for example, lattice and decorations.

Activity 1 Using different pastries to make a range of recipes

Ask your students to complete Student Activity 1 on page 15 by selecting a range of recipes which use each of the three types of pastry above. List the recipe and skill level required to make each different pastry item.

Activity 2 Functions of ingredients in shortcrust, flaky and choux pastry

Ask your students to complete Student Activity 2 by completing the key functions of ingredients when making three different types of pastry. Answers are shown below.

Ingredient	Shortcrust	Flaky	Choux
Flour	Why is plain flour used? Plain flour. Low gluten content to produce short crumby texture.	How is a crispy texture with flaky layers achieved? Strong plain flour. High gluten content to produce crispy, flaky layers.	Explain why is a flour with a high gluten content used? Strong plain flour. High gluten content which stretches to hold the expanding steam and air .
Fat	What function does fat have in pastry making? Use of hard margarine, white fat or butter Fat coats the flour granules to reduce the water mixing with the gluten.	What function does the fat have in this pastry? Mixture of white fat and margarine. Small pieces of fat are placed on the dough the fat traps air between the layers of dough.	Name the two fats used? Butter or margarine for flavour.
Water	What is the key function of water in pastry making? Binds the rubbed - in fat to the flour.	How is elastic dough achieved? Combines with gluten to form stretchy, elastic dough. Why is lemon juice added to this pastry? Lemon juice is added to strengthen the gluten.	Explain what happens when the flour is heated to 100 degrees? Boiled at 100°C so the heat causes the starch in flour to gelatinise. Mixes with flour to develop the gluten.

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Ingredient	Shortcrust	Flaky	Choux
Salt	Why is salt added? Helps develop the	What two reasons is salt added?	
	flavour.	Helps to develop the flavour and strengthen the gluten.	
Egg			What are two key functions of using egg in choux pastry?
			Helps to hold air in the starch mixture. Gives a smooth, glossy finish and aids piping of the mixture



Points to remember for making successful pastry

Keeping cool

When preparing pastry except for choux pastry it is most important that you keep everything cool including ingredients, utensils, hands and pastry.

Rolling out

- Rolling out any pastry carefully is important to create an even surface. The pastry needs to be as cool as possible.
- Rolling out should be undertaken on a lightly floured surface. Flour the rolling pin before rolling out.
- The pastry should be rolled in even strokes and then turn it through a quarter turn and continue rolling. Pastry should never be turned over.
- Choux pastry is not rolled out, but piped or spooned into the designed shapes. This illustrates a high level of skill.

Accurate weighing and measuring

Accurate weighing and measuring is essential to ensure consistency.

Baking blind

This term is used when you want to pre-cook a pastry case before adding the filling, for example, quiches and lemon meringue pie.

Heat oven to 180°C fan/gas 6. Fill the **pastry** case with a round of **baking** paper and add **baking** beans. **Bake** for 15 mins, then remove the paper and beans and **cook** the **pastry** for 5 mins more.

Useful links

How to make shortcrust pastry and bake it blind - www.youtube.com/watch?v=yzY4yh06bTY

How to blind bake pastry | BBC Good Food - <u>www.bbcgoodfood.com/videos/techniques/how-blind-bake-pastry</u>



Activity 3 Recognising faults when making pastry

Ask your students to complete Student Activity 3 by completing the chart of common faults with reasons when making pastry. Some faults have more than one reason. Here is the fault/reason list which is also in the student section; you may want students to complete the table on page 19 and 20 with or without the aid of this fact sheet.

Fault	Reason
Pastry is sticky and very soft making it difficult to handle.	A soft fat was used, for example, a margarine spread.
	Too much liquid was used.
	The mixture had been over handled.
Cooked pastry is dry, brittle and crumbly.	Not sufficient liquid was added.
Cooked pastry is hard and tough.	Pastry was handled too in the making.
	Too little fat was used.
	Pastry was over rolled.
	Too much water had been added and the gluten in the pastry was over developed.
Pastry is soft and oily when cooked.	The temperature of the oven was too low.
Pastry shrinks when it is cooking.	The stretched was stretched during the handling and rolling out
Pastry is soft and crumbly.	Too much was fat was used
	Too much baking powder, if this ingredient had been added.
	Not sufficient water was used.
Pastry blisters.	Fat not rubbed in sufficiently
	Too much water was used.
Pastry is very pale.	Not baked for a long enough time.
	Oven temperature was not hot enough.
Pastry is too dark.	Cooked too long.
	Oven temperature was too high.

Skills and finishes for making pastry dishes

There are a number of skills that can be used to create a range of attractive and exciting dishes.

- Create layers for example, palmiers
- Piping for example, choux pastry
- A range of finishing techniques for example, lattice and decorations.

Palmiers

Useful links

http://www.bbcgoodfood.com/videos/techniques/how-make-and-shape-palmier-biscuits

www.marthastewart.com/339389/palmiers

www.foodnetwork.com (for recipes and how to...)



Top tips for making palmiers

- Palmiers are made with puff pastry and some sugar.
- Use demerara or another coarse-grained sugar.
- Brown sugar or granulated sugar work well and make a sweeter palmier.

Folding and shaping the palmiers

- Fold the left and right sides of the pastry to the middle
- Fold the dough in half again length-wise

- Sandwich the first folds inside
- Cut into individual palmiers
- This is what gives the palmiers their distinctive "palm" or elephant-ear shape.



Different fillings can be explored to give a different taste



Sweet palmiers

You could add the following:

- cinnamon
- crystallized ginger
- lemon peel
- dried chopped fruits, for example currants, apricots
- cranberries, sultanas, cherries

Savoury Palmiers

pesto

- tapenade
- cheeses
- dried tomatoes

Choux pastry

Piping - useful links

Piping techniques – how to pipe choux cream puffs - <u>https://www.youtube.com/watch?v=d4JC-</u> EmOGZ4

Piping and baking choux buns – illustrated recipe – <u>http://www.bbc.co.uk/food/techniques/using_piping_bags</u>

Choux pastry - https://timetocookonline.com/2012/01/22/choux-pastry/



Choux pastry is made in a different way to other pastries although the basic ingredients are flour, margarine, water and egg.

Choux pastry has the lightest, crispiest, airiest texture.

It can be used to make profiteroles, éclairs or savoury gougères.

It puffs up in the oven until it

is set by the heat.

The airiness, is caused because choux pastry has a high water content, which is turned into steam during baking. Steam ,which is a gas (also known as water vapour) starts to be produced at 100°C.



This pushes the pastry shell outwards and gives it volume. Water vapour expands to 1,600 times its original volume and therefore it is an effective raising agent.



Top tips for making choux pastry.

Piping bags: Not compulsory. For choux buns, the batter can be spooned out using just a couple of teaspoons.

If you want a consistent appearance, you can use a piping bag with a plain or star shaped nozzled – 1cm diameter.

An alternative is a re-sealable freezer bag with the corner snipped

Strong plain flour is recommended as it has a higher gluten content, which gives crisper results than ordinary soft, plain flour.

Add the flour in one go while you beat the mixture using a wooden spoon, or an electric hand whisk will save you lots of energy and time.

Make sure the paste forms a soft ball in the saucepan.

Cool to blood heat $(37^{\circ}C)$ before adding the eggs and add a little at a time.

When the pastry is cooked, pierce the side of each one to let out the steam.



Cool on a wire rack.

Presentation and styling

As part of the Non Examined Assessment (NEA) Task 2, 25 marks are awarded for the presentation, finish and styling of the final dishes.

Useful links

https://www.jusrol.co.uk/pastry-tips/puff-pastry-pie-top

http://www.greatbritishchefs.com/search?search=pastry&type=How+to+cook+articles

http://www.onlinepastrytrainingschool.com

There are a number of ways to decorate and improve the appearance of your pastry dishes.

Short crust pastry is often used for a range of pie making.

These dishes can be made to look more appealing / attractive by having some type of decoration and / or finishing technique applied.

Glazing

Egg, milk or a mixture of both and sugar and water mixed are the key ingredients for glazing pastry dishes.

- Egg white
- Egg yolk
- Whole eggs
- Milk
- Water

- Sugar syrup
- Fruit glaze
- Fruit juice



They should be lightly brushed on the surface of the finished pastry dish before cooking.

The purpose of glazing gives the finished dish a glossy attractive look!

To provide a fabulous finish, glaze with an egg before putting it in the oven.

Milk or cream glaze provides finish.

Egg white glaze provides little

Beaten egg yolk glaze

Whole egg beaten provides a

Sugar syrup glazes provide a



a reddish brown colour with a flat

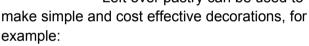
colour but a shiny finish.

provides a golden brown finish.

concentrated glossy golden finish.

shiny semi caramelised finish

Left over pastry can be used to





- hearts braids
- lattice strips

To personalise your dish you could create a name, birthday message or greeting.

Finishing techniques – these can also add a skill to your dish. For example:

- honeycomb pie crust
- crimping the edges
- making a pattern.

Activity 4: Pastry dishes can lack appeal: Ways to make pastry dishes

more appealing

Ask your students to complete Student Worksheet 4 on page 21 by suggesting ideas to improve the presentation and/or styling of pastry dishes.

Food science activity to support Task 1 – Food Investigation

Testing the strength of gluten.

Try this:

A squeeze test to test the strength of flour.

Is the flour soft or strong?

Squeeze some flour in the palm of your hand. If the flour holds together it is soft, if it falls apart it is strong.

Recipes and practical activities to support Task 2 – Food Preparation

Dishes using pastry

Useful links

www.jusrol.co.uk/pastry-recipes/

www.bbc.co.uk/food/recipes/shortcrustpastry_

https://www.bakingmad.com/pastry-recipes

- All day breakfast tartlets
- Spiced lamb and apricot filo pie
- Cheese Roquefort, celery and walnut tiny tartlets
- Pork, apple and mustard roll
- Savoury lattice pie with butternut squash , leek and ricotta
- Pizza puffs
- Mushroom and cheese parcels
- Cheese twist straws
- Sausage plait
- Weekend brunch egg brunch with spicy tomato salsa
- Pesto and roasted vegetable puff rounds
- Fish pie
- Spiced Pineapple puff ring tart
- Pear and walnut tart Tatin
- Cherry almond tart
- Honey and lavender panna cotta tartlets

- Multi-Cultural twist
- Baklava
- Mexican chicken fajita tart
- Chocolate, hazelnut and banana croissant

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GCSE (9–1) FOOD PREPARATION AND NUTRITION Student Activity Oxford Cambridge and RSA

Topic Exploration Pack

Pastry

Student Activity section

Activity 1 Using different pastries to make a range of recipes

Pastry	Three recipes	Justify skills Level High/Medium/Low
Short crust pastry	1	
	2	
	3	
Flaky/rough puff	1	
	2	
	3	
Choux	1	
	2	
	3	

Activity 2 Functions of ingredients in shortcrust, flaky and choux pastry

Ingredient	Shortcrust	Flaky	Choux
Flour	Why is plain flour used?	How is a crispy texture with flaky layers achieved?	Explain why a flour with a high gluten content is used.
Fat	What function does fat have in pastry making?	What function does the fat have in this pastry?	Name the two fats used?
Water	What is the key function of water in pastry making?	How is elastic dough achieved? Why is lemon juice added to this pastry?	Explain what happens when the flour is heated to 100°C.

Ingredient	Shortcrust	Flaky	Choux
Salt	Why is salt added?	Why is salt added? (Two reasons.)	
Egg			What are two key functions of using egg in choux pastry?

Key facts

Shortening: this term is used when rubbed in fat and flour gives a waterproof coating to the grains of flour, which prevent gluten in the flour from developing and produces a short, crumbly texture.

Choux pastry: is not rolled out but usually piped or spooned into desired shapes for example, eclairs and profiteroles.

Other types of pastry include:

Filo pastry: originally came from Greece.

Puff pastry: similar to flaky pastry which many people buy as chilled or frozen product as it is quick to use and saves a length preparation time.

Activity 3 Recognising faults when making pastry

There are a number of common faults which can occur when pastry making. Complete the chart below matching the fault with possible reasons.

Fault	Reasons
Pastry blisters.	
	Not sufficient liquid was added.
Cooked pastry is hard and tough.	
	The temperature of the oven was too low.
Pastry shrinks when it is cooking.	

Fault	Reasons
Pastry is soft and crumbly.	
	Fat not rubbed in sufficiently.
	Too much water was used.
	Not baked for a long enough time.
	Oven temperature was not hot enough.
Pastry is too dark.	

Activity 4 Pastry dishes can lack appeal: Ways that dishes can be improved

Complete the tables below, suggesting ways dishes can be made more appealing.

1. By **decorating and finishing** when preparing and cooking.

	Recipe/pastry type	Appeal
1	Cornish pasty/shortcrust.	Crimp and glaze.
2		
3		

2. By providing suitable **accompaniments** to enhance the dish.

	Recipe/pastry type	Appeal
1	Spring rolls/filo pastry.	Serve with green salad and lemon and mustard dressing.
2		
3		

	Recipe/pastry type	Appeal
4		

Activity 5 Practical application

Aims:

- To work in an organised and methodical manner following a recipe independently and accurately.
- To apply the correct method and skills within a practical lesson to make a pastry dish.

Cornish Pasty	Ingredients	Equipment
Method:	150 g plain flour	Scales
1. Prepare – work area, equipment and self.	75 g hard margarine and lard mixed	Two medium size mixing bowls Pastry brush
2. Pre-heat oven 200C/gas 6.	Pinch of salt	Chopping board
3. Sieve flour, salt in mixing bowl.	Approx 3 tbsp cold water to mix	Knife
4. Rub in fats until breadcrumb appearance. Make a well in middle	1 large potato – finely sliced or grated	Vegetable peeler
5. Add cold water – approx. 3	100g swede/ carrot – finely sliced or grated	Measuring jug
tbsp - stir with knife first then lightly with fingers.	125g beef – skirt or chuck steak, minced or finely chopped	Rolling pin Flour dredger
6. Draw mixture together to a soft dough on a lightly floured surface	1 medium onion – finely chopped	Fork
- knead until smooth.	Seasoning	Baking tray
 Wrap and leave in fridge to rest. 	Beaten egg / milk for glazing	
8. Cut meat into small cubes.		
 Finely slice/ grate swede, carrot,onion and potato. 		
10. Place all in mixing bowl and		

Cornish Pasty	Ingredients	Equipment
season well.		
11. Cut pastry in half, make into a ball. Roll each to 20cms diameter.		
12. Put equal amounts of filling in each. DO NOT OVER FILL.		
13 Brush edges of pastry with water.		
14 Fold pasty over mixture and seal together OR bring to the top and crimp.		
15 Glaze with egg and milk – make a 1cm slice in top.		
16 Bake in oven 200C/Gas 6.		
17 – If too brown reduce oven to 180C/Gas 4.		
18 Bake for 45 minutes approx.		

Top tips

- Leave pastry to rest in fridge to enable better handling.
- Add all the water but may need a little more to get to a soft dough.
- Use knife to stir the water into flour first, finish using fingers lightly.
- Crimp edges of pastry evenly by squeezing and folding edges.
- Use pointed knife to make a cm hole in top for steam to escape.
- Can be served hot or cold.
- Serve with a salad or range of colourful vegetables to add colour, texture and provide a balanced meal.

List skills to be used during the making	What skills are involved in the overall dish?	
	High	
	Medium	
	Low skill	
Costs of your pasties	Seasonality - pasty ingredients	How could you adapt the pasties
	Eg British Swede – winter months Local farmers market – onions August – November	 Sweet fillings – apple and cinnamon Apple turnovers – triangle shape
Food provenance of key ingredients		 Jam tarts Vegetarians Elaky pastry Chaose
Eg Beef – Scotland		 Flaky pastry - Cheese and onion filling Stilton and leek Smoked haddock and leek
		Multicultural flair
		 Add curry powder Filo pastry – spring rolls/ samosas